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# Report On

Specific Absorption Rate Testing of the  
Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band  
WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) &  
WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN,  
SRD(NFC,FeliCa) and GPS

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**REPORT ON**

Specific Absorption Rate Testing of the  
Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-  
band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900)  
& WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth,  
WLAN, SRD(NFC,FeliCa) and GPS

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## **SECTION 1**

### **REPORT SUMMARY**

Specific Absorption Rate Testing of the  
Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V),  
Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with  
Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS



## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Specific Absorption Rate Testing of the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS to the requirements of KDB 447498 – D01 v06 General RF Exposure Guidance.

|                               |                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Objective                     | To perform Specific Absorption Rate Testing to determine the Equipment Under Test's (EUT's) compliance with the requirements specified of KDB 447498 – D01 v05 General RF Exposure Guidance, for the series of tests carried out.                                                                                                                                                 |
| Applicant                     | Sharp Telecommunications of Europe Ltd                                                                                                                                                                                                                                                                                                                                            |
| Manufacturer                  | Sharp Corporation                                                                                                                                                                                                                                                                                                                                                                 |
| Manufacturing Description     | Mobile Handset                                                                                                                                                                                                                                                                                                                                                                    |
| Serial/IMEI Number(s)         | 004401115723591 (SAR Test: GSM/WCDMA/LTE)<br>004401115723625 (SAR Test: GSM/WCDMA/LTE)<br>004401115723641 (SAR Test: WLAN)<br>004401115723286 (Conducted: GSM)<br>004401115723385 (Conducted: WCDMA)<br>004401115723393 (Conducted: LTE FDD5)<br>004401115723252 (Conducted: LTE FDD13/17 & TDD38)<br>004401115723419 (Conducted: Bluetooth)<br>004401115723443 (Conducted: WLAN) |
| Number of Samples Tested      | 9                                                                                                                                                                                                                                                                                                                                                                                 |
| Hardware Version              | PP1                                                                                                                                                                                                                                                                                                                                                                               |
| Software Version              | C2090 - GSM/WCDMA/LTE<br>A2090 - WLAN                                                                                                                                                                                                                                                                                                                                             |
| Battery Cell Manufacturer     | Sharp Corporation                                                                                                                                                                                                                                                                                                                                                                 |
| Battery Model Number          | Integral                                                                                                                                                                                                                                                                                                                                                                          |
| Test Specification/Issue/Date | KDB 447498 – D01 v06 General RF Exposure Guidance                                                                                                                                                                                                                                                                                                                                 |
| Start of Test                 | 24 March 2016                                                                                                                                                                                                                                                                                                                                                                     |
| Finish of Test                | 21 April 2016                                                                                                                                                                                                                                                                                                                                                                     |
| Related Document(s)           | FCC 47CFR 2.1093: 2015<br>KDB 248227 – D01 v02r02<br>KDB 865664 – D01 v01r04<br>KDB 865664 – D02 v01r02<br>KDB 648474 – D04 v01r03<br>KDB 941225 – D01 v03r01<br>KDB 941225 – D06 v02r01<br>KDB 941225 – D05 v02r05<br>IEEE 1528-2013                                                                                                                                             |
| Name of Engineer(s)           | Nigel Grigsby<br>Michael Mawby                                                                                                                                                                                                                                                                                                                                                    |



## 1.2 BRIEF SUMMARY OF RESULTS

The measurements shown in this report were made in accordance with the procedures specified KDB 447498 – D01 v06.

### The maximum 1g volume averaged SAR found during this Assessment

|                                                                                                                                                                                       |                 |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| Max 1g SAR (W/kg) Head                                                                                                                                                                | 0.57 (Measured) | 0.63 (Scaled) |
| Max 1g SAR (W/kg) Body / Hotspot                                                                                                                                                      | 0.56 (Measured) | 0.70 (Scaled) |
| The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg. |                 |               |

### The maximum 1g volume averaged Stand-alone Reported SAR found during this Assessment for each supported mode, including highest simultaneous transmission results:

| Band                                                                                                                                                                                                                                         | Test Configuration | Max Reported Scaled SAR (W/kg) | Highest Simultaneous Transmission Scaled SAR (W/kg) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------|-----------------------------------------------------|
| GSM/GPRS 850                                                                                                                                                                                                                                 | Head               | 0.59                           | 0.89                                                |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.70                           |                                                     |
| WCDMA FDD V                                                                                                                                                                                                                                  | Head               | 0.54                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.58                           |                                                     |
| LTE Band 5                                                                                                                                                                                                                                   | Head               | 0.56                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.64                           |                                                     |
| LTE Band 13                                                                                                                                                                                                                                  | Head               | 0.55                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.54                           |                                                     |
| LTE Band 17                                                                                                                                                                                                                                  | Head               | 0.27                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.34                           |                                                     |
| PCS/GPRS 1900                                                                                                                                                                                                                                | Head               | 0.46                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.43                           |                                                     |
| LTE Band 38                                                                                                                                                                                                                                  | Head               | 0.63                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.51                           |                                                     |
| WLAN 2.4GHz                                                                                                                                                                                                                                  | Head               | 0.30                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.10                           |                                                     |
| WLAN 5GHz                                                                                                                                                                                                                                    | Head               | 0.11                           |                                                     |
|                                                                                                                                                                                                                                              | Body/Hotspot       | 0.09                           |                                                     |
| The maximum 1g volume averaged SAR level measured for all the tests performed (including simultaneous transmission analysis results) did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg. |                    |                                |                                                     |



### 1.3 PRODUCT TECHNICAL DESCRIPTION

Refer to Model Description APYHRO00234 Rev 4.0 document.

### 1.4 TEST RESULTS SUMMARY

#### 1.4.1 System Performance / Validation Check Results

Prior to formal testing being performed a System Check was performed in accordance with KDB 865664 and the results were compared against published data in Standard IEEE 1528-2003. The following results were obtained: -

##### System performance / Validation results

| Date       | Dipole Used | Frequency (MHz) | Max 1g SAR (W/kg)* | Percentage Drift on Reference |
|------------|-------------|-----------------|--------------------|-------------------------------|
| 24/03/2016 | 835         | 835             | 10.52              | 0.27%                         |
| 29/03/2016 | 835         | 835             | 10.40              | -0.84%                        |
| 30/03/2016 | 835         | 835             | 9.79               | -6.72%                        |
| 01/04/2016 | 835         | 835             | 9.89               | -5.73%                        |
| 13/04/2016 | 835         | 835             | 9.60               | 0.95%                         |
| 14/04/2016 | 835         | 835             | 9.40               | -1.16%                        |
| 24/03/2016 | 1900        | 1900            | 39.17              | 7.74%                         |
| 31/03/2016 | 1900        | 1900            | 39.34              | 8.20%                         |
| 15/04/2016 | 1900        | 1900            | 39.55              | -1.21%                        |
| 01/04/2016 | 700         | 700             | 8.36               | 6.68%                         |
| 04/04/2016 | 700         | 700             | 8.40               | 7.19%                         |
| 14/04/2016 | 700         | 700             | 7.60               | 1.52%                         |
| 15/04/2016 | 700         | 700             | 7.73               | 3.17%                         |
| 19/04/2016 | 2450        | 2450            | 52.40              | -4.24%                        |
| 19/04/2016 | 2450        | 2450            | 53.74              | 4.71%                         |
| 12/04/2016 | 2600        | 2600            | 54.09              | -5.56%                        |
| 15/04/2016 | 2600        | 2600            | 57.67              | 2.55%                         |
| 20/04/2016 | 5000        | 5200            | 75.40              | -1.43%                        |
| 20/04/2016 | 5000        | 5200            | 71.37              | -6.71%                        |

\*Normalised to a forward power of 1W



#### 1.4.2 Results Summary Tables

GSM 850MHz Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 824.2          | 128             | 32.25                          | 33.5                | 0.43                   | 0.57                 | Figure 6                  |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 824.2          | 128             | 32.25                          | 33.5                | 0.14                   | 0.19                 | Figure 7                  |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 824.2          | 128             | 32.25                          | 33.5                | 0.34                   | 0.45                 | Figure 8                  |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 824.2          | 128             | 32.25                          | 33.5                | 0.14                   | 0.19                 | Figure 9                  |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |

GSM 850MHz GPRS Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 824.2          | 128             | 30.33                          | 31.3                | 0.47                   | 0.59                 | Figure 10                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 824.2          | 128             | 30.33                          | 31.3                | 0.18                   | 0.23                 | Figure 11                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 824.2          | 128             | 30.33                          | 31.3                | 0.42                   | 0.53                 | Figure 12                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 824.2          | 128             | 30.33                          | 31.3                | 0.15                   | 0.19                 | Figure 13                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>The time slot configuration with the highest source-based time-averaged maximum output power was used for testing, this was 2x time slots. |                |                 |                                |                     |                        |                      |                           |



GSM 850MHz GPRS Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Front Facing | 824.2          | 128             | 30.33                          | 31.3                | 0.44                   | 0.55                 | Figure 14                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Rear Facing  | 824.2          | 128             | 30.33                          | 31.3                | 0.56                   | 0.70                 | Figure 15                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Right Edge   | 824.2          | 128             | 30.33                          | 31.3                | 0.48                   | 0.60                 | Figure 16                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Bottom Edge  | 824.2          | 128             | 30.33                          | 31.3                | 0.26                   | 0.33                 | Figure 17                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>The time slot configuration with the highest source-based time-averaged maximum output power was used for testing, this was 2x time slots. |              |                |                 |                                |                     |                        |                      |                           |

WCDMA FDDV Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4132           | 826.4           | 23.38                          | 24.2                | 0.45                   | 0.54                 | Figure 18                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4132           | 826.4           | 23.38                          | 24.2                | 0.17                   | 0.21                 | Figure 19                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4132           | 826.4           | 23.38                          | 24.2                | 0.36                   | 0.43                 | Figure 20                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4132           | 826.4           | 23.38                          | 24.2                | 0.13                   | 0.16                 | Figure 21                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>KDB 941225 D01 - Testing of the secondary mode was not required - When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is $\leq 1.2$ W/kg, SAR measurement is not required for the secondary mode. |                |                 |                                |                     |                        |                      |                           |



WCDMA FDDV Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Front Facing | 4132           | 826.4           | 23.38                          | 24.2                | 0.45                   | 0.54                 | Figure 22                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Rear Facing  | 4132           | 826.4           | 23.38                          | 24.2                | 0.48                   | 0.58                 | Figure 23                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Right Edge   | 4132           | 826.4           | 23.38                          | 24.2                | 0.47                   | 0.57                 | Figure 24                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom Edge  | 4132           | 826.4           | 23.38                          | 24.2                | 0.24                   | 0.29                 | Figure 25                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D01 - Testing of the secondary mode was not required - When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is $\leq 1.2\text{ W/kg}$ , SAR measurement is not required for the secondary mode. |              |                |                 |                                |                     |                        |                      |                           |

LTE Band 5 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 1 Resource Blocks, Low Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20450          | 829.0           | 23.07                          | 24.2                | 0.43                   | 0.56                 | Figure 26                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 20450          | 829.0           | 23.07                          | 24.2                | 0.13                   | 0.17                 | Figure 27                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20450          | 829.0           | 23.07                          | 24.2                | 0.36                   | 0.47                 | Figure 28                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 20450          | 829.0           | 23.07                          | 24.2                | 0.12                   | 0.16                 | Figure 29                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |



LTE Band 5 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 1 Resource Blocks, Low Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Front Facing | 20450          | 829.0           | 23.07                          | 24.2                | 0.46                   | 0.60                 | Figure 30                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rear Facing  | 20450          | 829.0           | 23.07                          | 24.2                | 0.45                   | 0.58                 | Figure 31                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Right Edge   | 20450          | 829.0           | 23.07                          | 24.2                | 0.49                   | 0.64                 | Figure 32                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bottom Edge  | 20450          | 829.0           | 23.07                          | 24.2                | 0.28                   | 0.36                 | Figure 33                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |

LTE Band 5 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 25 Resource Blocks, High Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20450          | 829.0           | 21.08                          | 23.2                | 0.34                   | 0.55                 | Figure 34                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 20450          | 829.0           | 21.08                          | 23.2                | 0.14                   | 0.23                 | Figure 35                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20450          | 829.0           | 21.08                          | 23.2                | 0.30                   | 0.49                 | Figure 36                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 20450          | 829.0           | 21.08                          | 23.2                | 0.14                   | 0.23                 | Figure 37                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |



LTE Band 5 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 25 Resource Blocks, High Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Front Facing | 20450          | 829.0           | 21.08                          | 23.2                | 0.34                   | 0.55                 | Figure 38                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rear Facing  | 20450          | 829.0           | 21.08                          | 23.2                | 0.35                   | 0.57                 | Figure 39                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Right Edge   | 20450          | 829.0           | 21.08                          | 23.2                | 0.36                   | 0.59                 | Figure 40                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bottom Edge  | 20450          | 829.0           | 21.08                          | 23.2                | 0.21                   | 0.34                 | Figure 41                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |

LTE Band 13 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 1 Resource Blocks, High Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23230          | 782.0           | 23.53                          | 24.2                | 0.47                   | 0.55                 | Figure 42                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 23230          | 782.0           | 23.53                          | 24.2                | 0.19                   | 0.22                 | Figure 43                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23230          | 782.0           | 23.53                          | 24.2                | 0.39                   | 0.46                 | Figure 44                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 23230          | 782.0           | 23.53                          | 24.2                | 0.21                   | 0.25                 | Figure 45                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |



LTE Band 13 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 1 Resource Blocks, High Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Front Facing | 23230          | 782.0           | 23.53                          | 24.2                | 0.41                   | 0.48                 | Figure 46                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rear Facing  | 23230          | 782.0           | 23.53                          | 24.2                | 0.40                   | 0.47                 | Figure 47                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Right Edge   | 23230          | 782.0           | 23.53                          | 24.2                | 0.46                   | 0.54                 | Figure 48                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bottom Edge  | 23230          | 782.0           | 23.53                          | 24.2                | 0.19                   | 0.22                 | Figure 49                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |

LTE Band 13 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 25 Resource Blocks, Mid Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23230          | 782.0           | 22.11                          | 23.2                | 0.34                   | 0.44                 | Figure 50                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 23230          | 782.0           | 22.11                          | 23.2                | 0.14                   | 0.18                 | Figure 51                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23230          | 782.0           | 22.11                          | 23.2                | 0.29                   | 0.37                 | Figure 52                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 23230          | 782.0           | 22.11                          | 23.2                | 0.13                   | 0.17                 | Figure 53                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |



LTE Band 13 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 25 Resource Blocks, Mid Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Front Facing | 23230          | 782.0           | 22.11                          | 23.2                | 0.30                   | 0.39                 | Figure 54                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rear Facing  | 23230          | 782.0           | 22.11                          | 23.2                | 0.29                   | 0.37                 | Figure 55                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Right Edge   | 23230          | 782.0           | 22.11                          | 23.2                | 0.33                   | 0.42                 | Figure 56                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bottom Edge  | 23230          | 782.0           | 22.11                          | 23.2                | 0.14                   | 0.18                 | Figure 57                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |

LTE Band 17 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 1 Resource Blocks, Low Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23790          | 710.0           | 23.47                          | 24.2                | 0.23                   | 0.27                 | Figure 58                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 23790          | 710.0           | 23.47                          | 24.2                | 0.10                   | 0.12                 | Figure 59                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23790          | 710.0           | 23.47                          | 24.2                | 0.20                   | 0.24                 | Figure 60                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 23790          | 710.0           | 23.47                          | 24.2                | 0.10                   | 0.12                 | Figure 61                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |



LTE Band 17 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 1 Resource Blocks, Low Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Front Facing | 23790          | 710.0           | 23.47                          | 24.2                | 0.29                   | 0.34                 | Figure 62                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rear Facing  | 23790          | 710.0           | 23.47                          | 24.2                | 0.29                   | 0.34                 | Figure 63                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Right Edge   | 23790          | 710.0           | 23.47                          | 24.2                | 0.19                   | 0.22                 | Figure 64                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bottom Edge  | 23790          | 710.0           | 23.47                          | 24.2                | 0.06                   | 0.07                 | Figure 65                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |

LTE Band 17 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 25 Resource Blocks, Mid Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23800          | 711.0           | 22.12                          | 23.2                | 0.21                   | 0.27                 | Figure 66                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 23800          | 711.0           | 22.12                          | 23.2                | 0.10                   | 0.13                 | Figure 67                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23800          | 711.0           | 22.12                          | 23.2                | 0.19                   | 0.24                 | Figure 68                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 23800          | 711.0           | 22.12                          | 23.2                | 0.10                   | 0.13                 | Figure 69                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |



LTE Band 17 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

10MHz Bandwidth, 25 Resource Blocks, Mid Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Front Facing | 23800          | 711.0           | 22.12                          | 23.2                | 0.25                   | 0.32                 | Figure 70                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rear Facing  | 23800          | 711.0           | 22.12                          | 23.2                | 0.24                   | 0.31                 | Figure 71                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Right Edge   | 23800          | 711.0           | 22.12                          | 23.2                | 0.14                   | 0.18                 | Figure 72                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bottom Edge  | 23800          | 711.0           | 22.12                          | 23.2                | 0.05                   | 0.06                 | Figure 73                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |

PCS 1900MHz Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1850.2         | 512             | 29.80                          | 30.5                | 0.14                   | 0.16                 | Figure 74                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1850.2         | 512             | 29.80                          | 30.5                | 0.16                   | 0.19                 | Figure 75                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1850.2         | 512             | 29.80                          | 30.5                | 0.29                   | 0.34                 | Figure 76                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1850.2         | 512             | 29.80                          | 30.5                | 0.14                   | 0.16                 | Figure 77                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$ |                |                 |                                |                     |                        |                      |                           |



PCS 1900MHz GPRS Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1909.8         | 810             | 27.63                          | 28.3                | 0.20                   | 0.23                 | Figure 78                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1909.8         | 810             | 27.63                          | 28.3                | 0.20                   | 0.23                 | Figure 79                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1909.8         | 810             | 27.63                          | 28.3                | 0.39                   | 0.46                 | Figure 80                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1909.8         | 810             | 27.63                          | 28.3                | 0.17                   | 0.20                 | Figure 81                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>The time slot configuration with the highest source-based time-averaged maximum output power was used for testing, this was 2x time slots. |                |                 |                                |                     |                        |                      |                           |

PCS 1900MHz GPRS Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Front Facing | 1909.8         | 810             | 27.63                          | 28.3                | 0.37                   | 0.43                 | Figure 82                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Rear Facing  | 1909.8         | 810             | 27.63                          | 28.3                | 0.33                   | 0.39                 | Figure 83                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Left Edge    | 1909.8         | 810             | 27.63                          | 28.3                | 0.29                   | 0.34                 | Figure 84                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Bottom Edge  | 1909.8         | 810             | 27.63                          | 28.3                | 0.24                   | 0.28                 | Figure 85                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>The time slot configuration with the highest source-based time-averaged maximum output power was used for testing, this was 2x time slots. |              |                |                 |                                |                     |                        |                      |                           |



LTE Band 38 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

20MHz Bandwidth, 1 Resource Blocks, Low Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 38000          | 2595.0          | 24.64                          | 24.7                | 0.03                   | 0.05                 | Figure 86                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 38000          | 2595.0          | 24.64                          | 24.7                | 0.03                   | 0.05                 | Figure 87                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 38000          | 2595.0          | 24.64                          | 24.7                | 0.03                   | 0.05                 | Figure 88                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 38000          | 2595.0          | 24.64                          | 24.7                | 0.01                   | 0.02                 | Figure 89                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |                |                 |                                |                     |                        |                      |                           |

LTE Band 38 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

20MHz Bandwidth, 1 Resource Blocks, Low Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Front Facing | 38000          | 2595.0          | 24.64                          | 24.7                | 0.02                   | 0.03                 | Figure 90                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rear Facing  | 38000          | 2595.0          | 24.64                          | 24.7                | 0.03                   | 0.05                 | Figure 91                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Left Edge    | 38000          | 2595.0          | 24.64                          | 24.7                | 0.02                   | 0.03                 | Figure 92                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Bottom Edge  | 38000          | 2595.0          | 24.64                          | 24.7                | 0.02                   | 0.03                 | Figure 93                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resou KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |



LTE Band 38 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

20MHz Bandwidth, 50 Resource Blocks, Low Offset.

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 38000          | 2595.0          | 23.24                          | 23.7                | 0.15                   | 0.17                 | Figure 94                 |
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 38000          | 2595.0          | 23.24                          | 23.7                | 0.15                   | 0.17                 | Figure 95                 |
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 38000          | 2595.0          | 23.24                          | 23.7                | 0.57                   | 0.63                 | Figure 96                 |
| Right 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 38000          | 2595.0          | 23.24                          | 23.7                | 0.01                   | 0.01                 | Figure 97                 |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |                |                 |                                |                     |                        |                      |                           |

LTE Band 38 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

20MHz Bandwidth, 50 Resource Blocks, Low Offset.

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Area scan (Figure number) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Position     |                |                 |                                |                     |                        |                      |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Front Facing | 38000          | 2595.0          | 23.24                          | 23.7                | 0.45                   | 0.50                 | Figure 98                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rear Facing  | 38000          | 2595.0          | 23.24                          | 23.7                | 0.46                   | 0.51                 | Figure 99                 |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Left Edge    | 38000          | 2595.0          | 23.24                          | 23.7                | 0.45                   | 0.50                 | Figure 100                |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bottom Edge  | 38000          | 2595.0          | 23.24                          | 23.7                | 0.35                   | 0.39                 | Figure 101                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB 941225 D05 - Largest channel bandwidth standalone SAR test requirements – 4.2.2. The requirements to test other resource block allocations and higher order modulations were not met. |              |                |                 |                                |                     |                        |                      |                           |



Product Service

WLAN 2412MHz Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

802.11b, 1 Mbps, DSSS – Antenna 0

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Left Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1              | 2412.0          | 9.48                           | 11                  | 0.21                   | 0.30                 | 0.30                            | Figure 102                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>KDB248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2 |                |                 |                                |                     |                        |                      |                                 |                           |

WLAN 2412MHz Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

802.11b, 1 Mbps, DSSS – Antenna 0

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Position |                |                 |                                |                     |                        |                      |                                 |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Top Edge | 1              | 2412.0          | 9.48                           | 11                  | 0.07                   | 0.10                 | 0.10                            | Figure 103                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2 |          |                |                 |                                |                     |                        |                      |                                 |                           |



Product Service

WLAN 2437MHz Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

802.11b, 1 Mbps, DSSS – Antenna 1

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6              | 2437.0          | 9.24                           | 11                  | 0.08                   | 0.12                 | 0.12                            | Figure 104                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>KDB248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2 |                |                 |                                |                     |                        |                      |                                 |                           |

WLAN 2437MHz Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS.

