



SAR EVALUATION REPORT

Applicant Name:

Samsung Electronics, Co. Ltd.
129, Samsung-ro, Maetan dong,
Yeongtong-gu, Suwon-si
Gyeonggi-do 443-742, Korea

Date of Testing:

05/05/14 - 05/19/14

Test Site/Location:

PCTEST Lab, Columbia, MD, USA

Document Serial No.:

0Y1405020907.A3L

FCC ID:

A3LSMT237P

APPLICANT:

SAMSUNG ELECTRONICS, CO. LTD.

DUT Type:

Portable Tablet

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SM-T237P

Equipment Class	Band & Mode	Tx Frequency	SAR
			1 gm Body (W/kg)
PCB	CDMA/EVDO BC10 (\$90S)	817.90 - 823.10 MHz	0.24
PCB	CDMA/EVDO BC0 (\$22H)	824.70 - 848.31 MHz	0.20
PCB	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.76
PCB	LTE Band 26	814.7 - 848.3 MHz	0.33
PCB	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.95
PCB	LTE Band 41	2498.5 - 2687.5 MHz	1.09
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.51
DTS	5.8 GHz WLAN	5745 - 5825 MHz	0.97
NII	5.2 GHz WLAN	5180 - 5240 MHz	0.92
NII	5.3 GHz WLAN	5260 - 5320 MHz	0.96
NII	5.5 GHz WLAN	5500 - 5700 MHz	1.06
DSS/DTS	Bluetooth	2402 - 2480 MHz	N/A
Simultaneous SAR per KDB 690783 D01v01r02:			1.47

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.7 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.


Randy Ortanez
President



FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 1 of 73	

T A B L E O F C O N T E N T S

1	DEVICE UNDER TEST	3
2	LTE INFORMATION	8
3	INTRODUCTION	9
4	DOSIMETRIC ASSESSMENT	10
5	SAR TESTING PROCEDURES	11
6	RF EXPOSURE LIMITS	12
7	FCC MEASUREMENT PROCEDURES.....	13
8	RF CONDUCTED POWERS.....	17
9	SYSTEM VERIFICATION.....	49
10	SAR DATA SUMMARY	51
11	FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS.....	57
12	SAR MEASUREMENT VARIABILITY	67
13	EQUIPMENT LIST	68
14	MEASUREMENT UNCERTAINTIES	69
15	CONCLUSION.....	71
16	REFERENCES	72
APPENDIX A: SAR TEST PLOTS		
APPENDIX B: SAR DIPOLE VERIFICATION PLOTS		
APPENDIX C: PROBE AND DIPOLE CALIBRATION CERTIFICATES		
APPENDIX D: SAR TISSUE SPECIFICATIONS		
APPENDIX E: SAR SYSTEM VALIDATION		
APPENDIX F: SAR TEST SETUP PHOTOGRAPHS		
APPENDIX G: SENSOR TRIGGERING DATA SUMMARY		

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 2 of 73	

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
CDMA/EVDO BC10 (§90S)	Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Data	1851.25 - 1908.75 MHz
LTE Band 26	Data	814.7 - 848.3 MHz
LTE Band 25 (PCS)	Data	1850.7 - 1914.3 MHz
LTE Band 41	Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Data	2412 - 2462 MHz
5.8 GHz WLAN	Data	5745 - 5825 MHz
5.2 GHz WLAN	Data	5180 - 5240 MHz
5.3 GHz WLAN	Data	5260 - 5320 MHz
5.5 GHz WLAN	Data	5500 - 5700 MHz
Bluetooth	Data	2402 - 2480 MHz
ANT+	Data	2402 - 2480 MHz

1.2 Power Reduction for SAR

This device uses a proximity sensor for SAR compliance. The proximity sensor is activated when used in close proximity to the user's body. The proximity sensor triggers power reduction for all data modes and is only applicable for tablet operations. There is no power reduction mechanism for WIFI/BT modes for SAR purposes. There are no body-worn accessories for this device. Since the device is a full tablet size, the Body SAR was evaluated per FCC KDB Publication 616217 D04v01 for full sized tablets.

1.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v05.

1.3.1 Maximum Power:

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	25.0
	Nominal	24.5
CDMA/EVDO BC0 (§22H)	Maximum	25.0
	Nominal	24.5
PCS CDMA/EVDO	Maximum	25.0
	Nominal	24.5

Mode / Band		Modulated Average (dBm)
LTE Band 26	Maximum	24.0
	Nominal	23.5
LTE Band 25 (PCS)	Maximum	24.0
	Nominal	23.5
LTE Band 41	Maximum	24.0
	Nominal	23.5

FCC ID: A3LSMT237P	 SAR EVALUATION REPORT 		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 3 of 73

Mode / Band		Modulated Average (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	12.5
	Nominal	12.0
IEEE 802.11g (2.4 GHz)	Maximum	11.0
	Nominal	10.5
IEEE 802.11n (2.4 GHz)	Maximum	10.0
	Nominal	9.5
IEEE 802.11a (5 GHz)	Maximum	10.0
	Nominal	9.5
IEEE 802.11n (5 GHz) 20 MHz	Maximum	10.0
	Nominal	9.5
IEEE 802.11n (5 GHz) 40 MHz	Maximum	9.5
	Nominal	9.0
Bluetooth	Maximum	8.5
	Nominal	8.0
Bluetooth LE	Maximum	2.0
	Nominal	1.5

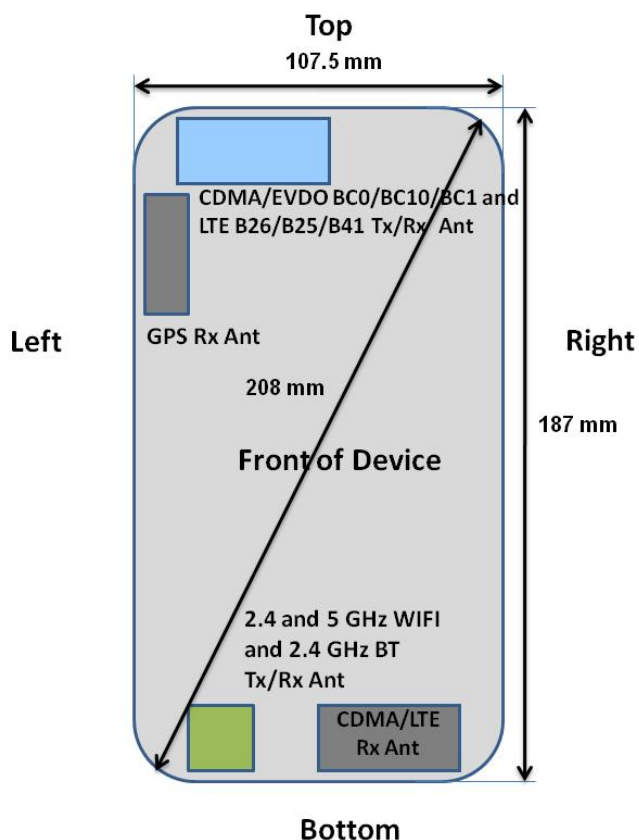
1.3.2 Reduced Power -Body at 0 mm:

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	19.0
	Nominal	18.5
CDMA/EVDO BC0 (§22H)	Maximum	19.7
	Nominal	19.2
PCS CDMA/EVDO	Maximum	12.5
	Nominal	12.0

Mode / Band		Modulated Average (dBm)
LTE Band 26	Maximum	18.0
	Nominal	17.5
LTE Band 25 (PCS)	Maximum	13.5
	Nominal	13.0
LTE Band 41	Maximum	14.5
	Nominal	14.0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 4 of 73

1.4 DUT Antenna Locations



Note: Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC Filing.

Figure 1-1
DUT Antenna Locations

Table 1-1
Mobile Sides for SAR Testing

Sides for SAR Testing					
Mode	Back	Top	Bottom	Right	Left
EVDO BC10 (\$90S)	Yes	Yes	No	Yes	Yes
EVDO BC0 (\$22H)	Yes	Yes	No	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	Yes
LTE Band 26	Yes	Yes	No	Yes	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes
2.4 GHz WLAN	Yes	No	Yes	No	Yes
5 GHz WLAN	Yes	No	Yes	No	Yes

Note: Per FCC KDB 616217 D04v01r01, Particular DUT edges were not required to be evaluated for SAR based on the SAR exclusion threshold in KDB 447498 D01v05r01.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 5 of 73	

1.5 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D05v01, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the DUT are shown in Figure 1-2 and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

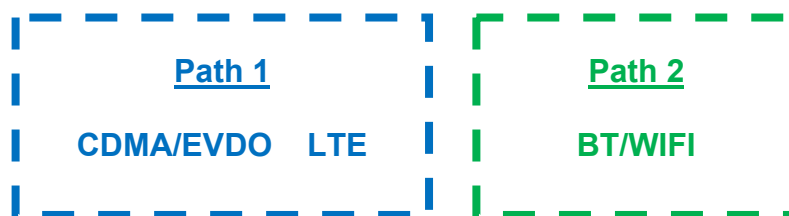


Figure 1-2
Simultaneous Transmission Paths

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v05 3) procedures.

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Body
1	LTE + 2.4 GHz WI-FI	Yes
2	LTE + 5 GHz WI-FI	Yes
3	LTE + 2.4 GHz Bluetooth	Yes
4	CDMA/EVDO data + 2.4 GHz WI-FI	Yes
5	CDMA/EVDO data + 5 GHz WI-FI	Yes
6	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes

Notes:

1. 2.4 GHz WLAN, 2.4 GHz Bluetooth, and 5 GHz WLAN share the same antenna path and cannot transmit simultaneously.
2. CDMA/EVDO and LTE share the same antenna path and cannot transmit simultaneously.

1.6 SAR Test Exclusions Applied

(A) WIFI/BT

Per FCC KDB 447498 D01v05, the SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel (mW)}}{\text{Test Separation Dist (mm)}} * \sqrt{\text{Frequency (GHz)}} \leq 3.0$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, Bluetooth SAR was not required; $[(7/5) * \sqrt{2.441}] = 2.2 < 3.0$. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 6 of 73

This device supports 20 MHz and 40 MHz Bandwidths for IEEE 802.11n for 5 GHz WIFI only. IEEE 802.11n was not evaluated for SAR since the average output power of 20 MHz and 40 MHz bandwidths was not more than 0.25 dB higher than the average output power of IEEE 802.11a.

(B) Licensed Transmitter(s)

LTE SAR for the higher modulations and lower bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02.

1.7 Guidance Applied

- FCC KDB Publication 941225 D01-D06 (2G/3G/4G)
- FCC KDB Publication 248227 D01v01r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v05 (General SAR Guidance)
- FCC KDB Publication 865664 D01-D02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 616217 D04v01 (Tablet SAR Consideration)

1.8 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.

	Max Power Serial Number	Reduced Power Serial Number
CDMA/EVDO BC10 (\$90S)	FCC #1	FCC #5
CDMA/EVDO BC0 (\$22H)	FCC #1	FCC #5
PCS CDMA/EVDO	FCC #1	FCC #5
LTE Band 26	FCC #2	FCC #5
LTE Band 25 (PCS)	FCC #2	FCC #6
LTE Band 41	FCC #4	FCC #6
2.4 GHz WLAN	FCC #3	-
5 GHz WLAN	FCC #5	-

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 7 of 73

2

LTE INFORMATION

LTE Information					
FCC ID	A3LSMT237P				
Form Factor	Portable Tablet				
Frequency Range of each LTE transmission band	LTE Band 26 (814.7 - 848.3 MHz) LTE Band 25 (PCS) (1850.7 - 1914.3 MHz) LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 26: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 26: 1.4 MHz	814.7 (26697)	N/A	831.5 (26865)	N/A	848.3 (27033)
LTE Band 26: 3 MHz	815.5 (26705)		831.5 (26865)		847.5 (27025)
LTE Band 26: 5 MHz	816.5 (26715)		831.5 (26865)		846.5 (27015)
LTE Band 26: 10 MHz	819 (26740)		831.5 (26865)		844 (26990)
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)		1914.3 (26683)
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)		1913.5 (26675)
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)		1912.5 (26665)
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)		1910 (26640)
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)		1907.5 (26615)
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)		1905 (26590)
LTE Band 41: 5 MHz	2498.5 (39675)	2545.75 (40148)	2593 (40620)	2640.25 (41093)	2687.5 (41565)
LTE Band 41: 10 MHz	2501 (39700)	2547 (40160)	2593 (40620)	2639 (41080)	2685 (41540)
LTE Band 41: 15 MHz	2503.5 (39725)	2548.25 (40173)	2593 (40620)	2637.75 (41068)	2682.5 (41515)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	3				
Modulations Supported in UL	QPSK, 16QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				

FCC ID: A3LSMT237P				Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 8 of 73	

The FCC and Industry Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

3.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

Equation 3-1
SAR Mathematical Equation

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dv} \right)$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m³)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 9 of 73

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

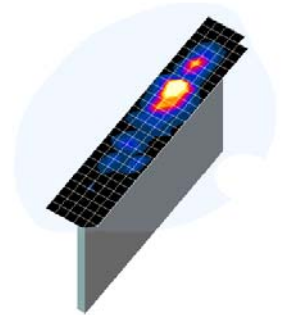


Figure 4-1
Sample SAR Area
Scan

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01*

Frequency	Maximum Area Scan Resolution (mm) (Δx_{area} , Δy_{area})	Maximum Zoom Scan Resolution (mm) (Δx_{zoom} , Δy_{zoom})	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
				$\Delta z_{zoom}(n)$	$\Delta z_{zoom}(1)^*$	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5* $\Delta z_{zoom}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5* $\Delta z_{zoom}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5* $\Delta z_{zoom}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5* $\Delta z_{zoom}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5* $\Delta z_{zoom}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

FCC ID: A3LSMT237P		SAR EVALUATION REPORT			Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet			Page 10 of 73

5 SAR TESTING PROCEDURES

5.1 SAR Testing for Tablet per KDB Publication 616217 D04

This device is used in full sized tablet exposure conditions due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498 D01v05 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

5.2 Additional Test Positions due to Proximity Sensor Considerations

This device uses a proximity sensor to reduce data powers in tablet-device use conditions.

While the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum output power allowed. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, an additional exposure condition is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level.

FCC KDB 616217 D04 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional exposure conditions. Since the proximity sensor activation distance for the back side of the device is 15 mm, a conservative distance of 14 mm was tested for SAR on the back side at maximum power. Since the proximity sensor activation distance for the top edge of the device is 13 mm, a conservative distance of 12 mm was tested for SAR on the top edge at maximum power. Since the proximity sensor activation distance for the left edge of the device is 3 mm, a conservative distance of 2 mm was tested for SAR on the left edge at maximum power. Sensor triggering distance summary data is included in Appendix G.

The sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the sensor entirely covers the antenna.

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 11 of 73

6 RF EXPOSURE LIMITS

6.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

6.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 6-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 12 of 73

7 FCC MEASUREMENT PROCEDURES

Power measurements were performed using a base station simulator under digital average power.

7.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v05, When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r02.

7.2 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

The device was placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test were evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device was tested throughout the SAR test at maximum output power, the SAR measurement system measures a "point SAR" at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviated by more than 5%, the SAR test and drift measurements were repeated.

7.3 SAR Measurement Conditions for CDMA2000

The following procedures were performed according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

7.3.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices" v02, October 2007. Maximum output power is verified on the High, Middle and Low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in the "All Up" condition.

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 7-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH₀ and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH₀ data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 7-2 was applied.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 13 of 73

Table 7-1
Parameters for Max. Power for RC1

Parameter	Units	Value
I_{or}	dBm/1.23 MHz	-104
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

Table 7-2
Parameters for Max. Power for RC3

Parameter	Units	Value
I_{or}	dBm/1.23 MHz	-86
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

5. FCHs were configured at full rate for maximum SAR with “All Up” power control bits.

7.3.2 Body SAR Measurements for EVDO Data Devices

Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 per KDB Publication 941225 D01 procedures for “1x Ev-Do data Devices”. SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channels is less than that measured in Subtype 0/1 Physical layer configurations. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for the RF channels in Rev. 0. The AT is tested with a Reverse Data Channel rate of 153.6 kbps in Subtype 0/1 Physical Layer configurations; and a Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots in Subtype 2 Physical Layer configurations.

SAR is not required for 1x RTT for Ev-Do devices that also support 1x RTT voice and/or data operations, when the maximum average output of each channel is less than 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0. Otherwise, CDMA “Body-SAR Measurement” procedures for “CDMA 2000 1x Handsets” were applied.

7.4 SAR Measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05v02 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

7.4.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

7.4.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

7.4.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

7.4.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r01:

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 14 of 73

- a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
 - i. The required channel and offset combination with the highest maximum output power is required for SAR.
 - ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
 - iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
- b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
- c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
- d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to $\frac{1}{2}$ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/kg.

7.4.5 TDD

LTE TDD testing procedures were performed using guidance from FCC KDB 941225 D05v02r03 and the SAR test guidance provided in April 2013 TCB workshop notes. TDD was tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225. SAR testing was performed using the extended cyclic prefix listed in 3GPP TS 36.211 Section 4.

7.5 SAR Testing with 802.11 Transmitters

Normal network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g/n transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v01r02 for more details.

7.5.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

7.5.2 Frequency Channel Configurations [24]

For 2.4 GHz, the highest average RF output power channel between the low, mid and high channel at the lowest data rate was selected for SAR evaluation in 802.11b mode. 802.11g/n modes and higher data rates for 802.11b were additionally evaluated for SAR if the output power of the respective mode was 0.25 dB or higher than the powers of the SAR configurations tested in the 802.11b mode.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 15 of 73

For 5 GHz, the highest average RF output power channel across the default test channels at the lowest data rate was selected for SAR evaluation in 802.11a. When the adjacent channels are higher in power than the default channels, these "required channels" were considered instead of the default channels for SAR testing. 802.11n modes and higher data rates for 802.11a/n were evaluated only if the respective mode was higher than 0.25 dB or more than the 802.11a mode.

If the maximum extrapolated peak SAR of the zoom scan for the highest output channel was less than 1.6 W/kg and if the 1g averaged SAR was less than 0.8 W/kg, SAR testing was not required for the other test channels in the band.

FCC ID: A3LSMT237P			SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 16 of 73

8 RF CONDUCTED POWERS

8.1 CDMA Conducted Powers

Table 8-1
Maximum CDMA Conducted Powers

Band	Channel	Rule Part	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	24.77	24.85	24.86	24.81
Cellular	1013	22H	824.7	24.80	24.76	24.82	24.80
	384	22H	836.52	24.70	24.69	24.72	24.70
	777	22H	848.31	24.75	24.74	24.79	24.72
PCS	25	24E	1851.25	24.41	24.39	24.44	24.42
	600	24E	1880	24.56	24.59	24.62	24.55
	1175	24E	1908.75	24.75	24.71	24.78	24.77

Table 8-2
Reduced CDMA Conducted Powers

Band	Channel	Rule Part	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	18.17	18.13	18.07	18.06
Cellular	1013	22H	824.7	18.90	18.87	18.95	18.94
	384	22H	836.52	18.79	18.83	18.75	18.74
	777	22H	848.31	18.90	18.96	18.95	18.90
PCS	25	24E	1851.25	12.00	12.33	12.27	12.26
	600	24E	1880	11.95	12.05	12.37	12.30
	1175	24E	1908.75	12.18	12.01	12.37	12.34

- For FCC Rule Part 90S, Per FCC KDB Publication 447498 D01v05 4.1.6, only one channel is required since the device operates within the transmission range of 817.90 – 823.10 MHz.
- Per KDB Publication 941225 D01v02, body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. If the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, then Rev. A SAR is not required. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for that RF channel in Rev. 0. SAR is not required for 1x RTT for Ev-Do hotspot devices when the maximum average output of each channel is less than 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0



Figure 8-1
Power Measurement Setup

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 17 of 73

8.2 LTE Conducted Powers

8.2.1

LTE Band 26 Maximum Power

Table 8-3
LTE Band 26 Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	819	26740	10	QPSK	1	0	23.62	0	0
	819	26740	10	QPSK	1	25	23.75	0	0
	819	26740	10	QPSK	1	49	23.67	0	0
	819	26740	10	QPSK	25	0	22.74	0-1	1
	819	26740	10	QPSK	25	12	22.69	0-1	1
	819	26740	10	QPSK	25	25	22.73	0-1	1
	819	26740	10	QPSK	50	0	22.79	0-1	1
	819	26740	10	16QAM	1	0	22.80	0-1	1
	819	26740	10	16QAM	1	25	22.83	0-1	1
	819	26740	10	16QAM	1	49	22.75	0-1	1
	819	26740	10	16QAM	25	0	21.85	0-2	2
	819	26740	10	16QAM	25	12	21.67	0-2	2
	819	26740	10	16QAM	25	25	21.73	0-2	2
	819	26740	10	16QAM	50	0	21.85	0-2	2
Mid	831.5	26865	10	QPSK	1	0	23.73	0	0
	831.5	26865	10	QPSK	1	25	23.76	0	0
	831.5	26865	10	QPSK	1	49	23.67	0	0
	831.5	26865	10	QPSK	25	0	22.82	0-1	1
	831.5	26865	10	QPSK	25	12	22.79	0-1	1
	831.5	26865	10	QPSK	25	25	22.89	0-1	1
	831.5	26865	10	QPSK	50	0	22.85	0-1	1
	831.5	26865	10	16QAM	1	0	22.91	0-1	1
	831.5	26865	10	16QAM	1	25	22.92	0-1	1
	831.5	26865	10	16QAM	1	49	22.90	0-1	1
	831.5	26865	10	16QAM	25	0	21.89	0-2	2
	831.5	26865	10	16QAM	25	12	21.89	0-2	2
	831.5	26865	10	16QAM	25	25	21.94	0-2	2
	831.5	26865	10	16QAM	50	0	21.91	0-2	2
High	844	26990	10	QPSK	1	0	23.58	0	0
	844	26990	10	QPSK	1	25	23.58	0	0
	844	26990	10	QPSK	1	49	23.52	0	0
	844	26990	10	QPSK	25	0	22.79	0-1	1
	844	26990	10	QPSK	25	12	22.71	0-1	1
	844	26990	10	QPSK	25	25	22.63	0-1	1
	844	26990	10	QPSK	50	0	22.77	0-1	1
	844	26990	10	16QAM	1	0	22.88	0-1	1
	844	26990	10	16QAM	1	25	22.99	0-1	1
	844	26990	10	16QAM	1	49	22.96	0-1	1
	844	26990	10	16QAM	25	0	21.86	0-2	2
	844	26990	10	16QAM	25	12	21.87	0-2	2
	844	26990	10	16QAM	25	25	21.72	0-2	2
	844	26990	10	16QAM	50	0	21.84	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 18 of 73

Table 8-4
LTE Band 26 Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	816.5	26715	5	QPSK	1	0	23.76	0	0
	816.5	26715	5	QPSK	1	12	23.75	0	0
	816.5	26715	5	QPSK	1	24	23.75	0	0
	816.5	26715	5	QPSK	12	0	22.81	0-1	1
	816.5	26715	5	QPSK	12	6	22.70	0-1	1
	816.5	26715	5	QPSK	12	13	22.70	0-1	1
	816.5	26715	5	QPSK	25	0	22.71	0-1	1
	816.5	26715	5	16-QAM	1	0	22.99	0-1	1
	816.5	26715	5	16-QAM	1	12	22.87	0-1	1
	816.5	26715	5	16-QAM	1	24	22.91	0-1	1
	816.5	26715	5	16-QAM	12	0	21.85	0-2	2
	816.5	26715	5	16-QAM	12	6	21.79	0-2	2
	816.5	26715	5	16-QAM	12	13	21.74	0-2	2
	816.5	26715	5	16-QAM	25	0	21.77	0-2	2
Mid	831.5	26865	5	QPSK	1	0	23.79	0	0
	831.5	26865	5	QPSK	1	12	23.76	0	0
	831.5	26865	5	QPSK	1	24	23.83	0	0
	831.5	26865	5	QPSK	12	0	22.81	0-1	1
	831.5	26865	5	QPSK	12	6	22.79	0-1	1
	831.5	26865	5	QPSK	12	13	22.81	0-1	1
	831.5	26865	5	QPSK	25	0	22.84	0-1	1
	831.5	26865	5	16-QAM	1	0	22.75	0-1	1
	831.5	26865	5	16-QAM	1	12	22.85	0-1	1
	831.5	26865	5	16-QAM	1	24	22.91	0-1	1
	831.5	26865	5	16-QAM	12	0	21.84	0-2	2
	831.5	26865	5	16-QAM	12	6	21.87	0-2	2
	831.5	26865	5	16-QAM	12	13	21.91	0-2	2
	831.5	26865	5	16-QAM	25	0	21.90	0-2	2
High	846.5	27015	5	QPSK	1	0	23.57	0	0
	846.5	27015	5	QPSK	1	12	23.51	0	0
	846.5	27015	5	QPSK	1	24	23.33	0	0
	846.5	27015	5	QPSK	12	0	22.60	0-1	1
	846.5	27015	5	QPSK	12	6	22.62	0-1	1
	846.5	27015	5	QPSK	12	13	22.61	0-1	1
	846.5	27015	5	QPSK	25	0	22.60	0-1	1
	846.5	27015	5	16-QAM	1	0	22.72	0-1	1
	846.5	27015	5	16-QAM	1	12	22.65	0-1	1
	846.5	27015	5	16-QAM	1	24	22.47	0-1	1
	846.5	27015	5	16-QAM	12	0	21.70	0-2	2
	846.5	27015	5	16-QAM	12	6	21.66	0-2	2
	846.5	27015	5	16-QAM	12	13	21.57	0-2	2
	846.5	27015	5	16-QAM	25	0	21.66	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 19 of 73

Table 8-5
LTE Band 26 Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	815.5	26705	3	QPSK	1	0	23.81	0	0
	815.5	26705	3	QPSK	1	7	23.76	0	0
	815.5	26705	3	QPSK	1	14	23.77	0	0
	815.5	26705	3	QPSK	8	0	22.71	0-1	1
	815.5	26705	3	QPSK	8	4	22.73	0-1	1
	815.5	26705	3	QPSK	8	7	22.73	0-1	1
	815.5	26705	3	QPSK	15	0	22.80	0-1	1
	815.5	26705	3	16-QAM	1	0	22.91	0-1	1
	815.5	26705	3	16-QAM	1	7	22.89	0-1	1
	815.5	26705	3	16-QAM	1	14	22.92	0-1	1
	815.5	26705	3	16-QAM	8	0	21.75	0-2	2
	815.5	26705	3	16-QAM	8	4	21.71	0-2	2
	815.5	26705	3	16-QAM	8	7	21.73	0-2	2
	815.5	26705	3	16-QAM	15	0	21.89	0-2	2
Mid	831.5	26865	3	QPSK	1	0	23.85	0	0
	831.5	26865	3	QPSK	1	7	23.82	0	0
	831.5	26865	3	QPSK	1	14	23.90	0	0
	831.5	26865	3	QPSK	8	0	22.76	0-1	1
	831.5	26865	3	QPSK	8	4	22.81	0-1	1
	831.5	26865	3	QPSK	8	7	22.78	0-1	1
	831.5	26865	3	QPSK	15	0	22.82	0-1	1
	831.5	26865	3	16-QAM	1	0	22.97	0-1	1
	831.5	26865	3	16-QAM	1	7	22.90	0-1	1
	831.5	26865	3	16-QAM	1	14	22.91	0-1	1
	831.5	26865	3	16-QAM	8	0	21.81	0-2	2
	831.5	26865	3	16-QAM	8	4	21.80	0-2	2
	831.5	26865	3	16-QAM	8	7	21.78	0-2	2
	831.5	26865	3	16-QAM	15	0	21.81	0-2	2
High	847.5	27025	3	QPSK	1	0	23.62	0	0
	847.5	27025	3	QPSK	1	7	23.54	0	0
	847.5	27025	3	QPSK	1	14	23.39	0	0
	847.5	27025	3	QPSK	8	0	22.66	0-1	1
	847.5	27025	3	QPSK	8	4	22.58	0-1	1
	847.5	27025	3	QPSK	8	7	22.53	0-1	1
	847.5	27025	3	QPSK	15	0	22.61	0-1	1
	847.5	27025	3	16-QAM	1	0	22.99	0-1	1
	847.5	27025	3	16-QAM	1	7	22.99	0-1	1
	847.5	27025	3	16-QAM	1	14	22.75	0-1	1
	847.5	27025	3	16-QAM	8	0	21.63	0-2	2
	847.5	27025	3	16-QAM	8	4	21.56	0-2	2
	847.5	27025	3	16-QAM	8	7	21.59	0-2	2
	847.5	27025	3	16-QAM	15	0	21.67	0-2	2

FCC ID: A3LSMT237P	 SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet
Page 20 of 73		

Table 8-6
LTE Band 26 Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	814.7	26697	1.4	QPSK	1	0	23.99	0	0
	814.7	26697	1.4	QPSK	1	2	23.87	0	0
	814.7	26697	1.4	QPSK	1	5	23.97	0	0
	814.7	26697	1.4	QPSK	3	0	23.85	0	0
	814.7	26697	1.4	QPSK	3	2	23.80	0	0
	814.7	26697	1.4	QPSK	3	3	23.85	0	0
	814.7	26697	1.4	QPSK	6	0	22.79	0-1	1
	814.7	26697	1.4	16-QAM	1	0	22.70	0-1	1
	814.7	26697	1.4	16-QAM	1	2	22.65	0-1	1
	814.7	26697	1.4	16-QAM	1	5	22.64	0-1	1
	814.7	26697	1.4	16-QAM	3	0	22.82	0-1	1
	814.7	26697	1.4	16-QAM	3	2	22.74	0-1	1
Mid	831.5	26865	1.4	QPSK	1	0	23.97	0	0
	831.5	26865	1.4	QPSK	1	2	23.94	0	0
	831.5	26865	1.4	QPSK	1	5	23.95	0	0
	831.5	26865	1.4	QPSK	3	0	23.86	0	0
	831.5	26865	1.4	QPSK	3	2	23.83	0	0
	831.5	26865	1.4	QPSK	3	3	23.89	0	0
	831.5	26865	1.4	QPSK	6	0	22.89	0-1	1
	831.5	26865	1.4	16-QAM	1	0	22.73	0-1	1
	831.5	26865	1.4	16-QAM	1	2	22.65	0-1	1
	831.5	26865	1.4	16-QAM	1	5	22.74	0-1	1
	831.5	26865	1.4	16-QAM	3	0	22.79	0-1	1
	831.5	26865	1.4	16-QAM	3	2	22.85	0-1	1
High	848.3	27033	1.4	QPSK	1	0	23.79	0	0
	848.3	27033	1.4	QPSK	1	2	23.74	0	0
	848.3	27033	1.4	QPSK	1	5	23.68	0	0
	848.3	27033	1.4	QPSK	3	0	23.52	0	0
	848.3	27033	1.4	QPSK	3	2	23.57	0	0
	848.3	27033	1.4	QPSK	3	3	23.57	0	0
	848.3	27033	1.4	QPSK	6	0	22.66	0-1	1
	848.3	27033	1.4	16-QAM	1	0	22.47	0-1	1
	848.3	27033	1.4	16-QAM	1	2	22.37	0-1	1
	848.3	27033	1.4	16-QAM	1	5	22.32	0-1	1
	848.3	27033	1.4	16-QAM	3	0	22.57	0-1	1
	848.3	27033	1.4	16-QAM	3	2	22.56	0-1	1
	848.3	27033	1.4	16-QAM	3	3	22.65	0-1	1
	848.3	27033	1.4	16-QAM	6	0	21.80	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 21 of 73

8.2.2

LTE Band 26 Reduced Power

Table 8-7

LTE Band 26 Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	819	26740	10	QPSK	1	0	17.69	0	0
	819	26740	10	QPSK	1	25	17.67	0	0
	819	26740	10	QPSK	1	49	17.66	0	0
	819	26740	10	QPSK	25	0	17.67	0-1	0
	819	26740	10	QPSK	25	12	17.68	0-1	0
	819	26740	10	QPSK	25	25	17.66	0-1	0
	819	26740	10	QPSK	50	0	17.73	0-1	0
	819	26740	10	16QAM	1	0	17.91	0-1	0
	819	26740	10	16QAM	1	25	17.57	0-1	0
	819	26740	10	16QAM	1	49	17.57	0-1	0
	819	26740	10	16QAM	25	0	17.64	0-2	0
	819	26740	10	16QAM	25	12	17.60	0-2	0
	819	26740	10	16QAM	25	25	17.70	0-2	0
	819	26740	10	16QAM	50	0	17.64	0-2	0
Mid	831.5	26865	10	QPSK	1	0	17.73	0	0
	831.5	26865	10	QPSK	1	25	17.68	0	0
	831.5	26865	10	QPSK	1	49	17.69	0	0
	831.5	26865	10	QPSK	25	0	17.68	0-1	0
	831.5	26865	10	QPSK	25	12	17.69	0-1	0
	831.5	26865	10	QPSK	25	25	17.75	0-1	0
	831.5	26865	10	QPSK	50	0	17.72	0-1	0
	831.5	26865	10	16QAM	1	0	17.94	0-1	0
	831.5	26865	10	16QAM	1	25	17.93	0-1	0
	831.5	26865	10	16QAM	1	49	17.95	0-1	0
	831.5	26865	10	16QAM	25	0	17.79	0-2	0
	831.5	26865	10	16QAM	25	12	17.77	0-2	0
	831.5	26865	10	16QAM	25	25	17.83	0-2	0
	831.5	26865	10	16QAM	50	0	17.73	0-2	0
High	844	26990	10	QPSK	1	0	17.62	0	0
	844	26990	10	QPSK	1	25	17.71	0	0
	844	26990	10	QPSK	1	49	17.56	0	0
	844	26990	10	QPSK	25	0	17.71	0-1	0
	844	26990	10	QPSK	25	12	17.66	0-1	0
	844	26990	10	QPSK	25	25	17.56	0-1	0
	844	26990	10	QPSK	50	0	17.65	0-1	0
	844	26990	10	16QAM	1	0	17.63	0-1	0
	844	26990	10	16QAM	1	25	17.61	0-1	0
	844	26990	10	16QAM	1	49	17.54	0-1	0
	844	26990	10	16QAM	25	0	17.68	0-2	0
	844	26990	10	16QAM	25	12	17.72	0-2	0
	844	26990	10	16QAM	25	25	17.64	0-2	0
	844	26990	10	16QAM	50	0	17.65	0-2	0