802.11b, 1 Mbps, DSSS – Antenna 1

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Position     |                |                 |                                |                     |                        |                      |                                 |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Front Facing | 6              | 2437.0          | 9.24                           | 11                  | 0.01                   | 0.01                 | 0.02                            | Figure 105                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB248227 D01 v02 - Testing was not required for OFDM as per Section 5.2.2<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2 |              |                |                 |                                |                     |                        |                      |                                 |                           |



Product Service

WLAN 5260MHz U-NII-2 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS. (NUA)

802.11a, 20MHz, 6 Mbps, OFDM – Antenna 0

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Left 15°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 52             | 5260.0          | 10.46                          | 12.0                | 0.05                   | 0.07                 | 0.08                            | Figure 106                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>KDB248227 D01 v02 - Testing was not required for U-NII-1 band as per Section 5.3.1 (a)<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2<br>KDB248227 D01 v02 - For OFDM transmission configurations where the same maximum output power is specified, testing was performed using the lowest order modulation, lowest order data rate and lowest order 802.11a/g/n/ac mode Section 2.1 (b) |                |                 |                                |                     |                        |                      |                                 |                           |

WLAN 5260MHz U-NII-2 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS. (NUA)

802.11a, 20MHz, 6 Mbps, OFDM – Antenna 0

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Position    |                |                 |                                |                     |                        |                      |                                 |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rear Facing | 52             | 5260.0          | 10.46                          | 12.00               | 0.06                   | 0.09                 | 0.09                            | Figure 107                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB248227 D01 v02 - Testing was not required for U-NII-1 band as per Section 5.3.1 (a)<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2<br>KDB248227 D01 v02 - For OFDM transmission configurations where the same maximum output power is specified, testing was performed using the lowest order modulation, lowest order data rate and lowest order 802.11a/g/n/ac mode Section 2.1 (b) |             |                |                 |                                |                     |                        |                      |                                 |                           |



Product Service

WLAN 5280MHz U-NII-2 Head Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS. (NUA)

802.11a, 20MHz, 6 Mbps, OFDM – Antenna 1

| Test Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Right Cheek                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 56             | 5280.0          | 11.5                           | 12.0                | 0.09                   | 0.10                 | 0.11                            | Figure 108                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>KDB248227 D01 v02 - Testing was not required for U-NII-1 band as per Section 5.3.1 (a)<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2<br>KDB248227 D01 v02 - For OFDM transmission configurations where the same maximum output power is specified, testing was performed using the lowest order modulation, lowest order data rate and lowest order 802.11a/g/n/ac mode Section 2.1 (b) |                |                 |                                |                     |                        |                      |                                 |                           |

WLAN 5280MHz U-NII-2 Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g Results for the Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS. (NUA)

802.11a, 20MHz, 6 Mbps, OFDM – Antenna 1

| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             | Channel Number | Frequency (MHz) | Measured Conducted Power (dBm) | Tune Up limit (dBm) | Measured 1g SAR (W/kg) | Scaled 1g SAR (W/kg) | Scaled Duty Cycle 1g SAR (W/kg) | Area scan (Figure number) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|-----------------|--------------------------------|---------------------|------------------------|----------------------|---------------------------------|---------------------------|
| Spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Position    |                |                 |                                |                     |                        |                      |                                 |                           |
| 10mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rear Facing | 56             | 5280.0          | 11.5                           | 12.0                | 0.01                   | 0.01                 | 0.01                            | Figure 109                |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)<br>KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:<br>$\leq 0.8\text{W/kg}$ when the transmission band is $\leq 100\text{MHz}$<br>$\leq 0.6\text{W/kg}$ when the transmission band is between 100MHz and 200MHz<br>$\leq 0.4\text{W/kg}$ when the transmission band is $\geq 200\text{MHz}$<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06<br>KDB248227 D01 v02 - Testing was not required for U-NII-1 band as per Section 5.3.1 (a)<br>KDB248227 D01 v02 - Only one position was tested as per Section 5.1.1<br>KDB248227 D01 v02 - A duty factor scaling was applied to the scaled SAR as per section 2.2<br>KDB248227 D01 v02 - For OFDM transmission configurations where the same maximum output power is specified, testing was performed using the lowest order modulation, lowest order data rate and lowest order 802.11a/g/n/ac mode Section 2.1 (b) |             |                |                 |                                |                     |                        |                      |                                 |                           |



### 1.4.3 Simultaneous Transmission

| Position                                 | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                       |                        |
| Left Cheek                               | 0.59                                                          | 0.30                                                                  | 0.89                   |
| Left 15°                                 | 0.23                                                          | -                                                                     | -                      |
| Right Cheek                              | 0.53                                                          | -                                                                     | -                      |
| Right 15°                                | 0.19                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.55                                                          | -                                                                     | -                      |
| Rear Facing                                                                                                                                    | 0.70                                                          | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                             | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.60                                                          | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                             | 0.10                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.33                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                       |                        |
| Left Cheek                               | 0.59                                                          | -                                                                     | -                      |
| Left 15°                                 | 0.23                                                          | -                                                                     | -                      |
| Right Cheek                              | 0.53                                                          | 0.12                                                                  | 0.65                   |
| Right 15°                                | 0.19                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.55                                                          | 0.02                                                                  | 0.57                   |
| Rear Facing                                                                                                                                    | 0.70                                                          | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                             | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.60                                                          | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                             | -                                                                     | -                      |
| Bottom Edge                                                                                                                                    | 0.33                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                    |                        |
| Left Cheek                               | 0.59                                                          | -                                                                  | -                      |
| Left 15°                                 | 0.23                                                          | 0.08                                                               | 0.31                   |
| Right Cheek                              | 0.53                                                          | -                                                                  | -                      |
| Right 15°                                | 0.19                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.55                                                          | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.70                                                          | 0.09                                                               | 0.79                   |
| Left Edge                                                                                                                                      | -                                                             | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.60                                                          | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                             | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.33                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                 | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                    |                        |
| Left Cheek                               | 0.59                                                          | -                                                                  | -                      |
| Left 15°                                 | 0.23                                                          | -                                                                  | -                      |
| Right Cheek                              | 0.53                                                          | 0.11                                                               | 0.64                   |
| Right 15°                                | 0.19                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | GPRS 850MHz<br>1g SAR (W/kg)<br>CH 128<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.55                                                          | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.70                                                          | 0.01                                                               | 0.71                   |
| Left Edge                                                                                                                                      | -                                                             | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.60                                                          | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                             | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.33                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                       |                        |
| Left Cheek                               | 0.54                                                          | 0.30                                                                  | 0.84                   |
| Left 15°                                 | 0.21                                                          | -                                                                     | -                      |
| Right Cheek                              | 0.43                                                          | -                                                                     | -                      |
| Right 15°                                | 0.16                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.54                                                          | -                                                                     | -                      |
| Rear Facing                                                                                                                                    | 0.58                                                          | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                             | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.57                                                          | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                             | 0.10                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.29                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                       |                        |
| Left Cheek                               | 0.54                                                          | -                                                                     | -                      |
| Left 15°                                 | 0.21                                                          | -                                                                     | -                      |
| Right Cheek                              | 0.43                                                          | 0.12                                                                  | 0.55                   |
| Right 15°                                | 0.16                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.54                                                          | 0.02                                                                  | 0.56                   |
| Rear Facing                                                                                                                                    | 0.58                                                          | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                             | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.57                                                          | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                             | -                                                                     | -                      |
| Bottom Edge                                                                                                                                    | 0.29                                                          | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                 | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                    |                        |
| Left Cheek                               | 0.54                                                          | -                                                                  | -                      |
| Left 15°                                 | 0.21                                                          | 0.08                                                               | 0.29                   |
| Right Cheek                              | 0.43                                                          | -                                                                  | -                      |
| Right 15°                                | 0.16                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.54                                                          | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.58                                                          | 0.09                                                               | 0.67                   |
| Left Edge                                                                                                                                      | -                                                             | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.57                                                          | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                             | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.29                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                               |                                                                    |                        |
| Left Cheek                               | 0.54                                                          | -                                                                  | -                      |
| Left 15°                                 | 0.21                                                          | -                                                                  | -                      |
| Right Cheek                              | 0.43                                                          | 0.10                                                               | 0.53                   |
| Right 15°                                | 0.16                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | WCDMA FDDV<br>1g SAR (W/kg)<br>CH 4132<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                               |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.54                                                          | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.58                                                          | 0.01                                                               | 0.59                   |
| Left Edge                                                                                                                                      | -                                                             | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.57                                                          | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                             | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.29                                                          | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                               |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                     |                                                                       |                        |
| Left Cheek                               | 0.56                                                                | 0.30                                                                  | 0.86                   |
| Left 15°                                 | 0.17                                                                | -                                                                     | -                      |
| Right Cheek                              | 0.47                                                                | -                                                                     | -                      |
| Right 15°                                | 0.16                                                                | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                     |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                     |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.60                                                                | -                                                                     | -                      |
| Rear Facing                                                                                                                                    | 0.58                                                                | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                                   | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.64                                                                | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                                   | 0.10                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.36                                                                | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                     |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                 | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                     |                                                                       |                        |
| Left Cheek                               | 0.56                                                                | -                                                                     | -                      |
| Left 15°                                 | 0.17                                                                | -                                                                     | -                      |
| Right Cheek                              | 0.47                                                                | 0.12                                                                  | 0.59                   |
| Right 15°                                | 0.16                                                                | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                     |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                     |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.60                                                                | 0.02                                                                  | 0.62                   |
| Rear Facing                                                                                                                                    | 0.58                                                                | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                                   | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.64                                                                | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                                   | -                                                                     | -                      |
| Bottom Edge                                                                                                                                    | 0.36                                                                | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                     |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                     |                                                                    |                        |
| Left Cheek                               | 0.56                                                                | -                                                                  | -                      |
| Left 15°                                 | 0.17                                                                | 0.08                                                               | 0.25                   |
| Right Cheek                              | 0.47                                                                | -                                                                  | -                      |
| Right 15°                                | 0.16                                                                | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                     |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                     |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.60                                                                | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.58                                                                | 0.09                                                               | 0.67                   |
| Left Edge                                                                                                                                      | -                                                                   | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.64                                                                |                                                                    | -                      |
| Top Edge                                                                                                                                       | -                                                                   | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.36                                                                | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                     |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                     |                                                                    |                        |
| Left Cheek                               | 0.56                                                                | -                                                                  | -                      |
| Left 15°                                 | 0.17                                                                | -                                                                  | -                      |
| Right Cheek                              | 0.47                                                                | 0.11                                                               | 0.58                   |
| Right 15°                                | 0.16                                                                | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                     |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 5, 1RB<br>1g SAR (W/kg)<br>CH 20450<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                     |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.60                                                                | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.58                                                                | 0.01                                                               | 0.59                   |
| Left Edge                                                                                                                                      | -                                                                   | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.64                                                                | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                                   | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.36                                                                | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                     |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Product Service

| Position                                 | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                       |                        |
| Left Cheek                               | 0.55                                                                 | 0.30                                                                  | 0.85                   |
| Left 15°                                 | 0.22                                                                 | -                                                                     | -                      |
| Right Cheek                              | 0.46                                                                 | -                                                                     | -                      |
| Right 15°                                | 0.25                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.48                                                                 | -                                                                     | -                      |
| Rear Facing                                                                                                                                    | 0.47                                                                 | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                                    | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.54                                                                 | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                                    | 0.10                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.22                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                       |                        |
| Left Cheek                               | 0.55                                                                 | -                                                                     | -                      |
| Left 15°                                 | 0.22                                                                 | -                                                                     | -                      |
| Right Cheek                              | 0.46                                                                 | 0.12                                                                  | 0.58                   |
| Right 15°                                | 0.25                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.48                                                                 | 0.02                                                                  | 0.50                   |
| Rear Facing                                                                                                                                    | 0.47                                                                 | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                                    | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.54                                                                 | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                                    | -                                                                     | -                      |
| Bottom Edge                                                                                                                                    | 0.22                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                    |                        |
| Left Cheek                               | 0.55                                                                 | -                                                                  | -                      |
| Left 15°                                 | 0.22                                                                 | 0.08                                                               | 0.30                   |
| Right Cheek                              | 0.46                                                                 | -                                                                  | -                      |
| Right 15°                                | 0.25                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.48                                                                 | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.47                                                                 | 0.09                                                               | 0.56                   |
| Left Edge                                                                                                                                      | -                                                                    | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.54                                                                 | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                                    | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.22                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                 | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                    |                        |
| Left Cheek                               | 0.55                                                                 | -                                                                  | -                      |
| Left 15°                                 | 0.22                                                                 | -                                                                  | -                      |
| Right Cheek                              | 0.46                                                                 | 0.11                                                               | 0.57                   |
| Right 15°                                | 0.25                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 13, 1RB<br>1g SAR (W/kg)<br>CH 23230<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.48                                                                 | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.47                                                                 | 0.01                                                               | 0.48                   |
| Left Edge                                                                                                                                      | -                                                                    | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.54                                                                 | -                                                                  | -                      |
| Top Edge                                                                                                                                       |                                                                      | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.22                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                       |                        |
| Left Cheek                               | 0.27                                                                 | 0.30                                                                  | 0.57                   |
| Left 15°                                 | 0.12                                                                 | -                                                                     | -                      |
| Right Cheek                              | 0.24                                                                 | -                                                                     | -                      |
| Right 15°                                | 0.12                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.34                                                                 | -                                                                     | -                      |
| Rear Facing                                                                                                                                    | 0.34                                                                 | -                                                                     | -                      |
| Left Edge                                                                                                                                      |                                                                      | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.22                                                                 | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                                    | 0.10                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.07                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                       |                        |
| Left Cheek                               | 0.27                                                                 | -                                                                     | -                      |
| Left 15°                                 | 0.12                                                                 | -                                                                     | -                      |
| Right Cheek                              | 0.24                                                                 | 0.12                                                                  | 0.36                   |
| Right 15°                                | 0.12                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.34                                                                 | 0.02                                                                  | 0.36                   |
| Rear Facing                                                                                                                                    | 0.34                                                                 | -                                                                     | -                      |
| Left Edge                                                                                                                                      | -                                                                    | -                                                                     | -                      |
| Right Edge                                                                                                                                     | 0.22                                                                 | -                                                                     | -                      |
| Top Edge                                                                                                                                       |                                                                      | -                                                                     | -                      |
| Bottom Edge                                                                                                                                    | 0.07                                                                 | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                 | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                    |                        |
| Left Cheek                               | 0.27                                                                 | -                                                                  | -                      |
| Left 15°                                 | 0.12                                                                 | 0.08                                                               | 0.20                   |
| Right Cheek                              | 0.24                                                                 | -                                                                  | -                      |
| Right 15°                                | 0.12                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.34                                                                 | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.34                                                                 | 0.09                                                               | 0.43                   |
| Left Edge                                                                                                                                      | -                                                                    | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.22                                                                 | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                                    | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.07                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                      |                                                                    |                        |
| Left Cheek                               | 0.27                                                                 | -                                                                  | -                      |
| Left 15°                                 | 0.12                                                                 | -                                                                  | -                      |
| Right Cheek                              | 0.24                                                                 | 0.11                                                               | 0.35                   |
| Right 15°                                | 0.12                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | LTE Band 17, 1RB<br>1g SAR (W/kg)<br>CH 23790<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                      |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.34                                                                 | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.34                                                                 | 0.01                                                               | 0.35                   |
| Left Edge                                                                                                                                      | -                                                                    | -                                                                  | -                      |
| Right Edge                                                                                                                                     | 0.22                                                                 | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                                    | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.07                                                                 | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                      |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | GPRS 1900<br>1g SAR (W/kg)<br>CH 512<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                             |                                                                       |                        |
| Left Cheek                               | 0.23                                                        | 0.30                                                                  | 0.53                   |
| Left 15°                                 | 0.23                                                        | -                                                                     | -                      |
| Right Cheek                              | 0.46                                                        | -                                                                     | -                      |
| Right 15°                                | 0.20                                                        | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                             |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | GPRS 1900<br>1g SAR (W/kg)<br>CH 810<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                             |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.43                                                        | -                                                                     | -                      |
| Rear Facing                                                                                                                                    | 0.39                                                        | -                                                                     | -                      |
| Left Edge                                                                                                                                      | 0.34                                                        | -                                                                     | -                      |
| Right Edge                                                                                                                                     | -                                                           | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                           | 0.10                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.28                                                        | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                             |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Product Service

| Position                                 | GPRS 1900<br>1g SAR (W/kg)<br>CH 512<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                             |                                                                       |                        |
| Left Cheek                               | 0.23                                                        | -                                                                     | -                      |
| Left 15°                                 | 0.23                                                        | -                                                                     | -                      |
| Right Cheek                              | 0.46                                                        | 0.12                                                                  | 0.58                   |
| Right 15°                                | 0.20                                                        | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                             |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | GPRS 1900<br>1g SAR (W/kg)<br>CH 810<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                             |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.43                                                        | 0.02                                                                  | 0.45                   |
| Rear Facing                                                                                                                                    | 0.39                                                        | -                                                                     | -                      |
| Left Edge                                                                                                                                      | 0.34                                                        | -                                                                     | -                      |
| Right Edge                                                                                                                                     | -                                                           | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                           | -                                                                     | -                      |
| Bottom Edge                                                                                                                                    | 0.28                                                        | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                             |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | GPRS 1900<br>1g SAR (W/kg)<br>CH 512<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                             |                                                                    |                        |
| Left Cheek                               | 0.23                                                        | -                                                                  | -                      |
| Left 15°                                 | 0.23                                                        | 0.08                                                               | 31                     |
| Right Cheek                              | 0.46                                                        | -                                                                  | -                      |
| Right 15°                                | 0.20                                                        | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                             |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Product Service

| Position                                                                                                                                       | GPRS 1900<br>1g SAR (W/kg)<br>CH 810<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                             |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.43                                                        | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.39                                                        | 0.09                                                               | 0.48                   |
| Left Edge                                                                                                                                      | 0.34                                                        | -                                                                  | -                      |
| Right Edge                                                                                                                                     | -                                                           | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                           | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.28                                                        | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                             |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | GPRS 1900<br>1g SAR (W/kg)<br>CH 512<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                             |                                                                    |                        |
| Left Cheek                               | 0.23                                                        | -                                                                  | -                      |
| Left 15°                                 | 0.23                                                        | -                                                                  | -                      |
| Right Cheek                              | 0.46                                                        | 0.11                                                               | 0.57                   |
| Right 15°                                | 0.20                                                        | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                             |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | GPRS 1900<br>1g SAR (W/kg)<br>CH 810<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                             |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.43                                                        | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.39                                                        | 0.01                                                               | 0.40                   |
| Left Edge                                                                                                                                      | 0.34                                                        | -                                                                  | -                      |
| Right Edge                                                                                                                                     | -                                                           | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                           | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.28                                                        | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                             |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                 | LTE Band 38,<br>50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                          |                                                                       |                        |
| Left Cheek                               | 0.17                                                                     | 0.30                                                                  | 0.47                   |
| Left 15°                                 | 0.17                                                                     | -                                                                     | -                      |
| Right Cheek                              | 0.63                                                                     | -                                                                     | -                      |
| Right 15°                                | 0.01                                                                     | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                          |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 38,<br>50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                          |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.50                                                                     | -                                                                     | -                      |
| Rear Facing                                                                                                                                    | 0.51                                                                     | -                                                                     | -                      |
| Left Edge                                                                                                                                      | 0.50                                                                     | -                                                                     | -                      |
| Right Edge                                                                                                                                     | -                                                                        | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                                        | 0.10                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.39                                                                     | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                          |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 38,<br>50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Head                                     |                                                                          |                                                                       |                        |
| Left Cheek                               | 0.17                                                                     | -                                                                     | -                      |
| Left 15°                                 | 0.17                                                                     | -                                                                     | -                      |
| Right Cheek                              | 0.63                                                                     | 0.12                                                                  | 0.75                   |
| Right 15°                                | 0.01                                                                     | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                          |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                                                                                                                       | LTE Band 38, 50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values) | WLAN 2.4GHz<br>1g SAR (W/kg)<br>CH 1 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                       |                                                                       |                        |
| Front Facing                                                                                                                                   | 0.50                                                                  | 0.02                                                                  | 0.52                   |
| Rear Facing                                                                                                                                    | 0.51                                                                  | -                                                                     | -                      |
| Left Edge                                                                                                                                      | 0.50                                                                  | -                                                                     | -                      |
| Right Edge                                                                                                                                     | -                                                                     | -                                                                     | -                      |
| Top Edge                                                                                                                                       | -                                                                     | -                                                                     | -                      |
| Bottom Edge                                                                                                                                    | 0.39                                                                  | -                                                                     | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                       |                                                                       |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                 | LTE Band 38, 50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                       |                                                                    |                        |
| Left Cheek                               | 0.17                                                                  | -                                                                  | -                      |
| Left 15°                                 | 0.17                                                                  | 0.08                                                               | 0.25                   |
| Right Cheek                              | 0.63                                                                  | -                                                                  | -                      |
| Right 15°                                | 0.01                                                                  | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                       |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 38, 50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 52 Antenna 0<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                       |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.50                                                                  | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.51                                                                  | 0.09                                                               | 0.60                   |
| Left Edge                                                                                                                                      | 0.50                                                                  | -                                                                  | -                      |
| Right Edge                                                                                                                                     | -                                                                     | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                                     | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.39                                                                  | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                       |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



| Position                                 | LTE Band 38, 50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values)) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Head                                     |                                                                        |                                                                    |                        |
| Left Cheek                               | 0.17                                                                   | -                                                                  | -                      |
| Left 15°                                 | 0.17                                                                   | -                                                                  | -                      |
| Right Cheek                              | 0.63                                                                   | 0.11                                                               | 0.74                   |
| Right 15°                                | 0.01                                                                   | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01 |                                                                        |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

| Position                                                                                                                                       | LTE Band 38, 50RB<br>1g SAR (W/kg)<br>CH 38000<br>(Scaled SAR values) | U-NII-2<br>1g SAR (W/kg)<br>CH 56 Antenna 1<br>(Scaled SAR values) | $\Sigma$ 1g SAR (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Body                                                                                                                                           |                                                                       |                                                                    |                        |
| Front Facing                                                                                                                                   | 0.50                                                                  | -                                                                  | -                      |
| Rear Facing                                                                                                                                    | 0.51                                                                  | 0.01                                                               | 0.52                   |
| Left Edge                                                                                                                                      | 0.50                                                                  | -                                                                  | -                      |
| Right Edge                                                                                                                                     | -                                                                     | -                                                                  | -                      |
| Top Edge                                                                                                                                       | -                                                                     | -                                                                  | -                      |
| Bottom Edge                                                                                                                                    | 0.39                                                                  | -                                                                  | -                      |
| Simultaneous Transmission KDB 447498 D01<br>Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06 |                                                                       |                                                                    |                        |

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

#### 1.4.4 Standalone SAR Estimation

When the standalone SAR test exclusion of section 4.3.1 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to determine simultaneous transmission SAR test exclusion. The estimated SAR is only used to determine simultaneous transmission SAR test exclusion. When SAR is estimated, it must be applied to determine the sum of 1-g SAR test exclusion. When SAR to peak location separation ratio test exclusion is applied, the highest reported SAR for simultaneous transmission can be an estimated standalone SAR if the estimated SAR is the highest among the simultaneously transmitting antennas (see KDB 690783).

$(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / 7.5] \text{ W/kg}$  for test separation distances  $\leq 50 \text{ mm}$ ;

where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR

when the minimum test separation distance is  $< 5 \text{ mm}$ , a distance of  $5 \text{ mm}$  is applied.



Product Service

## Bluetooth Head SAR Estimation

| Frequency (MHz) | Maximum Power (mW) | Distance (mm) | Estimated SAR (W/kg) |
|-----------------|--------------------|---------------|----------------------|
| 2450.0          | 5.01               | 5             | 0.209                |

## Bluetooth Body SAR Estimation

| Frequency (MHz) | Maximum Power (mW) | Distance (mm) | Estimated SAR (W/kg) |
|-----------------|--------------------|---------------|----------------------|
| 2450.0          | 5.01               | 10            | 0.105                |



## 1.5 PRODUCT INFORMATION

### 1.5.1 Technical Description

The equipment under test (EUT) was a Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V), Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS. A full technical description can be found in the manufacturer's documentation.

### 1.5.2 Test Configuration and Modes of Operation

The testing was performed with an integral battery manufactured by Sharp Corporation.

For head SAR assessment, testing was performed with the device in the declared normal position of operation for GSM 850MHz, PCS 1900MHz, WCDMA FDDV, LTE Band 5, 13, 17, 38, WLAN 2.4GHz and WLAN 5GHz frequency bands at maximum power. The device was placed against a Specific Anthropomorphic Mannequin (SAM) phantom. The phantom was filled with simulant liquid appropriate to the frequency band. The dielectric properties were measured and found to be in accordance with the requirements for the dielectric properties specified in KDB 865665. Testing was performed at both the left and right ear of the phantom at both handset positions stated in the applied specification.

For body SAR assessment, testing was performed for GSM 850MHz, PCS 1900MHz, WCDMA FDDV, LTE Band 5, 13, 17, 38, WLAN 2.4GHz and WLAN 5GHz frequency bands at maximum power. The device was placed at a distance of 10 mm from the bottom of the flat phantom for all body testing. The Flat Phantom dimensions were 245mm x 195mm x 200mm with a sidewall thickness of 2.00mm. The phantom was filled to a minimum depth of 150mm with the appropriate Body simulant liquid. The dielectric properties were in accordance with the requirements specified in KDB 865665. As the device is capable of hotspot configuration a 10mm separation distance was used to meet the requirements of KDB 941225 D06 Hotspot.

Testing was performed in each position at the frequency that gave the highest output power for each band. For all bands all scaled SAR levels were found to be  $<0.80$  W/kg (KDB 447498 D01) therefore no additional testing was required at the relevant frequencies / channels of the bands. WLAN testing was achieved using the devices internal software, customer supplied software and settings supplied by the customer. The worst case data rate for WLAN testing was obtained from data provided by TUV. The worst case was deemed as the data rate which produced the highest level of conducted average power. For 2.4GHz WLAN this was 802.11b 1Mbps. Testing was not required for OFDM transmission configurations as the requirements of KDB 248227 D01v02r02 Section 5.2.2 were met. For 5GHz WLAN this was 802.11a 6Mbps. For OFDM transmission configurations where the same maximum output power is specified, testing was performed using the lowest order modulation, lowest order data rate and lowest order 802.11a/g/n/ac mode as per KDB 248227 D01 v02r02 clause 2.1(b). SAR was not required for U-NII-1 band as the highest reported SAR is  $\leq 1.2$  W/kg in the U-NII-2A band as per KDB 248227 D01v02r02 Section 5.3.1(a).

Included in this report are descriptions of the test method; the equipment used and an analysis of the test uncertainties applicable and diagrams indicating the locations of maximum SAR for each test position along with photographs indicating the positioning of the handset against the body as appropriate.



### VoLTE Power Measurements

Standalone LTE SAR evaluation against the head was performed using the same RMC data mode to that used against the head. The justification for this being that the results shown in the following tables demonstrate that the power is no higher in a VoLTE call when compared to the same configuration using an RMC data connection. Measurements giving the highest conducted power result for each frequency band, bandwidth, modulation and resource block configurations were repeated with EUT in a VoLTE call.

### VoLTE Comparison Measurements

#### Band 5 – 10 MHz – QPSK

| Resource Block Allocation | Resource Block Offset | Channel | Resource Block Offset | Carrier Power (dBm) |       |                 |
|---------------------------|-----------------------|---------|-----------------------|---------------------|-------|-----------------|
|                           |                       |         |                       | RMC                 | VoLTE | Difference (dB) |
| 1                         | Low                   | Bottom  | Low                   | 23.07               | 22.85 | -0.22           |
| 25                        | Mid                   | Bottom  | Mid                   | 21.80               | 21.76 | -0.04           |

#### Band 13 – 10 MHz – QPSK

| Resource Block Allocation | Resource Block Offset | Channel | Resource Block Offset | Carrier Power (dBm) |       |                 |
|---------------------------|-----------------------|---------|-----------------------|---------------------|-------|-----------------|
|                           |                       |         |                       | RMC                 | VoLTE | Difference (dB) |
| 1                         | Low                   | Bottom  | High                  | 23.53               | 23.25 | -0.28           |
| 25                        | Mid                   | Middle  | Mid                   | 22.11               | 21.86 | -0.25           |

#### Band 17 – 10 MHz – QPSK

| Resource Block Allocation | Resource Block Offset | Channel | Resource Block Offset | Carrier Power (dBm) |       |                 |
|---------------------------|-----------------------|---------|-----------------------|---------------------|-------|-----------------|
|                           |                       |         |                       | RMC                 | VoLTE | Difference (dB) |
| 1                         | Low                   | Middle  | Low                   | 23.47               | 22.91 | -0.56           |
| 25                        | Mid                   | Middle  | Mid                   | 22.12               | 21.86 | -0.26           |

#### Band 38 – 10 MHz – QPSK

| Resource Block Allocation | Resource Block Offset | Channel | Resource Block Offset | Carrier Power (dBm) |       |                 |
|---------------------------|-----------------------|---------|-----------------------|---------------------|-------|-----------------|
|                           |                       |         |                       | RMC                 | VoLTE | Difference (dB) |
| 1                         | Low                   | Middle  | Low                   | 24.64               | 23.38 | -1.26           |



Product Service

VoLTE Configuration: AMR NB 5.99 kbps – Mode 2

Temperature: 24.9 °C Humidity: 24.2 %

| Instrument Description              | Manufacturer         | Model Type | TE Number | Cal Period (months) | Calibration Due Date |
|-------------------------------------|----------------------|------------|-----------|---------------------|----------------------|
| Power Splitter                      | Weinschel            | 1506A      | 607       | 12                  | 31-Mar-2017          |
| Programmable Power Supply           | Iso-tech             | IPS 2010   | 2437      | -                   | O/P Mon              |
| Network Analyser                    | Rohde & Schwarz      | ZVA 40     | 3548      | 12                  | 02-Sep-2016          |
| P-Series Power Meter                | Agilent Technologies | N1911A     | 3980      | 12                  | 25-Sep-2016          |
| 50 MHz-18 GHz Wideband Power Sensor | Agilent Technologies | N1921A     | 3982      | 12                  | 25-Sep-2016          |
| Calibration Unit                    | Rohde & Schwarz      | ZV-Z54     | 4368      | 12                  | 07-Sep-2016          |
| PayPass Mobile Sample               | Samsung              | Galaxy S4  | 4536      | -                   | TU                   |

TU – Traceability Unscheduled

O/P Mon – Output monitored using calibrated equipment.



## 1.6 FCC POWER MEASUREMENTS

### 1.6.1 Method

Conducted power measurements were made using a power meter.

### 1.6.2 Conducted Power Measurements

#### GSM 850

| Modulation   | Frequency (MHz) | Conducted Carrier Power (dBm) |
|--------------|-----------------|-------------------------------|
|              |                 | Average                       |
| GMSK - Voice | 824.20          | 22.97                         |
|              | 836.40          | 22.87                         |
|              | 848.80          | 22.92                         |
| GMSK - GPRS  | 824.20          | 23.79                         |
|              | 836.40          | 23.71                         |
|              | 848.80          | 23.76                         |

#### PCS 1900

| Modulation   | Frequency (MHz) | Conducted Carrier Power (dBm) |
|--------------|-----------------|-------------------------------|
|              |                 | Average                       |
| GMSK - Voice | 1850.20         | 20.44                         |
|              | 1880.00         | 20.21                         |
|              | 1909.80         | 19.97                         |
| GMSK - GPRS  | 1850.20         | 21.01                         |
|              | 1880.00         | 20.90                         |
|              | 1909.80         | 21.14                         |

**WCDMA FDD V**

| Modulation                                                                                                                                  | Frequency (MHz) | Conducted Carrier Power (dBm) |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------|
|                                                                                                                                             |                 | Average                       |
| WCDMA - 12.2kbps RMC                                                                                                                        | 826.4           | 23.38                         |
|                                                                                                                                             | 835.0           | 23.30                         |
|                                                                                                                                             | 846.6           | 23.07                         |
| WCDMA - 12.2kbps AMR with 3.4kbps SRB*                                                                                                      | 826.4           | 23.36                         |
|                                                                                                                                             | 835.0           | 23.27                         |
|                                                                                                                                             | 846.6           | 23.07                         |
| WCDMA - HSDPA (Subtest #1)                                                                                                                  | 826.4           | 22.26                         |
|                                                                                                                                             | 835.0           | 22.20                         |
|                                                                                                                                             | 846.6           | 22.22                         |
| WCDMA - HSDPA (Subtest #2)                                                                                                                  | 826.4           | 21.94                         |
|                                                                                                                                             | 835.0           | 21.55                         |
|                                                                                                                                             | 846.6           | 21.41                         |
| WCDMA - HSDPA (Subtest #3)                                                                                                                  | 826.4           | 21.07                         |
|                                                                                                                                             | 835.0           | 21.01                         |
|                                                                                                                                             | 846.6           | 21.00                         |
| WCDMA - HSDPA (Subtest #4)                                                                                                                  | 826.4           | 21.22                         |
|                                                                                                                                             | 835.0           | 20.95                         |
|                                                                                                                                             | 846.6           | 20.85                         |
| WCDMA - HSUPA (Subtest #1)                                                                                                                  | 826.4           | 22.38                         |
|                                                                                                                                             | 835.0           | 22.29                         |
|                                                                                                                                             | 846.6           | 22.18                         |
| WCDMA - HSUPA (Subtest #2)                                                                                                                  | 826.4           | 21.89                         |
|                                                                                                                                             | 835.0           | 21.90                         |
|                                                                                                                                             | 846.6           | 21.68                         |
| WCDMA - 12.2kbps RMC WCDMA - HSUPA (Subtest #3)                                                                                             | 826.4           | 22.36                         |
|                                                                                                                                             | 835.0           | 22.27                         |
|                                                                                                                                             | 846.6           | 22.08                         |
| WCDMA - HSUPA (Subtest #4)                                                                                                                  | 826.4           | 22.35                         |
|                                                                                                                                             | 835.0           | 22.26                         |
|                                                                                                                                             | 846.6           | 22.04                         |
| WCDMA - HSUPA (Subtest #5)                                                                                                                  | 826.4           | 22.35                         |
|                                                                                                                                             | 835.0           | 22.27                         |
|                                                                                                                                             | 846.6           | 22.14                         |
| * The measured Conducted power for 12.2kbps AMR is <0.25dB higher than 12.2kbps RMC, therefore, testing was carried out using 12.2kbps RMC. |                 |                               |

**WLAN**

| Modulation                  | Frequency (MHz) | Conducted Carrier Power (dBm) |                |
|-----------------------------|-----------------|-------------------------------|----------------|
|                             |                 | Average Port 0                | Average Port 1 |
| 802.11(b) - 2.4 GHz – 1Mbps | 2412            | 9.48                          | 9.18           |
|                             | 2437            | 9.39                          | 9.24           |
|                             | 2462            | 9.34                          | 9.16           |
| 802.11(g) - 2.4 GHz - 6Mbps | 2412            | 9.29                          | 8.97           |
|                             | 2437            | 9.18                          | 9.03           |
|                             | 2462            | 9.13                          | 8.95           |
| 802.11 (n) - 2.4 GHz – MCS0 | 2412            | 9.09                          | 8.77           |
|                             | 2437            | 8.99                          | 8.83           |
|                             | 2462            | 8.94                          | 8.76           |
| 802.11a 20MHz 9Mbps         | 5180            | 10.47                         | 11.34          |
|                             | 5200            | 10.55                         | 11.27          |
|                             | 5220            | 10.67                         | 11.14          |
|                             | 5240            | 10.73                         | 11.00          |
|                             | 5260            | 10.64                         | 10.98          |
|                             | 5280            | 10.61                         | 11.15          |
|                             | 5300            | 10.51                         | 11.13          |
|                             | 5320            | 10.52                         | 11.04          |
|                             | 5500            | 10.30                         | 11.05          |
|                             | 5520            | 10.27                         | 11.08          |
|                             | 5540            | 10.48                         | 10.85          |
|                             | 5560            | 10.47                         | 10.79          |
|                             | 5580            | 10.42                         | 10.82          |
|                             | 5600            | 10.27                         | 10.80          |
|                             | 5620            | 10.20                         | 10.96          |
|                             | 5640            | 10.12                         | 10.83          |
|                             | 5660            | 10.16                         | 10.73          |
|                             | 5680            | 10.12                         | 10.67          |
|                             | 5700            | 9.94                          | 10.80          |



| Modulation         | Frequency (MHz) | Conducted Carrier Power (dBm) |                |
|--------------------|-----------------|-------------------------------|----------------|
|                    |                 | Average Port 0                | Average Port 1 |
| 802.11n 20MHz MCS0 | 5180            | 10.29                         | 11.01          |
|                    | 5200            | 10.24                         | 11.03          |
|                    | 5220            | 10.44                         | 10.90          |
|                    | 5240            | 10.48                         | 10.76          |
|                    | 5260            | 10.38                         | 10.74          |
|                    | 5280            | 10.35                         | 10.92          |
|                    | 5300            | 10.23                         | 10.90          |
|                    | 5320            | 10.34                         | 10.79          |
|                    | 5500            | 10.03                         | 10.82          |
|                    | 5520            | 10.04                         | 10.83          |
|                    | 5540            | 10.24                         | 10.63          |
|                    | 5560            | 10.34                         | 10.56          |
|                    | 5580            | 10.18                         | 10.59          |
|                    | 5600            | 9.98                          | 10.65          |
|                    | 5620            | 9.93                          | 10.73          |
|                    | 5640            | 9.88                          | 10.60          |
|                    | 5660            | 10.01                         | 10.54          |
|                    | 5680            | 9.88                          | 10.45          |
|                    | 5700            | 9.71                          | 10.58          |
| 802.11n 40MHz MCS0 | 5190            | 10.91                         | 11.65          |
|                    | 5230            | 11.11                         | 11.44          |
|                    | 5270            | 10.96                         | 11.39          |
|                    | 5310            | 10.93                         | 11.47          |
|                    | 5510            | 10.69                         | 11.48          |
|                    | 5550            | 10.95                         | 11.27          |
|                    | 5590            | 10.73                         | 11.24          |
|                    | 5630            | 10.71                         | 11.35          |
|                    | 5670            | 10.61                         | 11.13          |



| Modulation          | Frequency (MHz) | Conducted Carrier Power (dBm) |                |
|---------------------|-----------------|-------------------------------|----------------|
|                     |                 | Average Port 0                | Average Port 1 |
| 802.11ac 20MHz MCS0 | 5180            | 9.35                          | 10.18          |
|                     | 5200            | 9.32                          | 10.19          |
|                     | 5220            | 9.50                          | 10.06          |
|                     | 5240            | 9.53                          | 9.90           |
|                     | 5260            | 9.45                          | 9.84           |
|                     | 5280            | 9.41                          | 10.00          |
|                     | 5300            | 9.30                          | 9.97           |
|                     | 5320            | 9.40                          | 9.88           |
|                     | 5500            | 9.11                          | 9.90           |
|                     | 5520            | 9.12                          | 9.90           |
|                     | 5540            | 9.30                          | 9.70           |
|                     | 5560            | 9.39                          | 9.65           |
|                     | 5580            | 9.23                          | 9.66           |
|                     | 5600            | 9.08                          | 9.73           |
|                     | 5620            | 9.02                          | 9.79           |
|                     | 5640            | 8.94                          | 9.67           |
|                     | 5660            | 9.06                          | 9.56           |
|                     | 5680            | 8.95                          | 9.52           |
|                     | 5700            | 8.76                          | 9.62           |
| 802.11ac 40MHz MCS0 | 5190            | 10.33                         | 11.12          |
|                     | 5230            | 10.53                         | 10.90          |
|                     | 5270            | 10.37                         | 10.82          |
|                     | 5310            | 10.34                         | 10.87          |
|                     | 5510            | 10.14                         | 10.86          |
|                     | 5550            | 10.40                         | 10.70          |
|                     | 5590            | 10.18                         | 10.66          |
|                     | 5630            | 10.14                         | 10.76          |
|                     | 5670            | 10.02                         | 10.53          |
| 802.11ac 80MHz MCS0 | 5210            | 9.90                          | 10.47          |
|                     | 5290            | 9.82                          | 10.32          |
|                     | 5530            | 9.64                          | 10.25          |
|                     | 5610            | 9.57                          | 10.17          |

**LTE Band 17**

| Channel Bandwidth (MHz) | Modulation | Resource Block Allocation | Resource Block Offset | Measured Average Output Power (dBm) |                                 |                               |
|-------------------------|------------|---------------------------|-----------------------|-------------------------------------|---------------------------------|-------------------------------|
|                         |            |                           |                       | Low Test Channel (709.0MHz)         | Middle Test Channel (710.0 MHz) | High Test Channel (711.0 MHz) |
| 10                      | QPSK       | 1                         | Low                   | 23.34                               | 23.47                           | 23..39                        |
|                         |            | 1                         | Mid                   | 23.12                               | 22.93                           | 23.01                         |
|                         |            | 1                         | High                  | 22.56                               | 22.64                           | 22.19                         |
|                         |            | 25                        | Low                   | 22.12                               | 22.10                           | 22.06                         |
|                         |            | 25                        | Mid                   | 21.96                               | 21.97                           | 22.12                         |
|                         |            | 25                        | High                  | 22.02                               | 22.04                           | 22.05                         |
|                         |            | 50                        | N/A                   | 22.16                               | 22.22                           | 22.19                         |
|                         | 16 QAM     | 1                         | Low                   | 22.62                               | 22.49                           | 22.52                         |
|                         |            | 1                         | Mid                   | 22.24                               | 22.36                           | 22.08                         |
|                         |            | 1                         | High                  | 21.90                               | 21.29                           | 21.13                         |
|                         |            | 25                        | Low                   | 21.09                               | 21.15                           | 21.13                         |
|                         |            | 25                        | Mid                   | 21.04                               | 21.07                           | 21.20                         |
|                         |            | 25                        | High                  | 20.96                               | 20.94                           | 21.05                         |
|                         |            | 50                        | N/A                   | 21.16                               | 21.18                           | 21.08                         |

**LTE Band 5**

| Channel Bandwidth (MHz) | Modulation | Resource Block Allocation | Resource Block Offset | Measured Average Output Power (dBm) |                                 |                               |
|-------------------------|------------|---------------------------|-----------------------|-------------------------------------|---------------------------------|-------------------------------|
|                         |            |                           |                       | Low Test Channel (829.0MHz)         | Middle Test Channel (836.5 MHz) | High Test Channel (844.0 MHz) |
| 10                      | QPSK       | 1                         | Low                   | 23.07                               | 22.77                           | 22.73                         |
|                         |            | 1                         | Mid                   | 22.78                               | 22.87                           | 22.53                         |
|                         |            | 1                         | High                  | 22.97                               | 22.77                           | 22.75                         |
|                         |            | 25                        | Low                   | 21.74                               | 21.62                           | 21.50                         |
|                         |            | 25                        | Mid                   | 21.77                               | 21.68                           | 21.61                         |
|                         |            | 25                        | High                  | 21.80                               | 21.65                           | 21.54                         |
|                         |            | 50                        | N/A                   | 21.75                               | 21.64                           | 21.59                         |
|                         | 16 QAM     | 1                         | Low                   | 22.24                               | 21.95                           | 21.95                         |
|                         |            | 1                         | Mid                   | 22.21                               | 21.85                           | 21.77                         |
|                         |            | 1                         | High                  | 22.14                               | 21.86                           | 22.17                         |
|                         |            | 25                        | Low                   | 20.75                               | 20.66                           | 20.60                         |
|                         |            | 25                        | Mid                   | 20.82                               | 20.64                           | 20.60                         |
|                         |            | 25                        | High                  | 20.80                               | 20.53                           | 20.63                         |
|                         |            | 50                        | N/A                   | 20.71                               | 20.67                           | 20.59                         |

**LTE Band 13**

| Channel Bandwidth (MHz) | Modulation | Resource Block Allocation | Resource Block Offset | Measured Average Output Power (dBm) |                                |                   |
|-------------------------|------------|---------------------------|-----------------------|-------------------------------------|--------------------------------|-------------------|
|                         |            |                           |                       | Low Test Channel                    | Middle Test Channel (782.0MHz) | High Test Channel |
| 10                      | QPSK       | 1                         | Low                   | -                                   | 23.11                          | -                 |
|                         |            | 1                         | Mid                   | -                                   | 23.03                          | -                 |
|                         |            | 1                         | High                  | -                                   | 23.53                          | -                 |
|                         |            | 25                        | Low                   | -                                   | 22.02                          | -                 |
|                         |            | 25                        | Mid                   | -                                   | 22.11                          | -                 |
|                         |            | 25                        | High                  | -                                   | 22.06                          | -                 |
|                         |            | 50                        | -                     | -                                   | 22.16                          | -                 |
|                         | 16 QAM     | 1                         | Low                   | -                                   | 22.65                          | -                 |
|                         |            | 1                         | Mid                   | -                                   | 22.20                          | -                 |
|                         |            | 1                         | High                  | -                                   | 22.43                          | -                 |
|                         |            | 36                        | Low                   | -                                   | 21.05                          | -                 |
|                         |            | 36                        | Mid                   | -                                   | 21.08                          | -                 |
|                         |            | 36                        | High                  | -                                   | 21.11                          | -                 |
|                         |            | 75                        | N/A                   | -                                   | 21.12                          | -                 |

**LTE Band 38**

| Channel Bandwidth (MHz) | Modulation | Resource Block Allocation | Resource Block Offset | Measured Average Output Power (dBm) |                                 |                               |
|-------------------------|------------|---------------------------|-----------------------|-------------------------------------|---------------------------------|-------------------------------|
|                         |            |                           |                       | Low Test Channel (258.0MHz)         | Middle Test Channel (2595.0MHz) | High Test Channel (2610.0MHz) |
| 20                      | QPSK       | 1                         | Low                   | 24.48                               | 24.64                           | 24.34                         |
|                         |            | 1                         | Mid                   | 24.11                               | 24.17                           | 23.94                         |
|                         |            | 1                         | High                  | 24.02                               | 24.05                           | 23.92                         |
|                         |            | 50                        | Low                   | 23.16                               | 23.24                           | 23.11                         |
|                         |            | 50                        | Mid                   | 23.05                               | 23.05                           | 23.03                         |
|                         |            | 50                        | High                  | 23.03                               | 22.93                           | 23.02                         |
|                         |            | 100                       | N/A                   | 23.09                               | 23.18                           | 23.02                         |
|                         | 16 QAM     | 1                         | Low                   | 23.48                               | 23.07                           | 23.46                         |
|                         |            | 1                         | Mid                   | 23.21                               | 22.94                           | 22.84                         |
|                         |            | 1                         | High                  | 23.23                               | 22.81                           | 22.83                         |
|                         |            | 50                        | Low                   | 22.23                               | 22.11                           | 22.14                         |
|                         |            | 50                        | Mid                   | 22.06                               | 21.95                           | 21.97                         |
|                         |            | 50                        | High                  | 22.03                               | 21.87                           | 22.01                         |
|                         |            | 100                       | N/A                   | 22.02                               | 22.15                           | 22.01                         |



Product Service

**Bluetooth**

| Modulation | Frequency (MHz) | Conducted Carrier Power (dBm) |
|------------|-----------------|-------------------------------|
|            |                 | Average                       |
| GFSK/DH5   | 2402            | 2.06                          |
|            | 2441            | 2.33                          |
|            | 2480            | 1.23                          |



### 1.6.3 Standalone SAR Test Exclusion Considerations (KDB 447498 D01)

The 1g SAR Test exclusion thresholds for 100 MHz to 6 GHz *test separation distances*  $\leq 50$  mm are determined by:

$[(\text{max power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] / \sqrt{f \text{ (GHz)}} \leq 3.0$ , where

- $f \text{ (GHz)}$  is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison.
- When the maximum test separation distance is  $< 5$  mm, a distance of 5 mm is applied.

| Band                   | Frequency (MHz) | Max Power |         | Test Position | Distance (mm) | Threshold | Test Exclusion |
|------------------------|-----------------|-----------|---------|---------------|---------------|-----------|----------------|
|                        |                 | (dBm)     | (mW)    |               |               |           |                |
| GSM 850MHz             | 824.2           | 33.5      | 2238.72 | Head          | < 5           | 406.5     | No             |
| GPRS 850MHz            | 824.2           | 31.3      | 1348.96 | Head          | < 5           | 244.9     | No             |
| GPRS 850MHz            | 824.2           | 31.3      | 1348.96 | Body          | 10            | 122.5     | No             |
| WCDMA FDD V            | 826.4           | 24.2      | 263.03  | Head          | < 5           | 47.8      | No             |
|                        |                 |           |         | Body          | 10            | 23.9      | No             |
| LTE Band 17            | 710.0           | 24.2      | 263.03  | Head          | < 5           | 44.3      | No             |
|                        |                 |           |         | Body          | 10            | 22.2      | No             |
| LTE Band 5             | 829.0           | 24.2      | 263.03  | Head          | < 5           | 47.9      | No             |
|                        |                 |           |         | Body          | 10            | 23.9      | No             |
| LTE Band 13            | 782.0           | 24.2      | 263.03  | Head          | < 5           | 46.5      | No             |
|                        |                 |           |         | Body          | 10            | 23.3      | No             |
| LTE Band 38            | 2595.0          | 24.7      | 295.12  | Head          | < 5           | 95.1      | No             |
|                        |                 |           |         | Body          | 10            | 47.5      | No             |
| GSM 1900MHz            | 1850.2          | 30.5      | 1122.02 | Head          | < 5           | 305.2     | No             |
| GPRS 1900MHz           | 1909.8          | 28.3      | 676.03  | Head          | < 5           | 186.9     | No             |
| GPRS 1900MHz           | 1909.8          | 28.3      | 676.03  | Body          | 10            | 93.4      | No             |
| WLAN 2.4 GHz Antenna 0 | 2412.0          | 11        | 12.59   | Head          | < 5           | 3.9       | No             |
|                        |                 |           |         | Body          | 10            | 2.0       | Yes            |
| WLAN 2.4 GHz Antenna 1 | 2437.0          | 11        | 12.59   | Head          | < 5           | 3.9       | No             |
|                        |                 |           |         | Body          | 10            | 2.0       | Yes            |
| WLAN 5 GHz Antenna 0   | 5260.0          | 12        | 15.085  | Head          | < 5           | 7.3       | No             |
|                        |                 |           |         | Body          | 10            | 3.6       | No             |
| WLAN 5 GHz Antenna 1   | 5280.0          | 12        | 15.085  | Head          | < 5           | 7.3       | No             |
|                        |                 |           |         | Body          | 10            | 3.6       | No             |
| Bluetooth              | 2450            | 7         | 5.01    | Head          | < 5           | 1.6       | Yes            |
|                        |                 |           |         | Body          | 10            | 0.8       | Yes            |