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 22 of 73

Table 8-8
LTE Band 26 Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	816.5	26715	5	QPSK	1	0	17.62	0	0
	816.5	26715	5	QPSK	1	12	17.75	0	0
	816.5	26715	5	QPSK	1	24	17.77	0	0
	816.5	26715	5	QPSK	12	0	17.78	0-1	0
	816.5	26715	5	QPSK	12	6	17.70	0-1	0
	816.5	26715	5	QPSK	12	13	17.62	0-1	0
	816.5	26715	5	QPSK	25	0	17.67	0-1	0
	816.5	26715	5	16-QAM	1	0	17.77	0-1	0
	816.5	26715	5	16-QAM	1	12	17.74	0-1	0
	816.5	26715	5	16-QAM	1	24	17.64	0-1	0
	816.5	26715	5	16-QAM	12	0	17.82	0-2	0
	816.5	26715	5	16-QAM	12	6	17.64	0-2	0
	816.5	26715	5	16-QAM	12	13	17.67	0-2	0
Mid	831.5	26865	5	QPSK	1	0	17.54	0	0
	831.5	26865	5	QPSK	1	12	17.57	0	0
	831.5	26865	5	QPSK	1	24	17.58	0	0
	831.5	26865	5	QPSK	12	0	17.71	0-1	0
	831.5	26865	5	QPSK	12	6	17.78	0-1	0
	831.5	26865	5	QPSK	12	13	17.77	0-1	0
	831.5	26865	5	QPSK	25	0	17.78	0-1	0
	831.5	26865	5	16-QAM	1	0	17.66	0-1	0
	831.5	26865	5	16-QAM	1	12	17.65	0-1	0
	831.5	26865	5	16-QAM	1	24	17.71	0-1	0
	831.5	26865	5	16-QAM	12	0	17.65	0-2	0
	831.5	26865	5	16-QAM	12	6	17.74	0-2	0
	831.5	26865	5	16-QAM	12	13	17.68	0-2	0
	831.5	26865	5	16-QAM	25	0	17.63	0-2	0
High	846.5	27015	5	QPSK	1	0	17.78	0	0
	846.5	27015	5	QPSK	1	12	17.47	0	0
	846.5	27015	5	QPSK	1	24	17.41	0	0
	846.5	27015	5	QPSK	12	0	17.56	0-1	0
	846.5	27015	5	QPSK	12	6	17.59	0-1	0
	846.5	27015	5	QPSK	12	13	17.61	0-1	0
	846.5	27015	5	QPSK	25	0	17.56	0-1	0
	846.5	27015	5	16-QAM	1	0	17.90	0-1	0
	846.5	27015	5	16-QAM	1	12	17.59	0-1	0
	846.5	27015	5	16-QAM	1	24	17.62	0-1	0
	846.5	27015	5	16-QAM	12	0	17.52	0-2	0
	846.5	27015	5	16-QAM	12	6	17.60	0-2	0
	846.5	27015	5	16-QAM	12	13	17.61	0-2	0
	846.5	27015	5	16-QAM	25	0	17.57	0-2	0

FCC ID: A3LSMT237P	 SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet

Table 8-9
LTE Band 26 Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	815.5	26705	3	QPSK	1	0	17.67	0	0
	815.5	26705	3	QPSK	1	7	17.72	0	0
	815.5	26705	3	QPSK	1	14	17.64	0	0
	815.5	26705	3	QPSK	8	0	17.74	0-1	0
	815.5	26705	3	QPSK	8	4	17.78	0-1	0
	815.5	26705	3	QPSK	8	7	17.70	0-1	0
	815.5	26705	3	QPSK	15	0	17.68	0-1	0
	815.5	26705	3	16-QAM	1	0	17.89	0-1	0
	815.5	26705	3	16-QAM	1	7	17.85	0-1	0
	815.5	26705	3	16-QAM	1	14	17.75	0-1	0
	815.5	26705	3	16-QAM	8	0	17.68	0-2	0
	815.5	26705	3	16-QAM	8	4	17.60	0-2	0
	815.5	26705	3	16-QAM	8	7	17.57	0-2	0
	815.5	26705	3	16-QAM	15	0	17.81	0-2	0
Mid	831.5	26865	3	QPSK	1	0	17.78	0	0
	831.5	26865	3	QPSK	1	7	17.63	0	0
	831.5	26865	3	QPSK	1	14	17.80	0	0
	831.5	26865	3	QPSK	8	0	17.72	0-1	0
	831.5	26865	3	QPSK	8	4	17.66	0-1	0
	831.5	26865	3	QPSK	8	7	17.76	0-1	0
	831.5	26865	3	QPSK	15	0	17.77	0-1	0
	831.5	26865	3	16-QAM	1	0	17.62	0-1	0
	831.5	26865	3	16-QAM	1	7	17.89	0-1	0
	831.5	26865	3	16-QAM	1	14	17.70	0-1	0
	831.5	26865	3	16-QAM	8	0	17.69	0-2	0
	831.5	26865	3	16-QAM	8	4	17.66	0-2	0
	831.5	26865	3	16-QAM	8	7	17.63	0-2	0
	831.5	26865	3	16-QAM	15	0	17.77	0-2	0
High	847.5	27025	3	QPSK	1	0	17.68	0	0
	847.5	27025	3	QPSK	1	7	17.61	0	0
	847.5	27025	3	QPSK	1	14	17.65	0	0
	847.5	27025	3	QPSK	8	0	17.60	0-1	0
	847.5	27025	3	QPSK	8	4	17.52	0-1	0
	847.5	27025	3	QPSK	8	7	17.58	0-1	0
	847.5	27025	3	QPSK	15	0	17.55	0-1	0
	847.5	27025	3	16-QAM	1	0	17.59	0-1	0
	847.5	27025	3	16-QAM	1	7	17.66	0-1	0
	847.5	27025	3	16-QAM	1	14	17.55	0-1	0
	847.5	27025	3	16-QAM	8	0	17.63	0-2	0
	847.5	27025	3	16-QAM	8	4	17.56	0-2	0
	847.5	27025	3	16-QAM	8	7	17.61	0-2	0
	847.5	27025	3	16-QAM	15	0	17.59	0-2	0

FCC ID: A3LSMT237P	 SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet

Table 8-10
LTE Band 26 Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	814.7	26697	1.4	QPSK	1	0	17.73	0	0
	814.7	26697	1.4	QPSK	1	2	17.67	0	0
	814.7	26697	1.4	QPSK	1	5	17.66	0	0
	814.7	26697	1.4	QPSK	3	0	17.67	0	0
	814.7	26697	1.4	QPSK	3	2	17.68	0	0
	814.7	26697	1.4	QPSK	3	3	17.66	0	0
	814.7	26697	1.4	QPSK	6	0	17.73	0-1	0
	814.7	26697	1.4	16-QAM	1	0	17.91	0-1	0
	814.7	26697	1.4	16-QAM	1	2	17.57	0-1	0
	814.7	26697	1.4	16-QAM	1	5	17.57	0-1	0
	814.7	26697	1.4	16-QAM	3	0	17.64	0-1	0
	814.7	26697	1.4	16-QAM	3	2	17.60	0-1	0
Mid	831.5	26865	1.4	QPSK	1	0	17.78	0	0
	831.5	26865	1.4	QPSK	1	2	17.63	0	0
	831.5	26865	1.4	QPSK	1	5	17.80	0	0
	831.5	26865	1.4	QPSK	3	0	17.72	0	0
	831.5	26865	1.4	QPSK	3	2	17.66	0	0
	831.5	26865	1.4	QPSK	3	3	17.76	0	0
	831.5	26865	1.4	QPSK	6	0	17.77	0-1	0
	831.5	26865	1.4	16-QAM	1	0	17.62	0-1	0
	831.5	26865	1.4	16-QAM	1	2	17.89	0-1	0
	831.5	26865	1.4	16-QAM	1	5	17.70	0-1	0
	831.5	26865	1.4	16-QAM	3	0	17.69	0-1	0
	831.5	26865	1.4	16-QAM	3	2	17.66	0-1	0
High	848.3	27033	1.4	QPSK	1	0	17.62	0	0
	848.3	27033	1.4	QPSK	1	2	17.71	0	0
	848.3	27033	1.4	QPSK	1	5	17.56	0	0
	848.3	27033	1.4	QPSK	3	0	17.71	0	0
	848.3	27033	1.4	QPSK	3	2	17.66	0	0
	848.3	27033	1.4	QPSK	3	3	17.56	0	0
	848.3	27033	1.4	QPSK	6	0	17.65	0-1	0
	848.3	27033	1.4	16-QAM	1	0	17.63	0-1	0
	848.3	27033	1.4	16-QAM	1	2	17.61	0-1	0
	848.3	27033	1.4	16-QAM	1	5	17.54	0-1	0
	848.3	27033	1.4	16-QAM	3	0	17.68	0-1	0
	848.3	27033	1.4	16-QAM	3	2	17.72	0-1	0
	848.3	27033	1.4	16-QAM	3	3	17.64	0-1	0
	848.3	27033	1.4	16-QAM	6	0	17.65	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 25 of 73

8.2.3

LTE Band 25 (PCS) Maximum Power

Table 8-11

LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1860	26140	20	QPSK	1	0	23.50	0	0
	1860	26140	20	QPSK	1	50	23.36	0	0
	1860	26140	20	QPSK	1	99	23.30	0	0
	1860	26140	20	QPSK	50	0	22.64	0-1	1
	1860	26140	20	QPSK	50	25	22.41	0-1	1
	1860	26140	20	QPSK	50	50	22.34	0-1	1
	1860	26140	20	QPSK	100	0	22.46	0-1	1
	1860	26140	20	16QAM	1	0	22.70	0-1	1
	1860	26140	20	16QAM	1	50	22.66	0-1	1
	1860	26140	20	16QAM	1	99	22.66	0-1	1
	1860	26140	20	16QAM	50	0	21.47	0-2	2
	1860	26140	20	16QAM	50	25	21.42	0-2	2
	1860	26140	20	16QAM	50	50	21.34	0-2	2
	1860	26140	20	16QAM	100	0	21.48	0-2	2
Mid	1882.5	26365	20	QPSK	1	0	23.41	0	0
	1882.5	26365	20	QPSK	1	50	23.69	0	0
	1882.5	26365	20	QPSK	1	99	23.66	0	0
	1882.5	26365	20	QPSK	50	0	22.71	0-1	1
	1882.5	26365	20	QPSK	50	25	22.79	0-1	1
	1882.5	26365	20	QPSK	50	50	22.76	0-1	1
	1882.5	26365	20	QPSK	100	0	22.69	0-1	1
	1882.5	26365	20	16QAM	1	0	22.31	0-1	1
	1882.5	26365	20	16QAM	1	50	22.63	0-1	1
	1882.5	26365	20	16QAM	1	99	22.70	0-1	1
	1882.5	26365	20	16QAM	50	0	21.58	0-2	2
	1882.5	26365	20	16QAM	50	25	21.77	0-2	2
	1882.5	26365	20	16QAM	50	50	21.73	0-2	2
	1882.5	26365	20	16QAM	100	0	21.67	0-2	2
High	1905	26590	20	QPSK	1	0	23.47	0	0
	1905	26590	20	QPSK	1	50	23.61	0	0
	1905	26590	20	QPSK	1	99	23.26	0	0
	1905	26590	20	QPSK	50	0	22.77	0-1	1
	1905	26590	20	QPSK	50	25	22.96	0-1	1
	1905	26590	20	QPSK	50	50	22.64	0-1	1
	1905	26590	20	QPSK	100	0	22.65	0-1	1
	1905	26590	20	16QAM	1	0	22.46	0-1	1
	1905	26590	20	16QAM	1	50	22.46	0-1	1
	1905	26590	20	16QAM	1	99	22.30	0-1	1
	1905	26590	20	16QAM	50	0	21.75	0-2	2
	1905	26590	20	16QAM	50	25	21.94	0-2	2
	1905	26590	20	16QAM	50	50	21.64	0-2	2
	1905	26590	20	16QAM	100	0	21.66	0-2	2

FCC ID: A3LSMT237P	 SAR EVALUATION REPORT 		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 26 of 73

Table 8-12
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1857.5	26115	15	QPSK	1	0	23.62	0	0
	1857.5	26115	15	QPSK	1	36	23.51	0	0
	1857.5	26115	15	QPSK	1	74	23.44	0	0
	1857.5	26115	15	QPSK	36	0	22.70	0-1	1
	1857.5	26115	15	QPSK	36	18	22.42	0-1	1
	1857.5	26115	15	QPSK	36	37	22.37	0-1	1
	1857.5	26115	15	QPSK	75	0	22.53	0-1	1
	1857.5	26115	15	16QAM	1	0	22.41	0-1	1
	1857.5	26115	15	16QAM	1	36	22.55	0-1	1
	1857.5	26115	15	16QAM	1	74	22.53	0-1	1
	1857.5	26115	15	16QAM	36	0	21.56	0-2	2
	1857.5	26115	15	16QAM	36	18	21.47	0-2	2
	1857.5	26115	15	16QAM	36	37	21.46	0-2	2
Mid	1857.5	26115	15	16QAM	75	0	21.53	0-2	2
	1882.5	26365	15	QPSK	1	0	23.44	0	0
	1882.5	26365	15	QPSK	1	36	23.52	0	0
	1882.5	26365	15	QPSK	1	74	23.55	0	0
	1882.5	26365	15	QPSK	36	0	22.74	0-1	1
	1882.5	26365	15	QPSK	36	18	22.86	0-1	1
	1882.5	26365	15	QPSK	36	37	22.74	0-1	1
	1882.5	26365	15	QPSK	75	0	22.83	0-1	1
	1882.5	26365	15	16QAM	1	0	22.72	0-1	1
	1882.5	26365	15	16QAM	1	36	22.83	0-1	1
	1882.5	26365	15	16QAM	1	74	22.89	0-1	1
	1882.5	26365	15	16QAM	36	0	21.66	0-2	2
	1882.5	26365	15	16QAM	36	18	21.74	0-2	2
	1882.5	26365	15	16QAM	36	37	21.74	0-2	2
High	1882.5	26365	15	16QAM	75	0	21.79	0-2	2
	1907.5	26615	15	QPSK	1	0	23.61	0	0
	1907.5	26615	15	QPSK	1	36	23.93	0	0
	1907.5	26615	15	QPSK	1	74	23.54	0	0
	1907.5	26615	15	QPSK	36	0	22.95	0-1	1
	1907.5	26615	15	QPSK	36	18	22.82	0-1	1
	1907.5	26615	15	QPSK	36	37	22.39	0-1	1
	1907.5	26615	15	QPSK	75	0	22.66	0-1	1
	1907.5	26615	15	16QAM	1	0	22.58	0-1	1
	1907.5	26615	15	16QAM	1	36	22.98	0-1	1
	1907.5	26615	15	16QAM	1	74	22.65	0-1	1
	1907.5	26615	15	16QAM	36	0	21.92	0-2	2
	1907.5	26615	15	16QAM	36	18	21.83	0-2	2
	1907.5	26615	15	16QAM	36	37	21.40	0-2	2
	1907.5	26615	15	16QAM	75	0	21.72	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 27 of 73

Table 8-13
LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1855	26090	10	QPSK	1	0	23.92	0	0
	1855	26090	10	QPSK	1	25	23.42	0	0
	1855	26090	10	QPSK	1	49	23.63	0	0
	1855	26090	10	QPSK	25	0	22.80	0-1	1
	1855	26090	10	QPSK	25	12	22.37	0-1	1
	1855	26090	10	QPSK	25	25	22.08	0-1	1
	1855	26090	10	QPSK	50	0	22.54	0-1	1
	1855	26090	10	16QAM	1	0	22.91	0-1	1
	1855	26090	10	16QAM	1	25	22.51	0-1	1
	1855	26090	10	16QAM	1	49	22.72	0-1	1
	1855	26090	10	16QAM	25	0	21.83	0-2	2
	1855	26090	10	16QAM	25	12	21.42	0-2	2
	1855	26090	10	16QAM	25	25	21.21	0-2	2
Mid	1882.5	26365	10	QPSK	1	0	23.61	0	0
	1882.5	26365	10	QPSK	1	25	23.56	0	0
	1882.5	26365	10	QPSK	1	49	23.76	0	0
	1882.5	26365	10	QPSK	25	0	22.66	0-1	1
	1882.5	26365	10	QPSK	25	12	22.62	0-1	1
	1882.5	26365	10	QPSK	25	25	22.79	0-1	1
	1882.5	26365	10	QPSK	50	0	22.83	0-1	1
	1882.5	26365	10	16QAM	1	0	22.85	0-1	1
	1882.5	26365	10	16QAM	1	25	22.87	0-1	1
	1882.5	26365	10	16QAM	1	49	22.88	0-1	1
	1882.5	26365	10	16QAM	25	0	21.64	0-2	2
	1882.5	26365	10	16QAM	25	12	21.66	0-2	2
	1882.5	26365	10	16QAM	25	25	21.79	0-2	2
	1882.5	26365	10	16QAM	50	0	21.79	0-2	2
High	1910	26640	10	QPSK	1	0	23.92	0	0
	1910	26640	10	QPSK	1	25	23.46	0	0
	1910	26640	10	QPSK	1	49	23.63	0	0
	1910	26640	10	QPSK	25	0	22.83	0-1	1
	1910	26640	10	QPSK	25	12	22.41	0-1	1
	1910	26640	10	QPSK	25	25	22.12	0-1	1
	1910	26640	10	QPSK	50	0	22.51	0-1	1
	1910	26640	10	16QAM	1	0	22.89	0-1	1
	1910	26640	10	16QAM	1	25	22.46	0-1	1
	1910	26640	10	16QAM	1	49	22.71	0-1	1
	1910	26640	10	16QAM	25	0	21.85	0-2	2
	1910	26640	10	16QAM	25	12	21.43	0-2	2
	1910	26640	10	16QAM	25	25	21.20	0-2	2
	1910	26640	10	16QAM	50	0	21.64	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 28 of 73

Table 8-14
LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1852.5	26065	5	QPSK	1	0	23.60	0	0
	1852.5	26065	5	QPSK	1	12	23.57	0	0
	1852.5	26065	5	QPSK	1	24	23.52	0	0
	1852.5	26065	5	QPSK	12	0	22.45	0-1	1
	1852.5	26065	5	QPSK	12	6	22.46	0-1	1
	1852.5	26065	5	QPSK	12	13	22.50	0-1	1
	1852.5	26065	5	QPSK	25	0	22.47	0-1	1
	1852.5	26065	5	16-QAM	1	0	22.54	0-1	1
	1852.5	26065	5	16-QAM	1	12	22.55	0-1	1
	1852.5	26065	5	16-QAM	1	24	22.59	0-1	1
	1852.5	26065	5	16-QAM	12	0	21.47	0-2	2
	1852.5	26065	5	16-QAM	12	6	21.40	0-2	2
	1852.5	26065	5	16-QAM	12	13	21.42	0-2	2
	1852.5	26065	5	16-QAM	25	0	21.40	0-2	2
Mid	1882.5	26365	5	QPSK	1	0	23.68	0	0
	1882.5	26365	5	QPSK	1	12	23.65	0	0
	1882.5	26365	5	QPSK	1	24	23.84	0	0
	1882.5	26365	5	QPSK	12	0	22.61	0-1	1
	1882.5	26365	5	QPSK	12	6	22.74	0-1	1
	1882.5	26365	5	QPSK	12	13	22.73	0-1	1
	1882.5	26365	5	QPSK	25	0	22.72	0-1	1
	1882.5	26365	5	16-QAM	1	0	22.57	0-1	1
	1882.5	26365	5	16-QAM	1	12	22.52	0-1	1
	1882.5	26365	5	16-QAM	1	24	22.86	0-1	1
	1882.5	26365	5	16-QAM	12	0	21.62	0-2	2
	1882.5	26365	5	16-QAM	12	6	21.71	0-2	2
	1882.5	26365	5	16-QAM	12	13	21.72	0-2	2
	1882.5	26365	5	16-QAM	25	0	21.67	0-2	2
High	1912.5	26665	5	QPSK	1	0	23.06	0	0
	1912.5	26665	5	QPSK	1	12	23.02	0	0
	1912.5	26665	5	QPSK	1	24	23.53	0	0
	1912.5	26665	5	QPSK	12	0	22.09	0-1	1
	1912.5	26665	5	QPSK	12	6	22.10	0-1	1
	1912.5	26665	5	QPSK	12	13	22.42	0-1	1
	1912.5	26665	5	QPSK	25	0	22.26	0-1	1
	1912.5	26665	5	16-QAM	1	0	22.25	0-1	1
	1912.5	26665	5	16-QAM	1	12	22.05	0-1	1
	1912.5	26665	5	16-QAM	1	24	22.70	0-1	1
	1912.5	26665	5	16-QAM	12	0	21.03	0-2	2
	1912.5	26665	5	16-QAM	12	6	21.10	0-2	2
	1912.5	26665	5	16-QAM	12	13	21.25	0-2	2
	1912.5	26665	5	16-QAM	25	0	21.30	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 29 of 73

Table 8-15
LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1851.5	26055	3	QPSK	1	0	23.59	0	0
	1851.5	26055	3	QPSK	1	7	23.54	0	0
	1851.5	26055	3	QPSK	1	14	23.69	0	0
	1851.5	26055	3	QPSK	8	0	22.36	0-1	1
	1851.5	26055	3	QPSK	8	4	22.38	0-1	1
	1851.5	26055	3	QPSK	8	7	22.38	0-1	1
	1851.5	26055	3	QPSK	15	0	22.47	0-1	1
	1851.5	26055	3	16-QAM	1	0	22.47	0-1	1
	1851.5	26055	3	16-QAM	1	7	22.39	0-1	1
	1851.5	26055	3	16-QAM	1	14	22.51	0-1	1
	1851.5	26055	3	16-QAM	8	0	21.37	0-2	2
	1851.5	26055	3	16-QAM	8	4	21.29	0-2	2
	1851.5	26055	3	16-QAM	8	7	21.29	0-2	2
Mid	1851.5	26055	3	16-QAM	15	0	21.52	0-2	2
	1882.5	26365	3	QPSK	1	0	23.65	0	0
	1882.5	26365	3	QPSK	1	7	23.62	0	0
	1882.5	26365	3	QPSK	1	14	23.76	0	0
	1882.5	26365	3	QPSK	8	0	22.69	0-1	1
	1882.5	26365	3	QPSK	8	4	22.63	0-1	1
	1882.5	26365	3	QPSK	8	7	22.62	0-1	1
	1882.5	26365	3	QPSK	15	0	22.66	0-1	1
	1882.5	26365	3	16-QAM	1	0	22.93	0-1	1
	1882.5	26365	3	16-QAM	1	7	22.90	0-1	1
	1882.5	26365	3	16-QAM	1	14	22.95	0-1	1
	1882.5	26365	3	16-QAM	8	0	21.59	0-2	2
	1882.5	26365	3	16-QAM	8	4	21.52	0-2	2
High	1882.5	26365	3	16-QAM	8	7	21.51	0-2	2
	1882.5	26365	3	16-QAM	15	0	21.61	0-2	2
	1913.5	26675	3	QPSK	1	0	23.10	0	0
	1913.5	26675	3	QPSK	1	7	23.25	0	0
	1913.5	26675	3	QPSK	1	14	23.76	0	0
	1913.5	26675	3	QPSK	8	0	22.02	0-1	1
	1913.5	26675	3	QPSK	8	4	22.24	0-1	1
	1913.5	26675	3	QPSK	8	7	22.50	0-1	1
	1913.5	26675	3	QPSK	15	0	22.30	0-1	1
	1913.5	26675	3	16-QAM	1	0	22.07	0-1	1
	1913.5	26675	3	16-QAM	1	7	22.33	0-1	1
	1913.5	26675	3	16-QAM	1	14	22.86	0-1	1
	1913.5	26675	3	16-QAM	8	0	21.00	0-2	2
	1913.5	26675	3	16-QAM	8	4	21.07	0-2	2
	1913.5	26675	3	16-QAM	8	7	21.26	0-2	2
	1913.5	26675	3	16-QAM	15	0	21.16	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 30 of 73

Table 8-16
LTE Band 25 (PCS) Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1850.7	26047	1.4	QPSK	1	0	23.85	0	0
	1850.7	26047	1.4	QPSK	1	2	23.71	0	0
	1850.7	26047	1.4	QPSK	1	5	23.86	0	0
	1850.7	26047	1.4	QPSK	3	0	23.67	0	0
	1850.7	26047	1.4	QPSK	3	2	23.63	0	0
	1850.7	26047	1.4	QPSK	3	3	23.64	0	0
	1850.7	26047	1.4	QPSK	6	0	22.43	0-1	1
	1850.7	26047	1.4	16-QAM	1	0	22.29	0-1	1
	1850.7	26047	1.4	16-QAM	1	2	22.17	0-1	1
	1850.7	26047	1.4	16-QAM	1	5	22.35	0-1	1
	1850.7	26047	1.4	16-QAM	3	0	22.44	0-1	1
	1850.7	26047	1.4	16-QAM	3	2	22.40	0-1	1
	1850.7	26047	1.4	16-QAM	3	3	22.45	0-1	1
Mid	1850.7	26047	1.4	16-QAM	6	0	21.57	0-2	2
	1882.5	26365	1.4	QPSK	1	0	23.83	0	0
	1882.5	26365	1.4	QPSK	1	2	23.80	0	0
	1882.5	26365	1.4	QPSK	1	5	23.92	0	0
	1882.5	26365	1.4	QPSK	3	0	23.67	0	0
	1882.5	26365	1.4	QPSK	3	2	23.71	0	0
	1882.5	26365	1.4	QPSK	3	3	23.71	0	0
	1882.5	26365	1.4	QPSK	6	0	22.69	0-1	1
	1882.5	26365	1.4	16-QAM	1	0	22.44	0-1	1
	1882.5	26365	1.4	16-QAM	1	2	22.37	0-1	1
	1882.5	26365	1.4	16-QAM	1	5	22.54	0-1	1
	1882.5	26365	1.4	16-QAM	3	0	22.60	0-1	1
	1882.5	26365	1.4	16-QAM	3	2	22.60	0-1	1
	1882.5	26365	1.4	16-QAM	3	3	22.69	0-1	1
High	1882.5	26365	1.4	16-QAM	6	0	21.79	0-2	2
	1914.3	26683	1.4	QPSK	1	0	23.36	0	0
	1914.3	26683	1.4	QPSK	1	2	23.51	0	0
	1914.3	26683	1.4	QPSK	1	5	23.79	0	0
	1914.3	26683	1.4	QPSK	3	0	23.32	0	0
	1914.3	26683	1.4	QPSK	3	2	23.56	0	0
	1914.3	26683	1.4	QPSK	3	3	23.69	0	0
	1914.3	26683	1.4	QPSK	6	0	22.58	0-1	1
	1914.3	26683	1.4	16-QAM	1	0	22.39	0-1	1
	1914.3	26683	1.4	16-QAM	1	2	22.58	0-1	1
	1914.3	26683	1.4	16-QAM	1	5	22.82	0-1	1
	1914.3	26683	1.4	16-QAM	3	0	22.31	0-1	1
	1914.3	26683	1.4	16-QAM	3	2	22.53	0-1	1
	1914.3	26683	1.4	16-QAM	3	3	22.63	0-1	1
	1914.3	26683	1.4	16-QAM	6	0	21.29	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 31 of 73

8.2.4

LTE Band 25 (PCS) Reduced Power

Table 8-17
LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1860	26140	20	QPSK	1	0	12.64	0	0
	1860	26140	20	QPSK	1	50	12.75	0	0
	1860	26140	20	QPSK	1	99	12.72	0	0
	1860	26140	20	QPSK	50	0	12.72	0-1	0
	1860	26140	20	QPSK	50	25	12.84	0-1	0
	1860	26140	20	QPSK	50	50	12.65	0-1	0
	1860	26140	20	QPSK	100	0	12.69	0-1	0
	1860	26140	20	16QAM	1	0	12.55	0-1	0
	1860	26140	20	16QAM	1	50	12.56	0-1	0
	1860	26140	20	16QAM	1	99	12.59	0-1	0
	1860	26140	20	16QAM	50	0	12.73	0-2	0
	1860	26140	20	16QAM	50	25	12.78	0-2	0
Mid	1860	26140	20	16QAM	50	50	12.70	0-2	0
	1860	26140	20	16QAM	100	0	12.61	0-2	0
	1882.5	26365	20	QPSK	1	0	12.82	0	0
	1882.5	26365	20	QPSK	1	50	12.87	0	0
	1882.5	26365	20	QPSK	1	99	12.88	0	0
	1882.5	26365	20	QPSK	50	0	12.92	0-1	0
	1882.5	26365	20	QPSK	50	25	13.00	0-1	0
	1882.5	26365	20	QPSK	50	50	12.96	0-1	0
	1882.5	26365	20	QPSK	100	0	12.97	0-1	0
	1882.5	26365	20	16QAM	1	0	12.89	0-1	0
	1882.5	26365	20	16QAM	1	50	13.18	0-1	0
	1882.5	26365	20	16QAM	1	99	13.20	0-1	0
High	1882.5	26365	20	16QAM	50	0	12.99	0-2	0
	1882.5	26365	20	16QAM	50	25	12.98	0-2	0
	1882.5	26365	20	16QAM	50	50	12.89	0-2	0
	1882.5	26365	20	16QAM	100	0	12.87	0-2	0
	1905	26590	20	QPSK	1	0	13.13	0	0
	1905	26590	20	QPSK	1	50	13.18	0	0
	1905	26590	20	QPSK	1	99	13.22	0	0
	1905	26590	20	QPSK	50	0	13.30	0-1	0
	1905	26590	20	QPSK	50	25	13.15	0-1	0
	1905	26590	20	QPSK	50	50	13.18	0-1	0
	1905	26590	20	QPSK	100	0	13.13	0-1	0
	1905	26590	20	16QAM	1	0	13.07	0-1	0
	1905	26590	20	16QAM	1	59	13.08	0-1	0
	1905	26590	20	16QAM	1	99	13.39	0-1	0
	1905	26590	20	16QAM	50	0	13.22	0-2	0
	1905	26590	20	16QAM	50	25	13.16	0-2	0
	1905	26590	20	16QAM	50	50	13.26	0-2	0
	1905	26590	20	16QAM	100	0	13.23	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 32 of 73

Table 8-18
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1857.5	26115	15	QPSK	1	0	12.82	0	0
	1857.5	26115	15	QPSK	1	36	12.80	0	0
	1857.5	26115	15	QPSK	1	74	12.69	0	0
	1857.5	26115	15	QPSK	36	0	12.80	0-1	0
	1857.5	26115	15	QPSK	36	18	12.66	0-1	0
	1857.5	26115	15	QPSK	36	37	12.50	0-1	0
	1857.5	26115	15	QPSK	75	0	12.72	0-1	0
	1857.5	26115	15	16QAM	1	0	12.88	0-1	0
	1857.5	26115	15	16QAM	1	36	12.74	0-1	0
	1857.5	26115	15	16QAM	1	74	12.68	0-1	0
	1857.5	26115	15	16QAM	36	0	12.81	0-2	0
	1857.5	26115	15	16QAM	36	18	12.70	0-2	0
	1857.5	26115	15	16QAM	36	37	12.54	0-2	0
Mid	1857.5	26115	15	16QAM	75	0	12.71	0-2	0
	1882.5	26365	15	QPSK	1	0	13.06	0	0
	1882.5	26365	15	QPSK	1	36	13.05	0	0
	1882.5	26365	15	QPSK	1	74	12.94	0	0
	1882.5	26365	15	QPSK	36	0	12.95	0-1	0
	1882.5	26365	15	QPSK	36	18	12.99	0-1	0
	1882.5	26365	15	QPSK	36	37	12.88	0-1	0
	1882.5	26365	15	QPSK	75	0	12.96	0-1	0
	1882.5	26365	15	16QAM	1	0	13.14	0-1	0
	1882.5	26365	15	16QAM	1	36	13.02	0-1	0
	1882.5	26365	15	16QAM	1	74	12.93	0-1	0
	1882.5	26365	15	16QAM	36	0	13.01	0-2	0
	1882.5	26365	15	16QAM	36	18	13.08	0-2	0
	1882.5	26365	15	16QAM	36	37	13.00	0-2	0
High	1882.5	26365	15	16QAM	75	0	12.96	0-2	0
	1907.5	26615	15	QPSK	1	0	13.22	0	0
	1907.5	26615	15	QPSK	1	36	13.00	0	0
	1907.5	26615	15	QPSK	1	74	13.21	0	0
	1907.5	26615	15	QPSK	36	0	13.21	0-1	0
	1907.5	26615	15	QPSK	36	18	13.27	0-1	0
	1907.5	26615	15	QPSK	36	37	13.24	0-1	0
	1907.5	26615	15	QPSK	75	0	13.21	0-1	0
	1907.5	26615	15	16QAM	1	0	13.20	0-1	0
	1907.5	26615	15	16QAM	1	36	13.00	0-1	0
	1907.5	26615	15	16QAM	1	74	13.14	0-1	0
	1907.5	26615	15	16QAM	36	0	13.24	0-2	0
	1907.5	26615	15	16QAM	36	18	13.28	0-2	0
	1907.5	26615	15	16QAM	36	37	13.25	0-2	0
	1907.5	26615	15	16QAM	75	0	13.23	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 33 of 73

Table 8-19
LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1855	26090	10	QPSK	1	0	12.83	0	0
	1855	26090	10	QPSK	1	25	12.92	0	0
	1855	26090	10	QPSK	1	49	12.79	0	0
	1855	26090	10	QPSK	25	0	12.77	0-1	0
	1855	26090	10	QPSK	25	12	12.77	0-1	0
	1855	26090	10	QPSK	25	25	12.68	0-1	0
	1855	26090	10	QPSK	50	0	12.82	0-1	0
	1855	26090	10	16QAM	1	0	12.85	0-1	0
	1855	26090	10	16QAM	1	25	12.91	0-1	0
	1855	26090	10	16QAM	1	49	12.72	0-1	0
	1855	26090	10	16QAM	25	0	12.86	0-2	0
	1855	26090	10	16QAM	25	12	12.88	0-2	0
	1855	26090	10	16QAM	25	25	12.75	0-2	0
Mid	1882.5	26365	10	QPSK	1	0	13.15	0	0
	1882.5	26365	10	QPSK	1	25	13.03	0	0
	1882.5	26365	10	QPSK	1	49	13.12	0	0
	1882.5	26365	10	QPSK	25	0	13.00	0-1	0
	1882.5	26365	10	QPSK	25	12	13.00	0-1	0
	1882.5	26365	10	QPSK	25	25	12.89	0-1	0
	1882.5	26365	10	QPSK	50	0	12.95	0-1	0
	1882.5	26365	10	16QAM	1	0	13.12	0-1	0
	1882.5	26365	10	16QAM	1	25	12.94	0-1	0
	1882.5	26365	10	16QAM	1	49	13.02	0-1	0
	1882.5	26365	10	16QAM	25	0	13.12	0-2	0
	1882.5	26365	10	16QAM	25	12	13.09	0-2	0
	1882.5	26365	10	16QAM	25	25	13.05	0-2	0
	1882.5	26365	10	16QAM	50	0	13.00	0-2	0
High	1910	26640	10	QPSK	1	0	13.25	0	0
	1910	26640	10	QPSK	1	25	13.00	0	0
	1910	26640	10	QPSK	1	49	13.38	0	0
	1910	26640	10	QPSK	25	0	13.40	0-1	0
	1910	26640	10	QPSK	25	12	13.40	0-1	0
	1910	26640	10	QPSK	25	25	13.26	0-1	0
	1910	26640	10	QPSK	50	0	13.30	0-1	0
	1910	26640	10	16QAM	1	0	13.21	0-1	0
	1910	26640	10	16QAM	1	25	13.47	0-1	0
	1910	26640	10	16QAM	1	49	13.30	0-1	0
	1910	26640	10	16QAM	25	0	13.39	0-2	0
	1910	26640	10	16QAM	25	12	13.42	0-2	0
	1910	26640	10	16QAM	25	25	13.27	0-2	0
	1910	26640	10	16QAM	50	0	13.30	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 34 of 73

Table 8-20
LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1852.5	26065	5	QPSK	1	0	12.79	0	0
	1852.5	26065	5	QPSK	1	12	12.95	0	0
	1852.5	26065	5	QPSK	1	24	12.84	0	0
	1852.5	26065	5	QPSK	12	0	12.71	0-1	0
	1852.5	26065	5	QPSK	12	6	12.85	0-1	0
	1852.5	26065	5	QPSK	12	13	12.83	0-1	0
	1852.5	26065	5	QPSK	25	0	12.71	0-1	0
	1852.5	26065	5	16-QAM	1	0	12.83	0-1	0
	1852.5	26065	5	16-QAM	1	12	12.85	0-1	0
	1852.5	26065	5	16-QAM	1	24	12.78	0-1	0
	1852.5	26065	5	16-QAM	12	0	12.68	0-2	0
	1852.5	26065	5	16-QAM	12	6	12.78	0-2	0
	1852.5	26065	5	16-QAM	12	13	12.73	0-2	0
Mid	1882.5	26365	5	QPSK	1	0	13.16	0	0
	1882.5	26365	5	QPSK	1	12	13.04	0	0
	1882.5	26365	5	QPSK	1	24	13.09	0	0
	1882.5	26365	5	QPSK	12	0	12.99	0-1	0
	1882.5	26365	5	QPSK	12	6	12.86	0-1	0
	1882.5	26365	5	QPSK	12	13	12.87	0-1	0
	1882.5	26365	5	QPSK	25	0	12.90	0-1	0
	1882.5	26365	5	16-QAM	1	0	13.11	0-1	0
	1882.5	26365	5	16-QAM	1	12	12.87	0-1	0
	1882.5	26365	5	16-QAM	1	24	12.94	0-1	0
	1882.5	26365	5	16-QAM	12	0	12.92	0-2	0
	1882.5	26365	5	16-QAM	12	6	12.87	0-2	0
	1882.5	26365	5	16-QAM	12	13	12.87	0-2	0
	1882.5	26365	5	16-QAM	25	0	12.95	0-2	0
High	1912.5	26665	5	QPSK	1	0	13.43	0	0
	1912.5	26665	5	QPSK	1	12	13.20	0	0
	1912.5	26665	5	QPSK	1	24	13.30	0	0
	1912.5	26665	5	QPSK	12	0	13.25	0-1	0
	1912.5	26665	5	QPSK	12	6	13.16	0-1	0
	1912.5	26665	5	QPSK	12	13	13.22	0-1	0
	1912.5	26665	5	QPSK	25	0	13.24	0-1	0
	1912.5	26665	5	16-QAM	1	0	13.35	0-1	0
	1912.5	26665	5	16-QAM	1	12	13.20	0-1	0
	1912.5	26665	5	16-QAM	1	24	13.22	0-1	0
	1912.5	26665	5	16-QAM	12	0	13.18	0-2	0
	1912.5	26665	5	16-QAM	12	6	13.10	0-2	0
	1912.5	26665	5	16-QAM	12	13	13.20	0-2	0
	1912.5	26665	5	16-QAM	25	0	13.27	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 35 of 73

Table 8-21
LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1851.5	26055	3	QPSK	1	0	12.89	0	0
	1851.5	26055	3	QPSK	1	7	12.97	0	0
	1851.5	26055	3	QPSK	1	14	13.06	0	0
	1851.5	26055	3	QPSK	8	0	12.68	0-1	0
	1851.5	26055	3	QPSK	8	4	12.78	0-1	0
	1851.5	26055	3	QPSK	8	7	12.93	0-1	0
	1851.5	26055	3	QPSK	15	0	12.79	0-1	0
	1851.5	26055	3	16-QAM	1	0	12.83	0-1	0
	1851.5	26055	3	16-QAM	1	7	12.78	0-1	0
	1851.5	26055	3	16-QAM	1	14	12.81	0-1	0
	1851.5	26055	3	16-QAM	8	0	12.61	0-2	0
	1851.5	26055	3	16-QAM	8	4	12.69	0-2	0
	1851.5	26055	3	16-QAM	8	7	12.80	0-2	0
	1851.5	26055	3	16-QAM	15	0	12.82	0-2	0
Mid	1882.5	26365	3	QPSK	1	0	13.19	0	0
	1882.5	26365	3	QPSK	1	7	13.04	0	0
	1882.5	26365	3	QPSK	1	14	13.10	0	0
	1882.5	26365	3	QPSK	8	0	12.97	0-1	0
	1882.5	26365	3	QPSK	8	4	12.95	0-1	0
	1882.5	26365	3	QPSK	8	7	12.96	0-1	0
	1882.5	26365	3	QPSK	15	0	12.92	0-1	0
	1882.5	26365	3	16-QAM	1	0	13.05	0-1	0
	1882.5	26365	3	16-QAM	1	7	12.95	0-1	0
	1882.5	26365	3	16-QAM	1	14	12.95	0-1	0
	1882.5	26365	3	16-QAM	8	0	12.92	0-2	0
	1882.5	26365	3	16-QAM	8	4	12.87	0-2	0
	1882.5	26365	3	16-QAM	8	7	12.93	0-2	0
	1882.5	26365	3	16-QAM	15	0	12.96	0-2	0
High	1913.5	26675	3	QPSK	1	0	13.24	0	0
	1913.5	26675	3	QPSK	1	7	13.16	0	0
	1913.5	26675	3	QPSK	1	14	13.25	0	0
	1913.5	26675	3	QPSK	8	0	13.19	0-1	0
	1913.5	26675	3	QPSK	8	4	13.13	0-1	0
	1913.5	26675	3	QPSK	8	7	13.18	0-1	0
	1913.5	26675	3	QPSK	15	0	13.19	0-1	0
	1913.5	26675	3	16-QAM	1	0	13.22	0-1	0
	1913.5	26675	3	16-QAM	1	7	13.16	0-1	0
	1913.5	26675	3	16-QAM	1	14	13.25	0-1	0
	1913.5	26675	3	16-QAM	8	0	13.18	0-2	0
	1913.5	26675	3	16-QAM	8	4	13.10	0-2	0
	1913.5	26675	3	16-QAM	8	7	13.09	0-2	0
	1913.5	26675	3	16-QAM	15	0	13.27	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 36 of 73

Table 8-22
LTE Band 25 (PCS) Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1850.7	26047	1.4	QPSK	1	0	12.85	0	0
	1850.7	26047	1.4	QPSK	1	2	12.80	0	0
	1850.7	26047	1.4	QPSK	1	5	12.88	0	0
	1850.7	26047	1.4	QPSK	3	0	12.69	0	0
	1850.7	26047	1.4	QPSK	3	2	12.77	0	0
	1850.7	26047	1.4	QPSK	3	3	12.78	0	0
	1850.7	26047	1.4	QPSK	6	0	12.69	0-1	0
	1850.7	26047	1.4	16-QAM	1	0	12.84	0-1	0
	1850.7	26047	1.4	16-QAM	1	2	12.81	0-1	0
	1850.7	26047	1.4	16-QAM	1	5	12.83	0-1	0
	1850.7	26047	1.4	16-QAM	3	0	12.67	0-1	0
	1850.7	26047	1.4	16-QAM	3	2	12.75	0-1	0
	1850.7	26047	1.4	16-QAM	3	3	12.84	0-1	0
Mid	1850.7	26047	1.4	16-QAM	6	0	12.76	0-2	0
	1882.5	26365	1.4	QPSK	1	0	13.19	0	0
	1882.5	26365	1.4	QPSK	1	2	13.21	0	0
	1882.5	26365	1.4	QPSK	1	5	13.14	0	0
	1882.5	26365	1.4	QPSK	3	0	13.05	0	0
	1882.5	26365	1.4	QPSK	3	2	13.02	0	0
	1882.5	26365	1.4	QPSK	3	3	13.01	0	0
	1882.5	26365	1.4	QPSK	6	0	12.96	0-1	0
	1882.5	26365	1.4	16-QAM	1	0	13.14	0-1	0
	1882.5	26365	1.4	16-QAM	1	2	13.14	0-1	0
	1882.5	26365	1.4	16-QAM	1	5	13.06	0-1	0
	1882.5	26365	1.4	16-QAM	3	0	12.96	0-1	0
	1882.5	26365	1.4	16-QAM	3	2	12.93	0-1	0
	1882.5	26365	1.4	16-QAM	3	3	12.98	0-1	0
High	1882.5	26365	1.4	16-QAM	6	0	12.93	0-2	0
	1914.3	26683	1.4	QPSK	1	0	13.23	0	0
	1914.3	26683	1.4	QPSK	1	2	13.17	0	0
	1914.3	26683	1.4	QPSK	1	5	13.29	0	0
	1914.3	26683	1.4	QPSK	3	0	13.27	0	0
	1914.3	26683	1.4	QPSK	3	2	13.21	0	0
	1914.3	26683	1.4	QPSK	3	3	13.23	0	0
	1914.3	26683	1.4	QPSK	6	0	13.20	0-1	0
	1914.3	26683	1.4	16-QAM	1	0	13.22	0-1	0
	1914.3	26683	1.4	16-QAM	1	2	13.13	0-1	0
	1914.3	26683	1.4	16-QAM	1	5	13.33	0-1	0
	1914.3	26683	1.4	16-QAM	3	0	13.20	0-1	0
	1914.3	26683	1.4	16-QAM	3	2	13.16	0-1	0
	1914.3	26683	1.4	16-QAM	3	3	13.32	0-1	0
	1914.3	26683	1.4	16-QAM	6	0	13.25	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 37 of 73

8.2.5

LTE Band 41 Maximum Power

Table 8-23
LTE Band 41 Conducted Powers - 20 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2506	39750	20	QPSK	1	0	23.53	0	0
	2506	39750	20	QPSK	1	50	23.14	0	0
	2506	39750	20	QPSK	1	99	23.26	0	0
	2506	39750	20	QPSK	50	0	22.47	0-1	1
	2506	39750	20	QPSK	50	25	22.16	0-1	1
	2506	39750	20	QPSK	50	50	22.00	0-1	1
	2506	39750	20	QPSK	100	0	22.06	0-1	1
	2506	39750	20	16QAM	1	0	22.86	0-1	1
	2506	39750	20	16QAM	1	50	22.40	0-1	1
	2506	39750	20	16QAM	1	99	22.25	0-1	1
	2506	39750	20	16QAM	50	0	21.42	0-2	2
	2506	39750	20	16QAM	50	25	21.25	0-2	2
	2506	39750	20	16QAM	50	50	21.00	0-2	2
	2506	39750	20	16QAM	100	0	21.03	0-2	2
	2549.5	40185	20	QPSK	1	0	23.28	0	0
Low Mid	2549.5	40185	20	QPSK	1	50	23.25	0	0
	2549.5	40185	20	QPSK	1	99	23.00	0	0
	2549.5	40185	20	QPSK	50	0	22.35	0-1	1
	2549.5	40185	20	QPSK	50	25	22.20	0-1	1
	2549.5	40185	20	QPSK	50	50	22.10	0-1	1
	2549.5	40185	20	QPSK	100	0	22.11	0-1	1
	2549.5	40185	20	16-QAM	1	0	22.26	0-1	1
	2549.5	40185	20	16-QAM	1	50	22.40	0-1	1
	2549.5	40185	20	16-QAM	1	99	22.14	0-1	1
	2549.5	40185	20	16-QAM	50	0	21.45	0-2	2
	2549.5	40185	20	16-QAM	50	25	21.32	0-2	2
	2549.5	40185	20	16-QAM	50	50	21.10	0-2	2
	2549.5	40185	20	16-QAM	100	0	21.07	0-2	2
	2593	40620	20	QPSK	1	0	23.53	0	0
	2593	40620	20	QPSK	1	50	23.37	0	0
Mid	2593	40620	20	QPSK	1	99	23.00	0	0
	2593	40620	20	QPSK	50	0	22.26	0-1	1
	2593	40620	20	QPSK	50	25	22.02	0-1	1
	2593	40620	20	QPSK	50	50	22.00	0-1	1
	2593	40620	20	QPSK	100	0	22.00	0-1	1
	2593	40620	20	16-QAM	1	0	22.96	0-1	1
	2593	40620	20	16-QAM	1	50	22.92	0-1	1
	2593	40620	20	16-QAM	1	99	22.39	0-1	1
	2593	40620	20	16-QAM	50	0	21.26	0-2	2
	2593	40620	20	16-QAM	50	25	21.15	0-2	2
	2593	40620	20	16-QAM	50	50	21.02	0-2	2
	2593	40620	20	16-QAM	100	0	21.01	0-2	2
	2636.5	41055	20	QPSK	1	0	23.23	0	0
	2636.5	41055	20	QPSK	1	50	23.30	0	0
	2636.5	41055	20	QPSK	1	99	23.32	0	0
Mid High	2636.5	41055	20	QPSK	50	0	22.35	0-1	1
	2636.5	41055	20	QPSK	50	25	22.30	0-1	1
	2636.5	41055	20	QPSK	50	50	22.24	0-1	1
	2636.5	41055	20	QPSK	100	0	22.21	0-1	1
	2636.5	41055	20	16-QAM	1	0	22.30	0-1	1
	2636.5	41055	20	16-QAM	1	50	22.31	0-1	1
	2636.5	41055	20	16-QAM	1	99	22.33	0-1	1
	2636.5	41055	20	16-QAM	50	0	21.56	0-2	2
	2636.5	41055	20	16-QAM	50	25	21.36	0-2	2
	2636.5	41055	20	16-QAM	50	50	21.31	0-2	2
	2636.5	41055	20	16-QAM	100	0	21.32	0-2	2
	2680	41490	20	QPSK	1	0	23.32	0	0
	2680	41490	20	QPSK	1	50	23.55	0	0
	2680	41490	20	QPSK	1	99	23.52	0	0
	2680	41490	20	QPSK	50	0	22.63	0-1	1
High	2680	41490	20	QPSK	50	25	22.57	0-1	1
	2680	41490	20	QPSK	50	50	22.58	0-1	1
	2680	41490	20	QPSK	100	0	22.57	0-1	1
	2680	41490	20	16-QAM	1	0	22.60	0-1	1
	2680	41490	20	16-QAM	1	50	22.78	0-1	1
	2680	41490	20	16-QAM	1	99	22.76	0-1	1
	2680	41490	20	16-QAM	50	0	21.83	0-2	2
	2680	41490	20	16-QAM	50	25	21.49	0-2	2
	2680	41490	20	16-QAM	50	50	21.55	0-2	2
	2680	41490	20	16-QAM	100	0	21.51	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 38 of 73

Table 8-24
LTE Band 41 Conducted Powers - 15 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2503.5	39725	15	QPSK	1	0	23.46	0	0
	2503.5	39725	15	QPSK	1	36	23.00	0	0
	2503.5	39725	15	QPSK	1	74	23.00	0	0
	2503.5	39725	15	QPSK	36	0	22.37	0-1	1
	2503.5	39725	15	QPSK	36	18	22.20	0-1	1
	2503.5	39725	15	QPSK	36	37	22.04	0-1	1
	2503.5	39725	15	QPSK	75	0	22.04	0-1	1
	2503.5	39725	15	16QAM	1	0	22.36	0-1	1
	2503.5	39725	15	16QAM	1	36	22.00	0-1	1
	2503.5	39725	15	16QAM	1	74	22.02	0-1	1
	2503.5	39725	15	16QAM	36	0	21.32	0-2	2
	2503.5	39725	15	16QAM	36	18	21.10	0-2	2
	2503.5	39725	15	16QAM	36	37	21.00	0-2	2
	2503.5	39725	15	16QAM	75	0	21.11	0-2	2
Low Mid	2548.25	40173	15	QPSK	1	0	23.16	0	0
	2548.25	40173	15	QPSK	1	36	23.15	0	0
	2548.25	40173	15	QPSK	1	74	23.00	0	0
	2548.25	40173	15	QPSK	36	0	22.47	0-1	1
	2548.25	40173	15	QPSK	36	18	22.40	0-1	1
	2548.25	40173	15	QPSK	36	37	22.37	0-1	1
	2548.25	40173	15	QPSK	75	0	22.34	0-1	1
	2548.25	40173	15	16-QAM	1	0	22.75	0-1	1
	2548.25	40173	15	16-QAM	1	36	22.72	0-1	1
	2548.25	40173	15	16-QAM	1	74	22.50	0-1	1
	2548.25	40173	15	16-QAM	36	0	21.41	0-2	2
	2548.25	40173	15	16-QAM	36	18	21.43	0-2	2
	2548.25	40173	15	16-QAM	36	37	21.37	0-2	2
	2548.25	40173	15	16-QAM	75	0	21.33	0-2	2
Mid	2593	40620	15	QPSK	1	0	23.38	0	0
	2593	40620	15	QPSK	1	36	23.52	0	0
	2593	40620	15	QPSK	1	74	23.01	0	0
	2593	40620	15	QPSK	36	0	22.36	0-1	1
	2593	40620	15	QPSK	36	18	22.47	0-1	1
	2593	40620	15	QPSK	36	37	22.30	0-1	1
	2593	40620	15	QPSK	75	0	22.32	0-1	1
	2593	40620	15	16-QAM	1	0	22.29	0-1	1
	2593	40620	15	16-QAM	1	36	22.50	0-1	1
	2593	40620	15	16-QAM	1	74	22.00	0-1	1
	2593	40620	15	16-QAM	36	0	21.38	0-2	2
	2593	40620	15	16-QAM	36	18	21.48	0-2	2
	2593	40620	15	16-QAM	36	37	21.33	0-2	2
	2593	40620	15	16-QAM	75	0	21.39	0-2	2
Mid High	2637.75	41068	15	QPSK	1	0	23.41	0	0
	2637.75	41068	15	QPSK	1	36	23.46	0	0
	2637.75	41068	15	QPSK	1	74	23.41	0	0
	2637.75	41068	15	QPSK	36	0	22.63	0-1	1
	2637.75	41068	15	QPSK	36	18	22.69	0-1	1
	2637.75	41068	15	QPSK	36	37	22.60	0-1	1
	2637.75	41068	15	QPSK	75	0	22.69	0-1	1
	2637.75	41068	15	16-QAM	1	0	23.00	0-1	1
	2637.75	41068	15	16-QAM	1	36	22.75	0-1	1
	2637.75	41068	15	16-QAM	1	74	23.00	0-1	1
	2637.75	41068	15	16-QAM	36	0	21.70	0-2	2
	2637.75	41068	15	16-QAM	36	18	21.75	0-2	2
	2637.75	41068	15	16-QAM	36	37	21.71	0-2	2
	2637.75	41068	15	16-QAM	75	0	21.70	0-2	2
High	2682.5	41515	15	QPSK	1	0	23.58	0	0
	2682.5	41515	15	QPSK	1	36	23.67	0	0
	2682.5	41515	15	QPSK	1	74	23.54	0	0
	2682.5	41515	15	QPSK	36	0	22.84	0-1	1
	2682.5	41515	15	QPSK	36	18	22.80	0-1	1
	2682.5	41515	15	QPSK	36	37	22.75	0-1	1
	2682.5	41515	15	QPSK	75	0	22.82	0-1	1
	2682.5	41515	15	16-QAM	1	0	22.54	0-1	1
	2682.5	41515	15	16-QAM	1	36	22.57	0-1	1
	2682.5	41515	15	16-QAM	1	74	22.39	0-1	1
	2682.5	41515	15	16-QAM	36	0	21.78	0-2	2
	2682.5	41515	15	16-QAM	36	18	21.74	0-2	2
	2682.5	41515	15	16-QAM	36	37	21.70	0-2	2
	2682.5	41515	15	16-QAM	75	0	21.76	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 39 of 73

Table 8-25
LTE Band 41 Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2501	39700	10	QPSK	1	0	23.77	0	0
	2501	39700	10	QPSK	1	25	23.42	0	0
	2501	39700	10	QPSK	1	49	23.13	0	0
	2501	39700	10	QPSK	25	0	22.51	0-1	1
	2501	39700	10	QPSK	25	12	22.40	0-1	1
	2501	39700	10	QPSK	25	25	22.25	0-1	1
	2501	39700	10	QPSK	50	0	22.37	0-1	1
	2501	39700	10	16QAM	1	0	22.51	0-1	1
	2501	39700	10	16QAM	1	25	22.17	0-1	1
	2501	39700	10	16QAM	1	49	22.00	0-1	1
	2501	39700	10	16QAM	25	0	21.46	0-2	2
	2501	39700	10	16QAM	25	12	21.31	0-2	2
	2501	39700	10	16QAM	25	25	21.16	0-2	2
	2501	39700	10	16QAM	50	0	21.31	0-2	2
Low Mid	2547	40160	10	QPSK	1	0	23.22	0	0
	2547	40160	10	QPSK	1	25	23.29	0	0
	2547	40160	10	QPSK	1	49	23.19	0	0
	2547	40160	10	QPSK	25	0	22.42	0-1	1
	2547	40160	10	QPSK	25	12	22.48	0-1	1
	2547	40160	10	QPSK	25	25	22.37	0-1	1
	2547	40160	10	QPSK	50	0	22.44	0-1	1
	2547	40160	10	16-QAM	1	0	22.18	0-1	1
	2547	40160	10	16-QAM	1	25	22.26	0-1	1
	2547	40160	10	16-QAM	1	49	22.18	0-1	1
	2547	40160	10	16-QAM	25	0	21.42	0-2	2
	2547	40160	10	16-QAM	25	12	21.40	0-2	2
	2547	40160	10	16-QAM	25	25	21.35	0-2	2
	2547	40160	10	16-QAM	50	0	21.33	0-2	2
Mid	2593	40620	10	QPSK	1	0	23.14	0	0
	2593	40620	10	QPSK	1	25	23.63	0	0
	2593	40620	10	QPSK	1	49	23.26	0	0
	2593	40620	10	QPSK	25	0	22.43	0-1	1
	2593	40620	10	QPSK	25	12	22.55	0-1	1
	2593	40620	10	QPSK	25	25	22.30	0-1	1
	2593	40620	10	QPSK	50	0	22.36	0-1	1
	2593	40620	10	16-QAM	1	0	22.00	0-1	1
	2593	40620	10	16-QAM	1	25	22.44	0-1	1
	2593	40620	10	16-QAM	1	49	22.03	0-1	1
	2593	40620	10	16-QAM	25	0	21.37	0-2	2
	2593	40620	10	16-QAM	25	12	21.51	0-2	2
	2593	40620	10	16-QAM	25	25	21.31	0-2	2
	2593	40620	10	16-QAM	50	0	21.41	0-2	2
Mid High	2639	41080	10	QPSK	1	0	23.65	0	0
	2639	41080	10	QPSK	1	25	23.69	0	0
	2639	41080	10	QPSK	1	49	23.62	0	0
	2639	41080	10	QPSK	25	0	22.53	0-1	1
	2639	41080	10	QPSK	25	12	22.65	0-1	1
	2639	41080	10	QPSK	25	25	22.57	0-1	1
	2639	41080	10	QPSK	50	0	22.65	0-1	1
	2639	41080	10	16-QAM	1	0	22.37	0-1	1
	2639	41080	10	16-QAM	1	25	22.41	0-1	1
	2639	41080	10	16-QAM	1	49	22.36	0-1	1
	2639	41080	10	16-QAM	25	0	21.54	0-2	2
	2639	41080	10	16-QAM	25	12	21.66	0-2	2
	2639	41080	10	16-QAM	25	25	21.62	0-2	2
	2639	41080	10	16-QAM	50	0	21.68	0-2	2
High	2685	41540	10	QPSK	1	0	23.61	0	0
	2685	41540	10	QPSK	1	25	23.69	0	0
	2685	41540	10	QPSK	1	49	23.51	0	0
	2685	41540	10	QPSK	25	0	22.82	0-1	1
	2685	41540	10	QPSK	25	12	22.86	0-1	1
	2685	41540	10	QPSK	25	25	22.72	0-1	1
	2685	41540	10	QPSK	50	0	22.81	0-1	1
	2685	41540	10	16-QAM	1	0	22.52	0-1	1
	2685	41540	10	16-QAM	1	25	22.55	0-1	1
	2685	41540	10	16-QAM	1	49	22.40	0-1	1
	2685	41540	10	16-QAM	25	0	21.64	0-2	2
	2685	41540	10	16-QAM	25	12	21.71	0-2	2
	2685	41540	10	16-QAM	25	25	21.57	0-2	2
	2685	41540	10	16-QAM	50	0	21.66	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 40 of 73

Table 8-26
LTE Band 41 Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2498.5	39675	5	QPSK	1	0	23.82	0	0
	2498.5	39675	5	QPSK	1	12	23.64	0	0
	2498.5	39675	5	QPSK	1	24	23.63	0	0
	2498.5	39675	5	QPSK	12	0	22.50	0-1	1
	2498.5	39675	5	QPSK	12	6	22.66	0-1	1
	2498.5	39675	5	QPSK	12	13	22.49	0-1	1
	2498.5	39675	5	QPSK	25	0	22.57	0-1	1
	2498.5	39675	5	16-QAM	1	0	22.55	0-1	1
	2498.5	39675	5	16-QAM	1	12	22.38	0-1	1
	2498.5	39675	5	16-QAM	1	24	22.23	0-1	1
	2498.5	39675	5	16-QAM	12	0	21.68	0-2	2
	2498.5	39675	5	16-QAM	12	6	21.59	0-2	2
	2498.5	39675	5	16-QAM	12	13	21.53	0-2	2
	2498.5	39675	5	16-QAM	25	0	21.51	0-2	2
Low Mid	2545.75	40148	5	QPSK	1	0	23.57	0	0
	2545.75	40148	5	QPSK	1	12	23.51	0	0
	2545.75	40148	5	QPSK	1	24	23.50	0	0
	2545.75	40148	5	QPSK	12	0	22.51	0-1	1
	2545.75	40148	5	QPSK	12	6	22.45	0-1	1
	2545.75	40148	5	QPSK	12	13	22.43	0-1	1
	2545.75	40148	5	QPSK	25	0	22.45	0-1	1
	2545.75	40148	5	16-QAM	1	0	22.37	0-1	1
	2545.75	40148	5	16-QAM	1	12	22.31	0-1	1
	2545.75	40148	5	16-QAM	1	24	22.35	0-1	1
	2545.75	40148	5	16-QAM	12	0	21.50	0-2	2
	2545.75	40148	5	16-QAM	12	6	21.53	0-2	2
	2545.75	40148	5	16-QAM	12	13	21.52	0-2	2
	2545.75	40148	5	16-QAM	25	0	21.47	0-2	2
Mid	2593	40620	5	QPSK	1	0	23.38	0	0
	2593	40620	5	QPSK	1	12	23.66	0	0
	2593	40620	5	QPSK	1	24	23.30	0	0
	2593	40620	5	QPSK	12	0	22.58	0-1	1
	2593	40620	5	QPSK	12	6	22.64	0-1	1
	2593	40620	5	QPSK	12	13	22.51	0-1	1
	2593	40620	5	QPSK	25	0	22.58	0-1	1
	2593	40620	5	16-QAM	1	0	22.23	0-1	1
	2593	40620	5	16-QAM	1	12	22.56	0-1	1
	2593	40620	5	16-QAM	1	24	22.20	0-1	1
	2593	40620	5	16-QAM	12	0	21.58	0-2	2
	2593	40620	5	16-QAM	12	6	21.68	0-2	2
	2593	40620	5	16-QAM	12	13	21.51	0-2	2
	2593	40620	5	16-QAM	25	0	21.54	0-2	2
Mid High	2640.25	41093	5	QPSK	1	0	23.60	0	0
	2640.25	41093	5	QPSK	1	12	23.52	0	0
	2640.25	41093	5	QPSK	1	24	23.47	0	0
	2640.25	41093	5	QPSK	12	0	22.64	0-1	1
	2640.25	41093	5	QPSK	12	6	22.71	0-1	1
	2640.25	41093	5	QPSK	12	13	22.61	0-1	1
	2640.25	41093	5	QPSK	25	0	22.61	0-1	1
	2640.25	41093	5	16-QAM	1	0	22.24	0-1	1
	2640.25	41093	5	16-QAM	1	12	22.23	0-1	1
	2640.25	41093	5	16-QAM	1	24	22.22	0-1	1
	2640.25	41093	5	16-QAM	12	0	21.79	0-2	2
	2640.25	41093	5	16-QAM	12	6	21.77	0-2	2
	2640.25	41093	5	16-QAM	12	13	21.75	0-2	2
	2640.25	41093	5	16-QAM	25	0	21.67	0-2	2
High	2687.5	41565	5	QPSK	1	0	23.95	0	0
	2687.5	41565	5	QPSK	1	12	23.86	0	0
	2687.5	41565	5	QPSK	1	24	23.78	0	0
	2687.5	41565	5	QPSK	12	0	22.74	0-1	1
	2687.5	41565	5	QPSK	12	6	22.74	0-1	1
	2687.5	41565	5	QPSK	12	13	22.72	0-1	1
	2687.5	41565	5	QPSK	25	0	22.74	0-1	1
	2687.5	41565	5	16-QAM	1	0	22.67	0-1	1
	2687.5	41565	5	16-QAM	1	12	22.55	0-1	1
	2687.5	41565	5	16-QAM	1	24	22.46	0-1	1
	2687.5	41565	5	16-QAM	12	0	21.80	0-2	2
	2687.5	41565	5	16-QAM	12	6	21.78	0-2	2
	2687.5	41565	5	16-QAM	12	13	21.73	0-2	2
	2687.5	41565	5	16-QAM	25	0	21.68	0-2	2

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 41 of 73

8.2.6

LTE Band 41 Reduced Power

Table 8-27
LTE Band 41 Conducted Powers - 20 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2506	39750	20	QPSK	1	0	13.95	0	0
	2506	39750	20	QPSK	1	50	14.50	0	0
	2506	39750	20	QPSK	1	99	14.28	0	0
	2506	39750	20	QPSK	50	0	14.48	0-1	0
	2506	39750	20	QPSK	50	25	14.31	0-1	0
	2506	39750	20	QPSK	50	50	14.11	0-1	0
	2506	39750	20	QPSK	100	0	14.08	0-1	0
	2506	39750	20	16QAM	1	0	14.07	0-1	0
	2506	39750	20	16QAM	1	50	14.50	0-1	0
	2506	39750	20	16QAM	1	99	14.25	0-1	0
	2506	39750	20	16QAM	50	0	14.08	0-2	0
	2506	39750	20	16QAM	50	25	14.17	0-2	0
	2506	39750	20	16QAM	50	50	14.50	0-2	0
	2506	39750	20	16QAM	100	0	14.41	0-2	0
	2549.5	40185	20	QPSK	1	0	14.02	0	0
	2549.5	40185	20	QPSK	1	50	14.48	0	0
Low Mid	2549.5	40185	20	QPSK	1	99	14.00	0	0
	2549.5	40185	20	QPSK	50	0	13.69	0-1	0
	2549.5	40185	20	QPSK	50	25	14.02	0-1	0
	2549.5	40185	20	QPSK	50	50	14.32	0-1	0
	2549.5	40185	20	QPSK	100	0	13.62	0-1	0
	2549.5	40185	20	16-QAM	1	0	13.58	0-1	0
	2549.5	40185	20	16-QAM	1	50	13.92	0-1	0
	2549.5	40185	20	16-QAM	1	99	13.65	0-1	0
	2549.5	40185	20	16-QAM	50	0	13.52	0-2	0
	2549.5	40185	20	16-QAM	50	25	13.60	0-2	0
	2549.5	40185	20	16-QAM	50	50	13.68	0-2	0
	2549.5	40185	20	16-QAM	100	0	13.62	0-2	0
Mid	2593	40620	20	QPSK	1	0	14.09	0	0
	2593	40620	20	QPSK	1	50	14.23	0	0
	2593	40620	20	QPSK	1	99	13.98	0	0
	2593	40620	20	QPSK	50	0	13.65	0-1	0
	2593	40620	20	QPSK	50	25	13.99	0-1	0
	2593	40620	20	QPSK	50	50	13.55	0-1	0
	2593	40620	20	QPSK	100	0	13.52	0-1	0
	2593	40620	20	16-QAM	1	0	13.52	0-1	0
	2593	40620	20	16-QAM	1	50	13.54	0-1	0
	2593	40620	20	16-QAM	1	99	13.57	0-1	0
	2593	40620	20	16-QAM	50	0	13.55	0-2	0
	2593	40620	20	16-QAM	50	25	13.52	0-2	0
	2593	40620	20	16-QAM	50	50	13.61	0-2	0
	2593	40620	20	16-QAM	100	0	13.52	0-2	0
Mid High	2636.5	41055	20	QPSK	1	0	13.89	0	0
	2636.5	41055	20	QPSK	1	50	14.19	0	0
	2636.5	41055	20	QPSK	1	99	13.54	0	0
	2636.5	41055	20	QPSK	50	0	13.90	0-1	0
	2636.5	41055	20	QPSK	50	25	13.96	0-1	0
	2636.5	41055	20	QPSK	50	50	14.18	0-1	0
	2636.5	41055	20	QPSK	100	0	13.90	0-1	0
	2636.5	41055	20	16-QAM	1	0	13.63	0-1	0
	2636.5	41055	20	16-QAM	1	50	14.33	0-1	0
	2636.5	41055	20	16-QAM	1	99	13.67	0-1	0
	2636.5	41055	20	16-QAM	50	0	13.67	0-2	0
	2636.5	41055	20	16-QAM	50	25	13.79	0-2	0
	2636.5	41055	20	16-QAM	50	50	13.78	0-2	0
	2636.5	41055	20	16-QAM	100	0	13.76	0-2	0
High	2680	41490	20	QPSK	1	0	13.72	0	0
	2680	41490	20	QPSK	1	50	14.41	0	0
	2680	41490	20	QPSK	1	99	13.62	0	0
	2680	41490	20	QPSK	50	0	13.77	0-1	0
	2680	41490	20	QPSK	50	25	14.16	0-1	0
	2680	41490	20	QPSK	50	50	14.23	0-1	0
	2680	41490	20	QPSK	100	0	14.25	0-1	0
	2680	41490	20	16-QAM	1	0	13.72	0-1	0
	2680	41490	20	16-QAM	1	50	14.50	0-1	0
	2680	41490	20	16-QAM	1	99	13.50	0-1	0
	2680	41490	20	16-QAM	50	0	13.94	0-2	0
	2680	41490	20	16-QAM	50	25	14.18	0-2	0
	2680	41490	20	16-QAM	50	50	14.07	0-2	0
	2680	41490	20	16-QAM	100	0	14.00	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 42 of 73