## **SECTION 2**

### **TEST DETAILS**

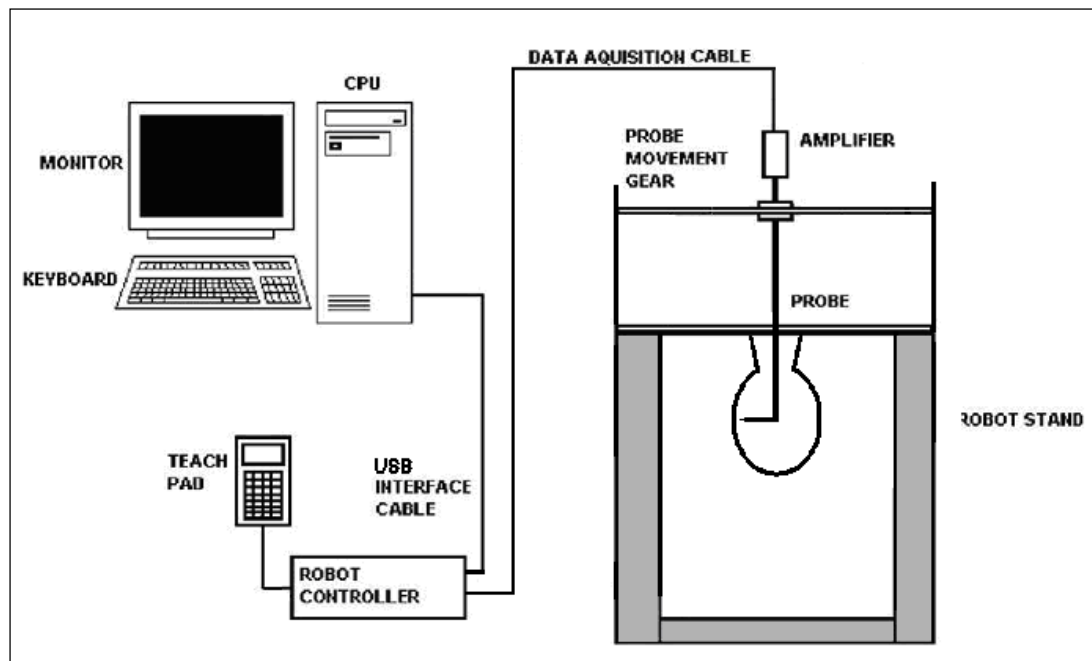
Specific Absorption Rate Testing of the  
Sharp Hep-band LTE (B1 / B3 / B5 / B13 / B17 / B26 / B38), Dual-band WCDMA (FDD I / V),  
Quad-band GSM (850 / 900 / 1800 / 1900) & WiMAX2+ (TDD41) multi mode Smart phone with  
Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS

## 2.1 SARA-C SAR MEASUREMENT SYSTEM

### 2.1.1 Robot System Specification

The SAR measurement system being used is the IndexSAR SARA-C system, which consists of a cartesian 6-axis robot jig, a dedicated robot controller, a straight IndexSAR probe, an L-shaped IndexSAR probe, a fast amplifier, and two phantoms: an upside-down SAM phantom, and a rectangular box phantom,

**Figure 1.** The L-probe is used in connection with measurements on DUTs held against the SAM phantom, while the straight probe is used exclusively in the box phantom. The robot is used to articulate the probe to programmed positions inside the phantom head to obtain SAR readings from the DUT.



**Figure 1 Schematic diagram of the SARA-C measurement system showing the L-probe and upside-down SAM phantom**

The system is controlled remotely from a PC, which contains the software to drive the robot and data acquisition equipment. The software also displays the data obtained from test scans.

The position and digitised shape of the phantom heads are made available to the software for accurate positioning of the probe and reduction of set-up time. The SAM phantom heads are individually digitised using a Mitutoyo CMM machine to a precision of 0.001mm. The data is then converted into a shape format for the software, providing an accurate description of the phantom shell. Even with this accuracy, registration errors and deformation of the phantom when filled with 7 litres of fluid, can lead to probe placement errors of 1mm or more. For this reason, the L-probes house a 2-axis strain gauge unit, which allow the actual phantom wall position to be sensed to an accuracy of 0.3mm during probe movements.

In operation, the system first does an area (2D) scan within the liquid following the curve of the phantom wall at a fixed distance. When the maximum SAR point has been found, the system will then carry out a 3D scan centred at that point to determine volume averaged SAR level.



### 2.1.2 Probe and Amplifier Specification

#### IndexSAR isotropic immersible straight SAR probes

Straight probes are constructed using three orthogonal dipole sensors arranged on an interlocking, triangular prism core. The probes have built-in shielding against static charges and are contained within a PEEK cylindrical enclosure material at the tip. The tips come in either 5mm (typically for use up to 3GHz) or 2.5mm (above 3GHz) versions, model types IXP-050 and IXP-025 respectively.

Straight probes are calibrated by NPL in the UK.

Straight probes are used exclusively in the box phantom, to measure SAR from DUTs placed against the phantom base. In SARA2, straight probes were also used in the SAM phantom, but this is forbidden in SARA-C, where L-probes are demanded. NB the reverse is not true: L-probes can be used in the box phantom.

#### IndexSAR L-probes

The L-shaped probe is so designed to ensure the probe tip can remain perpendicular to the SAM phantom wall during scans. To allow for greater probe articulation freedom, the SAM phantom head has been turned upside down and the probe is inserted through the throat aperture, rather than through a small hole at the top of the head in the old SARA2 SAR measurement system.

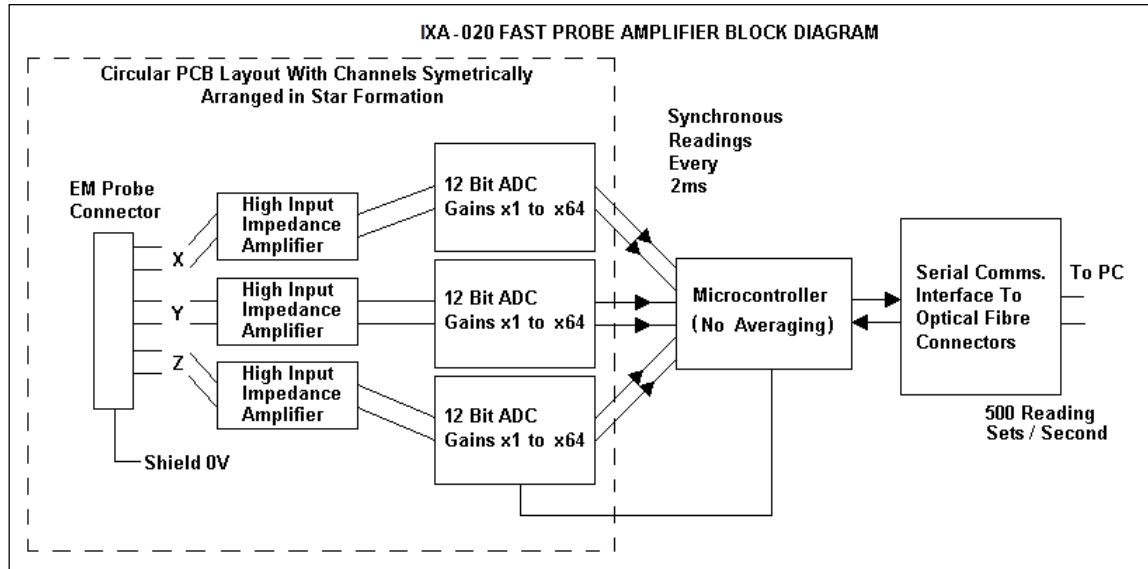
Like the straight probes, L-probes also come in the same two tip sizes: IXP-020 (5mm) and IXP-021 (2.5mm).

L-probes are calibrated to national standards in-house by IndexSAR.

L-probes can be used either in the SAM head, or against the side wall of the box phantom.

### IFA-020 Fast Amplifier

A block diagram of the fast probe amplifier electronics is shown below.



**Figure 2 Schematic diagram of the fast amplifier**

This amplifier has a time constant of approx.  $50\mu\text{s}$ , which is much faster than the SAR probe response time. The overall system time constant is therefore that of the probe ( $<1\text{ms}$ ) and a reading containing data for all three channels is returned to the PC every 2ms. The conversion period is approx.  $1\mu\text{s}$  at the start of each 2ms period. This enables the probe to follow pulse modulated signals of periods  $\gg 2\text{ms}$ . The PC software applies the linearisation procedure separately to each reading, so no linearisation corrections for the averaging of modulated signals are needed in this case.

The fast amplifier sampling rate can be adjusted via the SARA-C user interface from 1.7ms to 2.3ms. When not measuring CW signals, it is important to ensure that this probe reading rate and the modulated signal's pulse repetition rate are not unintentionally synchronised since this can lead to aliasing and a gross reduction in accuracy. For GSM signals, the default amplifier sampling rate of 2ms is entirely satisfactory, whereas changing it to 2.3ms (almost exactly half the GSM frame rate) could mean GSM bursts are always missed.

When aggregating 2ms samples to reduce the stochastic noise, it is equally important to match the number of samples with the longer-term timing structure of the modulation scheme. Taking GSM as an example again, since 120ms is the precise length of a GSM traffic channel multiframe, best practice would dictate that aggregated samples should cover exact multiples of this timescale. In this case, setting the number of samples to be aggregated to 120 (2 multiframe), or 240 samples (4 multiframe) should be ideal. Other signalling protocols would require changing these numbers as appropriate.

### Phantoms

The Flat phantom used is a rectangular Perspex Box IndexSAR item IXB-2HF, dimensions 240 x 190 x 195mm (w x d x h). The base and one side wall are made of FR4 material which has specific dielectric properties and a tightly-controlled thickness. The base is used in tandem with straight probes, measuring either a DUT or a validation dipole, while the side wall is for performing validations with the L-probe. It is also feasible to perform measurements on body-worn devices with the L-probe against the side window, but only if the L-probe is suitably calibrated (ie if the measurement standard demands body and head fluids have the same dielectric properties).

The Specific Anthropomorphic Mannequin (SAM) Upright Phantom is fabricated using moulds generated from the CAD files as specified by CENELEC EN 62209-1: 2006.

### **2.1.3 SAR Measurement Procedure**

Detailed measurement procedures for SARA-C are set out in a separate IndexSAR technical document ("SARA-C Operational Procedures").

A test set and dipole antenna control the handset via an air link and a low-mass phone holder can position the phone at either ear. Graduated scales are provided to set the phone in the 15 degree position. The upright phantom head holds approx. 7 litres of simulant liquid. The phantom is filled and emptied through the 110mm diameter penetration hole in the neck.

An area scan is performed inside the head at a fixed distance of 5mm from the curved surface on the source side. An algorithm presents the user with the location of any local hotspots and allows one to be selected for a follow-up 3D scan, looking at how the signal absorption varies with depth. A comparison between the start and end readings at a fixed distance from the DUT also enables the power drift during measurement to be assessed.

#### SARA-C Interpolation and Extrapolation schemes

SARA-C software contains support for both 2D cubic B-spline interpolation as well as 3D cubic B-spline interpolation. In addition, for extrapolation purposes, a proprietary curve-fitting routine is implemented as a weighted average of 3 different polynomial fits. The polynomial fitting procedures have been extensively tested by comparing the fitting coefficients generated by the SARA-C procedures with those obtained using the polynomial fit functions of Microsoft Excel when applied to the same test input data.

#### Interpolation of 2D area scan

The 2D cubic B-spline interpolation is used after the initial area scan at fixed distance from the phantom shell wall. The initial scan data are collected with approx. 115mm spatial resolution and spline interpolation is used to find the location of the local maximum to within a 1mm resolution for positioning the subsequent 3D scanning.

#### Extrapolation of 3D scan

For the 3D scan, data are collected on a spatially regular, but conformal, 3D grid having (by default) 6.4 mm steps in the lateral dimensions and 3.5 mm steps in the depth direction (away from the source). SARA-C enables full control over the selection of alternative step sizes in all directions.



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The overall accuracy of the 1g and 10g SAR volume average depends largely on the accuracy with which the probe can be re-positioned in the head. Although the digitised shape of the head is available to the SARA-C software, a better positioning solution is to use strain gauges attached to the L-probe to feel for the actual surface and to base all movements relative to this positive detection. An even more precise, but time-consuming, method is to place the probe tip in positive contact against the phantom wall, then step backwards 0.01mm at a time while monitoring the recorded SAR reading. At the exact moment that the probe detaches from contact, the SAR reading will suddenly fall.

After the data collection, the data are extrapolated up to the shell wall in the depth direction to assign values to points in the 3D array which cannot be measured in practice because of the finite size of the sensor tip. For automated measurements inside the head, the distance of the closest plane from the wall cannot be less than 2.7mm (for 5mm probes) and 1.39mm (for 2.5mm probes), this being the distance of the probe sensors behind the front edge of the probe tip.

#### Interpolation of 3D scan and volume averaging

The procedure used in SARA-C for defining the volumes used in SAR averaging follow the method of adapting the surface of the 'cube' to conform with the curved inner surface of the phantom (see Appendix C.2.2.1 in EN 62209-1: 2006). This is called, here, the conformal scheme.

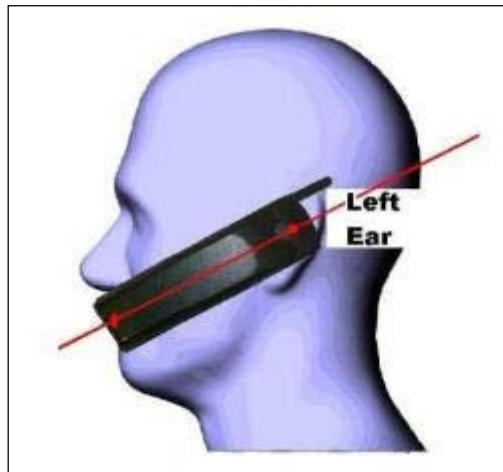
For each row of data in the depth direction, the data are extrapolated to the phantom wall, and interpolated to less than 1mm spacing and average values are calculated from the phantom surface for the row of data over distances corresponding to the requisite depth for 10g and 1g cubes. This results in two 2D arrays of data, one for 1g and the other for 10g masses, which are then cubic B-spline interpolated to sub mm lateral resolution. A search routine then moves an averaging square around through the 2D array and records the maximum value of the corresponding 1g and 10g volume averages.

The default step size is 3.5mm, but this is under user-control. The compromise is with time of scan, so it is not practical to make it much smaller or scan times become long and power-drop influences become larger.

The robot positioning system specification for the repeatability of the positioning (**dss** in EN 62209-1: 2006) is +/- 0.04mm.

#### 2.1.4 Head Test Positions

This recommended practice specifies exactly two test positions for the handset against the head phantom, the “Cheek” position and the “tilted” position. The handset should be tested in both positions on the left and right sides of the SAM phantom. In each test position the centre of the earpiece of the device is placed directly at the entrance of the auditory canal. The angles mentioned in the test positions used are referenced to the line connecting both auditory canal openings. The plane this line is on is known as the reference plane. Testing is performed on the right and left-hand sides of the generic phantom head.



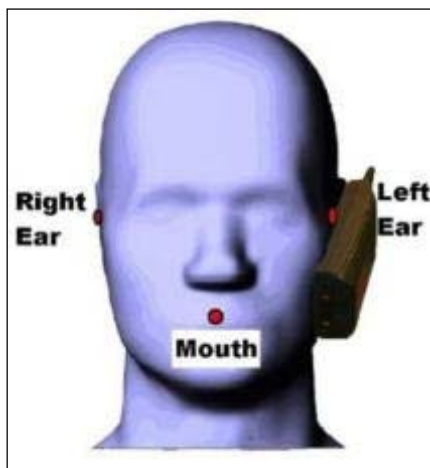
**Figure 3 Side view of mobile next to head showing alignment**

##### The Cheek Position

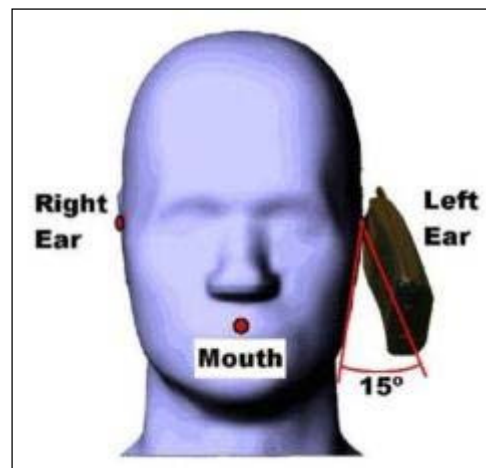
The Cheek Position is where the mobile is in the reference plane and the line between the mobile and the line connecting both auditory canal openings is reduced until any part of the mobile touches any part of the generic twin phantom head.

##### The 15° Position

The 15° Position is where the mobile is in the reference Cheek position and the phone is kept in contact with the auditory canal at the earpiece; the bottom of the phone is then tilted away from the phantom mouth by 15°.



**Figure 4 Cheek position**



**Figure 5 15° Tilt Position**



## 2.2 GSM 850MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 24/03/2016-11:31:10 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.20°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 34.00%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 62.10mm    |
| DUT POSITION:               | Left-Cheek          | MAX SAR Z-AXIS LOCATION: | -105.10mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 19.978     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.429 W/kg |
| TYPE OF MODULATION:         | GMSK (Voice Mode)   | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 12.5%               | SAR START:               | 0.410 W/kg |
| INPUT POWER LEVEL:          | 33.5dBm             | SAR END:                 | 0.411 W/kg |
| PROBE BATTERY LAST CHANGED: | 24/03/2016          | SAR DRIFT DURING SCAN:   | 0.300 %    |

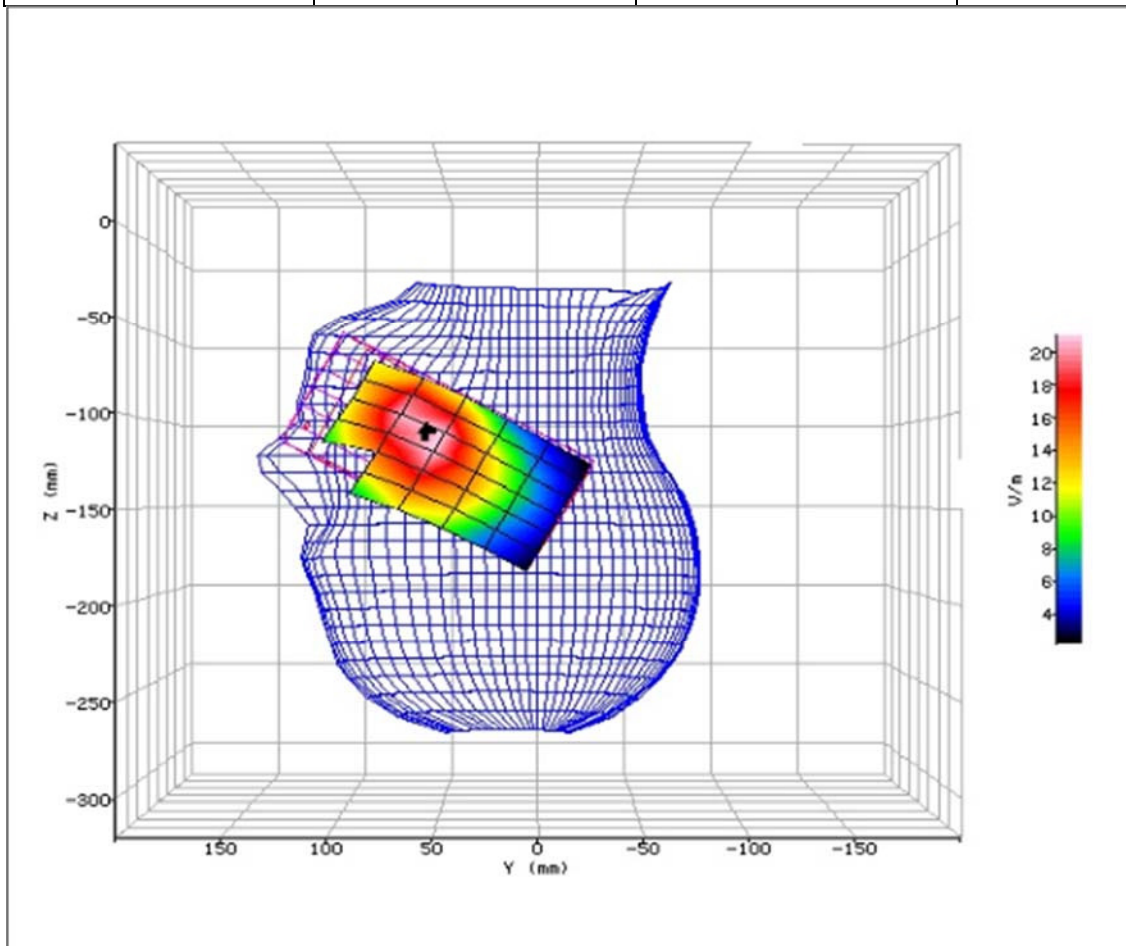


Figure 6: SAR Head Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 24/03/2016-11:56:15 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.20°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 34.00%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 48.20mm    |
| DUT POSITION:               | Left-15°            | MAX SAR Z-AXIS LOCATION: | -117.70mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 11.787     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.144 W/kg |
| TYPE OF MODULATION:         | GMSK (Voice Mode)   | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 12.5%               | SAR START:               | 0.136 W/kg |
| INPUT POWER LEVEL:          | 33.5dBm             | SAR END:                 | 0.136 W/kg |
| PROBE BATTERY LAST CHANGED: | 24/03/2016          | SAR DRIFT DURING SCAN:   | 0.100 %    |