Table 8-28
LTE Band 41 Conducted Powers - 15 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2503.5	39725	15	QPSK	1	0	14.00	0	0
	2503.5	39725	15	QPSK	1	36	14.44	0	0
	2503.5	39725	15	QPSK	1	74	13.96	0	0
	2503.5	39725	15	QPSK	36	0	13.65	0-1	0
	2503.5	39725	15	QPSK	36	18	13.98	0-1	0
	2503.5	39725	15	QPSK	36	37	14.28	0-1	0
	2503.5	39725	15	QPSK	75	0	13.58	0-1	0
	2503.5	39725	15	16QAM	1	0	13.54	0-1	0
	2503.5	39725	15	16QAM	1	36	13.88	0-1	0
	2503.5	39725	15	16QAM	1	74	13.61	0-1	0
	2503.5	39725	15	16QAM	36	0	13.77	0-2	0
	2503.5	39725	15	16QAM	36	18	13.56	0-2	0
Low Mid	2503.5	39725	15	16QAM	36	37	13.64	0-2	0
	2503.5	39725	15	16QAM	75	0	13.58	0-2	0
	2548.25	40173	15	QPSK	1	0	13.84	0	0
	2548.25	40173	15	QPSK	1	36	14.12	0	0
	2548.25	40173	15	QPSK	1	74	13.68	0	0
	2548.25	40173	15	QPSK	36	0	13.88	0-1	0
	2548.25	40173	15	QPSK	36	18	13.92	0-1	0
	2548.25	40173	15	QPSK	36	37	14.14	0-1	0
	2548.25	40173	15	QPSK	75	0	13.86	0-1	0
	2548.25	40173	15	16-QAM	1	0	13.59	0-1	0
	2548.25	40173	15	16-QAM	1	36	14.38	0-1	0
	2548.25	40173	15	16-QAM	1	74	13.63	0-1	0
Mid	2548.25	40173	15	16-QAM	36	0	13.63	0-2	0
	2548.25	40173	15	16-QAM	36	18	13.75	0-2	0
	2548.25	40173	15	16-QAM	36	37	13.74	0-2	0
	2548.25	40173	15	16-QAM	75	0	13.72	0-2	0
	2593	40620	15	QPSK	1	0	13.70	0	0
	2593	40620	15	QPSK	1	36	14.39	0	0
	2593	40620	15	QPSK	1	74	13.60	0	0
	2593	40620	15	QPSK	36	0	13.75	0-1	0
	2593	40620	15	QPSK	36	18	14.14	0-1	0
	2593	40620	15	QPSK	36	37	14.21	0-1	0
	2593	40620	15	QPSK	75	0	14.23	0-1	0
	2593	40620	15	16-QAM	1	0	13.71	0-1	0
Mid High	2593	40620	15	16-QAM	1	36	14.48	0-1	0
	2593	40620	15	16-QAM	1	74	13.68	0-1	0
	2593	40620	15	16-QAM	36	0	13.92	0-2	0
	2593	40620	15	16-QAM	36	18	14.16	0-2	0
	2593	40620	15	16-QAM	36	37	14.05	0-2	0
	2593	40620	15	16-QAM	75	0	13.98	0-2	0
	2637.75	41068	15	QPSK	1	0	13.92	0	0
	2637.75	41068	15	QPSK	1	36	14.47	0	0
	2637.75	41068	15	QPSK	1	74	14.25	0	0
	2637.75	41068	15	QPSK	36	0	14.26	0-1	0
	2637.75	41068	15	QPSK	36	18	14.28	0-1	0
	2637.75	41068	15	QPSK	36	37	14.08	0-1	0
High	2637.75	41068	15	QPSK	75	0	14.05	0-1	0
	2637.75	41068	15	16-QAM	1	0	14.04	0-1	0
	2637.75	41068	15	16-QAM	1	36	14.47	0-1	0
	2637.75	41068	15	16-QAM	1	74	14.22	0-1	0
	2637.75	41068	15	16-QAM	36	0	14.05	0-2	0
	2637.75	41068	15	16-QAM	36	18	14.14	0-2	0
	2637.75	41068	15	16-QAM	36	37	14.47	0-2	0
	2637.75	41068	15	16-QAM	75	0	14.38	0-2	0
	2682.5	41515	15	QPSK	1	0	13.85	0	0
	2682.5	41515	15	QPSK	1	36	14.15	0	0
	2682.5	41515	15	QPSK	1	74	13.62	0	0
	2682.5	41515	15	QPSK	36	0	13.86	0-1	0
High	2682.5	41515	15	QPSK	36	18	13.92	0-1	0
	2682.5	41515	15	QPSK	36	37	14.14	0-1	0
	2682.5	41515	15	QPSK	75	0	13.86	0-1	0
	2682.5	41515	15	16-QAM	1	0	13.59	0-1	0
	2682.5	41515	15	16-QAM	1	36	14.26	0-1	0
	2682.5	41515	15	16-QAM	1	74	13.63	0-1	0
	2682.5	41515	15	16-QAM	36	0	13.54	0-2	0
	2682.5	41515	15	16-QAM	36	18	13.76	0-2	0
	2682.5	41515	15	16-QAM	36	37	13.77	0-2	0
	2682.5	41515	15	16-QAM	75	0	13.74	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 43 of 73

Table 8-29
LTE Band 41 Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2501	39700	10	QPSK	1	0	13.92	0	0
	2501	39700	10	QPSK	1	25	14.47	0	0
	2501	39700	10	QPSK	1	49	14.25	0	0
	2501	39700	10	QPSK	25	0	14.45	0-1	0
	2501	39700	10	QPSK	25	12	14.28	0-1	0
	2501	39700	10	QPSK	25	25	14.08	0-1	0
	2501	39700	10	QPSK	50	0	14.05	0-1	0
	2501	39700	10	16QAM	1	0	14.04	0-1	0
	2501	39700	10	16QAM	1	25	14.47	0-1	0
	2501	39700	10	16QAM	1	49	14.22	0-1	0
	2501	39700	10	16QAM	25	0	14.05	0-2	0
	2501	39700	10	16QAM	25	12	14.14	0-2	0
	2501	39700	10	16QAM	25	25	14.47	0-2	0
	2501	39700	10	16QAM	50	0	14.38	0-2	0
Low Mid	2547	40160	10	QPSK	1	0	13.98	0	0
	2547	40160	10	QPSK	1	25	14.44	0	0
	2547	40160	10	QPSK	1	49	13.96	0	0
	2547	40160	10	QPSK	25	0	13.65	0-1	0
	2547	40160	10	QPSK	25	12	13.98	0-1	0
	2547	40160	10	QPSK	25	25	14.28	0-1	0
	2547	40160	10	QPSK	50	0	13.58	0-1	0
	2547	40160	10	16-QAM	1	0	13.54	0-1	0
	2547	40160	10	16-QAM	1	25	13.88	0-1	0
	2547	40160	10	16-QAM	1	49	13.61	0-1	0
	2547	40160	10	16-QAM	25	0	13.59	0-2	0
	2547	40160	10	16-QAM	25	12	13.56	0-2	0
	2547	40160	10	16-QAM	25	25	13.64	0-2	0
	2547	40160	10	16-QAM	50	0	13.58	0-2	0
Mid	2593	40620	10	QPSK	1	0	14.07	0	0
	2593	40620	10	QPSK	1	25	14.21	0	0
	2593	40620	10	QPSK	1	49	13.96	0	0
	2593	40620	10	QPSK	25	0	13.63	0-1	0
	2593	40620	10	QPSK	25	12	13.97	0-1	0
	2593	40620	10	QPSK	25	25	13.53	0-1	0
	2593	40620	10	QPSK	50	0	13.50	0-1	0
	2593	40620	10	16-QAM	1	0	13.50	0-1	0
	2593	40620	10	16-QAM	1	25	13.52	0-1	0
	2593	40620	10	16-QAM	1	49	13.55	0-1	0
	2593	40620	10	16-QAM	25	0	13.53	0-2	0
	2593	40620	10	16-QAM	25	12	13.50	0-2	0
	2593	40620	10	16-QAM	25	25	13.59	0-2	0
	2593	40620	10	16-QAM	50	0	13.50	0-2	0
Mid High	2639	41080	10	QPSK	1	0	13.85	0	0
	2639	41080	10	QPSK	1	25	14.15	0	0
	2639	41080	10	QPSK	1	49	13.50	0	0
	2639	41080	10	QPSK	25	0	13.84	0-1	0
	2639	41080	10	QPSK	25	12	13.92	0-1	0
	2639	41080	10	QPSK	25	25	14.16	0-1	0
	2639	41080	10	QPSK	50	0	13.86	0-1	0
	2639	41080	10	16-QAM	1	0	13.59	0-1	0
	2639	41080	10	16-QAM	1	25	14.29	0-1	0
	2639	41080	10	16-QAM	1	49	13.63	0-1	0
	2639	41080	10	16-QAM	25	0	13.63	0-2	0
	2639	41080	10	16-QAM	25	12	13.75	0-2	0
	2639	41080	10	16-QAM	25	25	13.74	0-2	0
	2639	41080	10	16-QAM	50	0	13.72	0-2	0
High	2685	41540	10	QPSK	1	0	13.70	0	0
	2685	41540	10	QPSK	1	25	14.39	0	0
	2685	41540	10	QPSK	1	49	13.66	0	0
	2685	41540	10	QPSK	25	0	13.75	0-1	0
	2685	41540	10	QPSK	25	12	14.16	0-1	0
	2685	41540	10	QPSK	25	25	14.21	0-1	0
	2685	41540	10	QPSK	50	0	14.23	0-1	0
	2685	41540	10	16-QAM	1	0	13.70	0-1	0
	2685	41540	10	16-QAM	1	25	14.45	0-1	0
	2685	41540	10	16-QAM	1	49	14.41	0-1	0
	2685	41540	10	16-QAM	25	0	13.92	0-2	0
	2685	41540	10	16-QAM	25	12	14.16	0-2	0
	2685	41540	10	16-QAM	25	25	14.05	0-2	0
	2685	41540	10	16-QAM	50	0	13.98	0-2	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 44 of 73

Table 8-30
LTE Band 41 Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2498.5	39675	5	QPSK	1	0	14.21	0	0
	2498.5	39675	5	QPSK	1	12	14.20	0	0
	2498.5	39675	5	QPSK	1	24	14.17	0	0
	2498.5	39675	5	QPSK	12	0	13.86	0-1	0
	2498.5	39675	5	QPSK	12	6	14.19	0-1	0
	2498.5	39675	5	QPSK	12	13	14.49	0-1	0
	2498.5	39675	5	QPSK	25	0	13.79	0-1	0
	2498.5	39675	5	16-QAM	1	0	13.75	0-1	0
	2498.5	39675	5	16-QAM	1	12	14.09	0-1	0
	2498.5	39675	5	16-QAM	1	24	13.82	0-1	0
	2498.5	39675	5	16-QAM	12	0	13.98	0-2	0
	2498.5	39675	5	16-QAM	12	6	13.77	0-2	0
	2498.5	39675	5	16-QAM	12	13	13.85	0-2	0
	2498.5	39675	5	16-QAM	25	0	13.79	0-2	0
	2545.75	40148	5	QPSK	1	0	13.67	0	0
	2545.75	40148	5	QPSK	1	12	13.95	0	0
Low Mid	2545.75	40148	5	QPSK	1	24	13.51	0	0
	2545.75	40148	5	QPSK	12	0	13.71	0-1	0
	2545.75	40148	5	QPSK	12	6	13.75	0-1	0
	2545.75	40148	5	QPSK	12	13	13.97	0-1	0
	2545.75	40148	5	QPSK	25	0	13.69	0-1	0
	2545.75	40148	5	16-QAM	1	0	13.74	0-1	0
	2545.75	40148	5	16-QAM	1	12	14.21	0-1	0
	2545.75	40148	5	16-QAM	1	24	13.55	0-1	0
	2545.75	40148	5	16-QAM	12	0	13.64	0-2	0
	2545.75	40148	5	16-QAM	12	6	13.58	0-2	0
	2545.75	40148	5	16-QAM	12	13	13.57	0-2	0
	2545.75	40148	5	16-QAM	25	0	13.55	0-2	0
	2593	40620	5	QPSK	1	0	13.86	0	0
	2593	40620	5	QPSK	1	12	14.03	0	0
	2593	40620	5	QPSK	1	24	13.76	0	0
	2593	40620	5	QPSK	12	0	13.91	0-1	0
Mid	2593	40620	5	QPSK	12	6	14.30	0-1	0
	2593	40620	5	QPSK	12	13	14.37	0-1	0
	2593	40620	5	QPSK	25	0	14.39	0-1	0
	2593	40620	5	16-QAM	1	0	13.87	0-1	0
	2593	40620	5	16-QAM	1	12	13.67	0-1	0
	2593	40620	5	16-QAM	1	24	13.84	0-1	0
	2593	40620	5	16-QAM	12	0	14.08	0-2	0
	2593	40620	5	16-QAM	12	6	14.32	0-2	0
	2593	40620	5	16-QAM	12	13	14.21	0-2	0
	2593	40620	5	16-QAM	25	0	14.14	0-2	0
	2640.25	41093	5	QPSK	1	0	14.05	0	0
	2640.25	41093	5	QPSK	1	12	14.28	0	0
	2640.25	41093	5	QPSK	1	24	14.38	0	0
	2640.25	41093	5	QPSK	12	0	14.39	0-1	0
	2640.25	41093	5	QPSK	12	6	14.41	0-1	0
	2640.25	41093	5	QPSK	12	13	14.21	0-1	0
Mid High	2640.25	41093	5	QPSK	25	0	14.18	0-1	0
	2640.25	41093	5	16-QAM	1	0	14.17	0-1	0
	2640.25	41093	5	16-QAM	1	12	14.38	0-1	0
	2640.25	41093	5	16-QAM	1	24	14.35	0-1	0
	2640.25	41093	5	16-QAM	12	0	14.18	0-2	0
	2640.25	41093	5	16-QAM	12	6	14.27	0-2	0
	2640.25	41093	5	16-QAM	12	13	14.40	0-2	0
	2640.25	41093	5	16-QAM	25	0	14.32	0-2	0
	2687.5	41565	5	QPSK	1	0	13.67	0	0
	2687.5	41565	5	QPSK	1	12	13.97	0	0
	2687.5	41565	5	QPSK	1	24	13.98	0	0
	2687.5	41565	5	QPSK	12	0	13.68	0-1	0
	2687.5	41565	5	QPSK	12	6	13.74	0-1	0
	2687.5	41565	5	QPSK	12	13	13.96	0-1	0
	2687.5	41565	5	QPSK	25	0	13.68	0-1	0
	2687.5	41565	5	16-QAM	1	0	13.58	0-1	0
High	2687.5	41565	5	16-QAM	1	12	14.08	0-1	0
	2687.5	41565	5	16-QAM	1	24	13.97	0-1	0
	2687.5	41565	5	16-QAM	12	0	13.84	0-2	0
	2687.5	41565	5	16-QAM	12	6	13.58	0-2	0
	2687.5	41565	5	16-QAM	12	13	13.59	0-2	0
	2687.5	41565	5	16-QAM	25	0	13.56	0-2	0
	2687.5	41565	5	16-QAM	1	12	13.97	0-1	0
	2687.5	41565	5	16-QAM	1	24	13.97	0-1	0

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 45 of 73

8.3 WLAN Conducted Powers

Table 8-31
IEEE 802.11b Average RF Power

Mode	Freq	Channel	802.11b (2.4 GHz) Conducted Power [dBm]			
			Data Rate [Mbps]			
	[MHz]		1	2	5.5	11
802.11b	2412	1*	12.02	11.86	11.93	12.02
802.11b	2437	6*	11.58	11.47	11.41	11.48
802.11b	2462	11*	11.91	11.75	11.76	11.85

Table 8-32
IEEE 802.11g Average RF Power

Mode	Freq	Channel	802.11g (2.4 GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
	[MHz]		6	9	12	18	24	36	48	54
802.11g	2412	1	10.28	10.61	10.53	10.53	10.38	10.43	10.53	10.57
802.11g	2437	6	10.04	10.39	10.25	10.20	10.06	10.19	10.35	10.39
802.11g	2462	11	10.00	10.33	10.23	10.25	10.04	10.16	10.21	10.25

Table 8-33
IEEE 802.11n Average RF Power

Mode	Freq	Channel	802.11n (2.4 GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
	[MHz]		6.5	13	20	26	39	52	58	65
802.11n	2412	1	9.43	9.53	9.51	9.38	9.39	9.47	9.48	9.51
802.11n	2437	6	8.87	9.01	8.91	8.80	8.78	8.90	8.91	8.87
802.11n	2462	11	8.70	8.75	8.84	8.61	8.66	8.80	8.67	8.79

Table 8-34
IEEE 802.11a Average RF Power

Mode	Freq	Channel	802.11a (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
	[MHz]		6	9	12	18	24	36	48	54
802.11a	5180	36*	9.77	9.82	9.74	9.75	9.80	9.87	9.81	9.84
802.11a	5200	40	9.91	9.98	9.92	9.99	9.99	9.99	9.97	9.96
802.11a	5220	44	9.91	9.86	9.78	9.89	9.85	9.74	9.79	9.72
802.11a	5240	48*	9.40	9.41	9.43	9.38	9.40	9.35	9.39	9.41
802.11a	5260	52*	9.64	9.61	9.62	9.72	9.58	9.65	9.59	9.62
802.11a	5280	56	9.51	9.40	9.45	9.51	9.42	9.38	9.40	9.44
802.11a	5300	60	9.52	9.50	9.61	9.57	9.47	9.51	9.49	9.53
802.11a	5320	64*	9.60	9.60	9.59	9.58	9.53	9.56	9.53	9.55
802.11a	5500	100	9.55	9.68	9.51	9.57	9.54	9.48	9.61	9.50
802.11a	5520	104*	9.70	9.56	9.60	9.60	9.62	9.88	9.65	9.75
802.11a	5540	108	9.90	9.81	9.83	9.83	9.86	9.99	9.90	9.91
802.11a	5560	112	8.96	8.98	9.05	9.01	9.00	8.88	8.93	8.97
802.11a	5580	116*	9.27	9.30	9.19	9.32	9.18	9.15	9.21	9.21
802.11a	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5660	132	9.93	9.93	9.80	9.89	9.92	9.81	9.90	9.92
802.11a	5680	136*	9.76	9.70	9.66	9.69	9.69	9.88	9.70	9.69
802.11a	5700	140	9.67	9.70	9.65	9.68	9.70	9.62	9.66	9.62
802.11a	5745	149*	9.23	9.36	9.49	9.52	9.50	9.55	9.22	9.12
802.11a	5765	153	9.94	9.97	9.92	9.98	9.94	9.95	9.93	9.92
802.11a	5785	157*	9.43	9.44	9.40	9.42	9.43	9.44	9.41	9.51
802.11a	5805	161	9.40	9.30	9.37	9.42	9.35	9.35	9.40	9.39
802.11a	5825	165*	9.28	9.27	9.39	9.39	9.29	9.28	9.34	9.24

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 46 of 73

Per FCC KDB Publication 443999 and RSS-210 A9.2(3), transmission on channels which overlap the 5600-5650 MHz is prohibited as a client. This device does not transmit any beacons or initiate any transmissions in 5.3 and 5.5 GHz Band.

(*) – indicates default channels per KDB Publication 248227 D01v01r02. When the adjacent channels are higher in power then the default channels, these “required channels” are considered for SAR testing instead of the default channels.

Table 8-35
IEEE 802.11n Average RF Power – 20 MHz Bandwidth

Mode	Freq [MHz]	Channel	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	9.45	9.46	9.50	9.42	9.48	9.40	9.48	9.41
802.11n	5200	40	9.38	9.41	9.45	9.38	9.43	9.29	9.49	9.40
802.11n	5220	44	9.93	9.94	9.68	9.70	9.64	9.90	9.95	9.91
802.11n	5240	48	9.49	9.42	9.52	9.47	9.51	9.45	9.53	9.52
802.11n	5260	52	9.50	9.40	9.53	9.64	9.31	9.57	9.59	9.61
802.11n	5280	56	9.56	9.41	9.53	9.76	9.36	9.64	9.68	9.62
802.11n	5300	60	9.16	8.99	9.16	9.34	8.95	9.18	9.29	9.18
802.11n	5320	64	9.26	9.13	9.29	9.44	8.99	9.30	9.33	9.32
802.11n	5500	100	9.50	9.48	9.54	9.34	9.77	9.69	9.69	9.77
802.11n	5520	104	9.80	9.79	9.89	9.65	9.63	9.60	9.95	9.64
802.11n	5540	108	9.90	9.88	9.94	9.74	9.58	9.65	9.61	9.70
802.11n	5560	112	9.24	9.25	9.23	9.07	9.55	9.44	9.40	9.58
802.11n	5580	116	8.96	8.91	8.95	8.75	9.17	9.12	9.07	9.18
802.11n	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5660	132	8.42	8.39	8.49	8.26	8.72	8.63	8.68	8.73
802.11n	5680	136	8.30	8.28	8.29	8.22	8.59	8.51	8.52	8.57
802.11n	5700	140	8.48	8.43	8.44	8.33	8.74	8.60	8.60	8.78
802.11n	5745	149	9.34	9.36	9.44	9.21	9.66	9.58	9.63	9.63
802.11n	5765	153	9.65	9.67	9.79	9.54	9.92	9.90	9.95	9.89
802.11n	5785	157	9.10	9.16	9.19	8.93	9.37	9.41	9.38	9.45
802.11n	5805	161	9.14	9.16	9.28	9.06	9.43	9.33	9.39	9.36
802.11n	5825	165	9.62	9.59	9.67	9.45	9.88	9.83	9.93	9.91

Table 8-36
IEEE 802.11n Average RF Power – 40 MHz Bandwidth

Mode	Freq [MHz]	Channel	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	8.67	8.76	8.77	8.53	8.64	8.40	8.68	8.60
802.11n	5230	46	9.07	9.20	9.03	9.21	9.19	9.18	9.21	9.12
802.11n	5270	54	8.91	8.85	8.74	8.85	8.91	8.88	8.81	8.87
802.11n	5310	62	8.72	8.78	8.81	8.90	8.82	9.08	8.90	8.91
802.11n	5510	102	8.76	8.68	9.06	8.84	8.62	9.03	9.07	8.73
802.11n	5550	110	8.91	8.89	9.00	9.01	8.97	8.61	8.91	9.11
802.11n	5590	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5630	126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5670	134	8.87	9.18	9.16	9.07	9.14	9.13	8.94	9.16
802.11n	5755	151	9.27	9.07	9.05	8.86	9.24	9.19	9.08	9.15
802.11n	5795	159	9.14	9.26	8.91	9.15	8.95	9.14	9.21	9.28

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 47 of 73

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012/April 2013 FCC/TCB Meeting Notes:

- For 2.4 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
- For 5 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11a were selected for SAR evaluation. Other IEEE 802.11 modes (including 802.11n 20 MHz and 40 MHz bandwidths) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
- When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.
- The bolded data rate and channel above were tested for SAR.

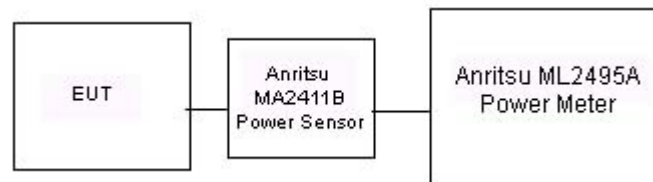


Figure 8-2
Power Measurement Setup

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 48 of 73

9 SYSTEM VERIFICATION

9.1 Tissue Verification

Table 9-1
Measured Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (C°)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
5/19/2014	835B	21.0	820	0.937	53.570	0.969	55.258	-3.30%	-3.05%
			835	0.955	53.447	0.970	55.200	-1.55%	-3.18%
			850	0.970	53.230	0.988	55.154	-1.82%	-3.49%
5/5/2014	1900B	22.9	1850	1.489	55.260	1.520	53.300	-2.04%	3.68%
			1880	1.531	55.124	1.520	53.300	0.72%	3.42%
			1910	1.575	54.981	1.520	53.300	3.62%	3.15%
5/8/2014	1900B	22.7	1850	1.482	55.234	1.520	53.300	-2.50%	3.63%
			1880	1.530	55.093	1.520	53.300	0.66%	3.36%
			1910	1.575	54.890	1.520	53.300	3.62%	2.98%
5/5/2014	2450B	23.1	2401	1.975	51.293	1.903	52.765	3.78%	-2.79%
			2450	2.045	51.139	1.950	52.700	4.87%	-2.96%
			2499	2.111	50.936	2.019	52.638	4.56%	-3.23%
5/12/2014	2450B	22.1	2401	1.897	51.169	1.903	52.765	-0.32%	-3.02%
			2450	1.967	51.014	1.950	52.700	0.87%	-3.20%
			2499	2.025	50.824	2.019	52.638	0.30%	-3.45%
			2500	2.025	50.816	2.021	52.636	0.20%	-3.46%
			2550	2.095	50.589	2.092	52.573	0.14%	-3.77%
			2600	2.161	50.432	2.163	52.509	-0.09%	-3.96%
			2650	2.224	50.180	2.234	52.445	-0.45%	-4.32%
05/19/2014	5200B-5800B	22.8	2700	2.300	49.990	2.305	52.382	-0.22%	-4.57%
			5200	5.458	47.166	5.299	49.014	3.00%	-3.77%
			5220	5.501	47.116	5.323	48.987	3.34%	-3.82%
			5260	5.560	47.092	5.369	48.933	3.56%	-3.76%
			5300	5.598	47.018	5.416	48.879	3.36%	-3.81%
			5320	5.636	46.965	5.439	48.851	3.62%	-3.86%
			5500	5.877	46.628	5.650	48.607	4.02%	-4.07%
			5540	5.919	46.619	5.696	48.553	3.92%	-3.98%
			5580	5.970	46.470	5.743	48.499	3.95%	-4.18%
			5600	6.017	46.457	5.766	48.471	4.35%	-4.16%
			5660	6.092	46.361	5.837	48.390	4.37%	-4.19%
			5765	6.241	46.229	5.959	48.248	4.73%	-4.18%
			5785	6.266	46.191	5.982	48.220	4.75%	-4.21%
			5800	6.275	46.131	6.000	48.200	4.58%	-4.29%
			5805	6.283	46.116	6.006	48.193	4.61%	-4.31%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 49 of 73

9.2 Test System Verification

Prior to SAR assessment, the system is verified to $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix E.

Table 9-2
System Verification Results

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Dipole SN	Probe SN	Measured SAR _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation _{1g} (%)
B	835	BODY	05/19/2014	22.1	21.0	0.100	4d133	3288	0.991	9.610	9.910	3.12%
B	1900	BODY	05/05/2014	23.1	22.9	0.100	5d148	3288	3.990	39.300	39.900	1.53%
B	1900	BODY	05/08/2014	23.3	22.7	0.100	5d148	3288	4.120	39.300	41.200	4.83%
G	2450	BODY	05/05/2014	24.0	23.1	0.100	797	3258	5.090	49.400	50.900	3.04%
G	2450	BODY	05/12/2014	23.8	22.4	0.100	797	3258	5.020	49.400	50.200	1.62%
G	2600	BODY	05/12/2014	23.8	22.4	0.100	1071	3258	5.490	55.700	54.900	-1.44%
A	5200	BODY	05/19/2014	23.2	22.8	0.100	1007	3920	7.180	72.600	71.800	-1.10%
A	5300	BODY	05/19/2014	23.1	22.8	0.100	1007	3920	7.140	74.700	71.400	-4.42%
A	5500	BODY	05/19/2014	23.1	22.8	0.100	1007	3920	7.200	75.900	72.000	-5.14%
A	5600	BODY	05/19/2014	23.1	22.8	0.100	1007	3920	7.460	77.300	74.600	-3.49%
A	5800	BODY	05/19/2014	23.1	22.8	0.100	1007	3920	6.700	72.900	67.000	-8.09%

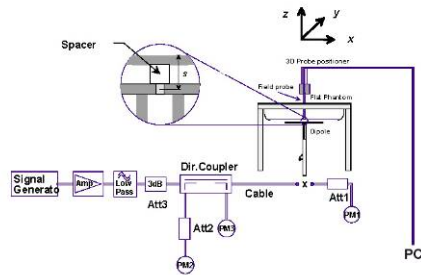


Figure 9-1
System Verification Setup Diagram



Figure 9-2
System Verification Setup Photo

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 50 of 73

10 SAR DATA SUMMARY

10.1 Standalone Body SAR Data

Table 10-1
CDMA Body SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.86	0.06	14 mm	FCC #1	1:1	back	0.170	1.033	0.176	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.86	0.15	12 mm	FCC #1	1:1	top	0.187	1.033	0.193	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.86	0.19	2 mm	FCC #1	1:1	left	0.221	1.033	0.228	A1
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	19.0	18.07	-0.20	0 mm	FCC #5	1:1	back	0.196	1.239	0.243	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	19.0	18.07	0.15	0 mm	FCC #5	1:1	top	0.072	1.239	0.089	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.86	0.13	0 mm	FCC #1	1:1	right	0.178	1.033	0.184	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	19.0	18.07	-0.13	0 mm	FCC #5	1:1	left	0.043	1.239	0.053	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.72	0.05	14 mm	FCC #1	1:1	back	0.130	1.067	0.139	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.72	-0.04	12 mm	FCC #1	1:1	top	0.138	1.067	0.147	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.72	0.03	2 mm	FCC #1	1:1	left	0.147	1.067	0.157	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	19.7	18.75	-0.13	0 mm	FCC #5	1:1	back	0.163	1.245	0.203	A2
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	19.7	18.75	0.12	0 mm	FCC #5	1:1	top	0.071	1.245	0.088	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.72	0.03	0 mm	FCC #1	1:1	right	0.106	1.067	0.113	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	19.7	18.75	-0.14	0 mm	FCC #5	1:1	left	0.028	1.245	0.035	
1880.00	600	PCS CDMA	EVDO Rev.0	25.0	24.62	-0.01	14 mm	FCC #1	1:1	back	0.640	1.091	0.698	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.62	0.02	12 mm	FCC #1	1:1	top	0.697	1.091	0.760	A3
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.62	0.03	2 mm	FCC #1	1:1	left	0.356	1.091	0.388	
1880.00	600	PCS CDMA	EVDO Rev. 0	12.5	12.37	-0.02	0 mm	FCC #5	1:1	back	0.677	1.030	0.697	
1880.00	600	PCS CDMA	EVDO Rev. 0	12.5	12.37	0.02	0 mm	FCC #5	1:1	top	0.370	1.030	0.381	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.62	0.08	0 mm	FCC #1	1:1	right	0.232	1.091	0.253	
1880.00	600	PCS CDMA	EVDO Rev. 0	12.5	12.37	0.04	0 mm	FCC #5	1:1	left	0.037	1.030	0.038	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram							

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 51 of 73

Table 10-2
LTE Band 26 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
831.50	26865	Mid	LTE Band 26	10	18.0	17.73	0.04	0	FCC #5	QPSK	1	0	0 mm	back	1:1	0.265	1.064	0.282	
831.50	26865	Mid	LTE Band 26	10	18.0	17.75	0.03	0	FCC #5	QPSK	25	25	0 mm	back	1:1	0.277	1.059	0.293	
831.50	26865	Mid	LTE Band 26	10	18.0	17.73	0.07	0	FCC #5	QPSK	1	0	0 mm	top	1:1	0.097	1.064	0.103	
831.50	26865	Mid	LTE Band 26	10	18.0	17.75	0.08	0	FCC #5	QPSK	25	25	0 mm	top	1:1	0.100	1.059	0.106	
831.50	26865	Mid	LTE Band 26	10	24.0	23.76	0.02	0	FCC #2	QPSK	1	25	0 mm	right	1:1	0.236	1.057	0.249	
831.50	26865	Mid	LTE Band 26	10	23.0	22.89	-0.16	1	FCC #2	QPSK	25	25	0 mm	right	1:1	0.165	1.026	0.169	
831.50	26865	Mid	LTE Band 26	10	18.0	17.73	-0.04	0	FCC #5	QPSK	1	0	0 mm	left	1:1	0.094	1.064	0.100	
831.50	26865	Mid	LTE Band 26	10	18.0	17.75	0.08	0	FCC #5	QPSK	25	25	0 mm	left	1:1	0.079	1.059	0.084	
831.50	26865	Mid	LTE Band 26	10	24.0	23.76	-0.02	0	FCC #2	QPSK	1	25	14 mm	back	1:1	0.311	1.057	0.329	A4
831.50	26865	Mid	LTE Band 26	10	23.0	22.89	0.05	1	FCC #2	QPSK	25	25	14 mm	back	1:1	0.224	1.026	0.230	
831.50	26865	Mid	LTE Band 26	10	24.0	23.76	0.02	0	FCC #2	QPSK	1	25	12 mm	top	1:1	0.279	1.057	0.295	
831.50	26865	Mid	LTE Band 26	10	23.0	22.89	-0.12	1	FCC #2	QPSK	25	25	12 mm	top	1:1	0.236	1.026	0.242	
831.50	26865	Mid	LTE Band 26	10	24.0	23.76	-0.03	0	FCC #2	QPSK	1	25	2 mm	left	1:1	0.272	1.057	0.288	
831.50	26865	Mid	LTE Band 26	10	23.0	22.89	0.06	1	FCC #2	QPSK	25	25	2 mm	left	1:1	0.214	1.026	0.220	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 10-3
LTE Band 25 (PCS) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
1860.00	26140	Low	LTE Band 25 (PCS)	20	13.5	12.75	0.13	0	FCC #6	QPSK	1	50	0 mm	back	1:1	0.800	1.189	0.951	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	13.5	12.88	-0.11	0	FCC #6	QPSK	1	99	0 mm	back	1:1	0.820	1.153	0.945	
1905.00	26590	High	LTE Band 25 (PCS)	20	13.5	13.22	0.02	0	FCC #6	QPSK	1	99	0 mm	back	1:1	0.779	1.067	0.831	
1860.00	26140	Low	LTE Band 25 (PCS)	20	13.5	12.84	0.02	0	FCC #6	QPSK	50	25	0 mm	back	1:1	0.735	1.164	0.856	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	13.5	13.00	0.05	0	FCC #6	QPSK	50	25	0 mm	back	1:1	0.840	1.122	0.942	A5
1905.00	26590	High	LTE Band 25 (PCS)	20	13.5	13.30	-0.02	0	FCC #6	QPSK	50	0	0 mm	back	1:1	0.766	1.047	0.802	
1905.00	26590	High	LTE Band 25 (PCS)	20	13.5	13.13	0.00	0	FCC #6	QPSK	100	0	0 mm	back	1:1	0.773	1.089	0.842	
1905.00	26590	High	LTE Band 25 (PCS)	20	13.5	13.22	-0.02	0	FCC #6	QPSK	1	99	0 mm	top	1:1	0.433	1.067	0.462	
1905.00	26590	High	LTE Band 25 (PCS)	20	13.5	13.30	0.03	0	FCC #6	QPSK	50	0	0 mm	top	1:1	0.442	1.047	0.463	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.69	0.12	0	FCC #2	QPSK	1	50	0 mm	right	1:1	0.287	1.074	0.308	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.0	22.96	0.03	1	FCC #2	QPSK	50	25	0 mm	right	1:1	0.178	1.009	0.180	
1905.00	26590	High	LTE Band 25 (PCS)	20	13.5	13.22	0.01	0	FCC #6	QPSK	1	99	0 mm	left	1:1	0.666	1.067	0.711	
1905.00	26590	High	LTE Band 25 (PCS)	20	13.5	13.30	0.01	0	FCC #6	QPSK	50	0	0 mm	left	1:1	0.469	1.047	0.491	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.69	0.07	0	FCC #2	QPSK	1	50	14 mm	back	1:1	0.694	1.074	0.745	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.0	22.96	0.04	1	FCC #2	QPSK	50	25	14 mm	back	1:1	0.560	1.009	0.565	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.69	0.11	0	FCC #2	QPSK	1	50	12 mm	top	1:1	0.636	1.074	0.683	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.0	22.96	-0.03	1	FCC #2	QPSK	50	25	12 mm	top	1:1	0.502	1.009	0.507	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.69	0.13	0	FCC #2	QPSK	1	50	2 mm	left	1:1	0.379	1.074	0.407	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.0	22.96	0.00	1	FCC #2	QPSK	50	25	2 mm	left	1:1	0.289	1.009	0.292	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	13.5	13.00	-0.01	0	FCC #6	QPSK	50	25	0 mm	back	1:1	0.833	1.122	0.935	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT																			
Spatial Peak								Body											
Uncontrolled Exposure/General Population								1.6 W/kg (mW/g) averaged over 1 gram											

Blue entry represents variability data.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 52 of 73

Table 10-4
LTE Band 41 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2506.00	39750	Low	LTE Band 41	20	14.5	14.50	0.11	0	FCC #6	QPSK	1	50	0 mm	back	1:1.58	0.341	1.000	0.341	
2506.00	39750	Low	LTE Band 41	20	14.5	14.48	0.06	0	FCC #6	QPSK	50	0	0 mm	back	1:1.58	0.478	1.005	0.480	
2506.00	39750	Low	LTE Band 41	20	14.5	14.50	0.07	0	FCC #6	QPSK	1	50	0 mm	top	1:1.58	0.349	1.000	0.349	
2506.00	39750	Low	LTE Band 41	20	14.5	14.48	0.05	0	FCC #6	QPSK	50	0	0 mm	top	1:1.58	0.318	1.005	0.320	
2680.00	41490	High	LTE Band 41	20	24.0	23.55	-0.06	0	FCC #4	QPSK	1	50	0 mm	right	1:1.58	0.450	1.109	0.499	
2680.00	41490	High	LTE Band 41	20	23.0	22.63	0.01	1	FCC #4	QPSK	50	0	0 mm	right	1:1.58	0.352	1.089	0.383	
2506.00	39750	Low	LTE Band 41	20	14.5	14.50	-0.11	0	FCC #6	QPSK	1	50	0 mm	left	1:1.58	0.972	1.000	0.972	
2549.50	40185	Low-Mid	LTE Band 41	20	14.5	14.48	0.09	0	FCC #6	QPSK	1	50	0 mm	left	1:1.58	1.070	1.005	1.075	
2593.00	40620	Mid	LTE Band 41	20	14.5	14.23	0.06	0	FCC #6	QPSK	1	50	0 mm	left	1:1.58	1.020	1.064	1.085	
2636.50	41055	Mid-High	LTE Band 41	20	14.5	14.19	-0.06	0	FCC #6	QPSK	1	50	0 mm	left	1:1.58	1.010	1.074	1.085	
2680.00	41490	High	LTE Band 41	20	14.5	14.41	-0.01	0	FCC #6	QPSK	1	50	0 mm	left	1:1.58	1.030	1.021	1.052	
2506.00	39750	Low	LTE Band 41	20	14.5	14.48	-0.05	0	FCC #6	QPSK	50	0	0 mm	left	1:1.58	0.780	1.005	0.784	
2549.50	40185	Low-Mid	LTE Band 41	20	14.5	14.32	0.03	0	FCC #6	QPSK	50	50	0 mm	left	1:1.58	0.855	1.042	0.891	
2593.00	40620	Mid	LTE Band 41	20	14.5	13.99	-0.01	0	FCC #6	QPSK	50	25	0 mm	left	1:1.58	0.918	1.125	1.033	
2636.50	41055	Mid-High	LTE Band 41	20	14.5	14.18	0.08	0	FCC #6	QPSK	50	50	0 mm	left	1:1.58	0.990	1.076	1.065	
2680.00	41490	High	LTE Band 41	20	14.5	14.23	0.05	0	FCC #6	QPSK	50	50	0 mm	left	1:1.58	0.976	1.064	1.038	
2680.00	41490	High	LTE Band 41	20	14.5	14.25	-0.03	0	FCC #6	QPSK	100	0	0 mm	left	1:1.58	1.010	1.059	1.070	
2680.00	41490	High	LTE Band 41	20	24.0	23.55	0.00	0	FCC #4	QPSK	1	50	14 mm	back	1:1.58	0.363	1.109	0.403	
2680.00	41490	High	LTE Band 41	20	23.0	22.63	0.06	1	FCC #4	QPSK	50	0	14 mm	back	1:1.58	0.300	1.089	0.327	
2680.00	41490	High	LTE Band 41	20	24.0	23.55	0.13	0	FCC #4	QPSK	1	50	12 mm	top	1:1.58	0.409	1.109	0.454	
2680.00	41490	High	LTE Band 41	20	23.0	22.63	0.12	1	FCC #4	QPSK	50	0	12 mm	top	1:1.58	0.326	1.089	0.355	
2506.00	39750	Low	LTE Band 41	20	24.0	23.53	0.06	0	FCC #4	QPSK	1	0	2 mm	left	1:1.58	0.595	1.114	0.663	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.28	-0.06	0	FCC #4	QPSK	1	0	2 mm	left	1:1.58	0.600	1.180	0.708	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.53	-0.09	0	FCC #4	QPSK	1	0	2 mm	left	1:1.58	0.686	1.114	0.764	
2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.32	0.06	0	FCC #4	QPSK	1	99	2 mm	left	1:1.58	0.706	1.169	0.825	
2680.00	41490	High	LTE Band 41	20	24.0	23.55	-0.02	0	FCC #4	QPSK	1	50	2 mm	left	1:1.58	0.791	1.109	0.877	
2506.00	39750	Low	LTE Band 41	20	23.0	22.47	0.05	1	FCC #4	QPSK	50	0	2 mm	left	1:1.58	0.419	1.130	0.473	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.35	0.04	1	FCC #4	QPSK	50	0	2 mm	left	1:1.58	0.481	1.161	0.558	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.26	0.04	1	FCC #4	QPSK	50	0	2 mm	left	1:1.58	0.497	1.186	0.589	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	22.35	0.03	1	FCC #4	QPSK	50	0	2 mm	left	1:1.58	0.577	1.161	0.670	
2680.00	41490	High	LTE Band 41	20	23.0	22.63	0.06	1	FCC #4	QPSK	50	0	2 mm	left	1:1.58	0.629	1.089	0.685	
2680.00	41490	High	LTE Band 41	20	23.0	22.57	-0.01	1	FCC #4	QPSK	100	0	2 mm	left	1:1.58	0.631	1.104	0.697	
2506.00	39750	Low	LTE Band 41	20	14.5	14.50	-0.05	0	FCC #6	QPSK	1	50	0 mm	left	1:1.58	0.851	1.000	0.851	
2549.50	40185	Low-Mid	LTE Band 41	20	14.5	14.48	0.00	0	FCC #6	QPSK	1	50	0 mm	left	1:1.58	0.982	1.005	0.987	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body											
Spatial Peak								1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 1 gram											

Blue entry represents variability data.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 53 of 73

**Table 10-5
DTS Body SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
2412	1	IEEE 802.11b	DSSS	12.5	12.02	0.12	0 mm	FCC #3	6	back	1:1	0.460	1.117	0.514	A7
2412	1	IEEE 802.11b	DSSS	12.5	12.02	0.02	0 mm	FCC #3	6	bottom	1:1	0.346	1.117	0.386	
2412	1	IEEE 802.11b	DSSS	12.5	12.02	0.18	0 mm	FCC #3	6	left	1:1	0.034	1.117	0.038	
5765	153	IEEE 802.11a	OFDM	10.0	9.94	-0.02	0 mm	FCC #5	6	back	1:1	0.873	1.014	0.885	A8
5785	157	IEEE 802.11a	OFDM	10.0	9.43	-0.04	0 mm	FCC #5	6	back	1:1	0.854	1.140	0.974	
5805	161	IEEE 802.11a	OFDM	10.0	9.40	-0.04	0 mm	FCC #5	6	back	1:1	0.714	1.148	0.820	
5765	153	IEEE 802.11a	OFDM	10.0	9.94	-0.20	0 mm	FCC #5	6	bottom	1:1	0.637	1.014	0.646	
5785	157	IEEE 802.11a	OFDM	10.0	9.43	-0.19	0 mm	FCC #5	6	bottom	1:1	0.682	1.140	0.777	
5805	161	IEEE 802.11a	OFDM	10.0	9.40	-0.20	0 mm	FCC #5	6	bottom	1:1	0.552	1.148	0.634	
5765	153	IEEE 802.11a	OFDM	10.0	9.94	-0.16	0 mm	FCC #5	6	left	1:1	0.061	1.014	0.062	
5765	153	IEEE 802.11a	OFDM	10.0	9.94	-0.07	0 mm	FCC #5	6	back	1:1	0.759	1.014	0.770	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

Blue entry represents variability data.

**Table 10-6
NII Body SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
5200	40	IEEE 802.11a	OFDM	10.0	9.91	0.17	0 mm	FCC #5	6	back	1:1	0.776	1.021	0.792	
5220	44	IEEE 802.11a	OFDM	10.0	9.91	-0.07	0 mm	FCC #5	6	back	1:1	0.896	1.021	0.915	
5200	40	IEEE 802.11a	OFDM	10.0	9.91	-0.10	0 mm	FCC #5	6	bottom	1:1	0.363	1.021	0.371	
5220	44	IEEE 802.11a	OFDM	10.0	9.91	-0.12	0 mm	FCC #5	6	bottom	1:1	0.479	1.021	0.489	
5200	40	IEEE 802.11a	OFDM	10.0	9.91	0.10	0 mm	FCC #5	6	left	1:1	0.014	1.021	0.014	
5220	44	IEEE 802.11a	OFDM	10.0	9.91	-0.10	0 mm	FCC #5	6	back	1:1	0.905	1.021	0.924	A9
5260	52	IEEE 802.11a	OFDM	10.0	9.64	-0.14	0 mm	FCC #5	6	back	1:1	0.888	1.086	0.964	
5320	64	IEEE 802.11a	OFDM	10.0	9.60	-0.13	0 mm	FCC #5	6	back	1:1	0.749	1.096	0.821	
5260	52	IEEE 802.11a	OFDM	10.0	9.64	-0.20	0 mm	FCC #5	6	bottom	1:1	0.503	1.086	0.546	
5320	64	IEEE 802.11a	OFDM	10.0	9.60	-0.13	0 mm	FCC #5	6	bottom	1:1	0.468	1.096	0.513	
5260	52	IEEE 802.11a	OFDM	10.0	9.64	-0.11	0 mm	FCC #5	6	left	1:1	0.052	1.086	0.056	
5260	52	IEEE 802.11a	OFDM	10.0	9.64	-0.12	0 mm	FCC #5	6	back	1:1	0.888	1.086	0.964	
5540	108	IEEE 802.11a	OFDM	10.0	9.90	-0.02	0 mm	FCC #5	6	back	1:1	0.711	1.023	0.727	
5580	116	IEEE 802.11a	OFDM	10.0	9.27	-0.10	0 mm	FCC #5	6	back	1:1	0.747	1.183	0.884	
5660	132	IEEE 802.11a	OFDM	10.0	9.93	-0.16	0 mm	FCC #5	6	back	1:1	0.754	1.016	0.766	
5540	108	IEEE 802.11a	OFDM	10.0	9.90	-0.19	0 mm	FCC #5	6	bottom	1:1	0.834	1.023	0.853	
5580	116	IEEE 802.11a	OFDM	10.0	9.27	-0.13	0 mm	FCC #5	6	bottom	1:1	0.821	1.183	0.971	
5660	132	IEEE 802.11a	OFDM	10.0	9.93	-0.20	0 mm	FCC #5	6	bottom	1:1	0.783	1.016	0.796	
5660	132	IEEE 802.11a	OFDM	10.0	9.93	0.13	0 mm	FCC #5	6	left	1:1	0.055	1.016	0.056	
5540	108	IEEE 802.11a	OFDM	10.0	9.90	-0.14	0 mm	FCC #5	6	bottom	1:1	0.900	1.023	0.921	
5580	116	IEEE 802.11a	OFDM	10.0	9.27	-0.13	0 mm	FCC #5	6	bottom	1:1	0.897	1.183	1.061	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

Blue entries represent variability data.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 54 of 73

10.2 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 616217 D04v01r01, and FCC KDB Publication 447498 D01v05.
2. Batteries are fully charged at the beginning of the SAR measurements
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v05.
6. Per FCC KDB 865664 D01 v01, variability SAR tests were performed when the measured SAR results for a frequency band were greater than 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 12 for variability analysis.
7. Per FCC KDB 616217 D04 Section 4.3, SAR tests are required for the back surface and edges of the tablet with the tablet touching the phantom. The SAR exclusion threshold in FCC KDB 447498 D01v05 was applied to determine SAR test exclusion for adjacent edge configurations. Top edge, left edge and right edge SAR tests were required for the main antenna. Left edge and bottom edge SAR tests were required for the WLAN/BT antenna.

CDMA Notes:

1. CDMA Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01 procedures for data devices. Since the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, EVDO Rev. A SAR is not required. SAR is not required for 1x RTT for Ev-Do hotspot devices when the maximum average output of each channel is less than 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0.
2. Per FCC KDB Publication 447498 D01v05, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r01. The general test procedures used for testing can be found in Section 7.4.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v05r01, when the reported (scaled) for LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per FCC KDB 941225 D05v02r03 and using the guidance provided in April 2013 TCB workshop notes. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 55 of 73

configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.

WLAN Notes:

1. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for 2.4 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
2. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for 5 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE 802.11 modes (including 802.11n 20 MHz and 40 MHz bandwidths) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
3. WIFI transmission was verified using an uncalibrated spectrum analyzer.
4. When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is >1.6 W/kg or the reported 1g averaged SAR is >0.8 W/kg, SAR testing on other default channels was required.
5. There is no proximity sensor power reduction mechanism applied for WIFI/BT modes.

FCC ID: A3LSMT237P			SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 56 of 73	

11 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

11.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v05 are applicable to handsets with built-in unlicensed transmitters such as 802.11a/b/g/n and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

11.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v05 IV.C.1.iii and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific physical test configuration is ≤ 1.6 W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05 4.3.2 2), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(\text{GHz})}}{7.5} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

Table 11-1
Estimated SAR

Mode	Frequency	Maximum Allowed Power	Separation Distance (Body)	Estimated SAR (Body)
	[MHz]	[dBm]	[mm]	[W/kg]
Bluetooth	2441	8.50	14	0.104
Bluetooth	2441	8.50	5	0.292

Note: Per FCC KDB 447498, when the test separation distance is < 5 mm, a distance of 5 mm is applied to determine estimated SAR.

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 57 of 73

11.3 Body SAR Simultaneous Transmission Analysis

Table 11-2
Simultaneous Transmission Scenario (2.4 GHz Body at 0.0 cm)

Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.243	0.514	0.757	Body SAR	Back	0.203	0.514	0.717
	Top	0.089	0.400	0.489		Top	0.088	0.400	0.488
	Bottom	0.400	0.386	0.786		Bottom	0.400	0.386	0.786
	Right	0.184	0.400	0.584		Right	0.113	0.400	0.513
	Left	0.053	0.038	0.091		Left	0.035	0.038	0.073
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.697	0.514	1.211	Body SAR	Back	0.293	0.514	0.807
	Top	0.381	0.400	0.781		Top	0.106	0.400	0.506
	Bottom	0.400	0.386	0.786		Bottom	0.400	0.386	0.786
	Right	0.253	0.400	0.653		Right	0.249	0.400	0.649
	Left	0.038	0.038	0.076		Left	0.100	0.038	0.138
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.951	0.514	1.465	Body SAR	Back	0.480	0.514	0.994
	Top	0.463	0.400	0.863		Top	0.349	0.400	0.749
	Bottom	0.400	0.386	0.786		Bottom	0.400	0.386	0.786
	Right	0.308	0.400	0.708		Right	0.499	0.400	0.899
	Left	0.711	0.038	0.749		Left	1.085	0.038	1.123

Table 11-3
Simultaneous Transmission Scenario (5 GHz Body at 0.0 cm)

Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
Body SAR	Back	0.243	0.974	1.217	N/A
	Top	0.089	0.400	0.489	N/A
	Bottom	0.400	1.061	1.461	N/A
	Right	0.184	0.400	0.584	N/A
	Left	0.053	0.062	0.115	N/A
Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
Body SAR	Back	0.203	0.974	1.177	N/A
	Top	0.088	0.400	0.488	N/A
	Bottom	0.400	1.061	1.461	N/A
	Right	0.113	0.400	0.513	N/A
	Left	0.035	0.062	0.097	N/A
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
Body SAR	Back	0.697	0.974	See Note 1	0.01
	Top	0.381	0.400	0.781	N/A
	Bottom	0.400	1.061	1.461	N/A
	Right	0.253	0.400	0.653	N/A
	Left	0.038	0.062	0.100	N/A

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 58 of 73

Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
Body SAR	Back	0.293	0.974	1.267	N/A
	Top	0.106	0.400	0.506	N/A
	Bottom	0.400	1.061	1.461	N/A
	Right	0.249	0.400	0.649	N/A
	Left	0.100	0.062	0.162	N/A
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
Body SAR	Back	0.951	0.974	See Note 1	0.02
	Top	0.463	0.400	0.863	N/A
	Bottom	0.400	1.061	1.461	N/A
	Right	0.308	0.400	0.708	N/A
	Left	0.711	0.062	0.773	N/A
Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
Body SAR	Back	0.480	0.974	1.454	N/A
	Top	0.349	0.400	0.749	N/A
	Bottom	0.400	1.061	1.461	N/A
	Right	0.499	0.400	0.899	N/A
	Left	1.085	0.062	1.147	N/A

Table 11-4
Simultaneous Transmission Scenario (Bluetooth Body at 0.0 cm)

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.243	0.292	0.535	Body SAR	Back	0.203	0.292	0.495
	Top	0.089	0.400	0.489		Top	0.088	0.400	0.488
	Bottom	0.400	0.292	0.692		Bottom	0.400	0.292	0.692
	Right	0.184	0.400	0.584		Right	0.113	0.400	0.513
	Left	0.053	0.292	0.345		Left	0.035	0.292	0.327
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.697	0.292	0.989	Body SAR	Back	0.293	0.292	0.585
	Top	0.381	0.400	0.781		Top	0.106	0.400	0.506
	Bottom	0.400	0.292	0.692		Bottom	0.400	0.292	0.692
	Right	0.253	0.400	0.653		Right	0.249	0.400	0.649
	Left	0.038	0.292	0.330		Left	0.100	0.292	0.392
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.951	0.292	1.243	Body SAR	Back	0.480	0.292	0.772
	Top	0.463	0.400	0.863		Top	0.349	0.400	0.749
	Bottom	0.400	0.292	0.692		Bottom	0.400	0.292	0.692
	Right	0.308	0.400	0.708		Right	0.499	0.400	0.899
	Left	0.711	0.292	1.003		Left	1.085	0.292	1.377

FCC ID: A3LSMT237P		SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 59 of 73

Table 11-5
Simultaneous Transmission Scenario (2.4 GHz Body at 1.4 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Back Side	CDMA BC10 (\$90S)	0.176	< 0.514	< 0.69
Back Side	CDMA BC0 (\$22H)	0.139	< 0.514	< 0.653
Back Side	PCS CDMA	0.698	< 0.514	< 1.212
Back Side	LTE Band 26	0.329	< 0.514	< 0.843
Back Side	LTE Band 25 (PCS)	0.745	< 0.514	< 1.259
Back Side	LTE Band 41	0.403	< 0.514	< 0.917

Table 11-6
Simultaneous Transmission Scenario (5 GHz Body at 1.4 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
Back Side	CDMA BC10 (\$90S)	0.176	< 0.974	< 1.15	N/A
Back Side	CDMA BC0 (\$22H)	0.139	< 0.974	< 1.113	N/A
Back Side	PCS CDMA	0.698	< 0.974	See Note 1	< 0.01
Back Side	LTE Band 26	0.329	< 0.974	< 1.303	N/A
Back Side	LTE Band 25 (PCS)	0.745	< 0.974	See Note 1	< 0.01
Back Side	LTE Band 41	0.403	< 0.974	< 1.377	N/A

Table 11-7
Simultaneous Transmission Scenario (Bluetooth Body at 1.4 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Back Side	CDMA BC10 (\$90S)	0.176	0.104	0.280
Back Side	CDMA BC0 (\$22H)	0.139	0.104	0.243
Back Side	PCS CDMA	0.698	0.104	0.802
Back Side	LTE Band 26	0.329	0.104	0.433
Back Side	LTE Band 25 (PCS)	0.745	0.104	0.849
Back Side	LTE Band 41	0.403	0.104	0.507

Table 11-8
Simultaneous Transmission Scenario (2.4 GHz Body at 1.2 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Top Edge	CDMA BC10 (\$90S)	0.193	0.400	0.593
Top Edge	CDMA BC0 (\$22H)	0.147	0.400	0.547
Top Edge	PCS CDMA	0.760	0.400	1.160
Top Edge	LTE Band 26	0.295	0.400	0.695
Top Edge	LTE Band 25 (PCS)	0.683	0.400	1.083
Top Edge	LTE Band 41	0.454	0.400	0.854

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 60 of 73	

Table 11-9
Simultaneous Transmission Scenario (5 GHz Body at 1.2 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Top Edge	CDMA BC10 (\$90S)	0.193	0.400	0.593
Top Edge	CDMA BC0 (\$22H)	0.147	0.400	0.547
Top Edge	PCS CDMA	0.760	0.400	1.160
Top Edge	LTE Band 26	0.295	0.400	0.695
Top Edge	LTE Band 25 (PCS)	0.683	0.400	1.083
Top Edge	LTE Band 41	0.454	0.400	0.854

Table 11-10
Simultaneous Transmission Scenario (Bluetooth Body at 1.2 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Top Edge	CDMA BC10 (\$90S)	0.193	0.400	0.593
Top Edge	CDMA BC0 (\$22H)	0.147	0.400	0.547
Top Edge	PCS CDMA	0.760	0.400	1.160
Top Edge	LTE Band 26	0.295	0.400	0.695
Top Edge	LTE Band 25 (PCS)	0.683	0.400	1.083
Top Edge	LTE Band 41	0.454	0.400	0.854

Table 11-11
Simultaneous Transmission Scenario (2.4 GHz Body at 0.2 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Left Edge	CDMA BC10 (\$90S)	0.228	< 0.038	< 0.266
Left Edge	CDMA BC0 (\$22H)	0.157	< 0.038	< 0.195
Left Edge	PCS CDMA	0.388	< 0.038	< 0.426
Left Edge	LTE Band 26	0.288	< 0.038	< 0.326
Left Edge	LTE Band 25 (PCS)	0.407	< 0.038	< 0.445
Left Edge	LTE Band 41	0.877	< 0.038	< 0.915

Table 11-12
Simultaneous Transmission Scenario (5 GHz Body at 0.2 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Left Edge	CDMA BC10 (\$90S)	0.228	< 0.062	< 0.29
Left Edge	CDMA BC0 (\$22H)	0.157	< 0.062	< 0.219
Left Edge	PCS CDMA	0.388	< 0.062	< 0.45
Left Edge	LTE Band 26	0.288	< 0.062	< 0.35
Left Edge	LTE Band 25 (PCS)	0.407	< 0.062	< 0.469
Left Edge	LTE Band 41	0.877	< 0.062	< 0.939

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 61 of 73

Table 11-13
Simultaneous Transmission Scenario (Bluetooth Body at 0.2 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Left Edge	CDMA BC10 (\$90S)	0.228	0.292	0.520
Left Edge	CDMA BC0 (\$22H)	0.157	0.292	0.449
Left Edge	PCS CDMA	0.388	0.292	0.680
Left Edge	LTE Band 26	0.288	0.292	0.580
Left Edge	LTE Band 25 (PCS)	0.407	0.292	0.699
Left Edge	LTE Band 41	0.877	0.292	1.169

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not higher than 0.04 per FCC KDB 447498 D01v05. See Section 11.4 for detailed SPLS ratio analysis.
2. When the test separation distance was > 50 mm, an estimated SAR of 0.4 W/kg was used to determine simultaneous transmission SAR exclusion, for configuration excluded per FCC KDB 447498 D01v05. Therefore, an estimated SAR of 0.4 W/kg for 2.4 GHz WLAN, 5 GHz WLAN, and Bluetooth was used to evaluate the simultaneous sums.
3. For body SAR summations for back side at 1.4 cm, and left at 0.2 cm 2.4 GHz WLAN and 5 GHz WLAN SAR values for 0.0 cm were used since the 0.0 cm test distance for 2.4 GHz WLAN, Bluetooth, and 5 GHz WLAN were more conservative. "<" denotes that the 0.0 cm 2.4 GHz WLAN and 5 GHz WLAN SAR values were used for summation purposes.
4. The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has WIFI direct capability. Therefore, the summations above represent the absolute worst cases for simultaneous transmission with 5 GHz WLAN.

11.4 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v05, when the sum of the standalone transmitters is more than 1.6 W/kg, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio (shown below) for each pair of antennas is ≤ 0.04 , simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

$$\text{Distance}_{\text{Tx1} - \text{Tx2}} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

$$\text{SPLS Ratio} = \frac{(SAR_1 + SAR_2)^{1.5}}{R_i}$$

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 62 of 73	

The sum of the standalone SAR values was above 1.6 W/kg for the Body back side configuration at a separation distance of 0 mm with PCS CDMA antenna operating at limited output power with 5 GHz WLAN.

Table 11-14
Peak SAR Locations for Body Back Side at 0 mm PCS CDMA and 5 GHz WLAN

Mode/Band	x (mm)	y (mm)
IEEE 802.11a	6.97	-82.99
PCS CDMA	12.95	95.00

Figure 11-1
Peak SAR Locations of 5 GHz WLAN and PCS CDMA

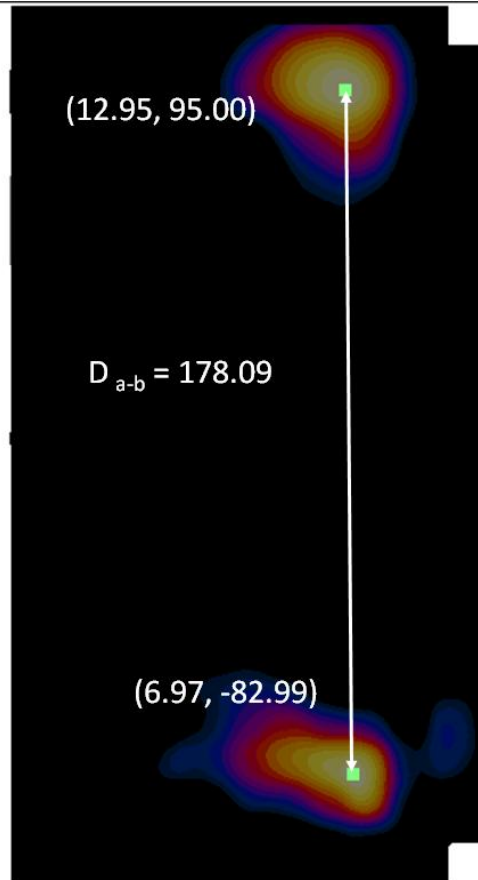


Table 11-15
SAR Sum to Peak Location Separation Ratio Calculation

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$
IEEE 802.11a	PCS CDMA	0.974	0.697	1.671	178.09	0.01

FCC ID: A3LSMT237P		SAR EVALUATION REPORT			Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet			Page 63 of 73

The sum of the standalone SAR values was above 1.6 W/kg for the Body back side configuration at a separation distance of 0 mm with LTE B25 (PCS) antenna operating at limited output power with 5 GHz WLAN.

Table 11-16
Peak SAR Locations for Body Back Side at 0 mm LTE B25 (PCS) and 5 GHz WLAN

Mode/Band	x (mm)	y (mm)
IEEE 802.11a	6.97	-82.99
LTE B25 (PCS)	12.98	90.00

Figure 11-2
Peak SAR Locations of 5 GHz WLAN and LTE B25

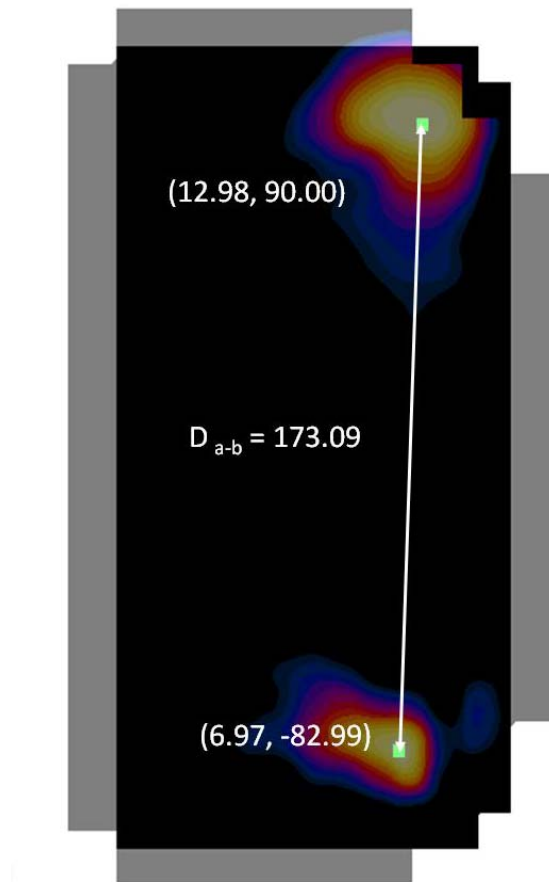


Table 11-17
SAR Sum to Peak Location Separation Ratio Calculation

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$
IEEE 802.11a	LTE B25 (PCS)	0.974	0.951	1.925	173.09	0.02

FCC ID: A3LSMT237P		SAR EVALUATION REPORT				Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet			Page 64 of 73	

The sum of the standalone SAR values was above 1.6 W/kg for the Body back side configuration at a separation distance of 14 mm with PCS CDMA antenna operating at maximum output power with 5 GHz WLAN.

Table 11-18
Peak SAR Locations for Body Back Side at 14 mm PCS CDMA and 5 GHz WLAN

Mode/Band	x (mm)	y (mm)
IEEE 802.11a	6.97	-82.99
PCS CDMA	5.49	98.01

Figure 11-3
Peak SAR Locations of 5 GHz WLAN and PCS CDMA

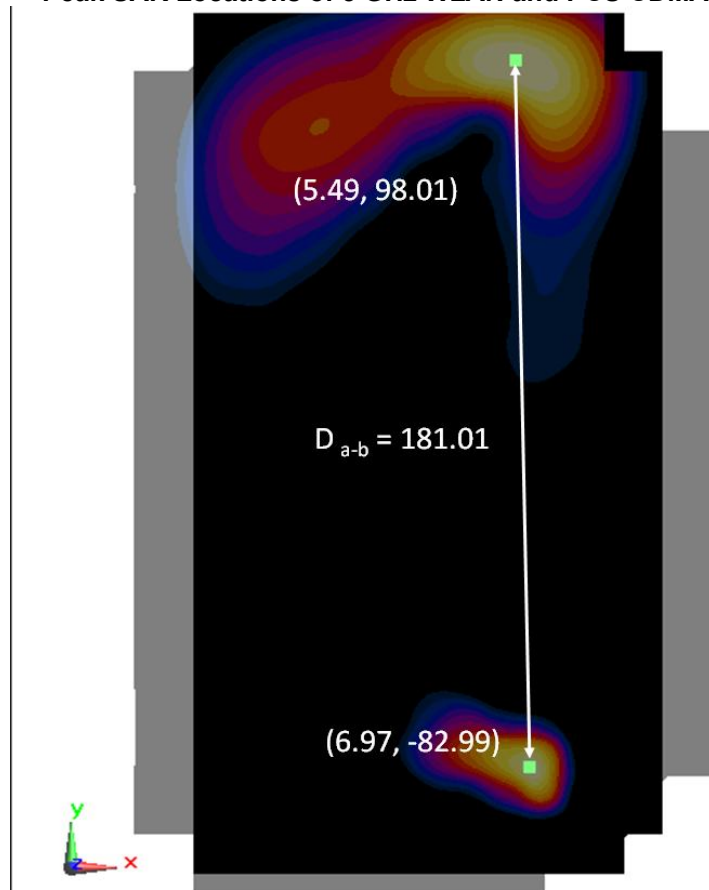


Table 11-19
SAR Sum to Peak Location Separation Ratio Calculation

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio
Ant "a"	Ant "b"	a	b	a+b	D _{a-b}	(a+b) ^{1.5} /D _{a-b}
IEEE 802.11a	PCS CDMA	< 0.974	0.698	< 1.672	181.01	< 0.01

FCC ID: A3LSMT237P		SAR EVALUATION REPORT				Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet			Page 65 of 73	

The sum of the standalone SAR values was above 1.6 W/kg for the Body back side configuration at a separation distance of 14 mm with LTE B25 (PCS) antenna operating at maximum output power with 5 GHz WLAN.