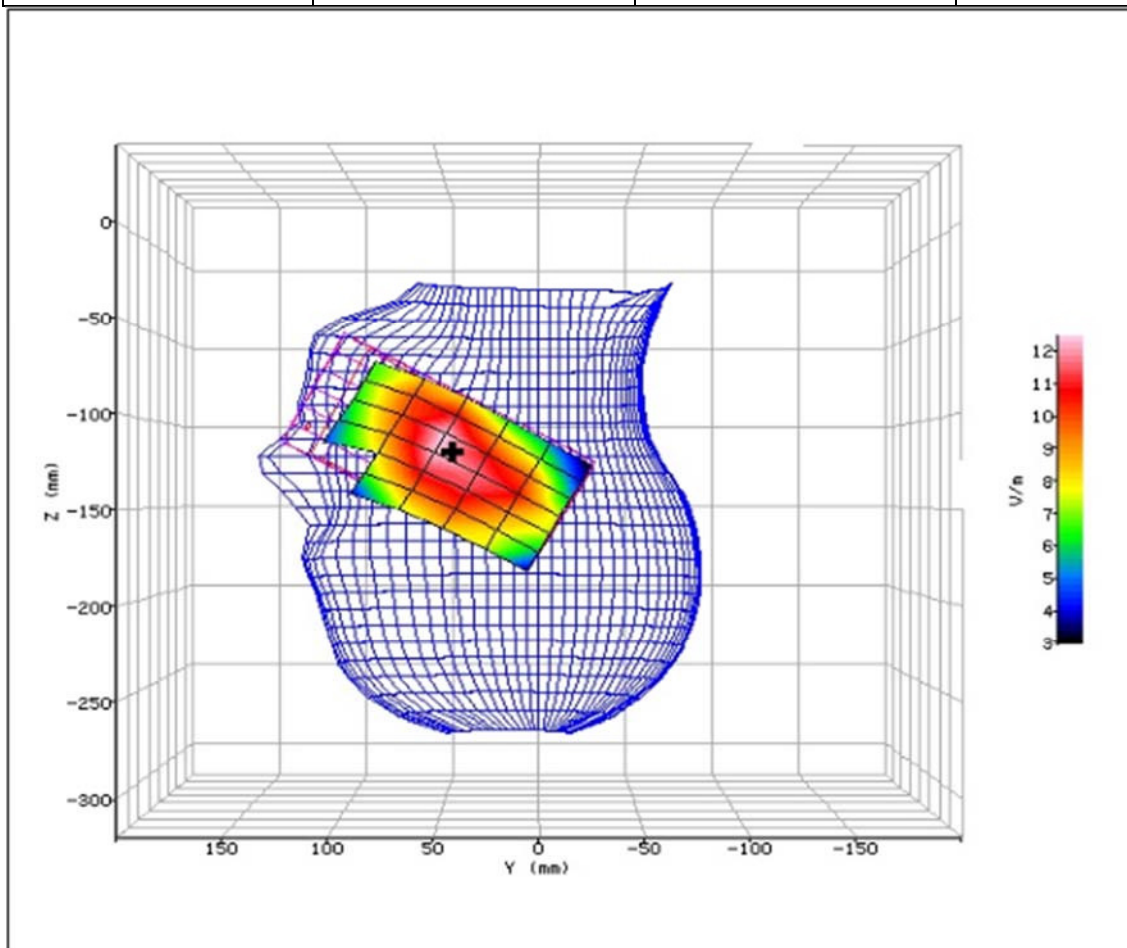


Figure 7: SAR Head Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 24/03/2016-13:40:21 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.20°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 34.00%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 64.70mm    |
| DUT POSITION:               | Right-Cheek         | MAX SAR Z-AXIS LOCATION: | -117.80mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 18.375     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.344 W/kg |
| TYPE OF MODULATION:         | GMSK (Voice Mode)   | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 12.5%               | SAR START:               | 0.341 W/kg |
| INPUT POWER LEVEL:          | 33.5dBm             | SAR END:                 | 0.330 W/kg |
| PROBE BATTERY LAST CHANGED: | 24/03/2016          | SAR DRIFT DURING SCAN:   | -3.100 %   |

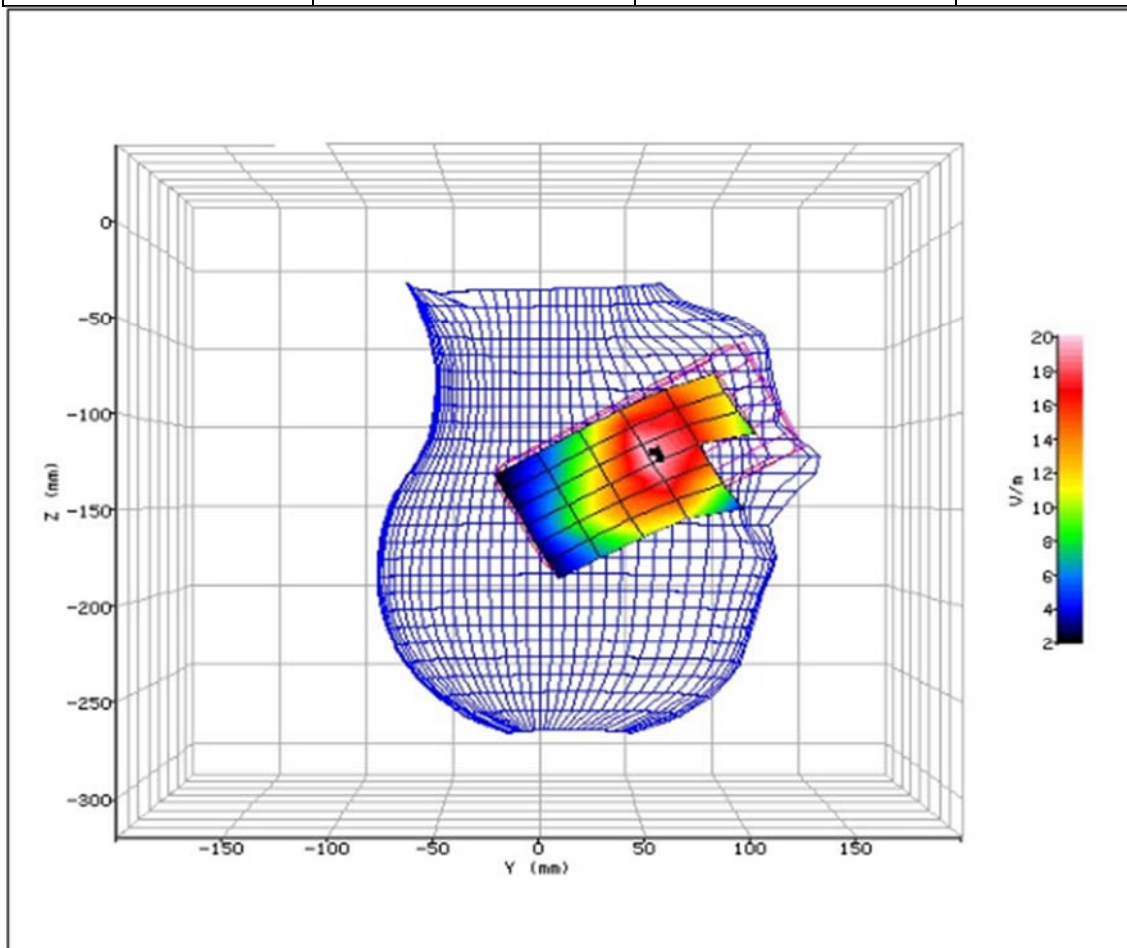


Figure 8: SAR Head Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 24/03/2016-14:06:31 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.20°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 34.00%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 54.90mm    |
| DUT POSITION:               | Right-15°           | MAX SAR Z-AXIS LOCATION: | -127.40mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 11.561     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.135 W/kg |
| TYPE OF MODULATION:         | GMSK (Voice Mode)   | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 12.5%               | SAR START:               | 0.130 W/kg |
| INPUT POWER LEVEL:          | 33.5dBm             | SAR END:                 | 0.125 W/kg |
| PROBE BATTERY LAST CHANGED: | 24/03/2016          | SAR DRIFT DURING SCAN:   | -3.700 %   |

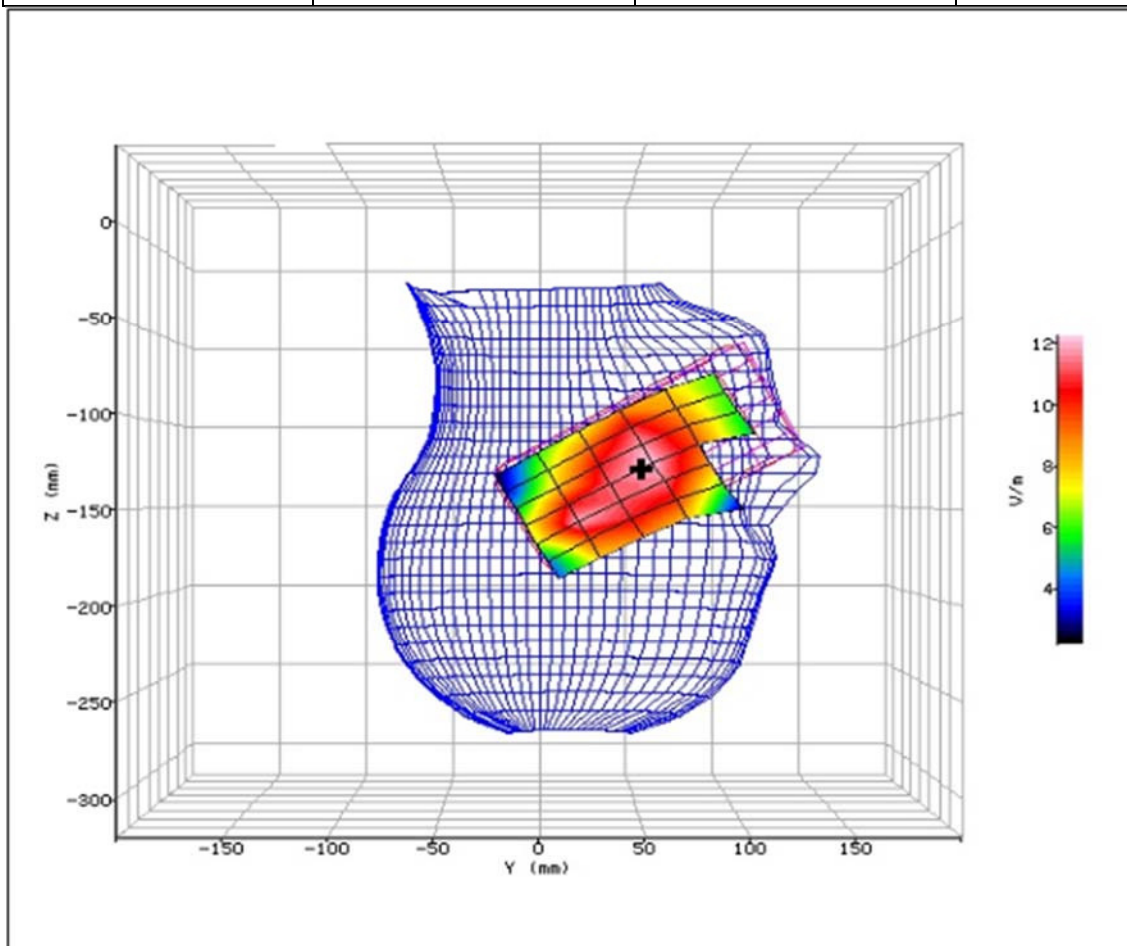


Figure 9: SAR Head Testing Results for the Mobile Handset at 824.2MHz.



### 2.3 GSM 850MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 24/03/2016-16:12:14 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.20°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 34.00%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 61.30mm    |
| DUT POSITION:               | Left-Cheek          | MAX SAR Z-AXIS LOCATION: | -105.60mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 20.801     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.473 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.447 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.439 W/kg |
| PROBE BATTERY LAST CHANGED: | 24/03/2016          | SAR DRIFT DURING SCAN:   | -1.800 %   |

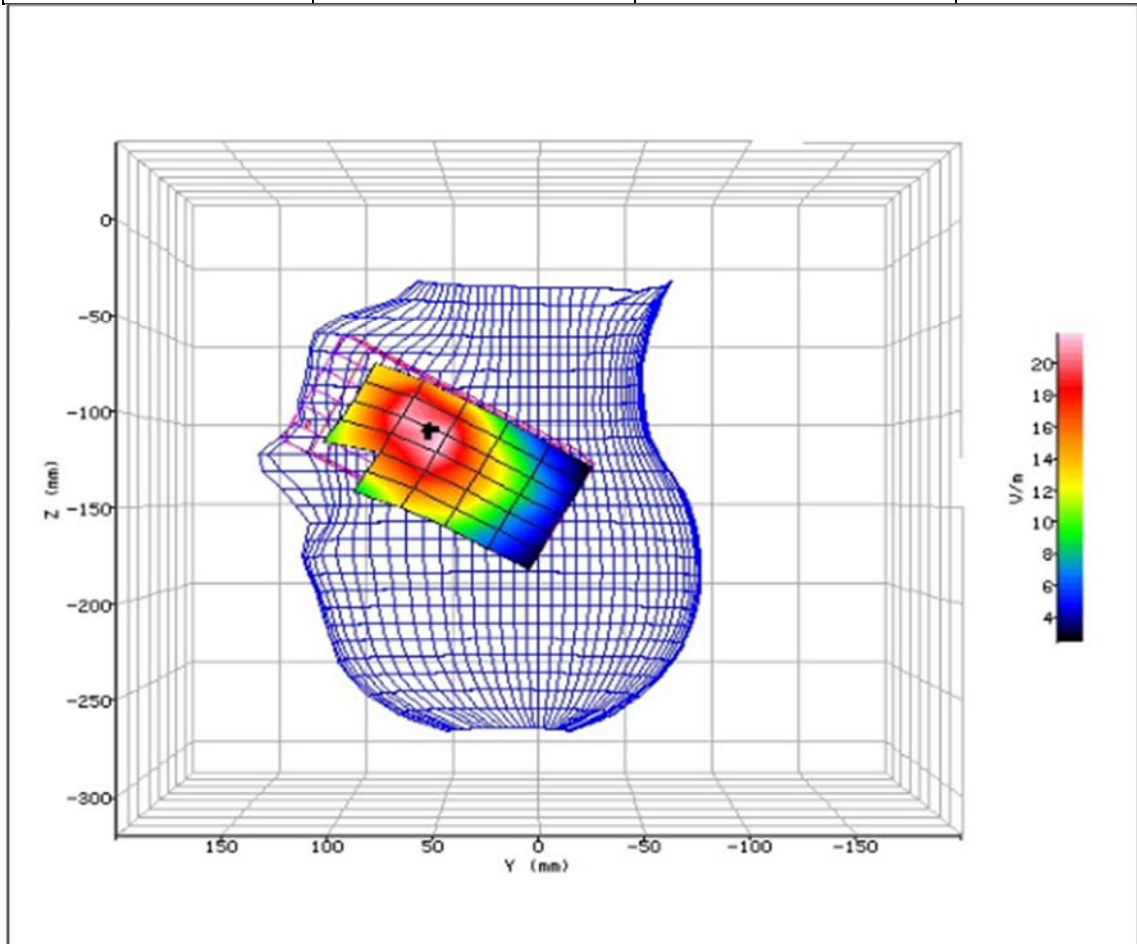


Figure 10: SAR Head Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 29/03/2016-11:47:39 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 27.30%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 47.80mm    |
| DUT POSITION:               | Left-15°            | MAX SAR Z-AXIS LOCATION: | -118.80mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 13.037     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.176 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.167 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.169 W/kg |
| PROBE BATTERY LAST CHANGED: | 29/03/2016          | SAR DRIFT DURING SCAN:   | 0.800 %    |

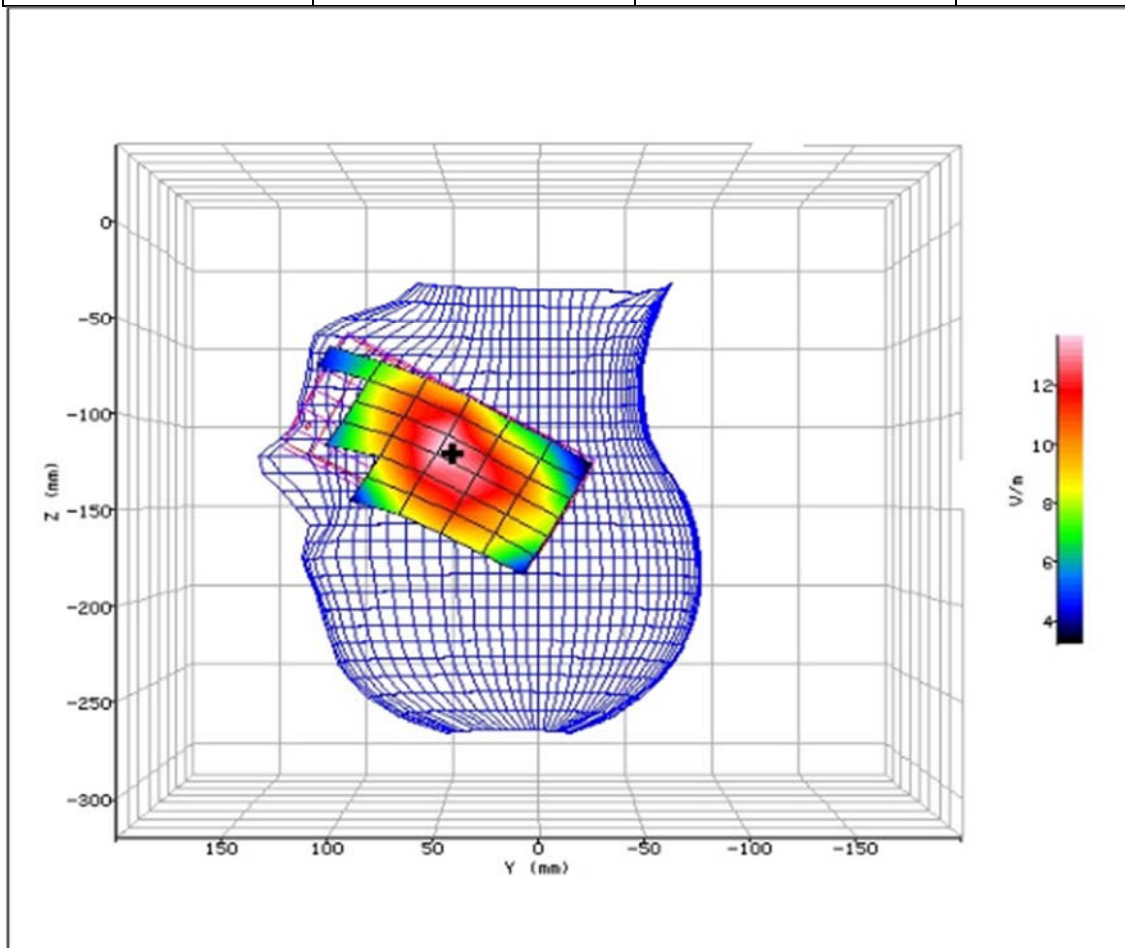


Figure 11: SAR Head Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 29/03/2016-13:04:23 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 27.30%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 62.40mm    |
| DUT POSITION:               | Right-Cheek         | MAX SAR Z-AXIS LOCATION: | -120.40mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 20.198     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.417 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.418 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.397 W/kg |
| PROBE BATTERY LAST CHANGED: | 29/03/2016          | SAR DRIFT DURING SCAN:   | -5.000 %   |

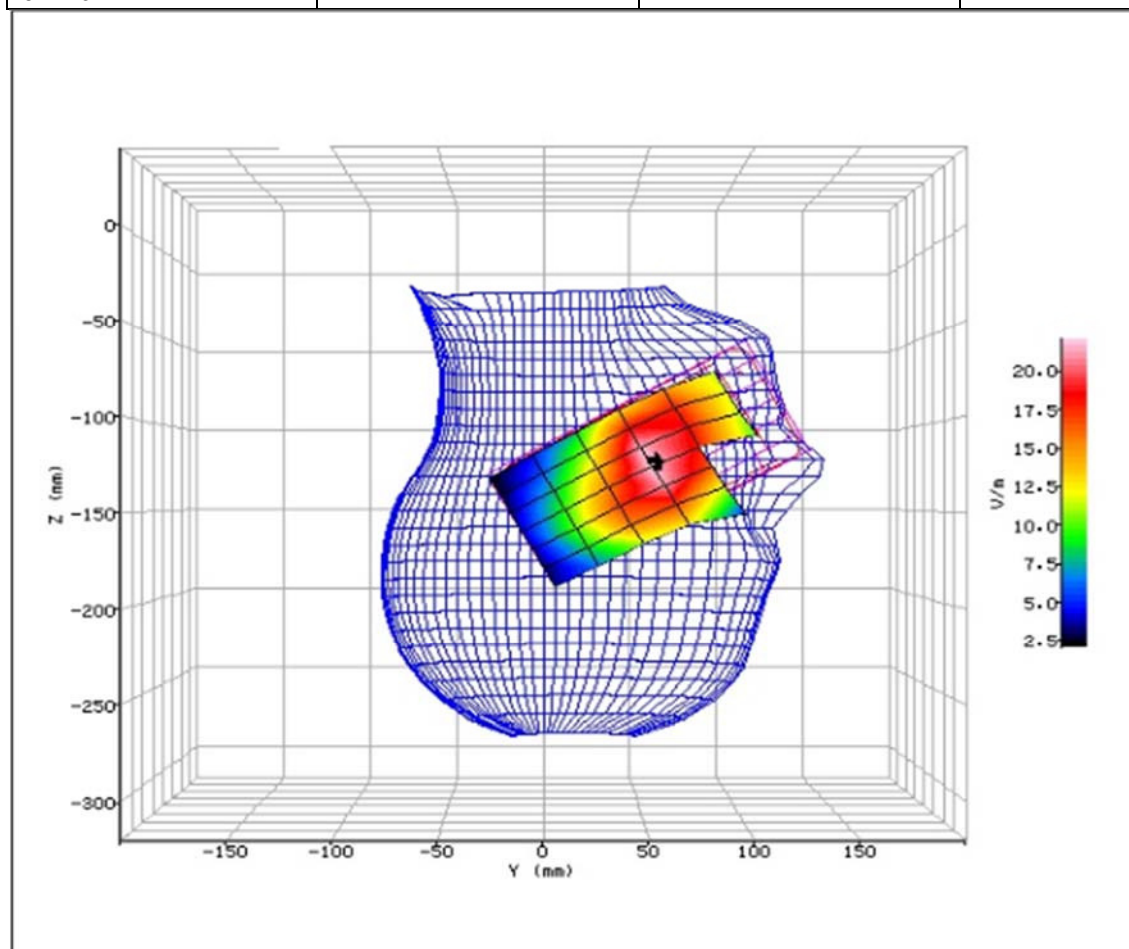


Figure 12: SAR Head Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 29/03/2016-13:31:24 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 27.30%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 54.60mm    |
| DUT POSITION:               | Right-15°           | MAX SAR Z-AXIS LOCATION: | -131.60mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 12.349     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.146 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.151 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.151 W/kg |
| PROBE BATTERY LAST CHANGED: | 29/03/2016          | SAR DRIFT DURING SCAN:   | 0.200 %    |

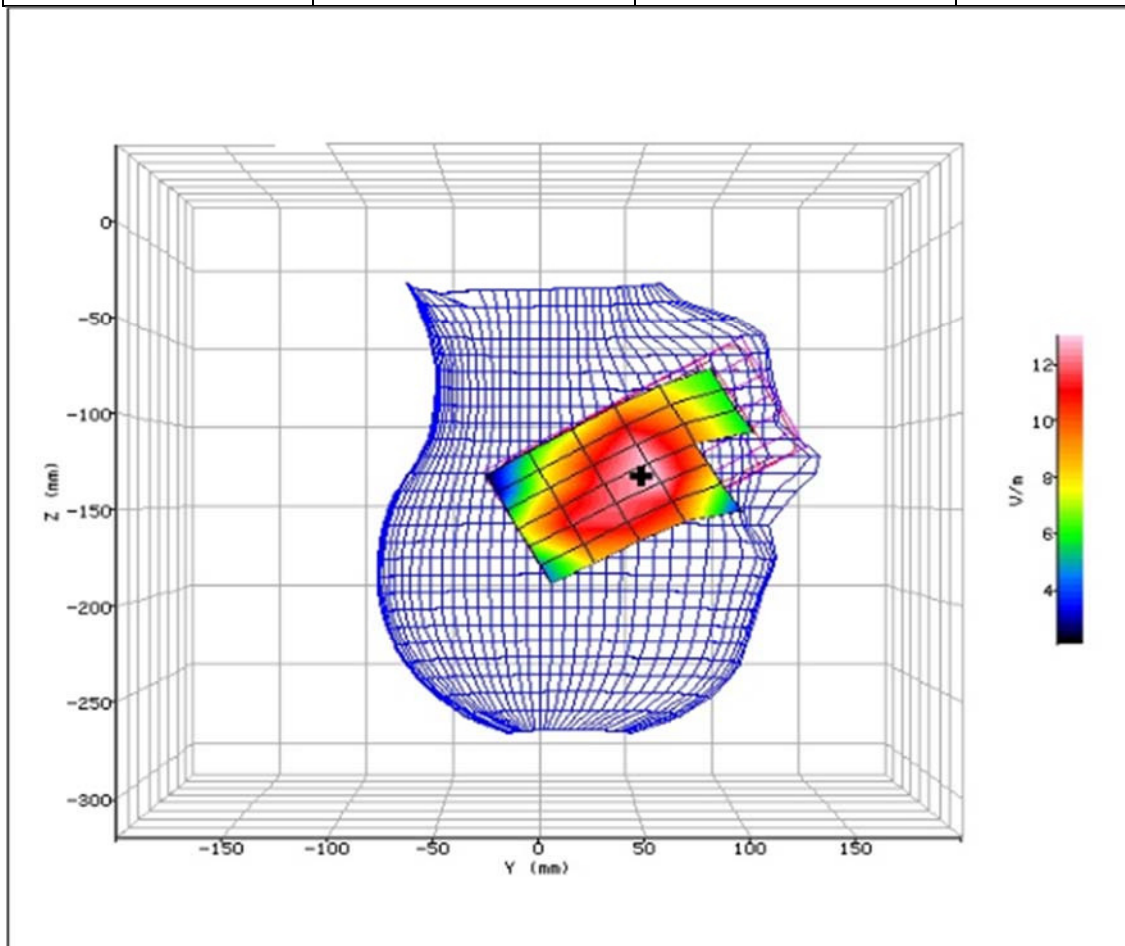


Figure 13: SAR Head Testing Results for the Sharp Smart phone at 824.2MHz.