Table 11-20
Peak SAR Locations for Body Back Side at 14 mm LTE B25 (PCS) and 5 GHz WLAN

Mode/Band	x (mm)	y (mm)
IEEE 802.11a	6.97	-82.99
LTE B25 (PCS)	8.45	90.00

Figure 11-4
Peak SAR Locations of 5 GHz WLAN and LTE B25 (PCS)

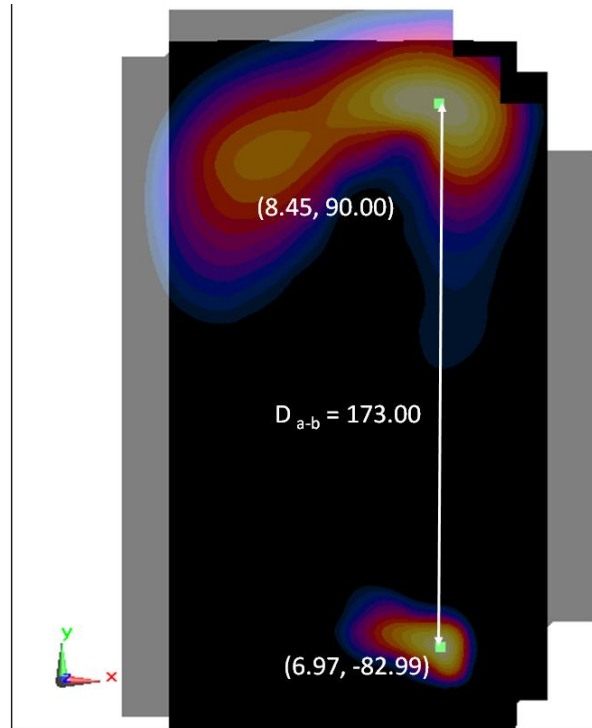


Table 11-21
SAR Sum to Peak Location Separation Ratio Calculation

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$
IEEE 802.11a	LTE B25 (PCS)	< 0.974	0.745	< 1.719	173	< 0.01

11.5 Simultaneous Transmission Conclusion

The above numerical summed SAR and SPLSR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v05 and IEEE 1528-2013 Section 6.3.4.1.2.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT			Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet			Page 66 of 73

12 SAR MEASUREMENT VARIABILITY

12.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- 4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

Table 12-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1900	1882.50	26365	LTE Band 25 (PCS)	QPSK, 50 RB, 25 RB Offset	N/A	back	0 mm	0.840	0.833	1.01	N/A	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41	QPSK, 1 RB, 50 RB Offset	N/A	left	0 mm	0.972	0.851	1.14	N/A	N/A	N/A	N/A
2600	2549.50	40185	LTE Band 41	QPSK, 1 RB, 50 RB Offset	N/A	left	0 mm	1.070	0.982	1.09	N/A	N/A	N/A	N/A
5800	5765.00	153	IEEE 802.11a	OFDM	6	back	0 mm	0.873	0.759	1.15	N/A	N/A	N/A	N/A
5200	5220.00	44	IEEE 802.11a	OFDM	6	back	0 mm	0.896	0.905	1.01	N/A	N/A	N/A	N/A
5300	5260.00	52	IEEE 802.11a	OFDM	6	back	0 mm	0.888	0.888	1.00	N/A	N/A	N/A	N/A
5500	5540.00	108	IEEE 802.11a	OFDM	6	bottom	0 mm	0.834	0.900	1.08	N/A	N/A	N/A	N/A
5600	5580.00	116	IEEE 802.11a	OFDM	6	bottom	0 mm	0.821	0.897	1.09	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT							Body							
Spatial Peak							1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population							averaged over 1 gram							

12.2 Measurement Uncertainty

The measured SAR was < 1.5 W/kg for all frequency bands. Therefore, per KDB Publication 865664 D01v01, the extended measurement uncertainty analysis per IEEE 1528-2003 was not required.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 67 of 73

13 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85047A	S-Parameter Test Set	N/A	N/A	N/A	2904A00579
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8648D	(9kHz-4GHz) Signal Generator	4/15/2014	Annual	4/15/2015	3629U00687
Agilent	8753E	(30kHz-6GHz) Network Analyzer	7/23/2013	Annual	7/23/2014	US37390350
Agilent	8753ES	S-Parameter Network Analyzer	10/29/2013	Annual	10/29/2014	US39170122
Agilent	E4438C	ESG Vector Signal Generator	4/25/2014	Annual	4/25/2015	MY42082385
Agilent	E5515C	Wireless Communications Test Set	3/28/2014	Annual	3/28/2015	GB42230325
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/15/2014	Annual	4/15/2015	MY45470194
Agilent	N5182A	MXG Vector Signal Generator	4/15/2014	Annual	4/15/2015	MY47420651
Agilent	N5182A	MXG Vector Signal Generator	4/15/2014	Annual	4/15/2015	MY47420800
Agilent	N9020A	MXA Signal Analyzer	10/29/2013	Annual	10/29/2014	US46470561
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433971
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433972
Anritsu	MA24106A	USB Power Sensor	12/18/2013	Annual	12/18/2014	1344545
Anritsu	MA24106A	USB Power Sensor	1/3/2014	Annual	1/3/2015	1344554
Anritsu	MA24106A	USB Power Sensor	12/18/2013	Annual	12/18/2014	1344555
Anritsu	MA24106A	USB Power Sensor	12/18/2013	Annual	12/18/2014	1344556
Anritsu	MA2411B	Pulse Power Sensor	11/14/2013	Annual	11/14/2014	1126066
Anritsu	MA2411B	Pulse Power Sensor	3/25/2014	Annual	3/25/2015	1207470
Anritsu	ML2495A	Power Meter	10/31/2013	Annual	10/31/2014	1039008
Anritsu	MT8820C	Radio Communication Analyzer	12/12/2013	Annual	12/12/2014	6200901190
COMTECH	AR85729-S	Solid State Amplifier	CBT	N/A	CBT	M155A00-009
COMTECH	AR85729-S/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4052	Long Stem Thermometer	9/27/2013	Biennial	9/27/2015	130567447
Control Company	36934-158	Wall-Mounted Thermometer	4/29/2014	Biennial	4/29/2016	122014488
Control Company	61220-416	Long-Stem Thermometer	4/29/2014	Biennial	4/29/2016	111331323
Fisher Scientific	15-077-960	Digital Thermometer	11/6/2012	Biennial	11/6/2014	122640025
Fisher Scientific	15-078J	Long Stem Thermometer	10/30/2012	Biennial	10/30/2014	122626059
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-53W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	9/23/2013	Annual	9/23/2014	109892
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	2/20/2014	Annual	2/20/2015	128633
Seekonk	NC-100	Torque Wrench	3/18/2014	Biennial	3/18/2016	22313
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/18/2014	Biennial	3/18/2016	N/A
Seekonk	NC-100	Torque Wrench	3/18/2014	Biennial	3/18/2016	N/A
Seekonk	NC-100	Torque Wrench	3/18/2014	Biennial	3/18/2016	N/A
SPEAG	D1900V2	1900 MHz SAR Dipole	2/27/2014	Annual	2/27/2015	5d148
SPEAG	D2450V2	2450 MHz SAR Dipole	1/21/2014	Annual	1/21/2015	797
SPEAG	D2600V2	2600 MHz SAR Dipole	11/15/2013	Annual	11/15/2014	1071
SPEAG	DSGHZV2	5 GHz SAR Dipole	9/23/2013	Annual	9/23/2014	1007
SPEAG	D835V2	835 MHz SAR Dipole	7/17/2013	Annual	7/17/2014	4d133
SPEAG	DAE4	Dasy Data Acquisition Electronics	12/12/2013	Annual	12/12/2014	649
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/26/2014	Annual	2/26/2015	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/17/2013	Annual	9/17/2014	1323
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/13/2013	Annual	11/13/2014	1091
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	8/18/2013	Annual	8/18/2014	1008
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	8/18/2013	Annual	8/18/2014	1009
SPEAG	ES3DV3	SAR Probe	2/25/2014	Annual	2/25/2015	3258
SPEAG	ES3DV3	SAR Probe	9/23/2013	Annual	9/23/2014	3288
SPEAG	EX3DV4	SAR Probe	12/18/2013	Annual	12/18/2014	3920
VWR	23226-658	Long Stem Thermometer	6/27/2012	Biennial	6/27/2014	122363923
VWR	36934-158	Wall-Mounted Thermometer	4/29/2014	Biennial	4/29/2016	111859323

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 68 of 73

14 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 3000 MHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System									
Probe Calibration	E.2.1	6.0	N	1	1.0	1.0	6.0	6.0	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)							RSS	12.1	11.7
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	24.2	23.5

The above measurement uncertainties are according to IEEE Std. 1528-2003

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 69 of 73

Applicable for frequencies up to 6 GHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System									
Probe Calibration	E.2.1	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)							RSS	12.4	12.0
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	24.7	24.0

The above measurement uncertainties are according to IEEE Std. 1528-2003

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 70 of 73	

15 CONCLUSION

15.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 71 of 73

16 REFERENCES

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.
- [3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.
- [5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2003, Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices.
- [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. -124.
- [9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [13] G. Hartsgrrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.
- [14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.
- [16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.
- [17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

FCC ID: A3LSMT237P			SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Document S/N: OY1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet	Page 72 of 73	

- [18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.
- [19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.
- [20] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz), Feb. 2005.
- [21] Industry Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 4, March 2010.
- [22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2009
- [23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07
- [24] SAR Measurement procedures for IEEE 802.11a/b/g KDB Publication 248227 D01v01r02
- [25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D02-D04
- [26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04
- [27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02
- [28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02
- [29] Anexo à Resolução No. 533, de 10 de Setembro de 2009.
- [30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

FCC ID: A3LSMT237P		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1405020907.A3L	Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet		Page 73 of 73

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #1

Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 820.1 \text{ MHz}$; $\sigma = 0.937 \text{ S/m}$; $\epsilon_r = 53.569$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space 0.2 cm

Test Date: 05-19-2014; Ambient Temp: 22.1°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3288; ConvF(6.27, 6.27, 6.27); Calibrated: 9/23/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/17/2013

Phantom: SAM with CRP; Type: SAM; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

Mode: Cellular EVDO, BC10, Body SAR, Left Edge, Mid.ch

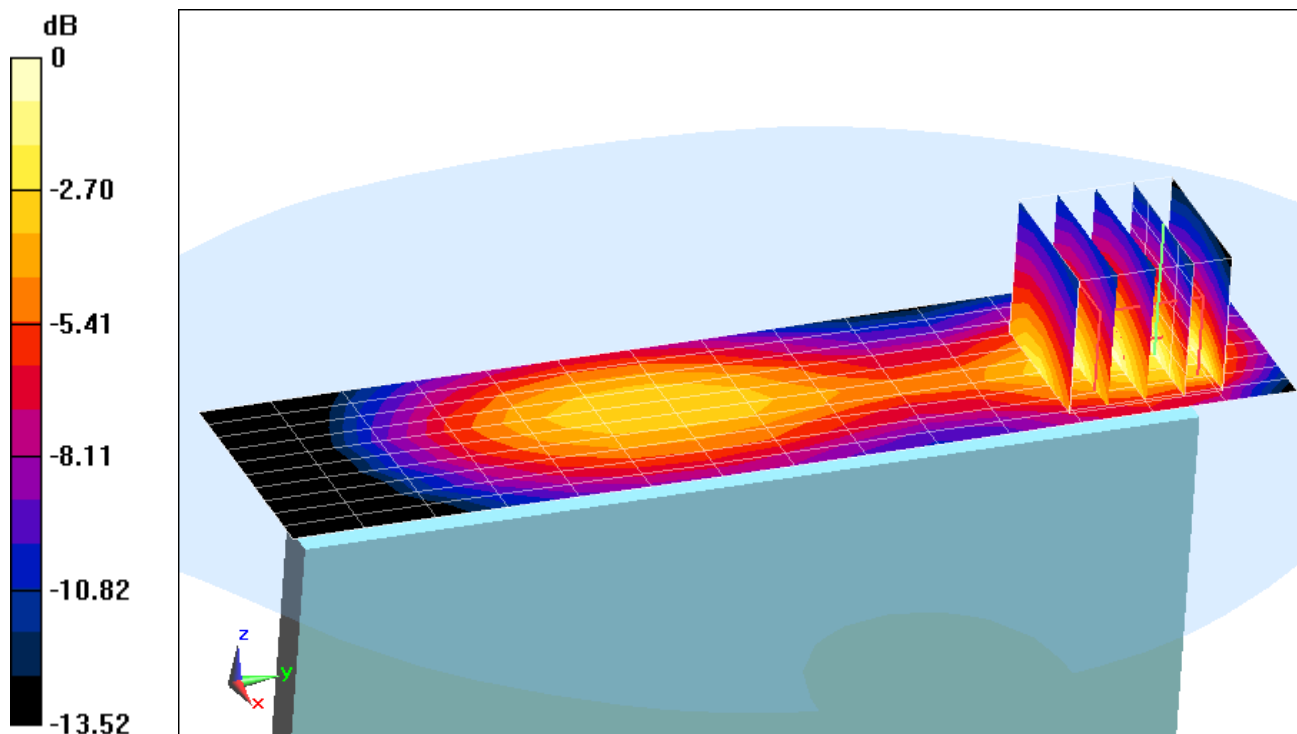
Area Scan (11x15x1): Measurement grid: $dx=5\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.129 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.374 W/kg

SAR(1 g) = 0.221 W/kg



0 dB = 0.242 W/kg = -6.16 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #5

Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.957 \text{ S/m}$; $\epsilon_r = 53.425$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 05-19-2014; Ambient Temp: 22.1°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3288; ConvF(6.27, 6.27, 6.27); Calibrated: 9/23/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/17/2013

Phantom: SAM with CRP; Type: SAM; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

Mode: Cellular EVDO, BC0, Body SAR, Back side, Mid.ch

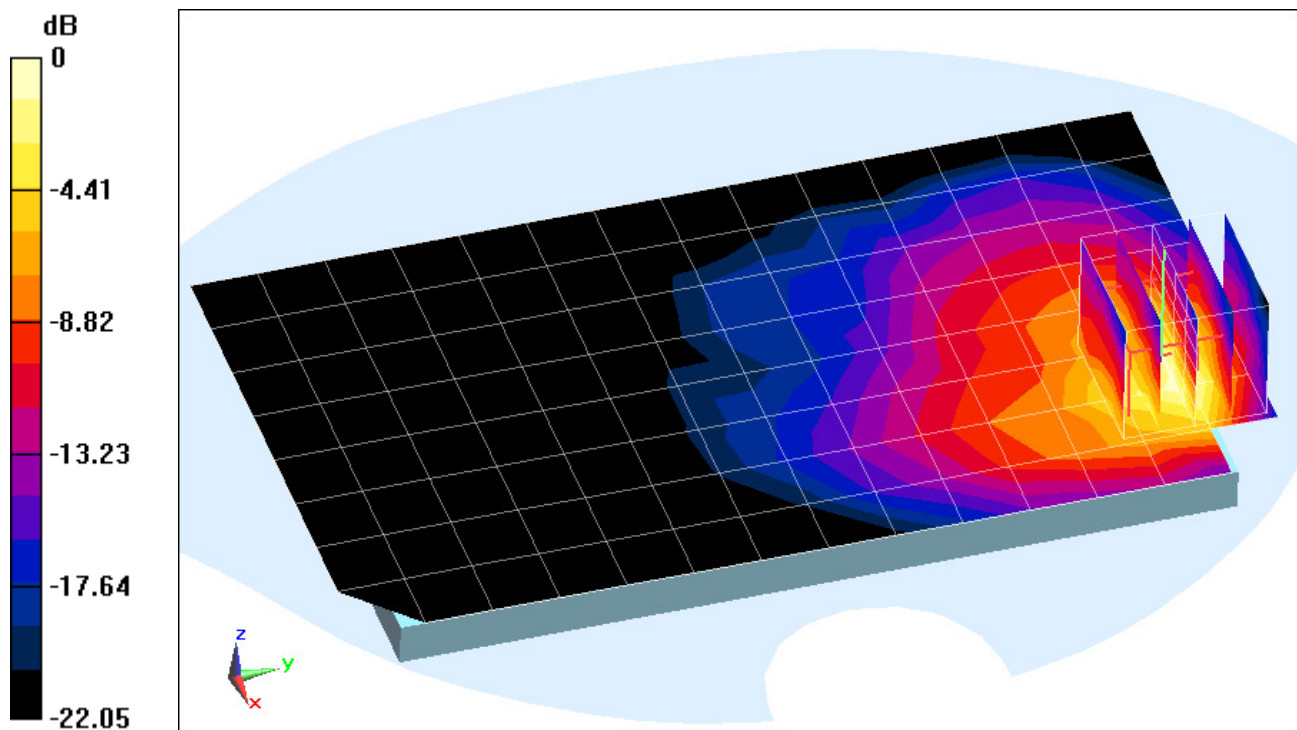
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 32.246 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.393 W/kg

SAR(1 g) = 0.163 W/kg



0 dB = 0.780 W/kg = -1.08 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #1

Communication System: UID 0, PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.531 \text{ S/m}$; $\epsilon_r = 55.124$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.2 cm

Test Date: 05-05-2014; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3288; ConvF(4.82, 4.82, 4.82); Calibrated: 9/23/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/17/2013

Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

Mode: PCS EVDO, Body SAR, Top Edge, Mid.ch

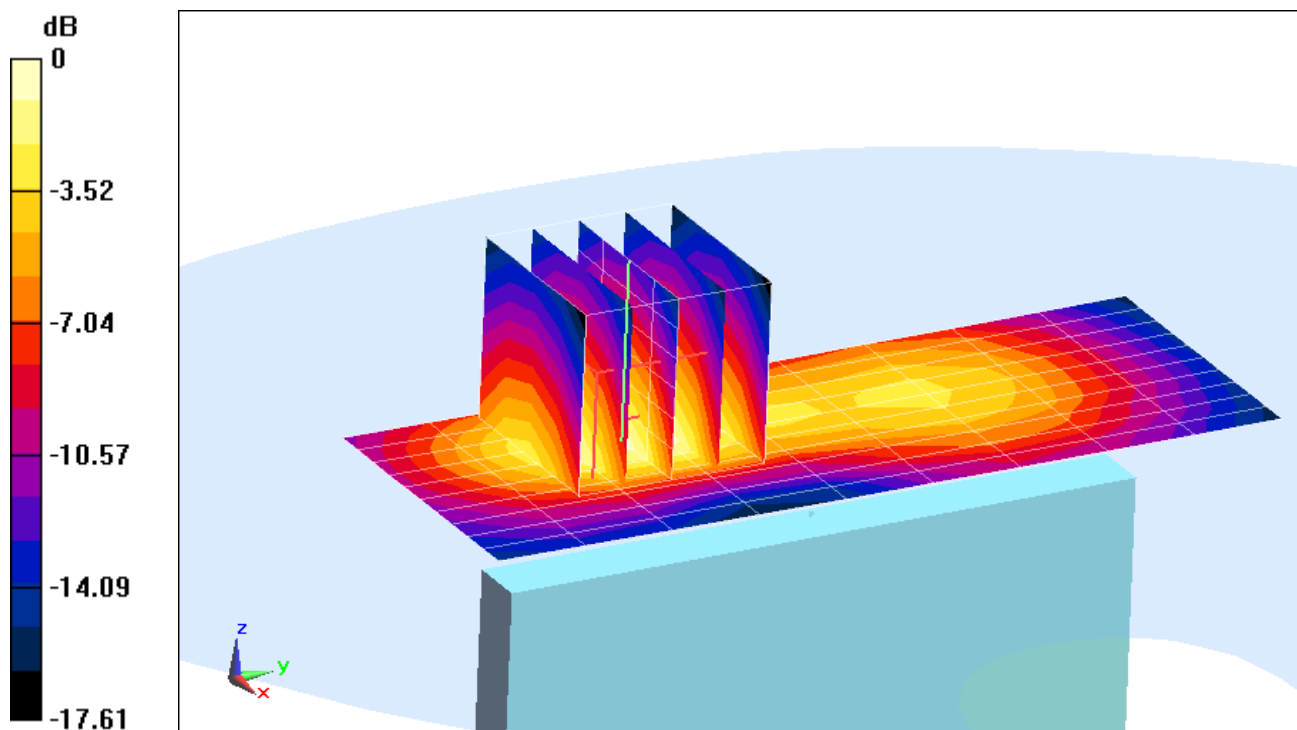
Area Scan (11x10x1): Measurement grid: $dx=5\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.927 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.697 W/kg



0 dB = 0.786 W/kg = -1.05 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #2

Communication System: UID 0, LTE BAND 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$; $\sigma = 0.951 \text{ S/m}$; $\epsilon_r = 53.476$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.4 cm

Test Date: 05-19-2014; Ambient Temp: 22.1°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3288; ConvF(6.27, 6.27, 6.27); Calibrated: 9/23/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/17/2013

Phantom: SAM with CRP; Type: SAM; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

Mode: LTE Band 26, Body SAR, Back side, Mid.ch

10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset

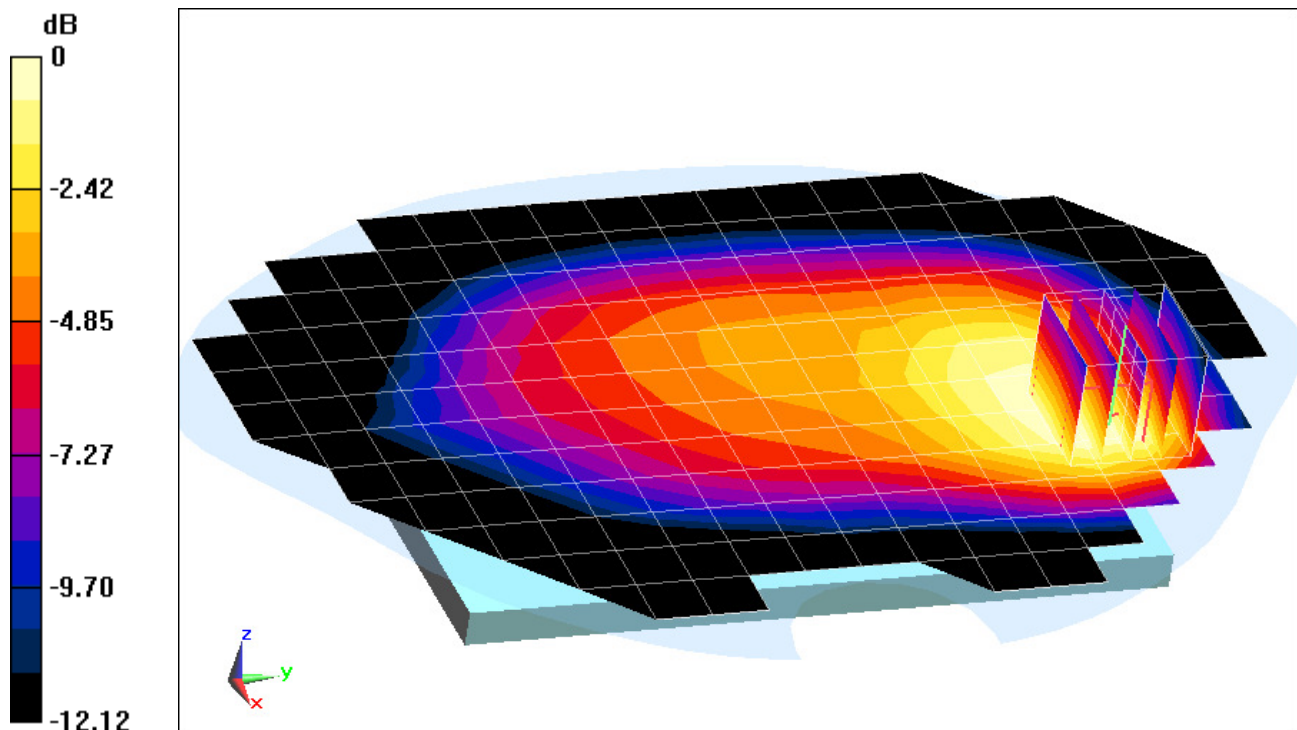
Area Scan (13x19x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.280 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.423 W/kg

SAR(1 g) = 0.311 W/kg



0 dB = 0.329 W/kg = -4.83 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #6

Communication System: UID 0, LTE BAND 25; Frequency: 1882.5 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1882.5 \text{ MHz}$; $\sigma = 1.534 \text{ S/m}$; $\epsilon_r = 55.076$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 05-08-2014; Ambient Temp: 23.3°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3288; ConvF(4.82, 4.82, 4.82); Calibrated: 9/23/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/17/2013

Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

Mode: LTE Band 25 (PCS), Body SAR, Back side, Mid.ch
20 MHz Bandwidth, QPSK, 50 RB, 25 RB Offset

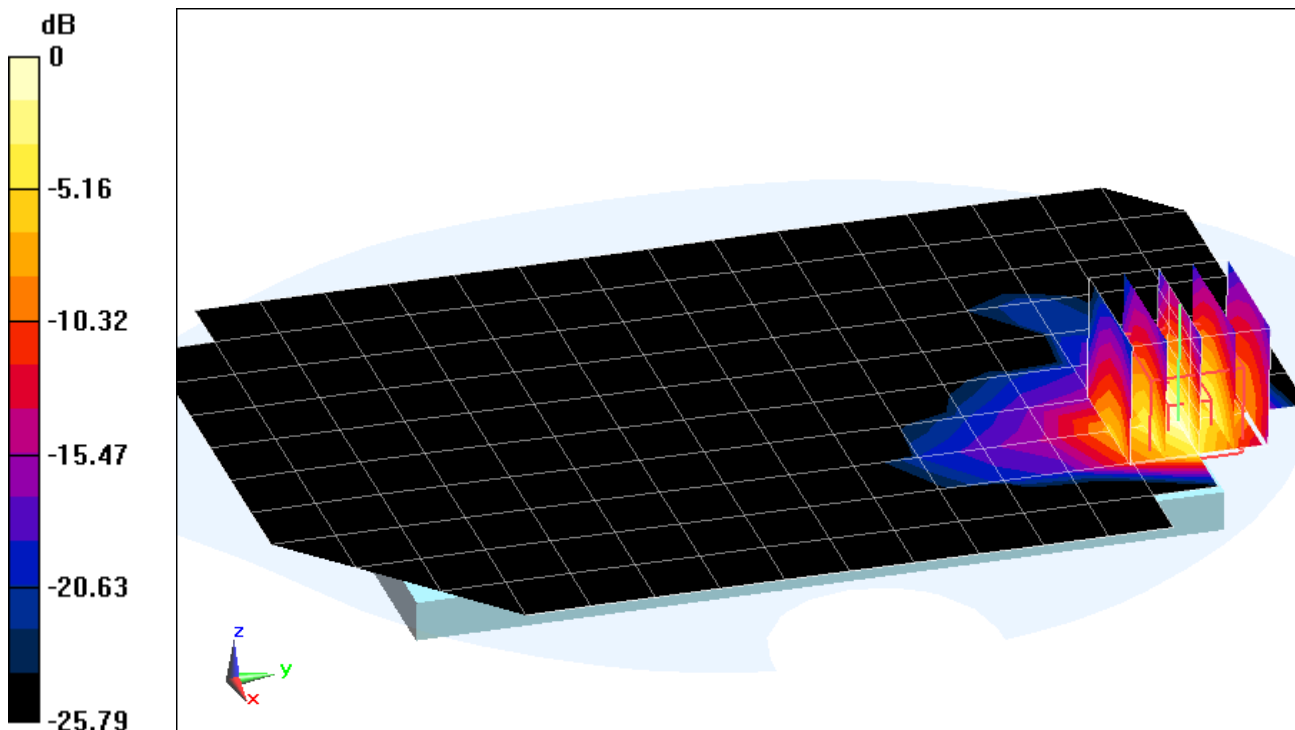
Area Scan (11x17x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.527 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.77 W/kg

SAR(1 g) = 0.840 W/kg



0 dB = 0.967 W/kg = -0.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #6

Communication System: UID 0, LTE Band 41 (0); Frequency: 2549.5 MHz; Duty Cycle: 1:1.58

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2549.5 \text{ MHz}$; $\sigma = 2.094 \text{ S/m}$; $\epsilon_r = 50.591$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 mm

Test Date: 05-12-2014; Ambient Temp: 23.8°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(3.91, 3.91, 3.91); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Mode: LTE Band 41, Body SAR, Left Edge, Low.-Mid ch
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset

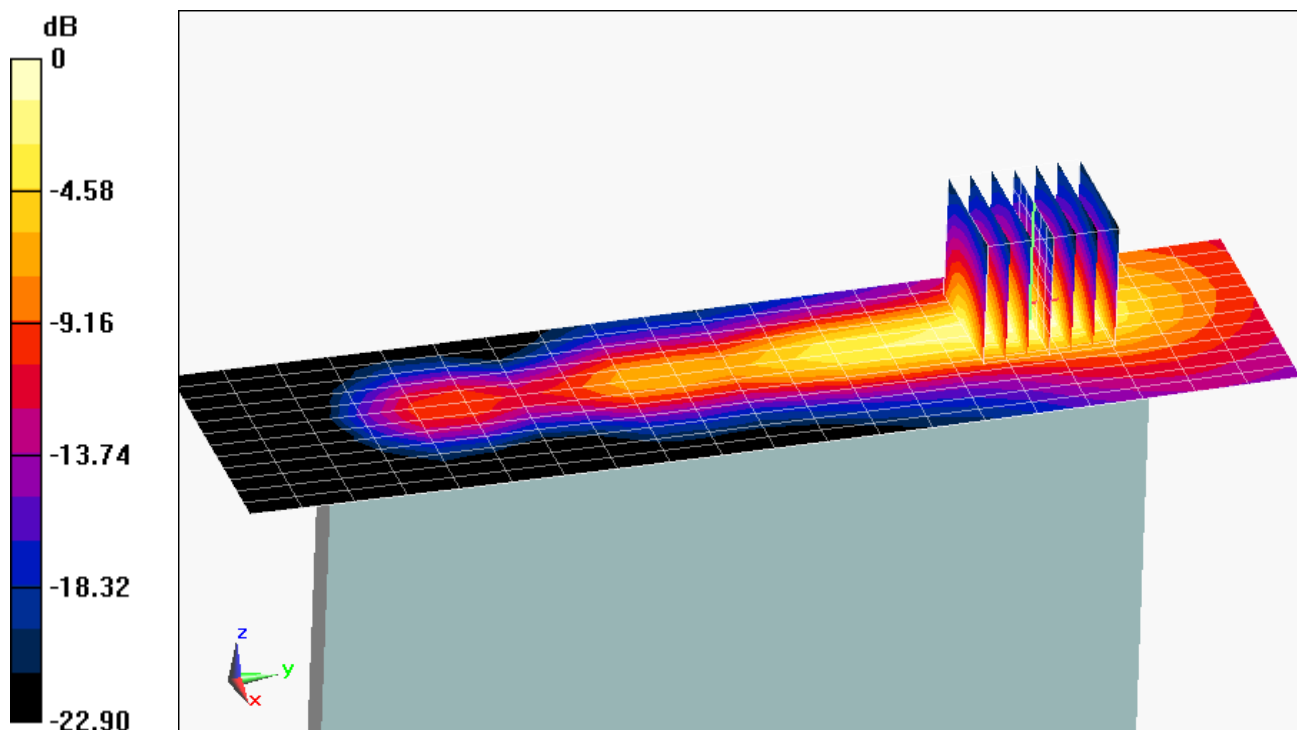
Area Scan (13x21x1): Measurement grid: dx=5mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.320 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.58 W/kg

SAR(1 g) = 1.07 W/kg



0 dB = 1.45 W/kg = 1.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #3

Communication System: UID 0, IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2412 \text{ MHz}$; $\sigma = 1.991 \text{ S/m}$; $\epsilon_r = 51.258$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 05-05-2014; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(4.14, 4.14, 4.14); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Mode: IEEE 802.11b, Body SAR, Ch 01, 1 Mbps, Back Side

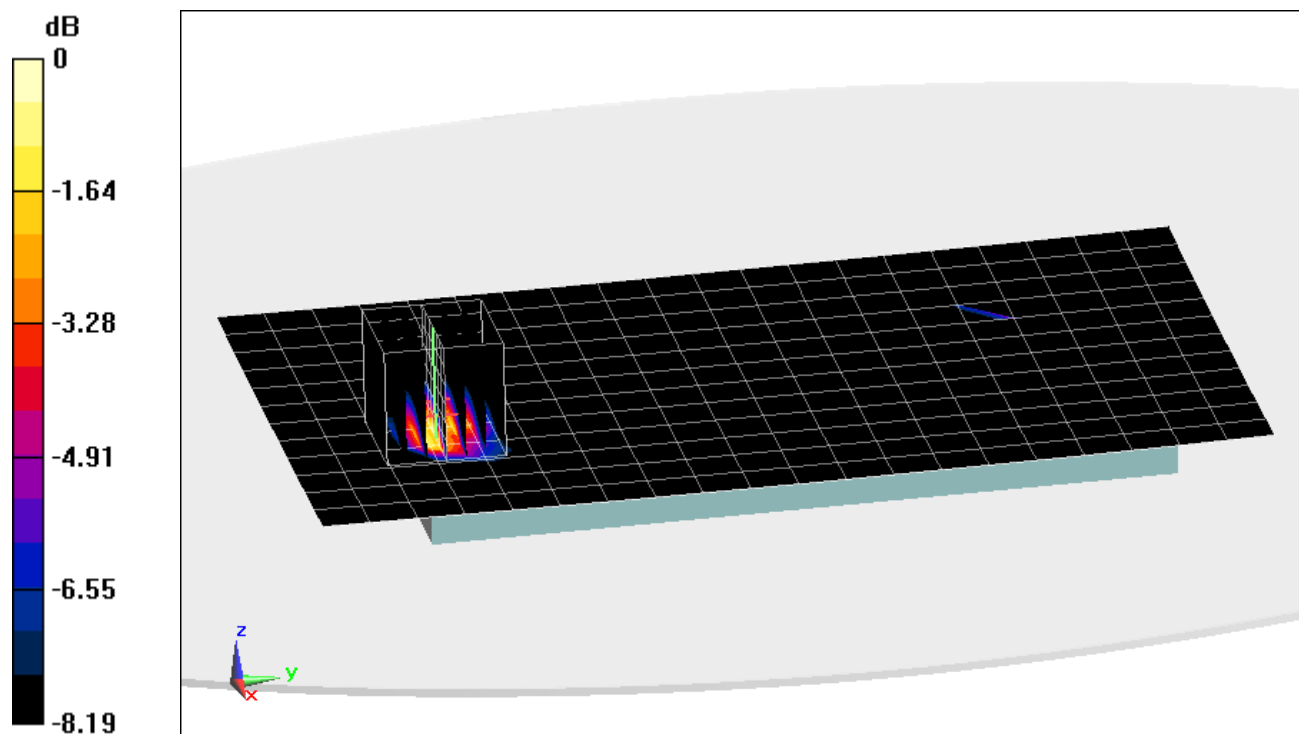
Area Scan (13x21x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.095 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.460 W/kg



0 dB = 0.644 W/kg = -1.91 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #5

Communication System: UID 0, IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5765 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5765 \text{ MHz}$; $\sigma = 6.241 \text{ S/m}$; $\epsilon_r = 46.229$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 05-19-2014; Ambient Temp: 23.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3920; ConvF(4, 4, 4); Calibrated: 12/18/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 12/12/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

Mode: IEEE 802.11a, 5.8 GHz, Body SAR, Ch 153, 6 Mbps, Back Side

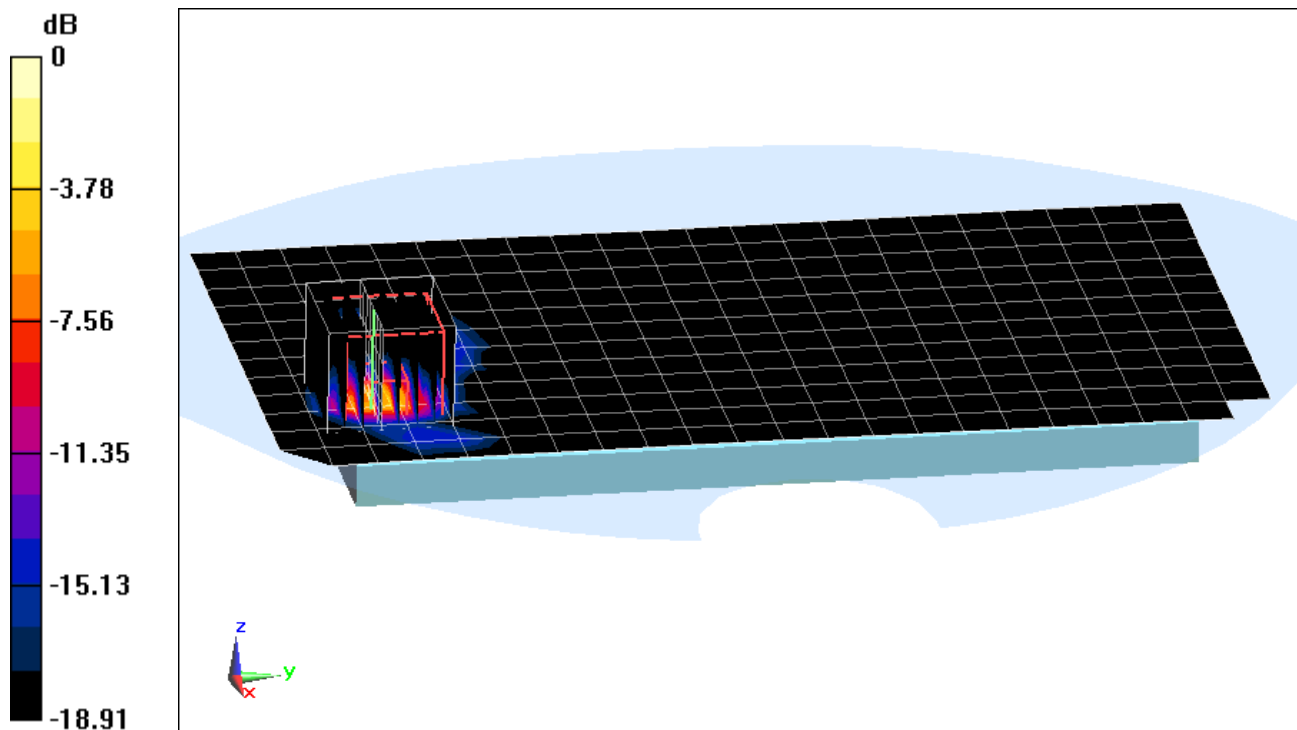
Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4

Reference Value = 13.013 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 13.7 W/kg

SAR(1 g) = 0.873 W/kg



0 dB = 2.75 W/kg = 4.39 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT237P; Type: Portable Tablet; Serial: FCC #5

Communication System: UID 0, IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5220 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5220 \text{ MHz}$; $\sigma = 5.501 \text{ S/m}$; $\epsilon_r = 47.116$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 05-19-2014; Ambient Temp: 23.2°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3920; ConvF(4.23, 4.23, 4.23); Calibrated: 12/18/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 12/12/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

Mode: IEEE 802.11a, 5.2 GHz, Body SAR, Ch 44, 6 Mbps, Back Side

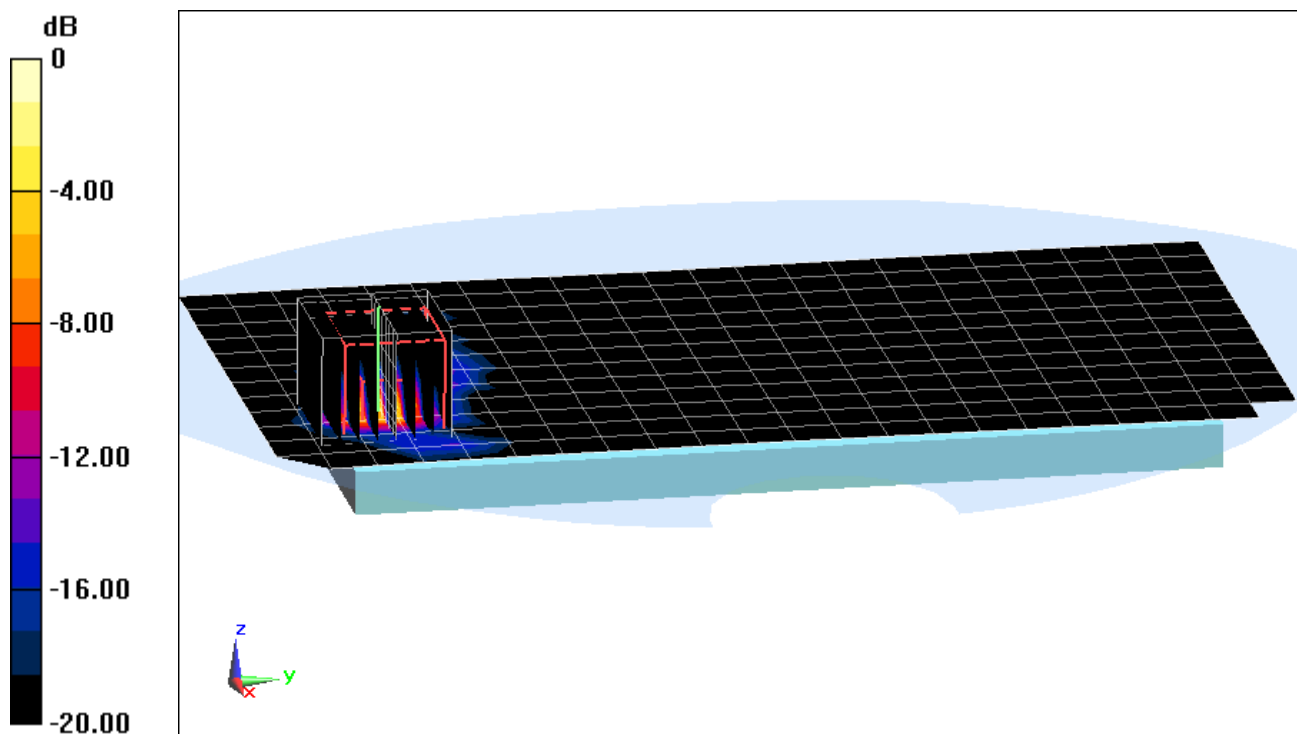
Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 8.408 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 8.14 W/kg

SAR(1 g) = 0.905 W/kg



0 dB = 2.95 W/kg = 4.70 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.955 \text{ S/m}$; $\epsilon_r = 53.447$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-19-2014; Ambient Temp: 22.1°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3288; ConvF(6.27, 6.27, 6.27); Calibrated: 9/23/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/17/2013

Phantom: SAM with CRP; Type: SAM; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

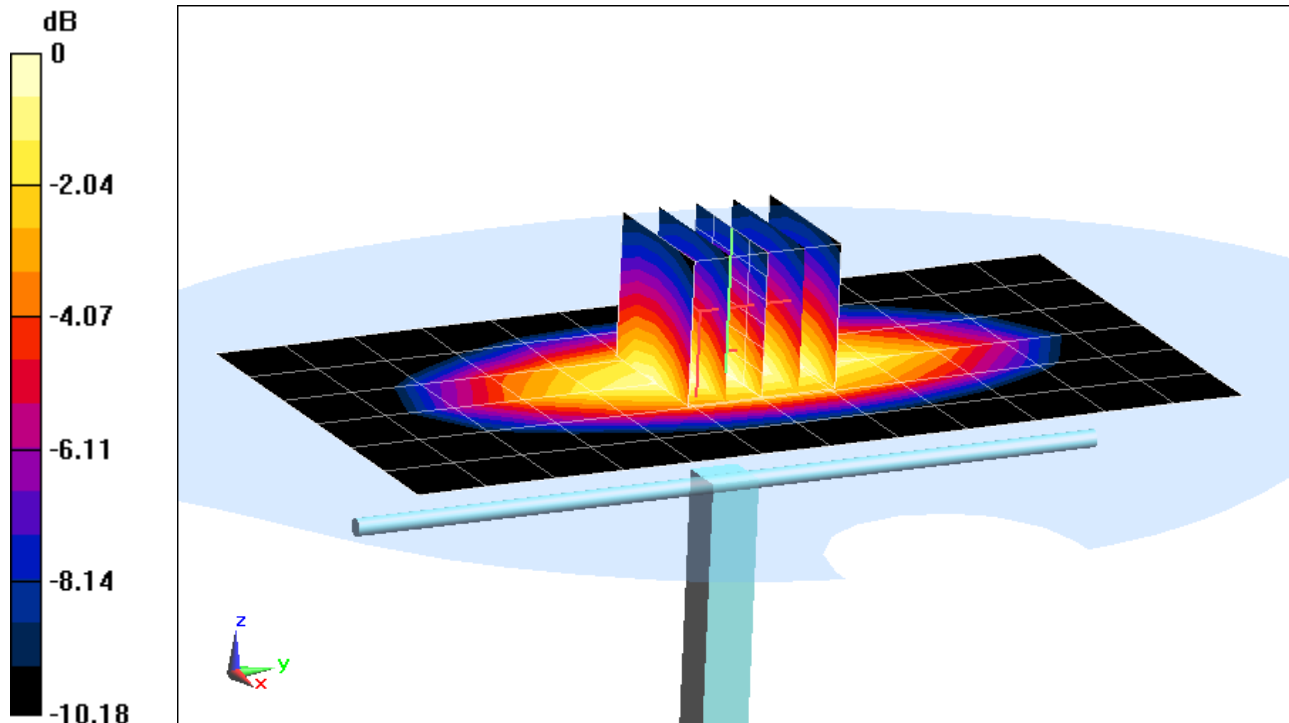
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 0.991 W/kg

Deviation = 3.12%



PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ S/m}$; $\epsilon_r = 54.958$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-08-2014; Ambient Temp: 23.3°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3288; ConvF(4.82, 4.82, 4.82); Calibrated: 9/23/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/17/2013

Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

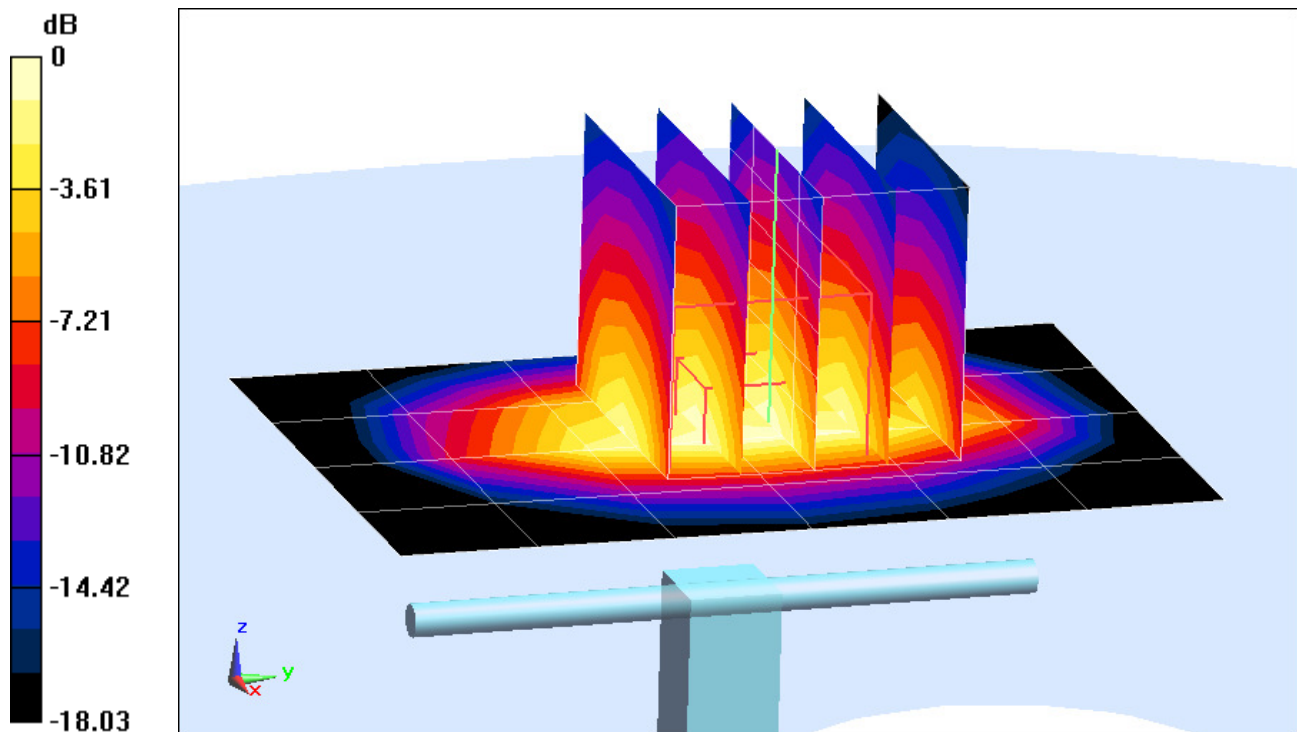
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 7.26 W/kg

SAR(1 g) = 4.12 W/kg

Deviation = 4.83%



0 dB = 4.53 W/kg = 6.56 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.045 \text{ S/m}$; $\epsilon_r = 51.139$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-05-2014; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(4.14, 4.14, 4.14); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

2450 MHz System Verification

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

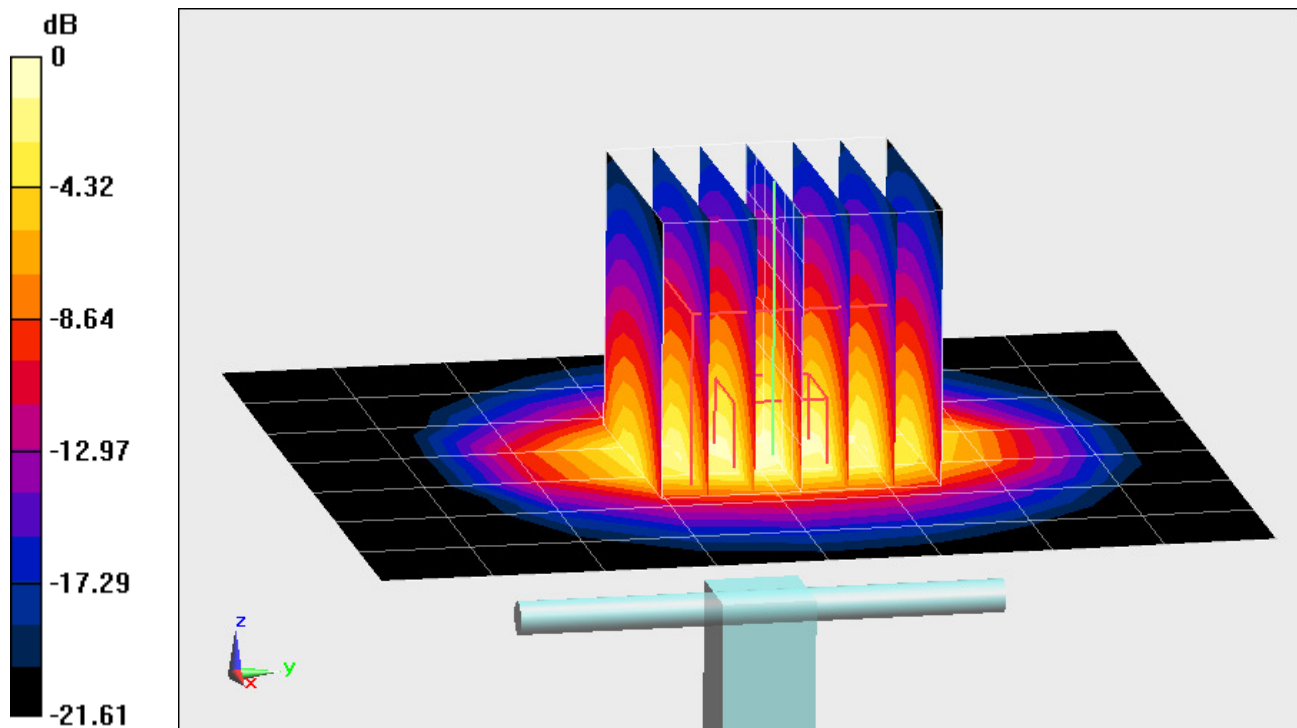
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 10.8 W/kg

SAR(1 g) = 5.09 W/kg

Deviation = 3.04%



0 dB = 6.66 W/kg = 8.23 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 2.161 \text{ S/m}$; $\epsilon_r = 50.432$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-12-2014; Ambient Temp: 23.8°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(3.91, 3.91, 3.91); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

2600 MHz System Verification

Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

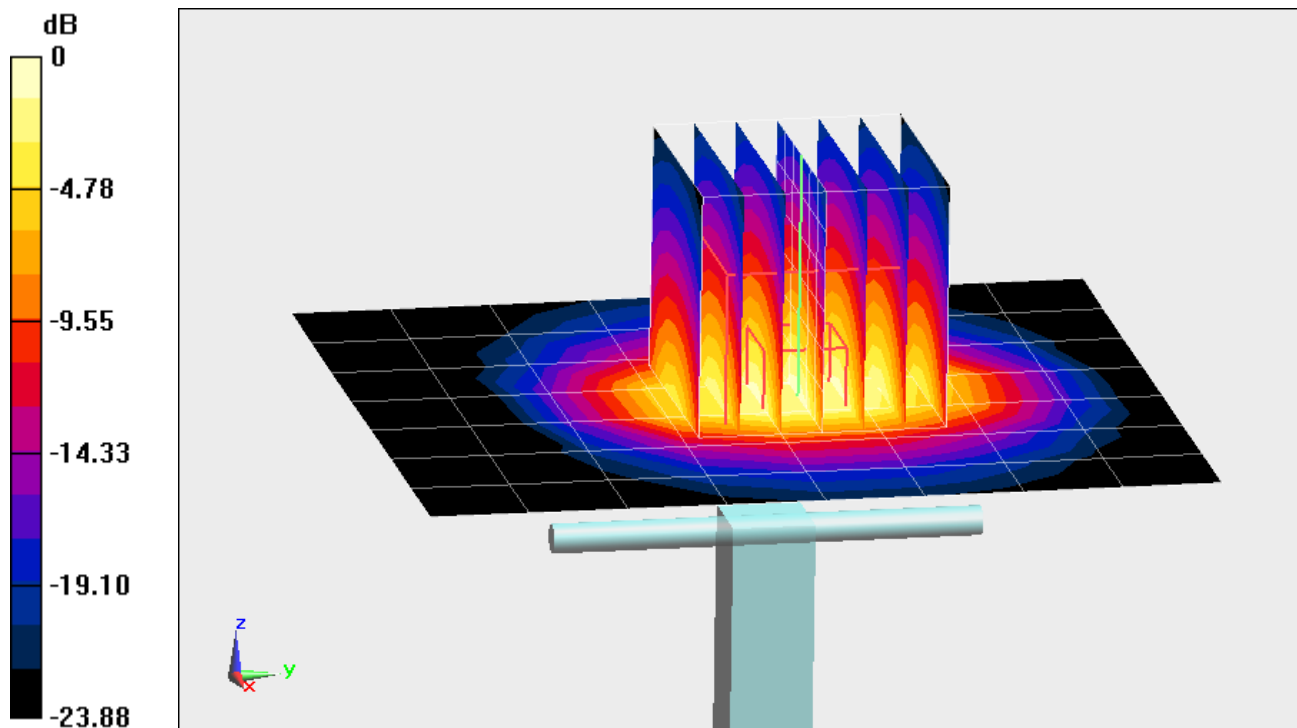
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 12.5 W/kg

SAR(1 g) = 5.49 W/kg

Deviation = -1.44%



0 dB = 7.39 W/kg = 8.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1007

Communication System: UID 0, CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 5.458 \text{ S/m}$; $\epsilon_r = 47.166$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-19-2014; Ambient Temp: 23.2°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3920; ConvF(4.23, 4.23, 4.23); Calibrated: 12/18/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 12/12/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm

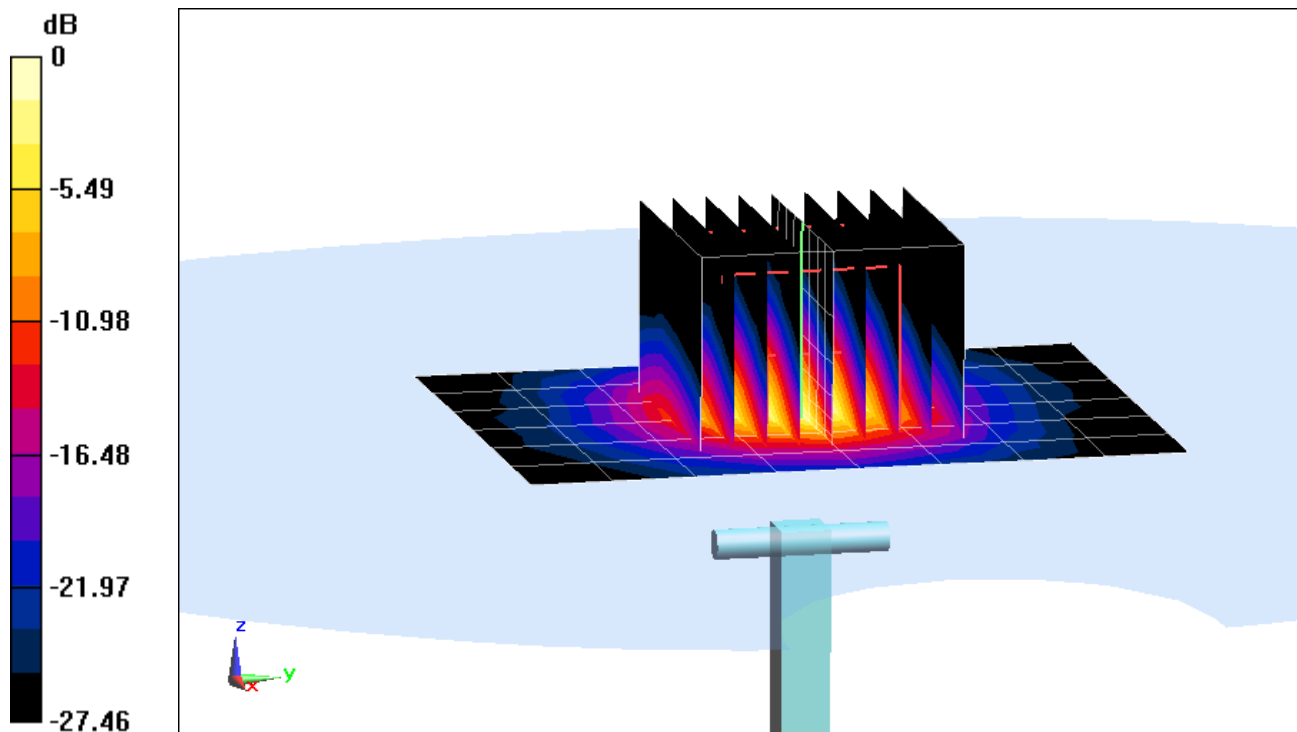
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 32.5 W/kg

SAR(1 g) = 7.18 W/kg

Deviation = -1.10%



0 dB = 17.9 W/kg = 12.53 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5300 MHz; Type: D5GHzV2; Serial: 1007

Communication System: UID 0, CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5300 \text{ MHz}$; $\sigma = 5.598 \text{ S/m}$; $\epsilon_r = 47.018$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-19-2014; Ambient Temp: 23.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3920; ConvF(4.11, 4.11, 4.11); Calibrated: 12/18/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 12/12/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

5300MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

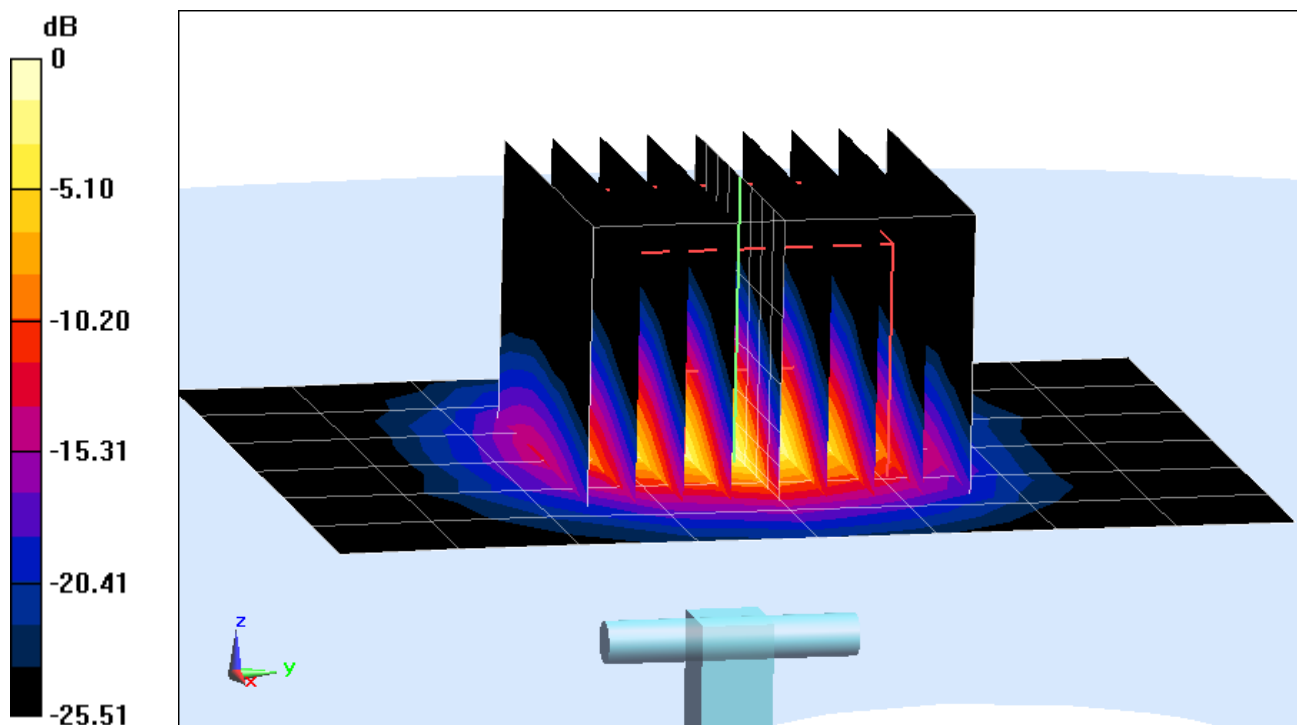
Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 33.0 W/kg

SAR(1 g) = 7.14 W/kg

Deviation = -4.42%



0 dB = 18.6 W/kg = 12.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1007

Communication System: UID 0, CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.877 \text{ S/m}$; $\epsilon_r = 46.628$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-19-2014; Ambient Temp: 23.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3920; ConvF(3.8, 3.8, 3.8); Calibrated: 12/18/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 12/12/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

5500MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

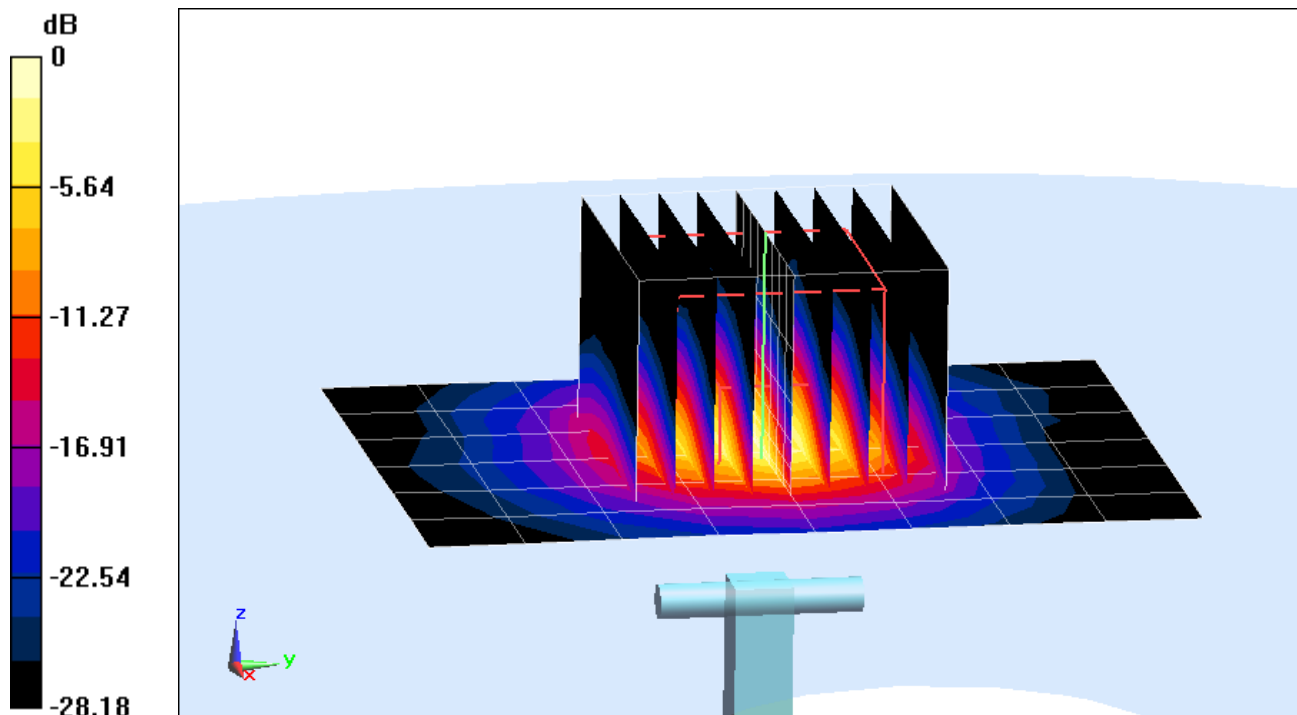
Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 37.1 W/kg

SAR(1 g) = 7.2 W/kg

Deviation = -5.14%



0 dB = 20.1 W/kg = 13.03 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: 1007

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5600 \text{ MHz}$; $\sigma = 6.017 \text{ S/m}$; $\epsilon_r = 46.457$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-19-2014; Ambient Temp: 23.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3920; ConvF(3.62, 3.62, 3.62); Calibrated: 12/18/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 12/12/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

5600MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm

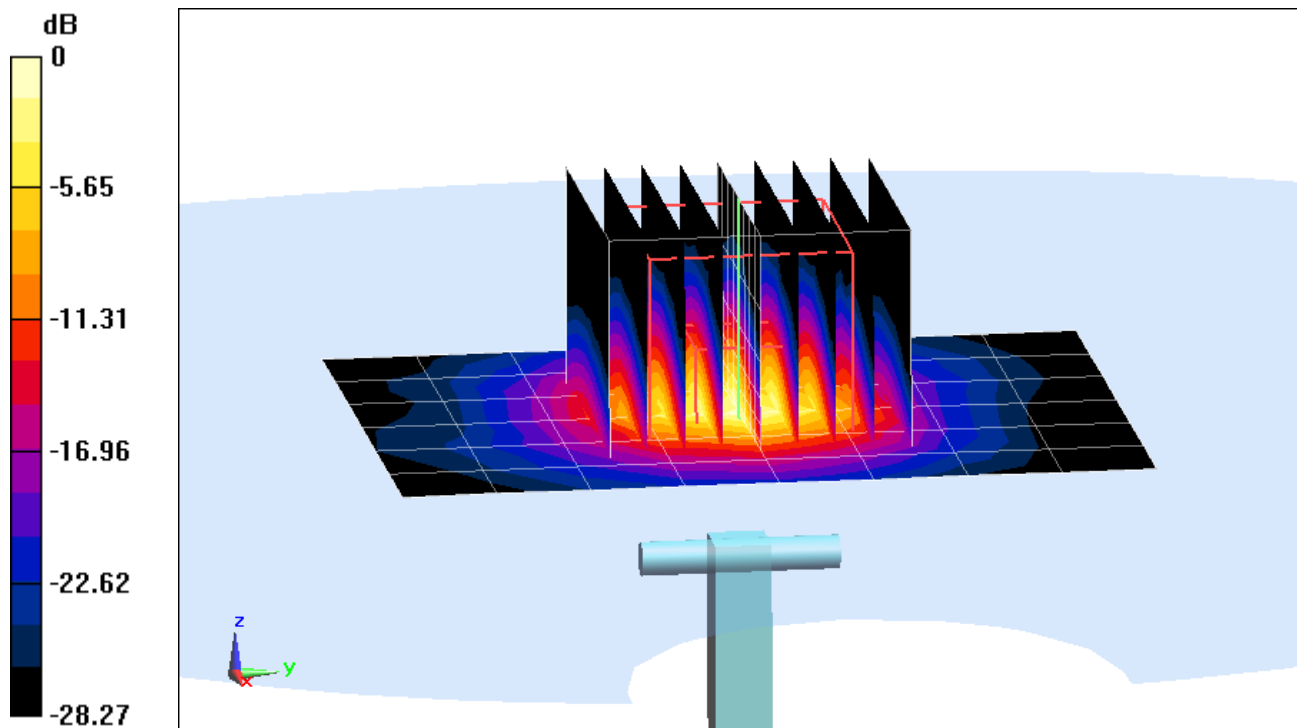
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 36.6 W/kg

SAR(1 g) = 7.46 W/kg

Deviation = -3.49%



0 dB = 20.1 W/kg = 13.03 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1007

Communication System: UID 0, CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5800 \text{ MHz}$; $\sigma = 6.275 \text{ S/m}$; $\epsilon_r = 46.131$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-19-2014; Ambient Temp: 23.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3920; ConvF(4, 4, 4); Calibrated: 12/18/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 12/12/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.10 (7164)