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## 2.4 GSM 850MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-11:09:31 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 39.50mm    |
| DUT POSITION:               | 10mm-Front Facing   | MAX SAR Y-AXIS LOCATION: | -5.70mm    |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 21.048     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.441 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.447 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.423 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -5.400 %   |

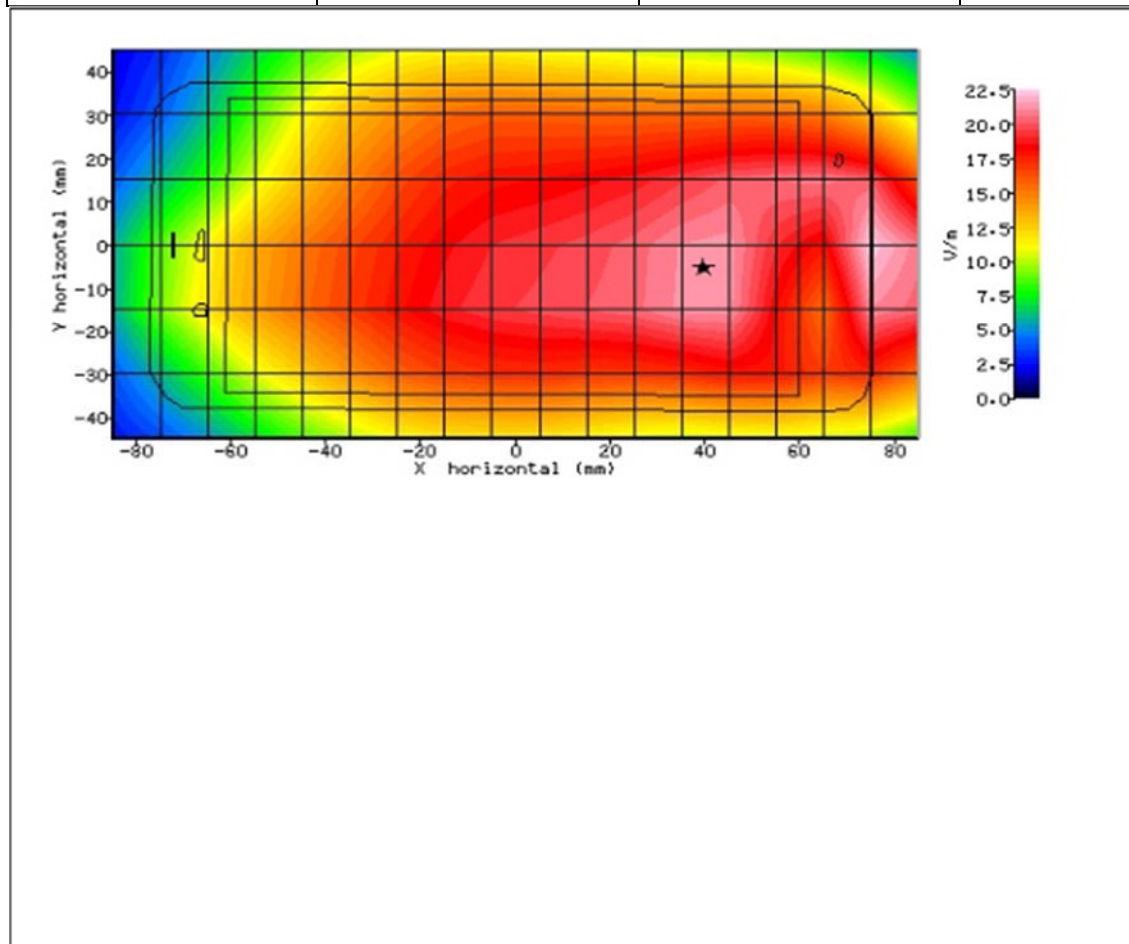


Figure 14: SAR Body Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-12:16:00 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 79.30mm    |
| DUT POSITION:               | 10mm-Rear Facing    | MAX SAR Y-AXIS LOCATION: | -1.20mm    |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 21.997     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.558 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.545 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.558 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | 2.400 %    |

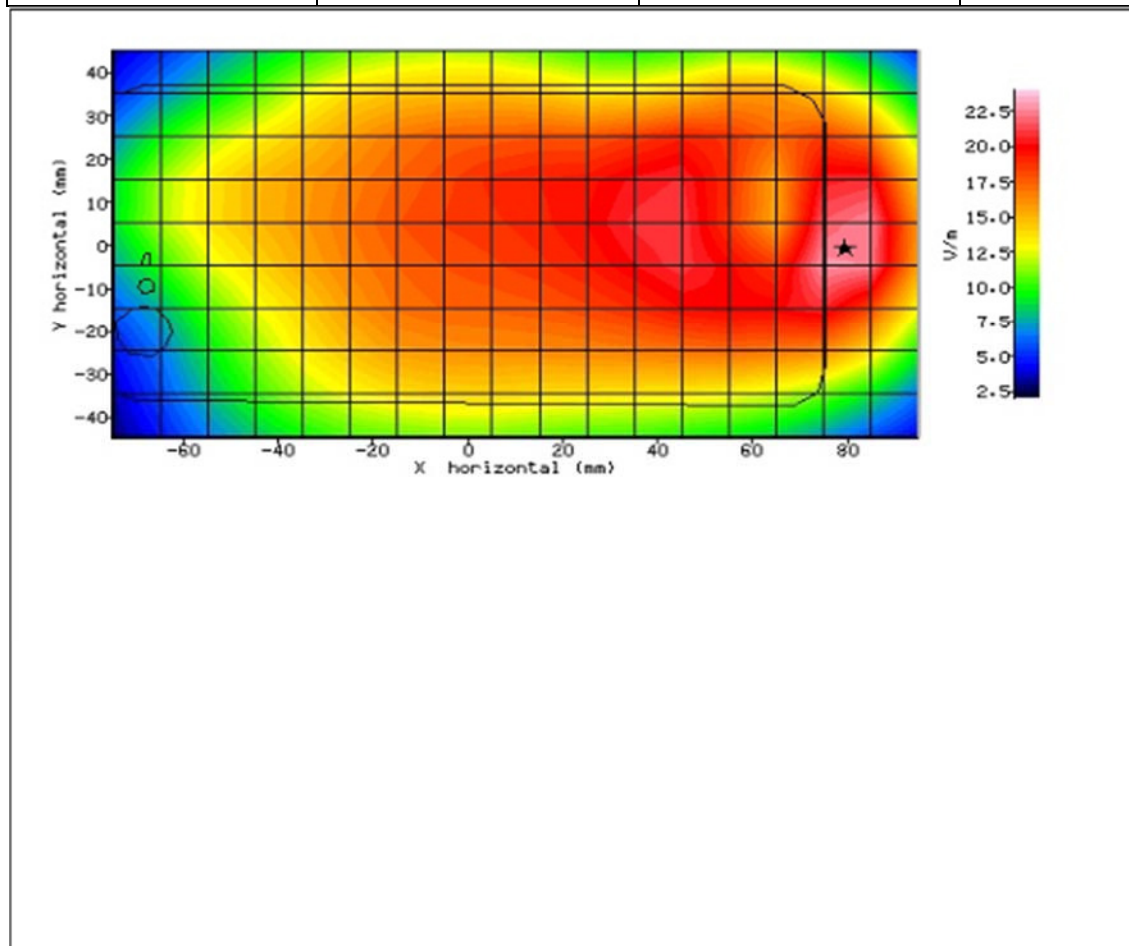


Figure 15: SAR Body Testing Results for the Sharp Smart phone at 824.2MHz.



Product Service

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-13:39:09 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | -7.40mm    |
| DUT POSITION:               | 10mm-Right Edge     | MAX SAR Y-AXIS LOCATION: | 1.90mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 23.630     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.483 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.582 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.569 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -2.200 %   |

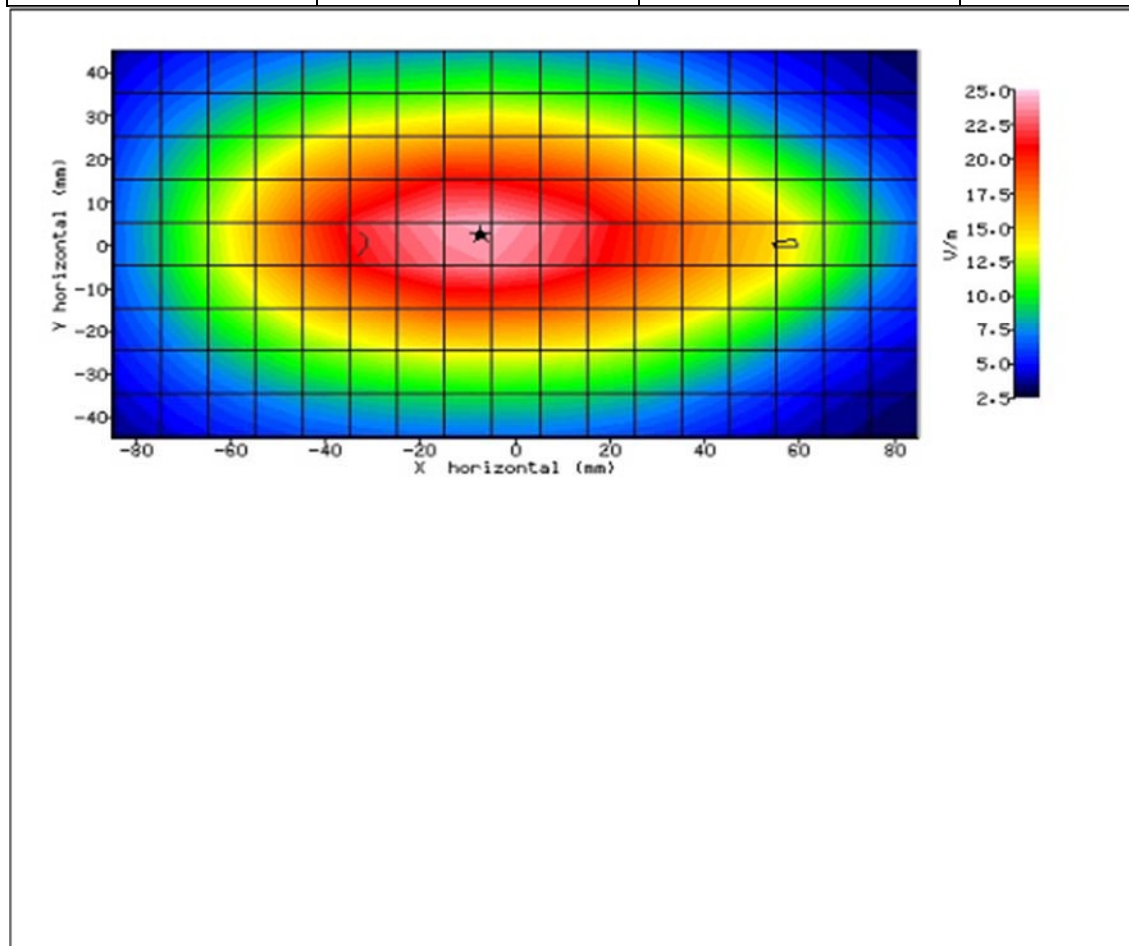


Figure 16: SAR Body Testing Results for the Sharp Smart phone at 824.2MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-13:58:37 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 8.30mm     |
| DUT POSITION:               | 10mm-Bottom Edge    | MAX SAR Y-AXIS LOCATION: | 1.90mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 16.034     |
| TEST FREQUENCY:             | 824.2MHz            | SAR 1g:                  | 0.264 W/kg |
| TYPE OF MODULATION:         | GMSK (GPRS Mode)    | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 25%                 | SAR START:               | 0.326 W/kg |
| INPUT POWER LEVEL:          | 31.3dBm             | SAR END:                 | 0.321 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -1.500 %   |

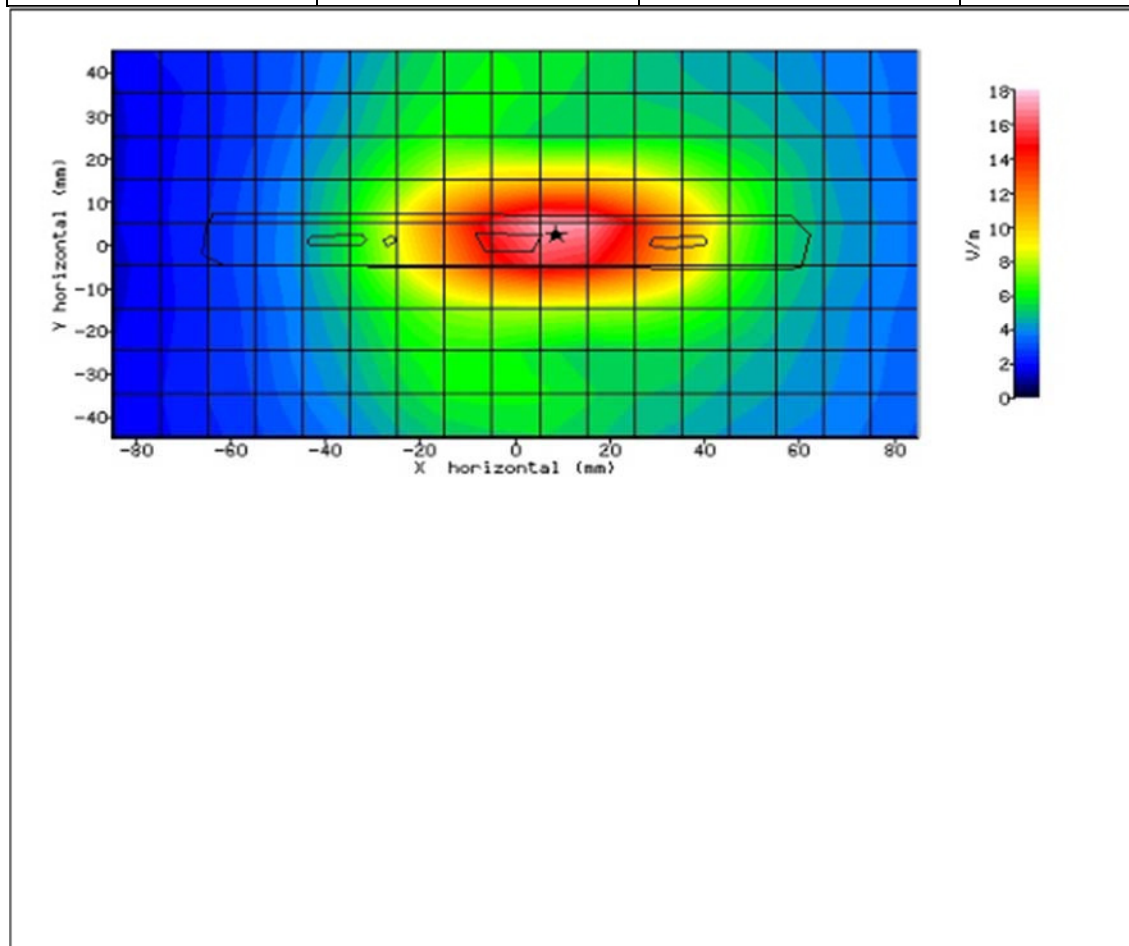


Figure 17: SAR Body Testing Results for the Sharp Smart phone at 824.2MHz.



## 2.5 WCDMA FDD V HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 29/03/2016-16:16:54 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 27.30%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 61.60mm    |
| DUT POSITION:               | Left-Cheek          | MAX SAR Z-AXIS LOCATION: | -108.30mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 20.638     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.453 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.445 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.443 W/kg |
| PROBE BATTERY LAST CHANGED: | 29/03/2016          | SAR DRIFT DURING SCAN:   | -0.500 %   |

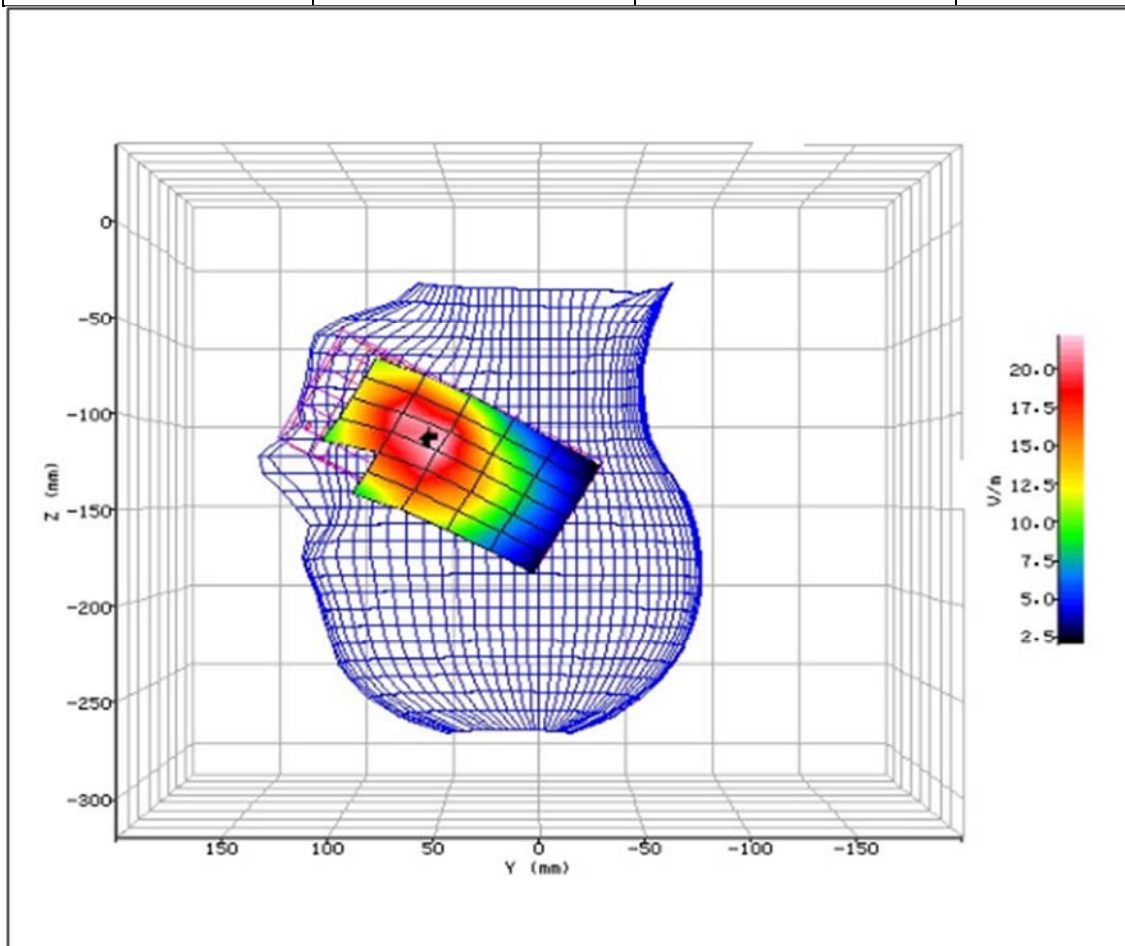


Figure 18: SAR Head Testing Results for the Sharp Smart phone at 826.4MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 29/03/2016-16:42:27 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 27.30%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 48.90mm    |
| DUT POSITION:               | Left-15°            | MAX SAR Z-AXIS LOCATION: | -118.90mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 12.865     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.168 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.167 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.168 W/kg |
| PROBE BATTERY LAST CHANGED: | 29/03/2016          | SAR DRIFT DURING SCAN:   | 0.600 %    |

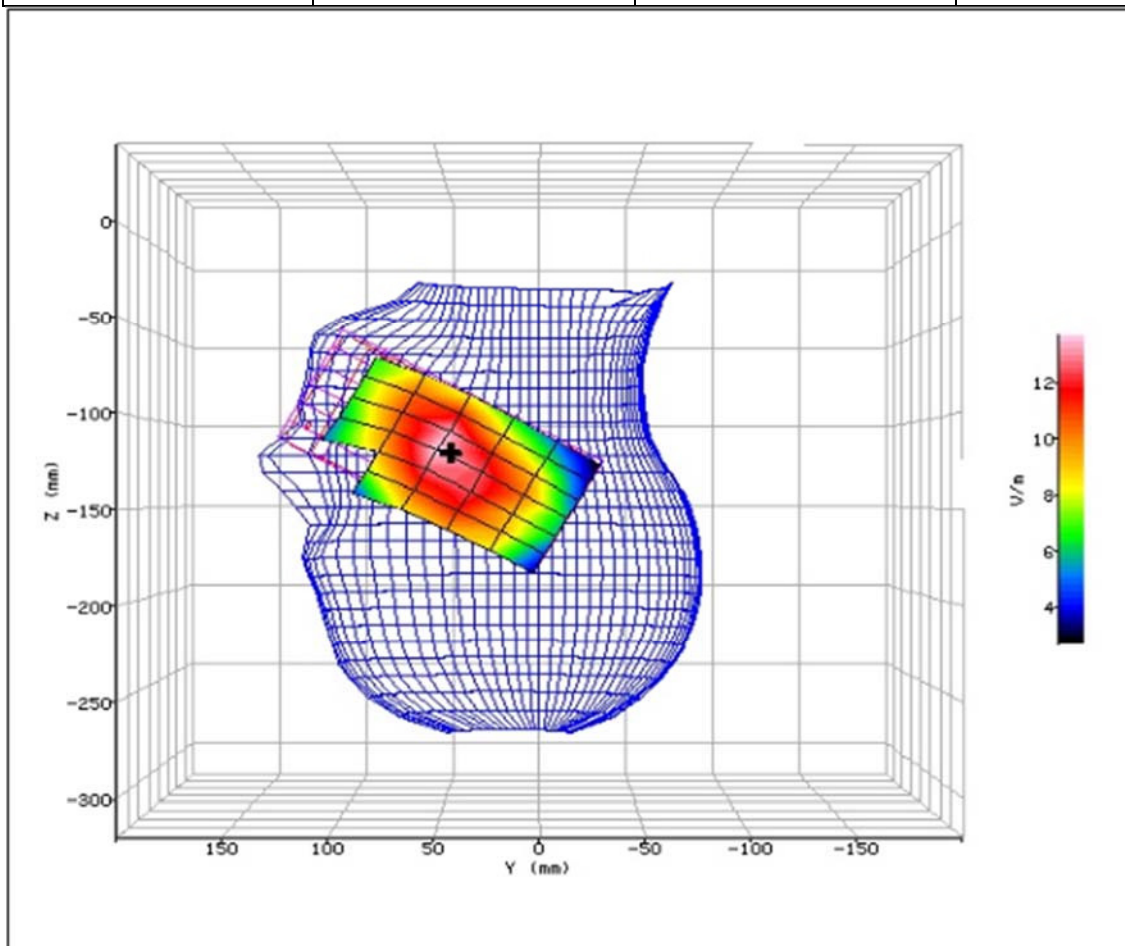


Figure 19: SAR Head Testing Results for the Sharp Smart phone at 826.4MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 29/03/2016-14:51:04 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 27.30%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 61.10mm    |
| DUT POSITION:               | Right-Cheek         | MAX SAR Z-AXIS LOCATION: | -118.10mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 19.128     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.359 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.383 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.375 W/kg |
| PROBE BATTERY LAST CHANGED: | 29/03/2016          | SAR DRIFT DURING SCAN:   | -2.100 %   |

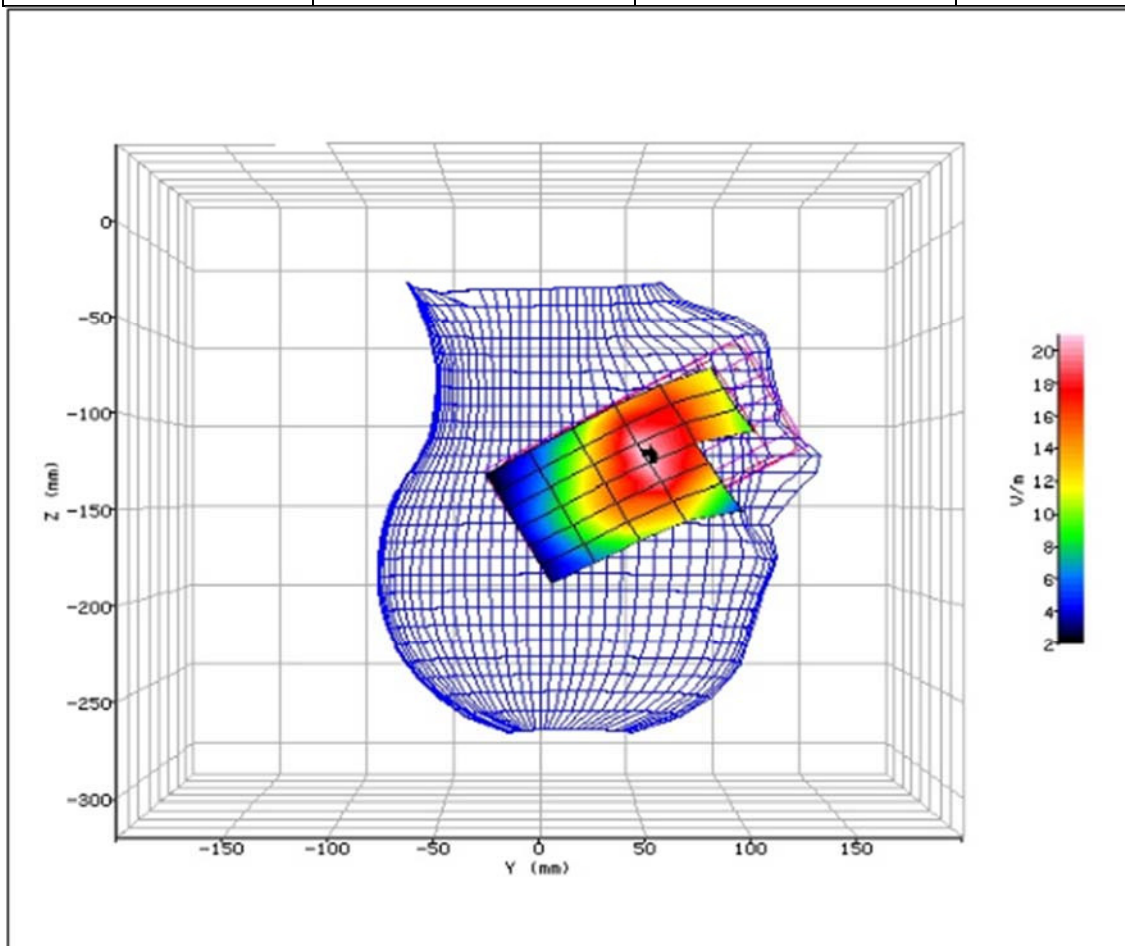


Figure 20: SAR Head Testing Results for the Sharp Smart phone at 826.4MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 29/03/2016-15:18:51 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 27.30%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 55.50mm    |
| DUT POSITION:               | Right-15°           | MAX SAR Z-AXIS LOCATION: | -130.40mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 11.497     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.126 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.133 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.132 W/kg |
| PROBE BATTERY LAST CHANGED: | 29/03/2016          | SAR DRIFT DURING SCAN:   | -0.900 %   |

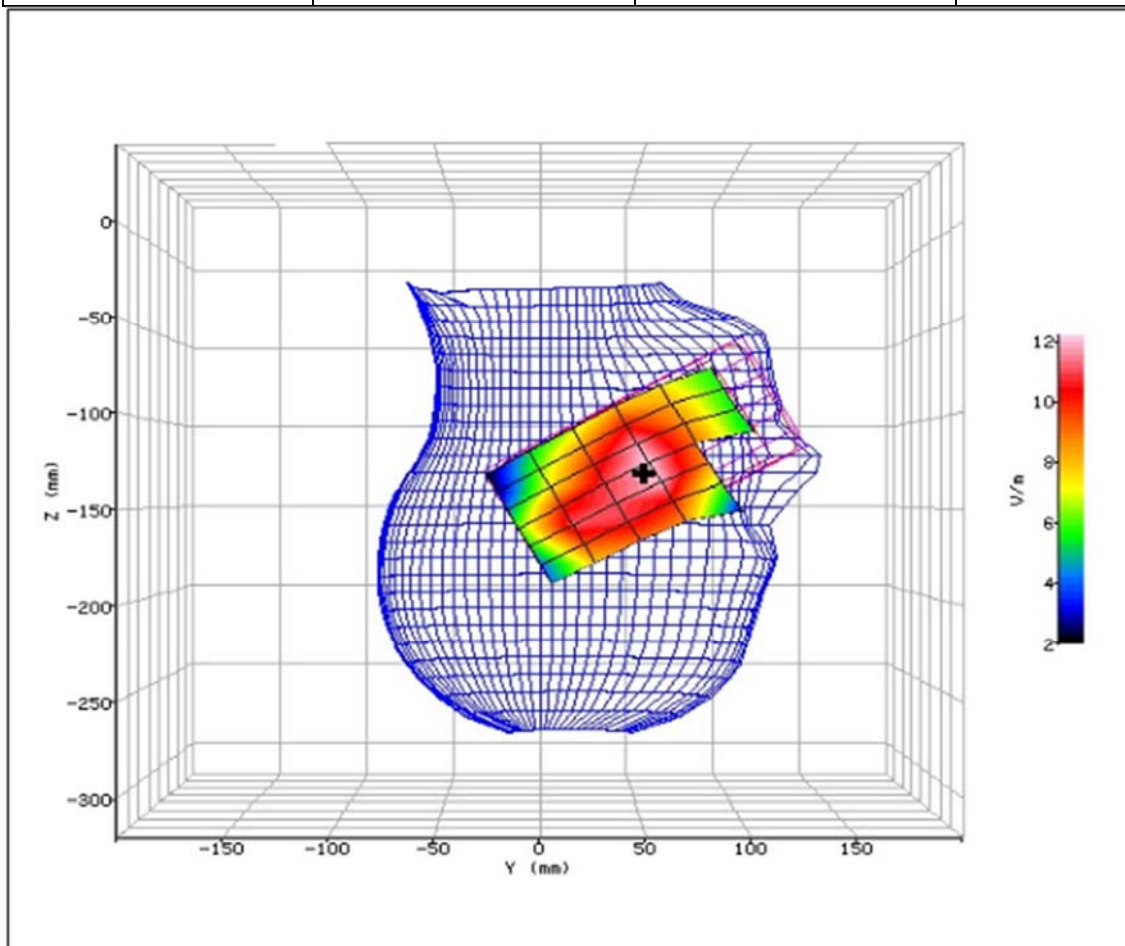


Figure 21: SAR Head Testing Results for the Sharp Smart phone at 826.4MHz.



## 2.6 WCDMA FDD V BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-16:03:44 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 78.40mm    |
| DUT POSITION:               | 10mm-Front Facing   | MAX SAR Y-AXIS LOCATION: | 0.30mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 20.052     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.447 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.458 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.455 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -0.800 %   |

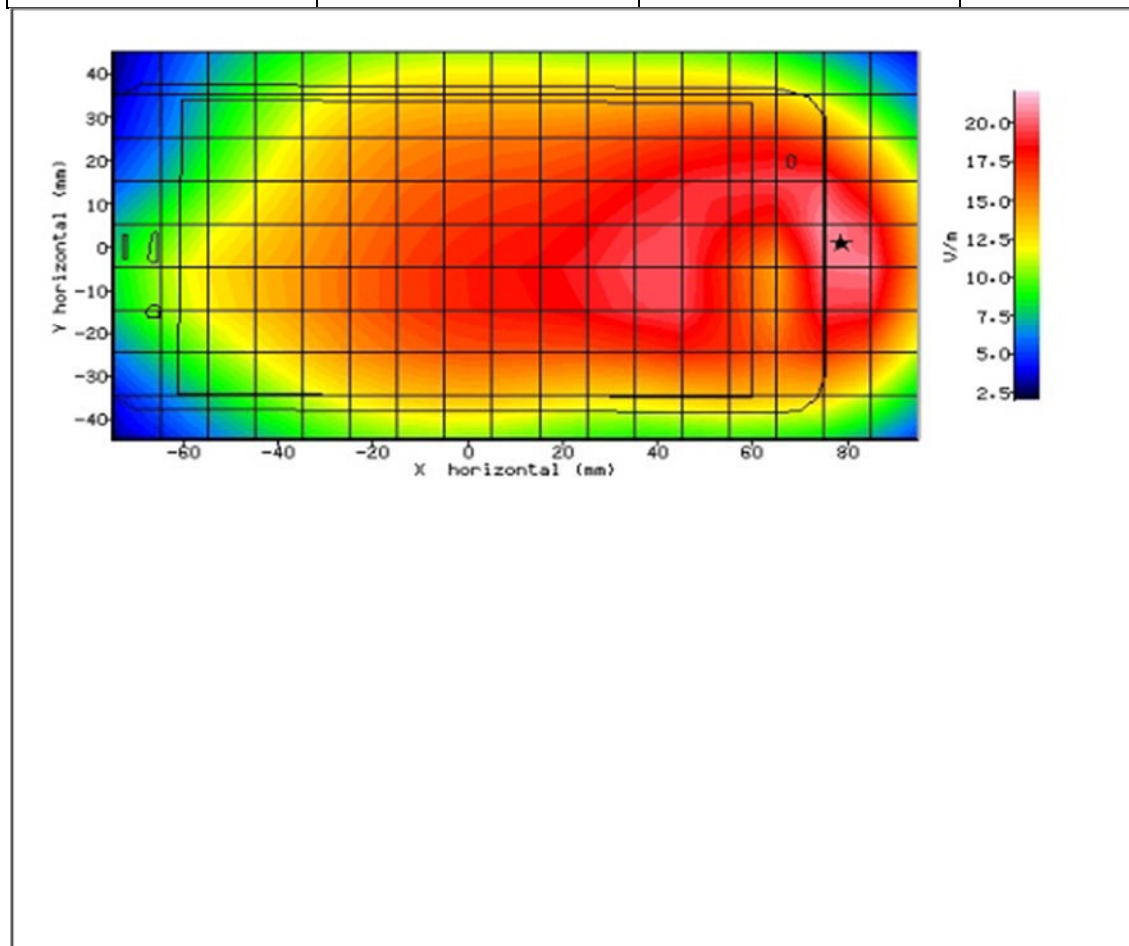


Figure 22: SAR Body Testing Results for the Sharp Smart phone at 826.4MHz.



Product Service

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-16:25:49 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 80.10mm    |
| DUT POSITION:               | 10mm-Rear Facing    | MAX SAR Y-AXIS LOCATION: | 2.10mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 20.618     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.483 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.499 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.496 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -0.600 %   |

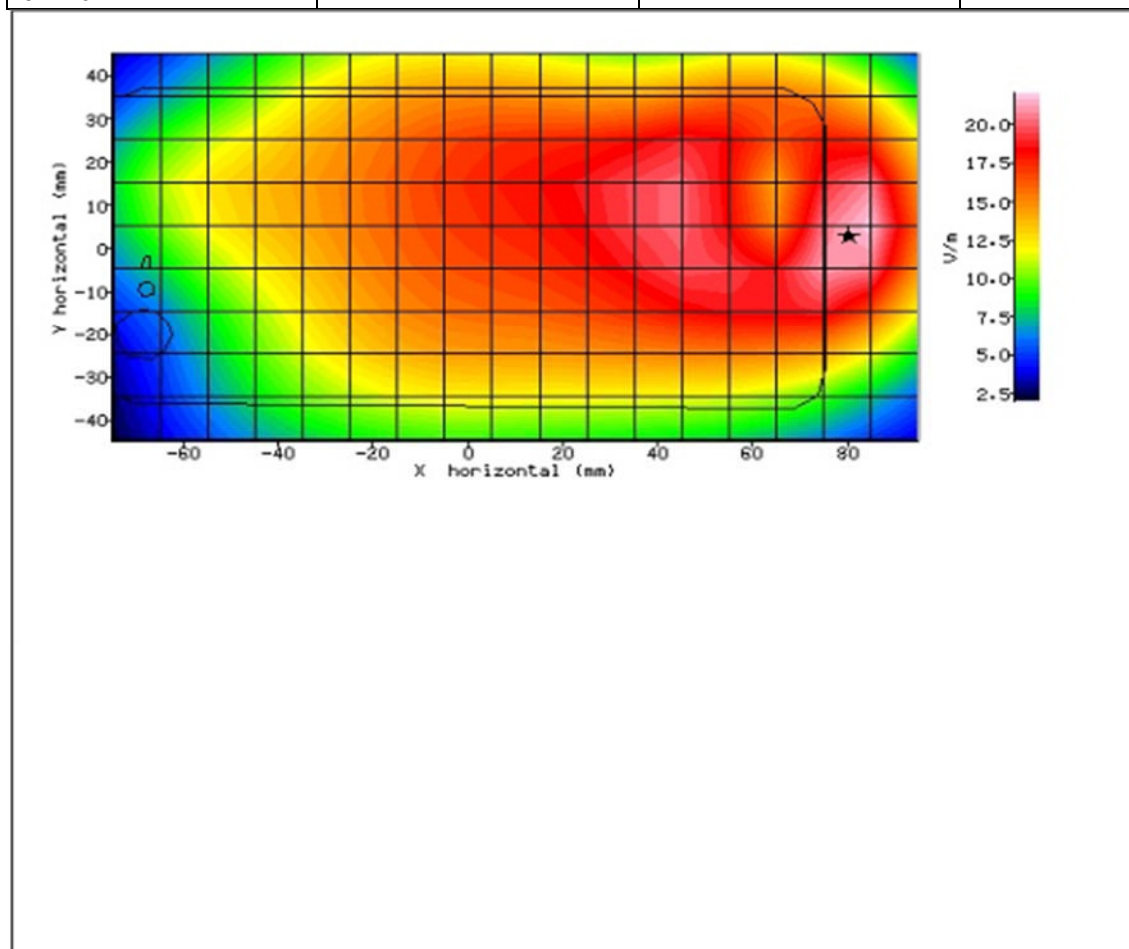


Figure 23: SAR Body Testing Results for the Sharp Smart phone at 826.4MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-15:19:15 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | -7.60mm    |
| DUT POSITION:               | 10mm-Right Edge     | MAX SAR Y-AXIS LOCATION: | 2.00mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 21.345     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.468 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.482 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.479 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -0.700 %   |

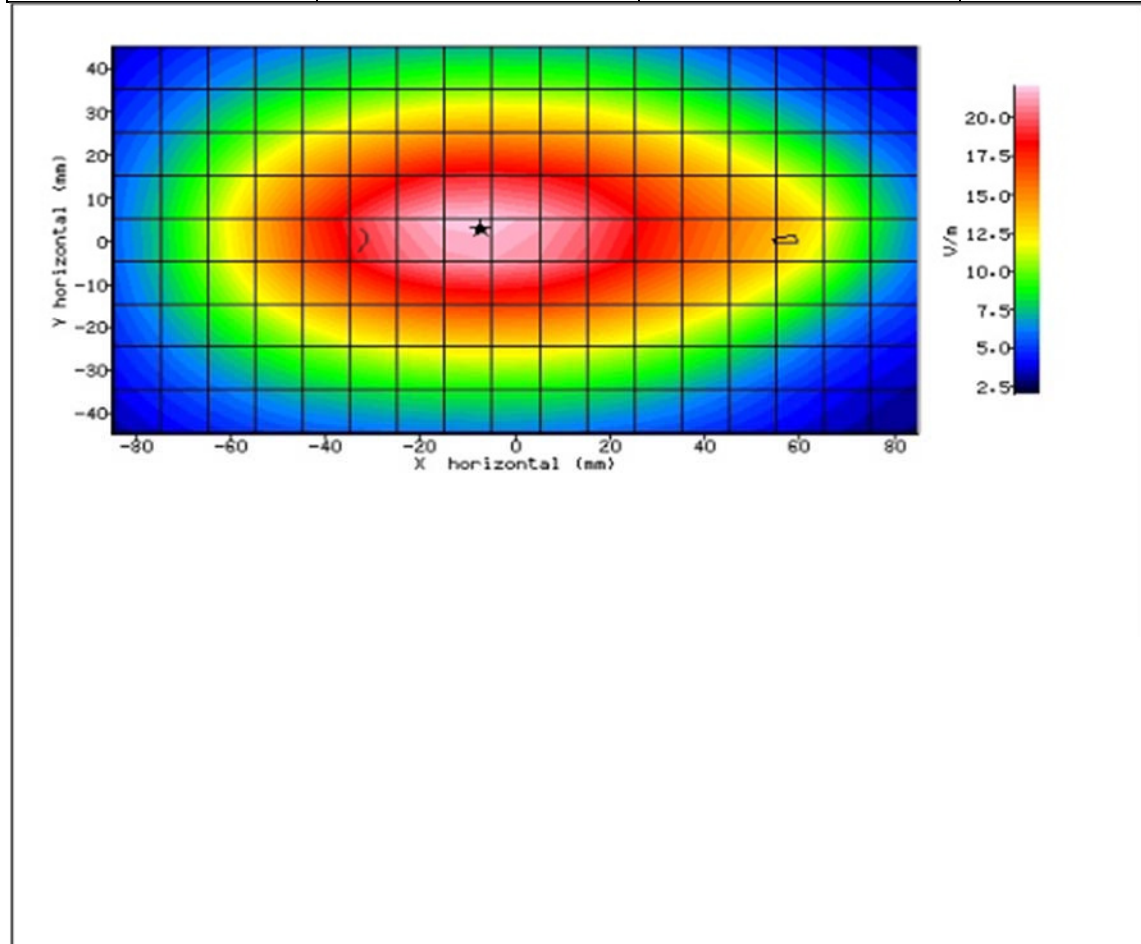


Figure 24: SAR Body Testing Results for the Sharp Smart phone at 826.4MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-14:50:27 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 9.10mm     |
| DUT POSITION:               | 10mm-Bottom Edge    | MAX SAR Y-AXIS LOCATION: | 0.30mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 15.114     |
| TEST FREQUENCY:             | 826.4MHz            | SAR 1g:                  | 0.235 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.289 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.288 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -0.300 %   |

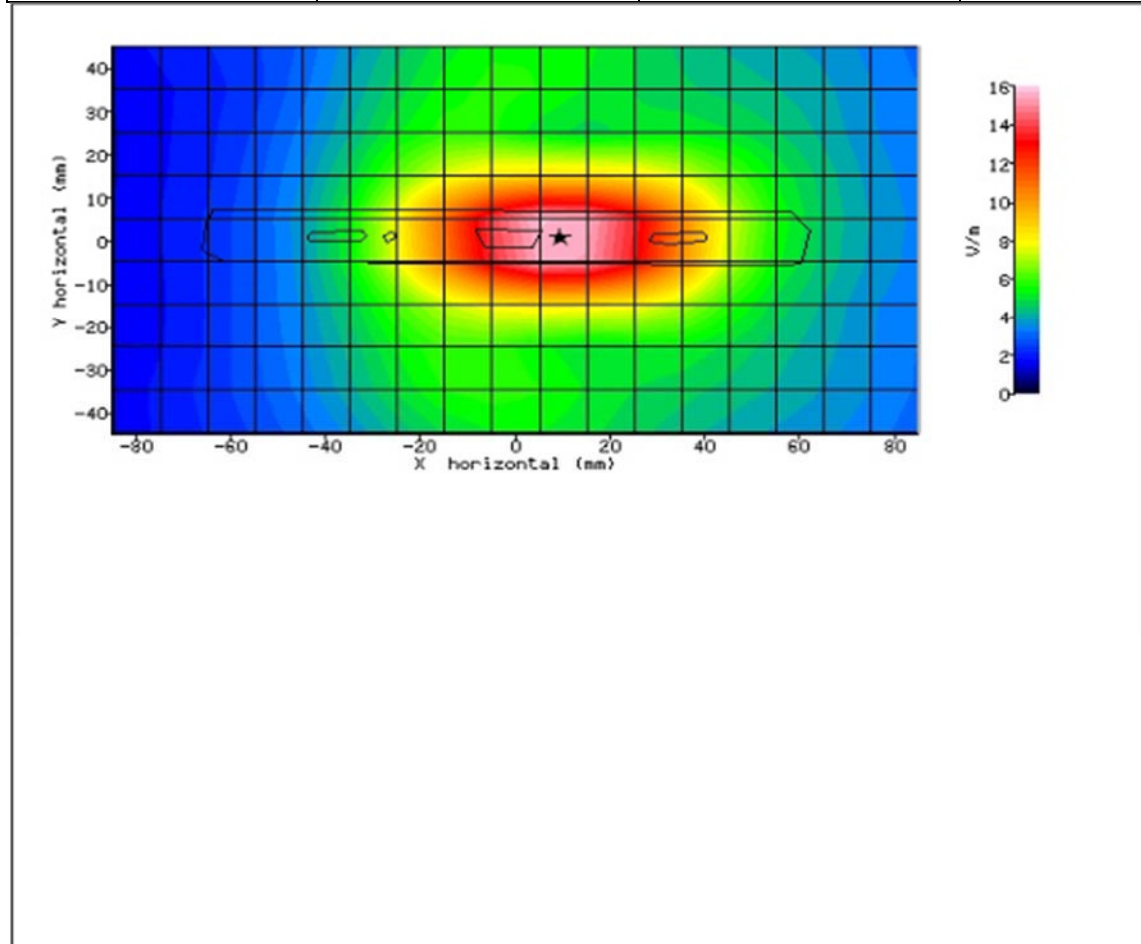


Figure 25: SAR Body Testing Results for the Sharp Smart phone at 826.4MHz.



## 2.7 LTE BAND 5 HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 31/03/2016-13:28:29 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.80°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 26.10%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 61.20mm    |
| DUT POSITION:               | Left-Cheek          | MAX SAR Z-AXIS LOCATION: | -104.20mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 20.389     |
| TEST FREQUENCY:             | 829.0MHz            | SAR 1g:                  | 0.431 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.431 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.433 W/kg |
| PROBE BATTERY LAST CHANGED: | 31/03/2016          | SAR DRIFT DURING SCAN:   | 0.400 %    |

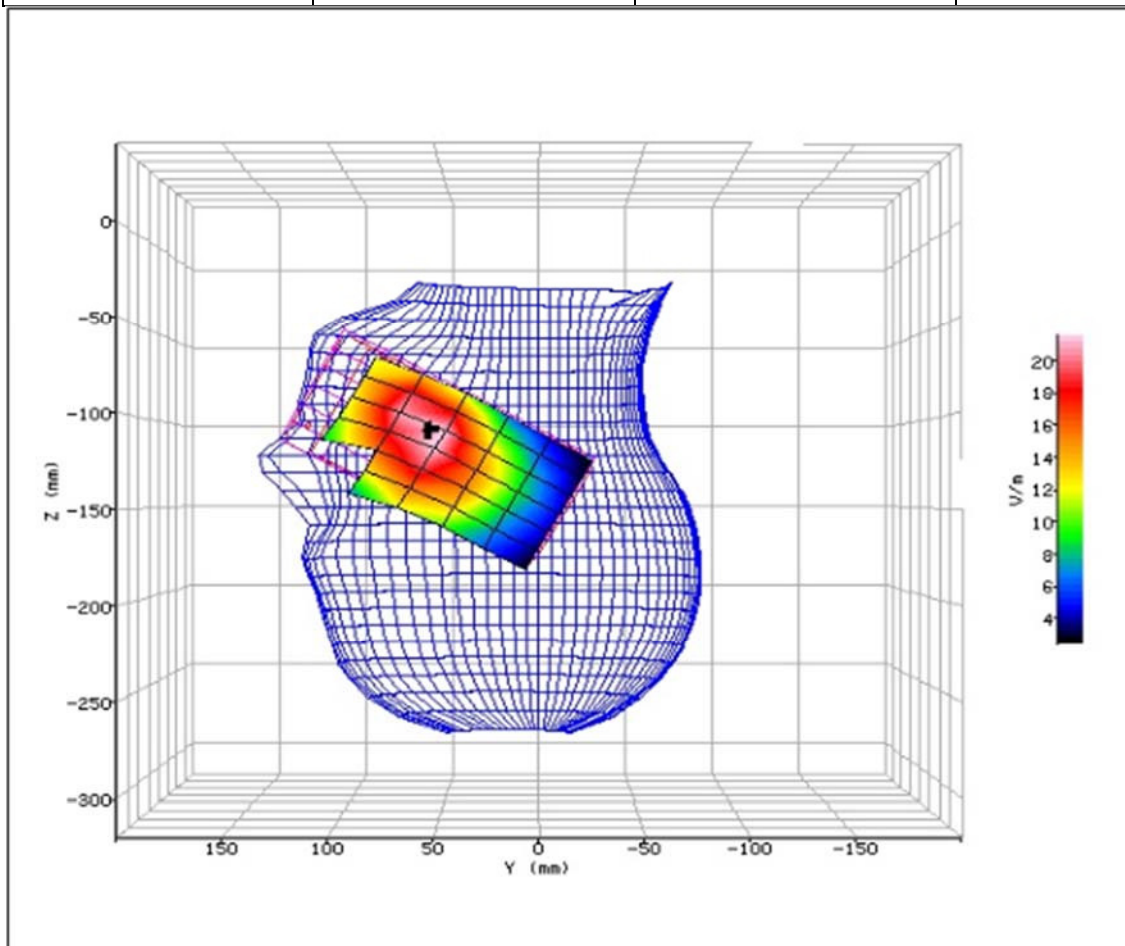


Figure 26: SAR Head Testing Results for the Sharp Smart phone at 829.0MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 31/03/2016-14:47:39 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.80°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 26.10%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 47.70mm    |
| DUT POSITION:               | Left-15°            | MAX SAR Z-AXIS LOCATION: | -117.40mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 11.312     |
| TEST FREQUENCY:             | 829.0MHz            | SAR 1g:                  | 0.134 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.128 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.128 W/kg |
| PROBE BATTERY LAST CHANGED: | 31/03/2016          | SAR DRIFT DURING SCAN:   | 0.100 %    |

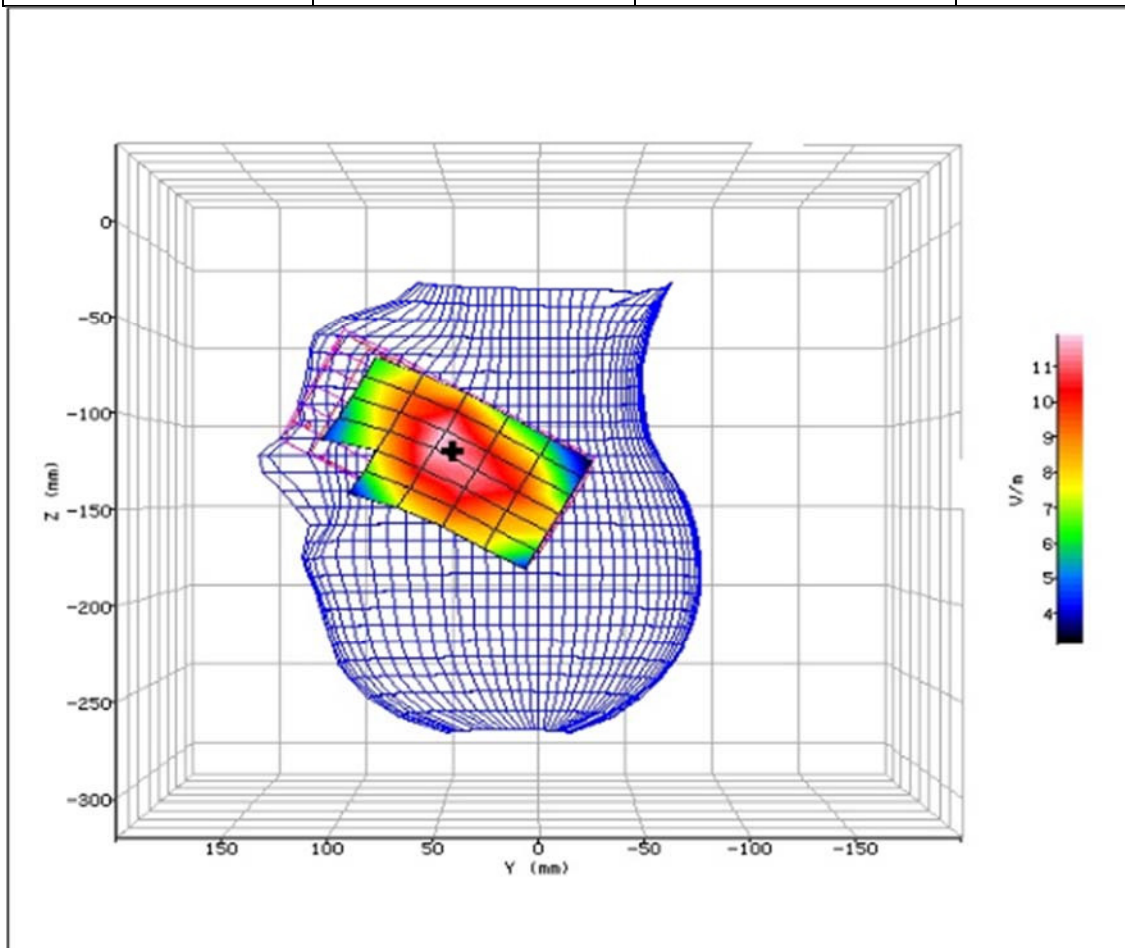


Figure 27: SAR Head Testing Results for the Sharp Smart phone at 829.0MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 31/03/2016-16:12:12 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.80°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 26.10%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.50°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 61.40mm    |
| DUT POSITION:               | Right-Cheek         | MAX SAR Z-AXIS LOCATION: | -118.30mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 19.100     |
| TEST FREQUENCY:             | 829.0MHz            | SAR 1g:                  | 0.363 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.369 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.362 W/kg |
| PROBE BATTERY LAST CHANGED: | 31/03/2016          | SAR DRIFT DURING SCAN:   | -1.800 %   |

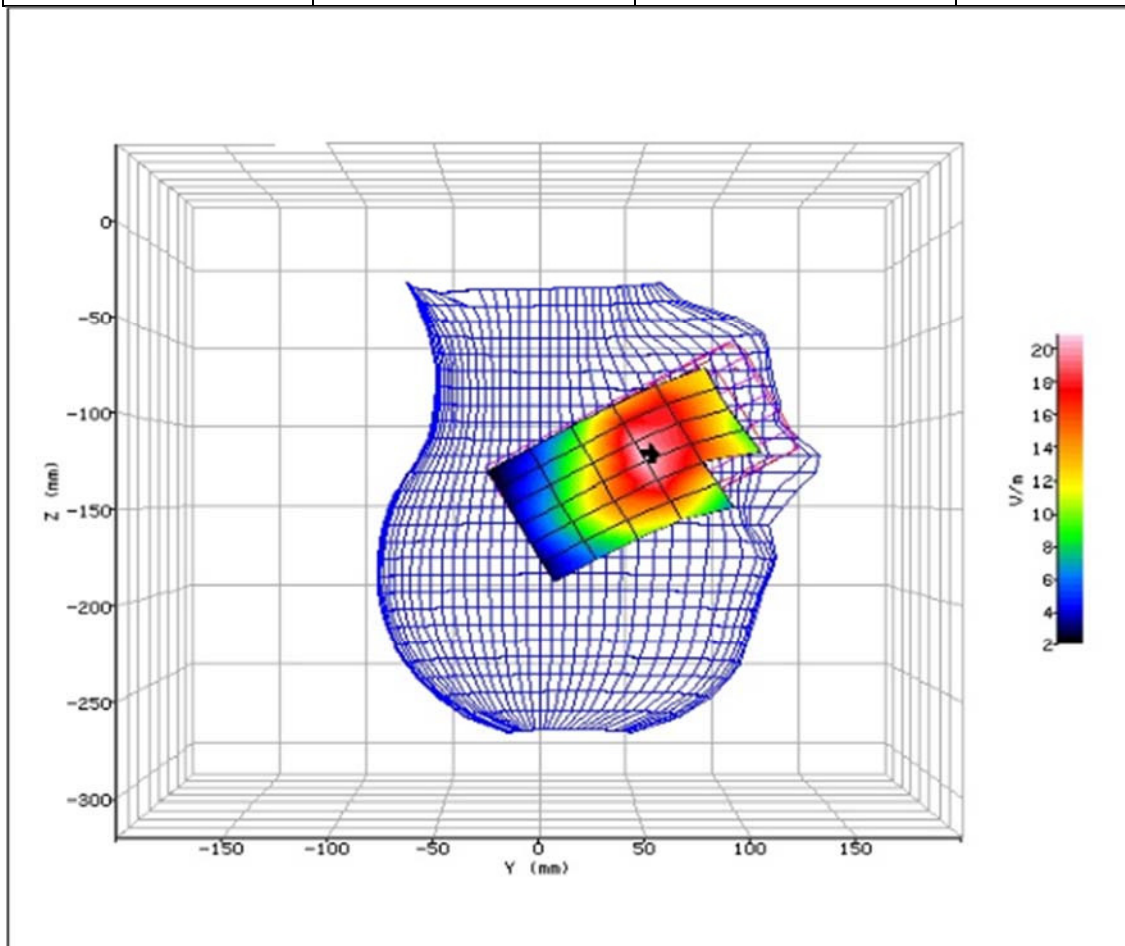


Figure 28: SAR Head Testing Results for the Sharp Smart phone at 829.0MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 01/04/2016-09:19:58 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 22.90°C             | LIQUID SIMULANT:         | 850 Head   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 40.53      |
| RELATIVE HUMIDITY:          | 29.90%              | CONDUCTIVITY:            | 0.879      |
| PHANTOM S/NO:               | IXB-040             | LIQUID TEMPERATURE:      | 22.40°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR Y-AXIS LOCATION: | 53.30mm    |
| DUT POSITION:               | Right-15°           | MAX SAR Z-AXIS LOCATION: | -131.70mm  |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 10.951     |
| TEST FREQUENCY:             | 829.0MHz            | SAR 1g:                  | 0.122 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.118 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.116 W/kg |
| PROBE BATTERY LAST CHANGED: | 01/04/2016          | SAR DRIFT DURING SCAN:   | -1.700 %   |

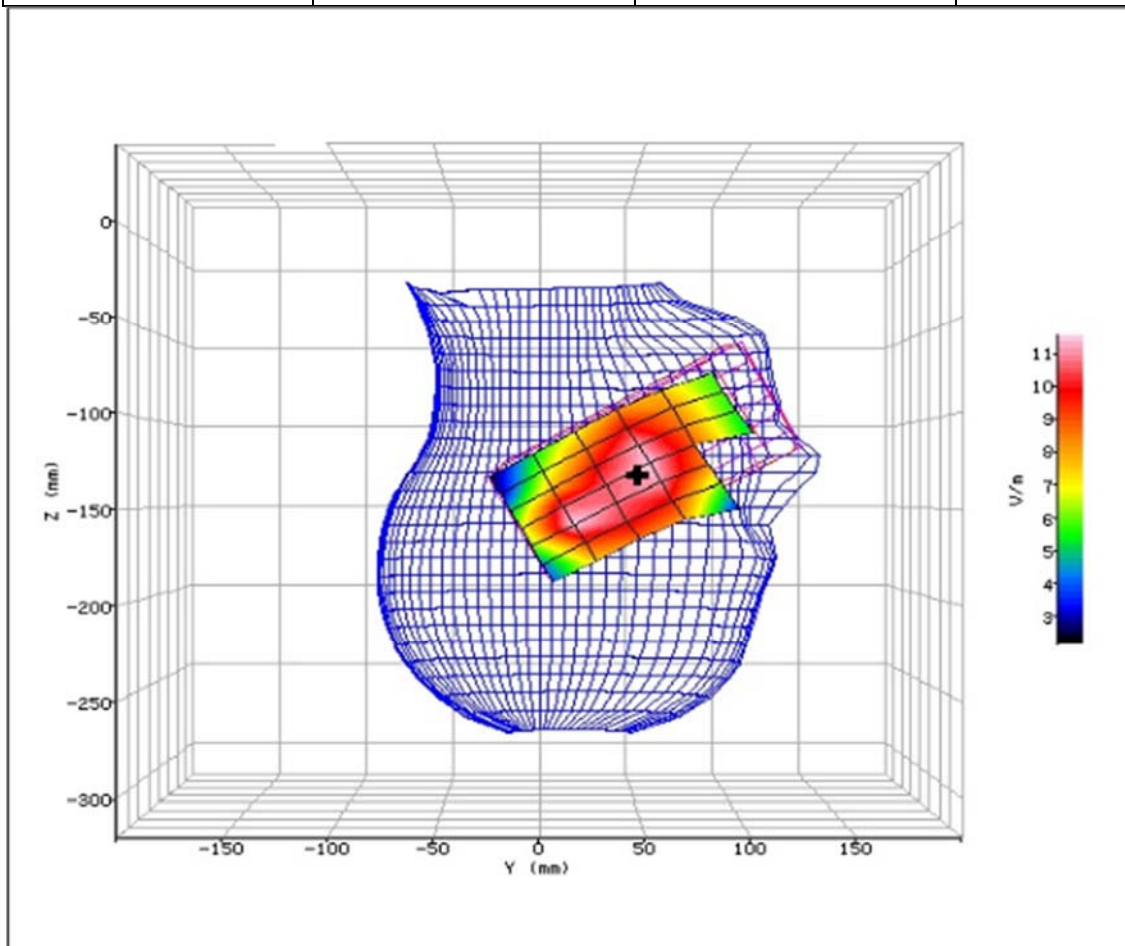


Figure 29: SAR Head Testing Results for the Sharp Smart phone at 829.0MHz.



## 2.8 LTE BAND 5 BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-17:16:13 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 78.00mm    |
| DUT POSITION:               | 10mm-Front Facing   | MAX SAR Y-AXIS LOCATION: | -0.10mm    |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 20.187     |
| TEST FREQUENCY:             | 829.0MHz            | SAR 1g:                  | 0.455 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.469 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.459 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -2.200 %   |

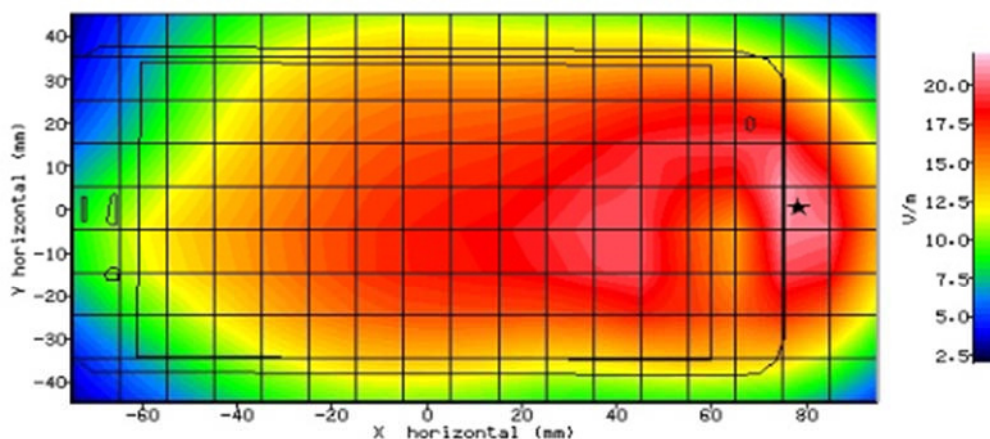


Figure 30: SAR Body Testing Results for the Sharp Smart phone at 829.0MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 13/04/2016-17:35:43 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.00°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 42.30%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 79.80mm    |
| DUT POSITION:               | 10mm-Rear Facing    | MAX SAR Y-AXIS LOCATION: | 1.50mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 19.896     |
| TEST FREQUENCY:             | 829.0MHz            | SAR 1g:                  | 0.450 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.466 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.459 W/kg |
| PROBE BATTERY LAST CHANGED: | 13/04/2016          | SAR DRIFT DURING SCAN:   | -1.500 %   |

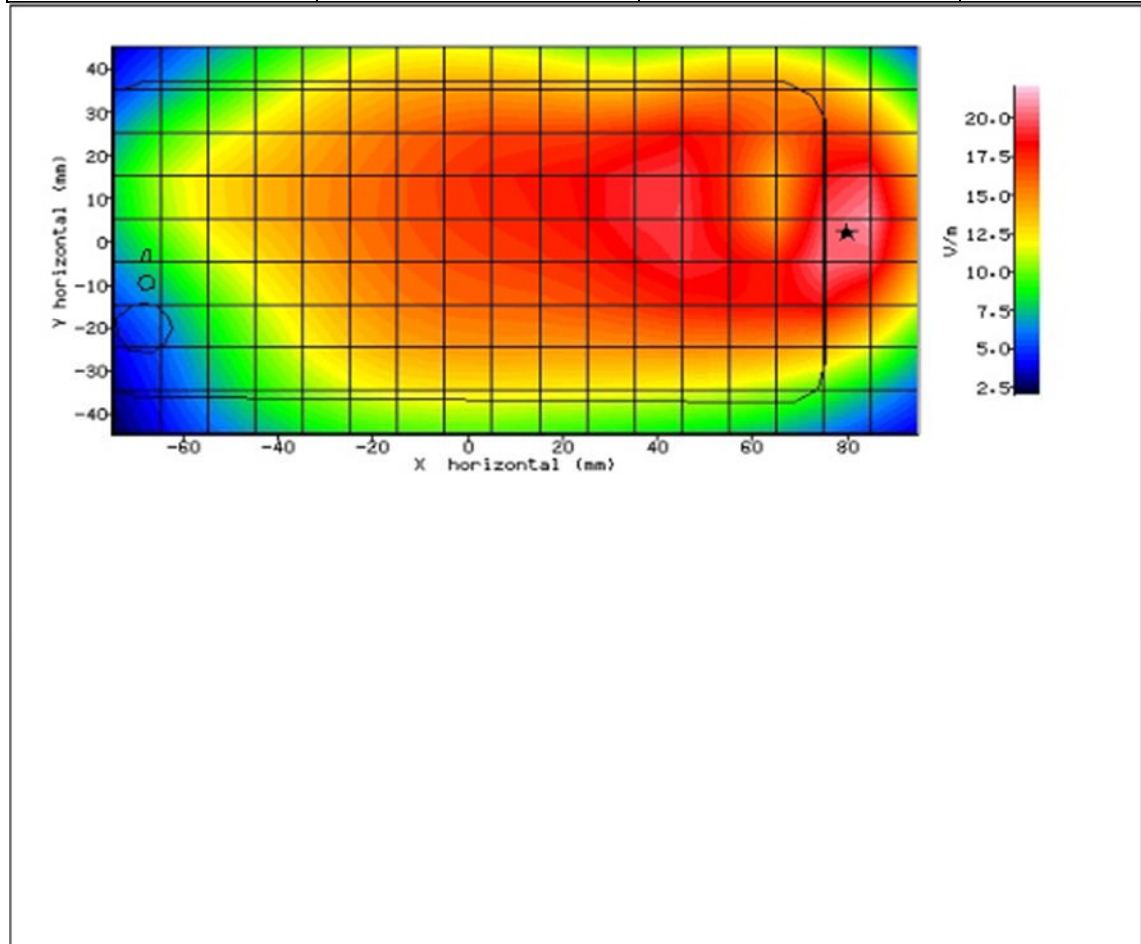


Figure 31: SAR Body Testing Results for the Sharp Smart phone at 829.0MHz.



|                             |                     |                          |            |
|-----------------------------|---------------------|--------------------------|------------|
| SYSTEM / SOFTWARE:          | SARA-C / v6.09.22   | INPUT POWER DRIFT:       | 0 dB       |
| DATE / TIME:                | 14/04/2016-08:35:25 | DUT BATTERY MODEL/NO:    | Integral   |
| AMBIENT TEMPERATURE:        | 23.10°C             | LIQUID SIMULANT:         | 850 Body   |
| DEVICE UNDER TEST:          | -                   | RELATIVE PERMITTIVITY:   | 54.18      |
| RELATIVE HUMIDITY:          | 46.20%              | CONDUCTIVITY:            | 0.987      |
| PHANTOM S/NO:               | IXB-2HF             | LIQUID TEMPERATURE:      | 23.10°C    |
| PHANTOM ROTATION:           | N/A                 | MAX SAR X-AXIS LOCATION: | 1.20mm     |
| DUT POSITION:               | 10mm-Right Edge     | MAX SAR Y-AXIS LOCATION: | 2.30mm     |
| ANTENNA CONFIGURATION:      | N/A                 | MAX E FIELD:             | 21.697     |
| TEST FREQUENCY:             | 829.0MHz            | SAR 1g:                  | 0.485 W/kg |
| TYPE OF MODULATION:         | QPSK (RMC Mode)     | SAR 10g:                 | -          |
| MODN. DUTY CYCLE:           | 100%                | SAR START:               | 0.500 W/kg |
| INPUT POWER LEVEL:          | 24.2dBm             | SAR END:                 | 0.191 W/kg |
| PROBE BATTERY LAST CHANGED: | 14/04/2016          | SAR DRIFT DURING SCAN:   | -1.900 %   |

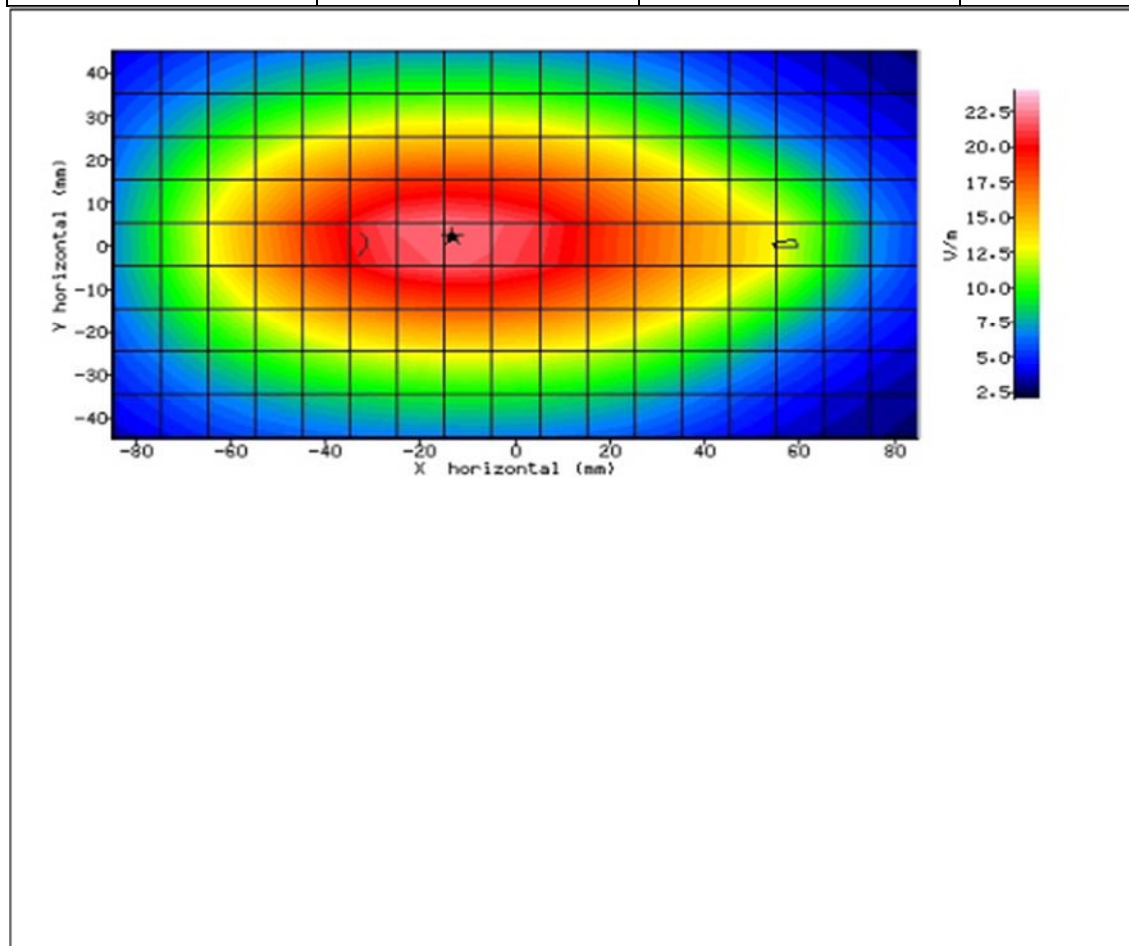


Figure 32: SAR Body Testing Results for the Sharp Smart phone at 829.0MHz.