5800MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

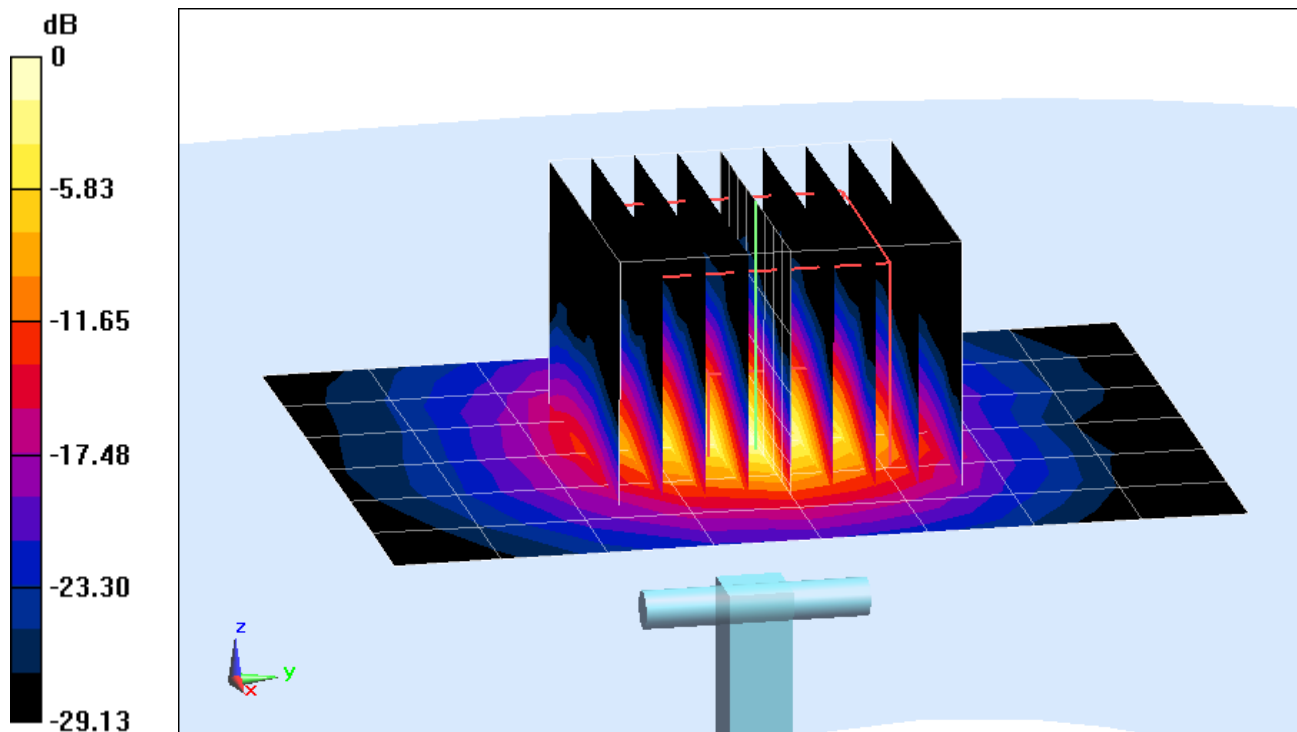
Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 34.4 W/kg

SAR(1 g) = 6.7 W/kg

Deviation = -8.09%



0 dB = 18.1 W/kg = 12.58 dBW/kg

APPENDIX C: PROBE CALIBRATION



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **PC Test**

Certificate No: **D835V2-4d133_Jul13**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d133**

Calibration procedure(s) **QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **July 17, 2013**

✓
KOK
8/12/13

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 18, 2013

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.8 $\pm$ 6 %	0.92 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.44 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.62 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.59 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.28 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	54.9 $\pm$ 6 %	1.00 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.61 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	6.36 W/kg $\pm$ 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω - 1.8 j Ω
Return Loss	- 31.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.2 Ω - 3.6 j Ω
Return Loss	- 27.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.395 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 22, 2011

DASY5 Validation Report for Head TSL

Date: 17.07.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d133

Communication System: UID 0 - CW ; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ S/m}$; $\epsilon_r = 41.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.05, 6.05, 6.05); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

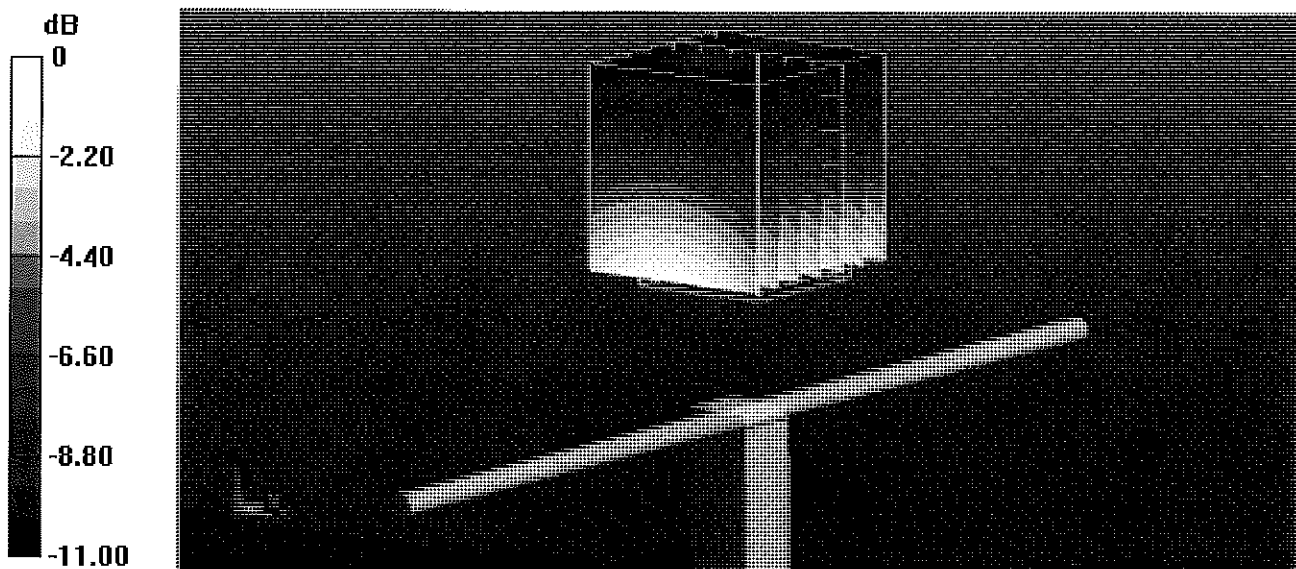
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 57.188 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.66 W/kg

SAR(1 g) = 2.44 W/kg; SAR(10 g) = 1.59 W/kg

Maximum value of SAR (measured) = 2.84 W/kg

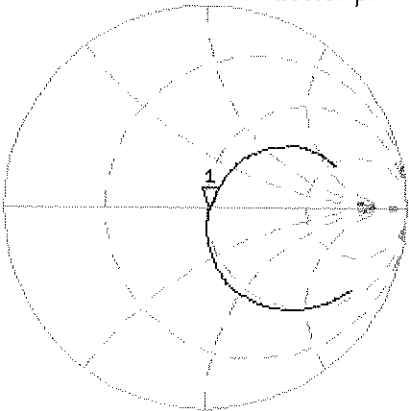


0 dB = 2.84 W/kg = 4.53 dBW/kg

Impedance Measurement Plot for Head TSL

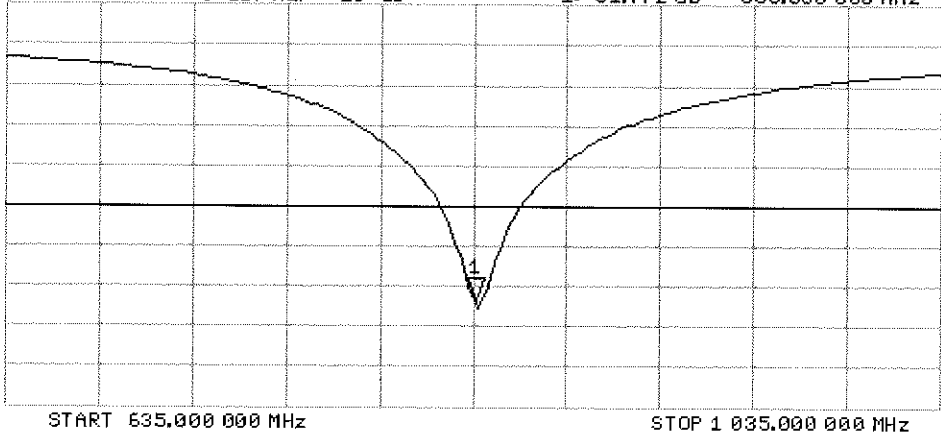
18 Jul 2013 09:49:17
[CH1] S11 1 U FS 1: 51.957 $\angle$ -1.7539 $\angle$ 108.67 pF 835.000 000 MHz

*
De1
CA
Avg
16
H1d



CH2 S11 L00 5 dB/REF -20 dB 1:-31.772 dB 835.000 000 MHz

CA
Avg
16
H1d



DASY5 Validation Report for Body TSL

Date: 17.07.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d133

Communication System: UID 0 - CW ; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ S/m}$; $\epsilon_r = 54.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.04, 6.04, 6.04); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

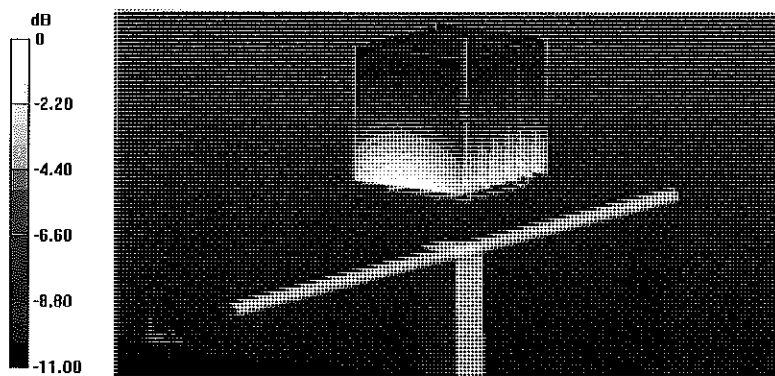
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.351 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.59 W/kg

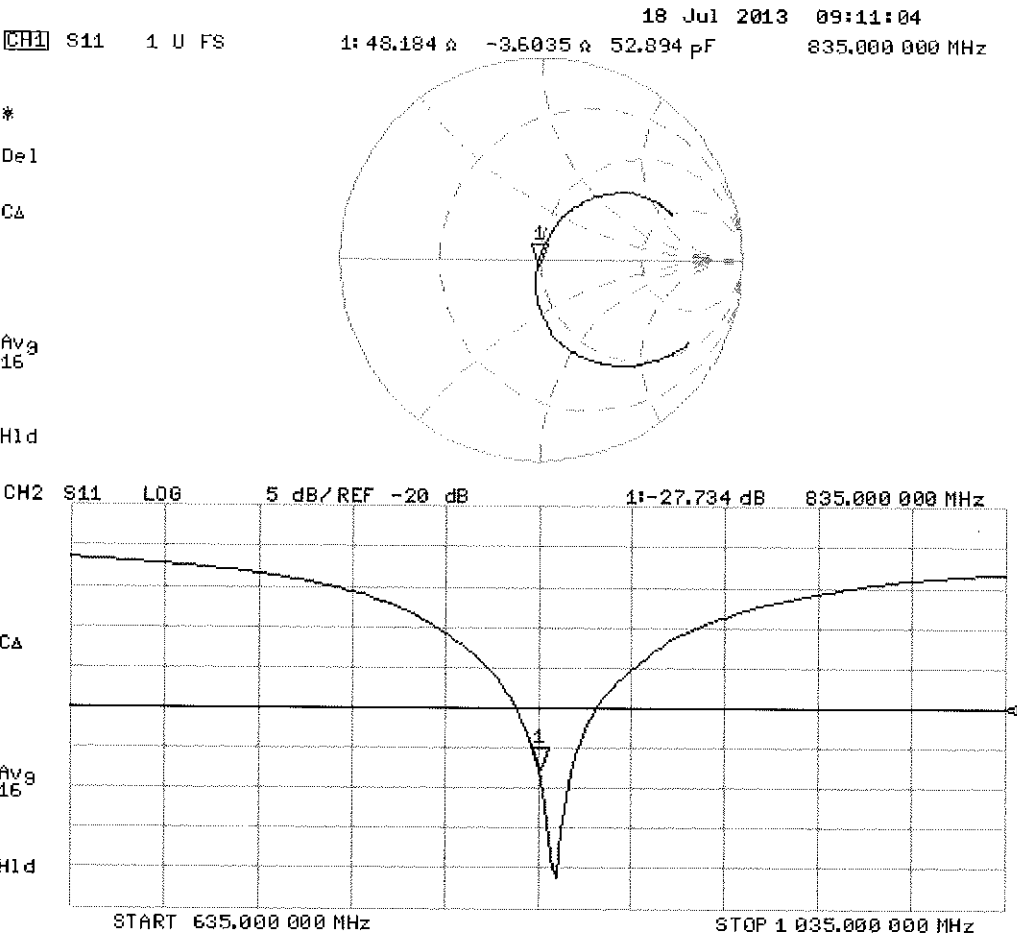
SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.62 W/kg

Maximum value of SAR (measured) = 2.86 W/kg



0 dB = 2.86 W/kg = 4.56 dBW/kg

Impedance Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Client **PC Test**

Certificate No: **D1900V2-5d148_Feb14**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d148**

Calibration procedure(s) **QA CAL-05.v9**
 Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **February 27, 2014**

CCV
3/1/2014

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	US37292783	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	MY41092317	09-Oct-13 (No. 217-01828)	Oct-14
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

Calibrated by: **Jeton Kastrati** Name: **Jeton Kastrati** Function: **Laboratory Technician**

Approved by: **Katja Pokovic** Name: **Katja Pokovic** Function: **Technical Manager**

Signature

Issued: February 27, 2014

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	38.9 $\pm$ 6 %	1.39 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.7 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.31 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.2 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	52.8 $\pm$ 6 %	1.49 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.73 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	39.3 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.15 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.7 W/kg $\pm$ 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$52.5 \Omega + 5.5 j\Omega$
Return Loss	- 24.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$48.0 \Omega + 6.7 j\Omega$
Return Loss	- 23.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.197 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 11, 2011

DASY5 Validation Report for Head TSL

Date: 27.02.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d148

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.39$ S/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.06, 5.06, 5.06); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

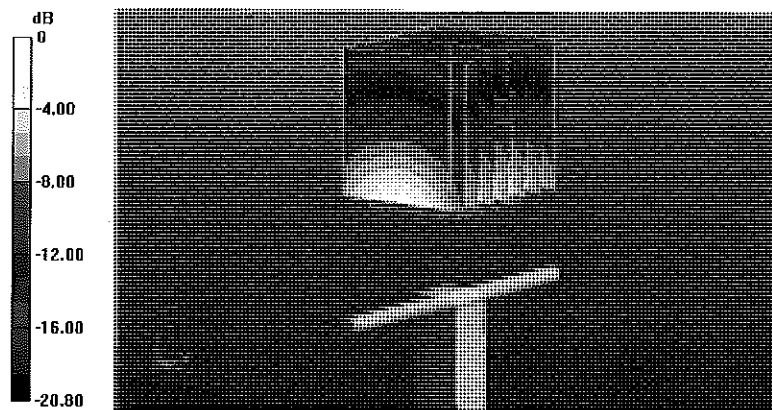
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.796 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.31 W/kg

Maximum value of SAR (measured) = 12.8 W/kg

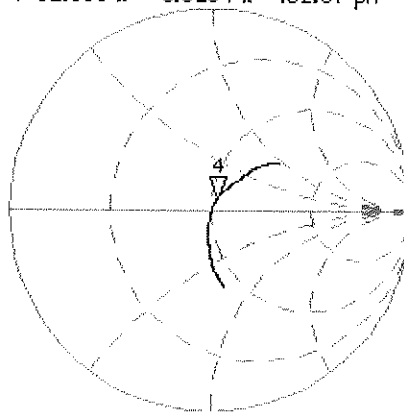


0 dB = 12.8 W/kg = 11.07 dBW/kg

Impedance Measurement Plot for Head TSL

27 Feb 2014 09:42:31
 [CH1] S11 1 U FS 4: 52.533 Δ 5.5234 Δ 462.67 pH 1 900.000 000 MHz

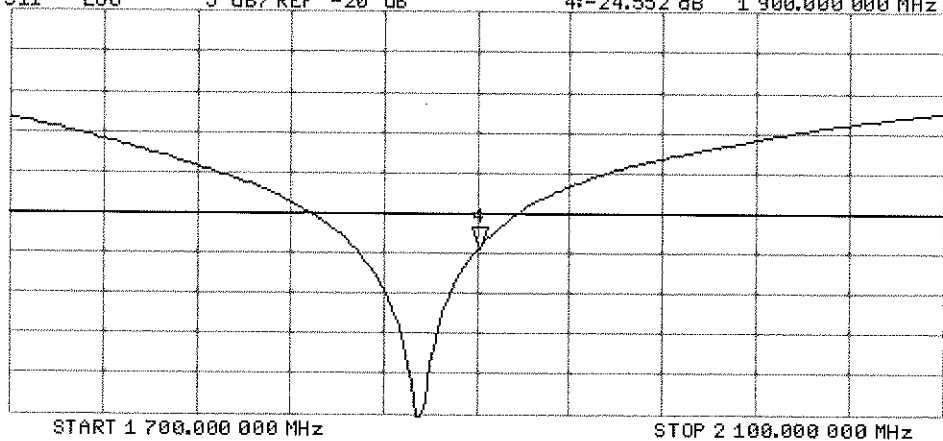
*
 De1
 CA



AVG
 16
 H1d

CH2 S11 LOG 5 dB/REF -20 dB 4:-24.552 dB 1 900.000 000 MHz

CA
 AVG
 16
 H1d



DASY5 Validation Report for Body TSL

Date: 27.02.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d148

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.76, 4.76, 4.76); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

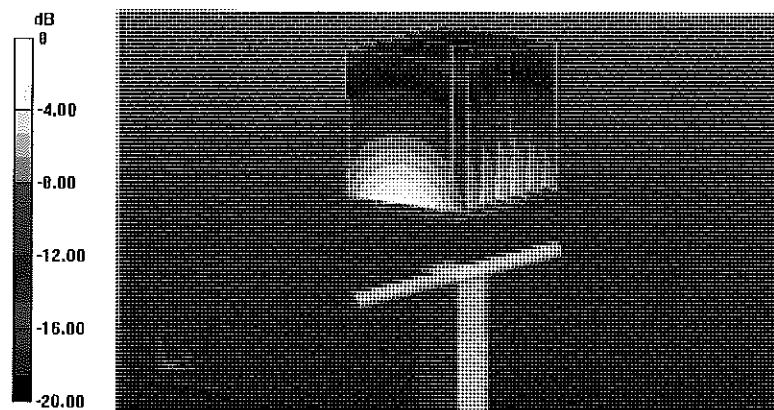
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.520 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 17.0 W/kg

SAR(1 g) = 9.73 W/kg; SAR(10 g) = 5.15 W/kg

Maximum value of SAR (measured) = 12.2 W/kg

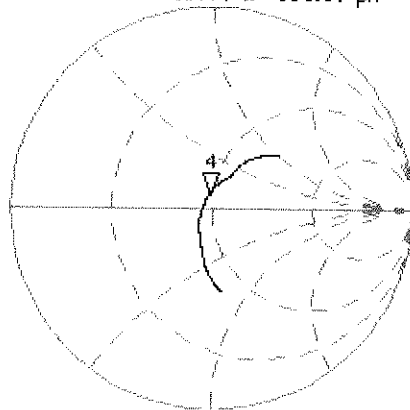


0 dB = 12.2 W/kg = 10.86 dBW/kg

Impedance Measurement Plot for Body TSL

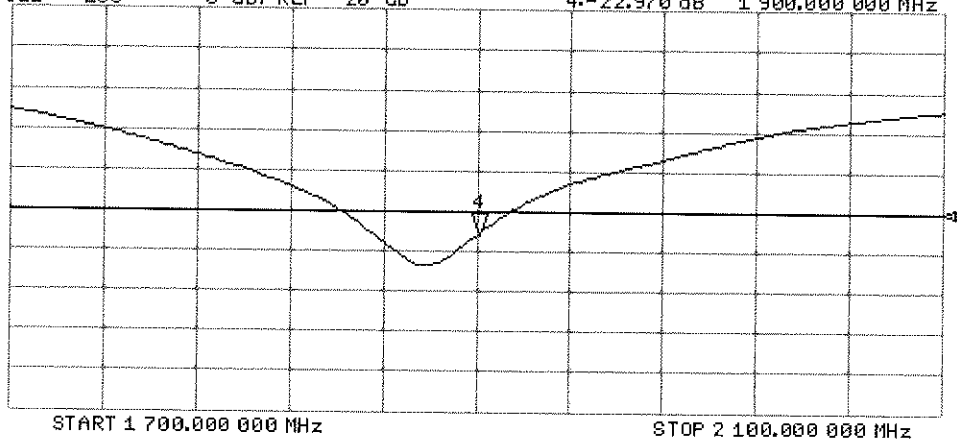
CH1 S11 1 U FS 4: 47.971 Ω 6.6777 Ω 559.37 pF 1 900.000 000 MHz 27 Feb 2014 09:42:04

*
De1
CA
Avg
16
H1d



CH2 S11 LOG 5 dB/REF -20 dB 4:-22.970 dB 1 900.000 000 MHz

CA
Avg
16
H1d





Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **PC Test**

Certificate No: **D2450V2-797_Jan14**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 797**

Calibration procedure(s) **QA CAL-05.v9**
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **January 21, 2014**

CC ✓
2/5/14

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	US37292783	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	MY41092317	09-Oct-13 (No. 217-01828)	Oct-14
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 21, 2014

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	38.7 $\pm$ 6 %	1.86 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	51.8 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.3 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	51.3 $\pm$ 6 %	2.04 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.7 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	49.4 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.86 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.1 W/kg $\pm$ 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$53.5 \Omega + 3.2 j\Omega$
Return Loss	- 26.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$50.0 \Omega + 4.9 j\Omega$
Return Loss	- 26.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.151 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	January 24, 2006

DASY5 Validation Report for Head TSL

Date: 21.01.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 797

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ S/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

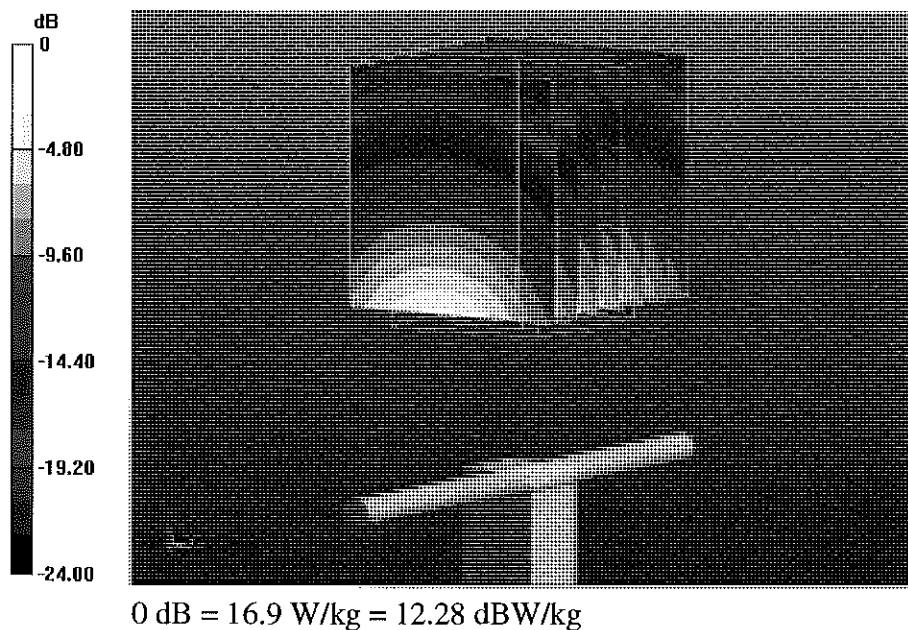
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.151 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 27.5 W/kg

SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.13 W/kg

Maximum value of SAR (measured) = 16.9 W/kg



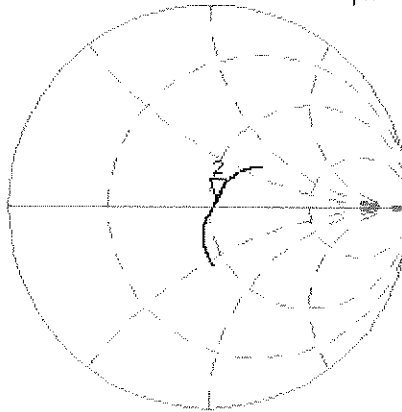
Impedance Measurement Plot for Head TSL

21 Jan 2014 11:31:52
 [CH1] S11 1 U FS 2: 53.512 $\angle$ 3.2285 $\angle$ 209.73 pH 2 450.000 000 MHz

*
 Del
 CA

Avg
 16

H1d

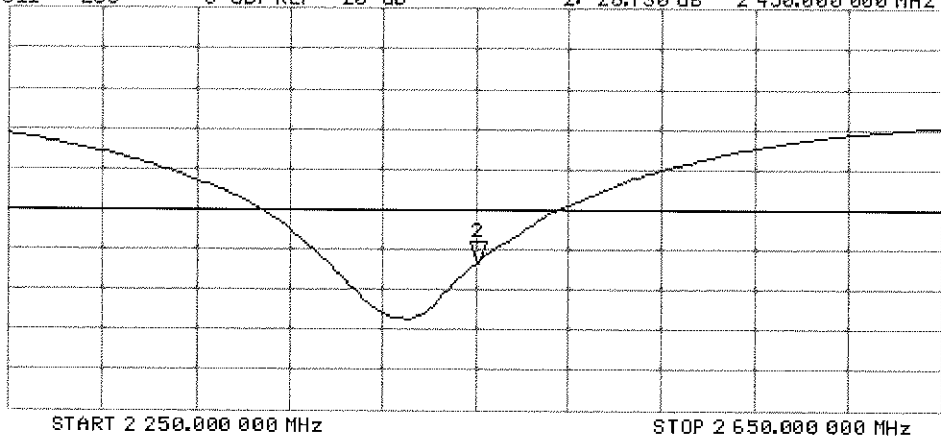


CH2 S11 LOG 5 dB/REF -20 dB 2:-26.730 dB 2 450.000 000 MHz

CA

Avg
 16

H1d



DASY5 Validation Report for Body TSL

Date: 21.01.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 797

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.04$ S/m; $\epsilon_r = 51.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.35, 4.35, 4.35); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

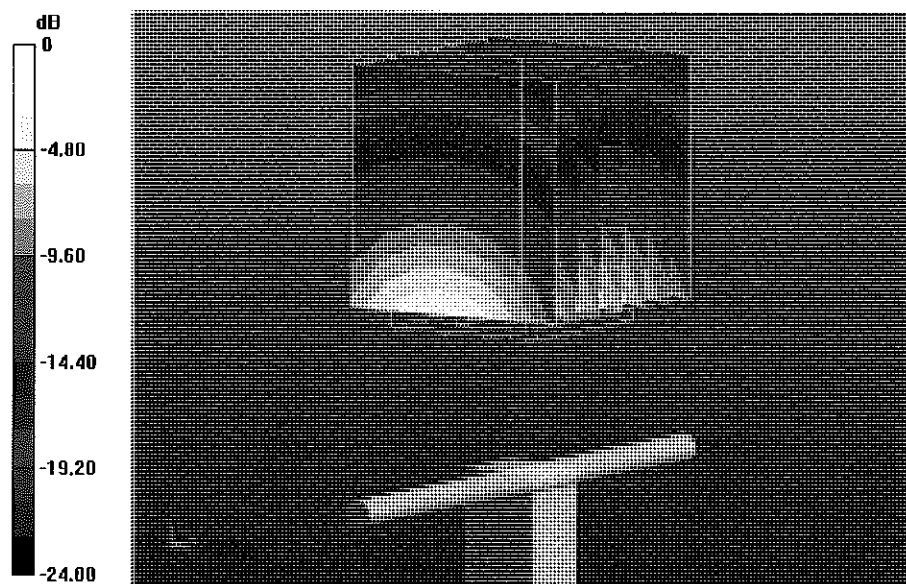
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.709 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 26.4 W/kg

SAR(1 g) = 12.7 W/kg; SAR(10 g) = 5.86 W/kg

Maximum value of SAR (measured) = 16.8 W/kg

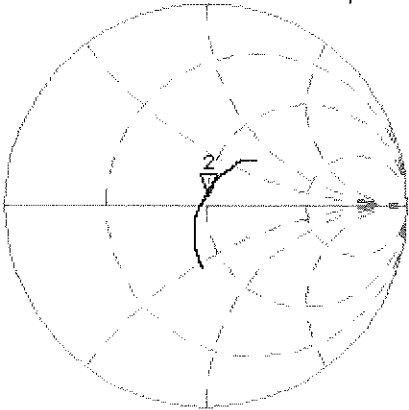


0 dB = 16.8 W/kg = 12.25 dBW/kg

Impedance Measurement Plot for Body TSL

21 Jan 2014 11:31:29
CH1 S11 1 U FS 2: 49.994 Ω 4.9258 Ω 319.98 μH 2 450.000 000 MHz

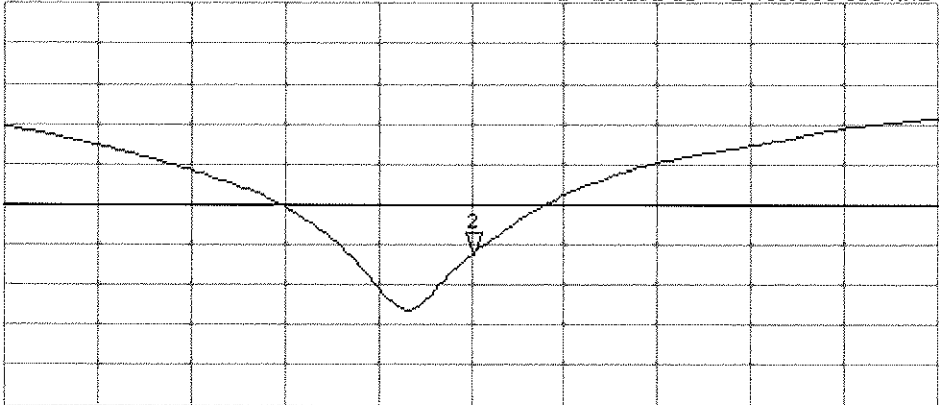
*
Del
CA



Avg
16
H1d

CH2 S11 LOG 5 dB/REF -20 dB 2:-26.162 dB 2 450.000 000 MHz

CA
Avg
16
H1d



START 2 250.000 000 MHz STOP 2 450.000 000 MHz



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Client **PC Test**

Certificate No: **D2600V2-1071_Nov13**

CALIBRATION CERTIFICATE

Object **D2600V2 - SN: 1071**

Calibration procedure(s) **QA CAL-05.v9**
 Calibration procedure for dipole validation kits above 700 MHz

VCC
 1/12/14

Calibration date: **November 15, 2013**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	US37292783	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	MY41092317	09-Oct-13 (No. 217-01828)	Oct-14
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-15
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

Calibrated by: **Israe El-Naouq** Function: **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** Technical Manager

Issued: November 15, 2013

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	39.1 $\pm$ 6 %	2.01 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	56.6 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.3 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	51.7 $\pm$ 6 %	2.20 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	14.1 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	55.7 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	24.8 W/kg $\pm$ 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.1 Ω - 4.7 j Ω
Return Loss	- 26.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.4 Ω - 3.8 j Ω
Return Loss	- 24.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.153 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 17, 2013

DASY5 Validation Report for Head TSL

Date: 15.11.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1071

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.01$ S/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

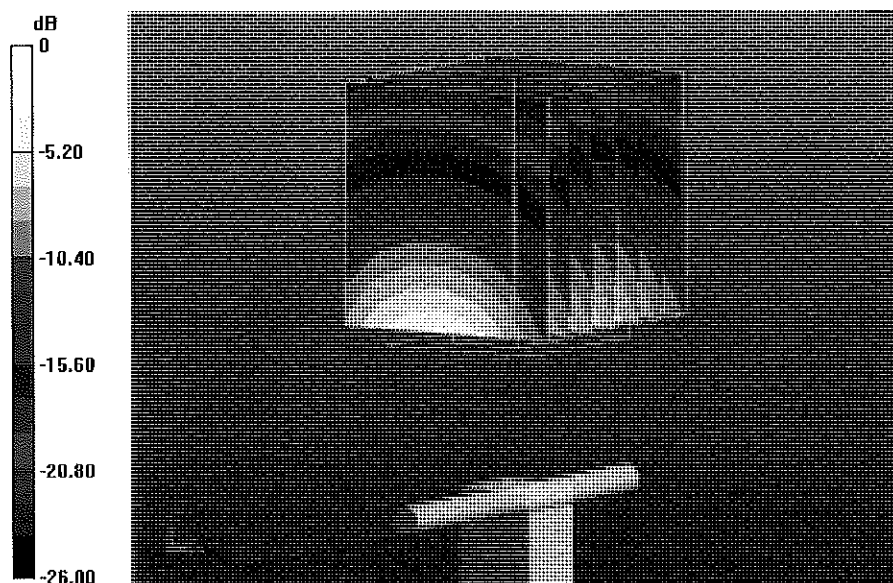
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.749 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 31.1 W/kg

SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.35 W/kg

Maximum value of SAR (measured) = 18.5 W/kg

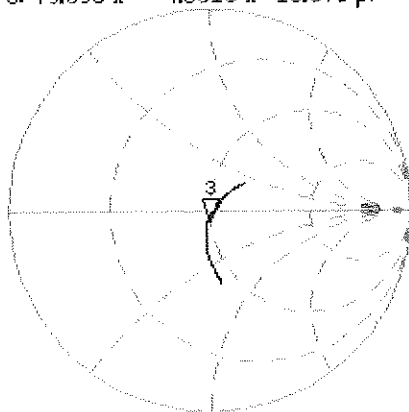


0 dB = 18.5 W/kg = 12.67 dBW/kg

Impedance Measurement Plot for Head TSL

15 Nov 2013 14:17:24
 CH1 S11 1 U FS 3: 49.098 Δ -4.6816 Δ 13.075 pF 2 600.000 000 MHz

*
 De1
 CA



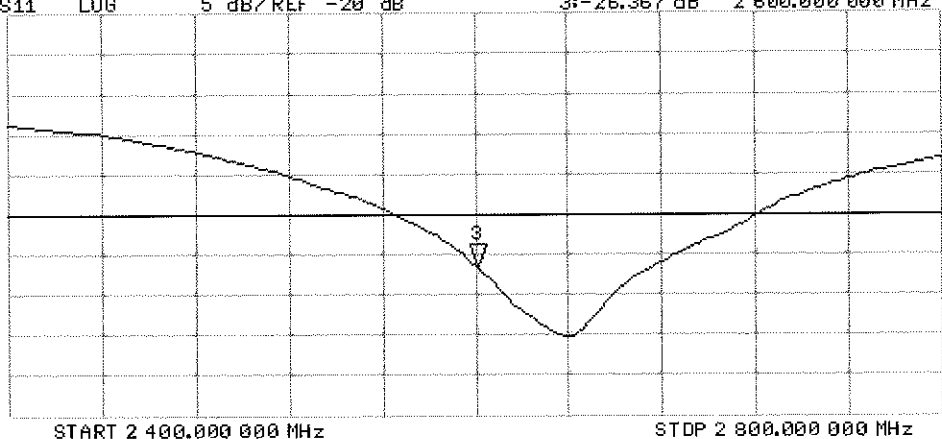
Av9
 16
 H1d

CH2 S11 LOG 5 dB/REF -20 dB 3: -26.367 dB 2 600.000 000 MHz

CA

Av9
 16

H1d



DASY5 Validation Report for Body TSL

Date: 15.11.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1071

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.2$ S/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.32, 4.32, 4.32); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

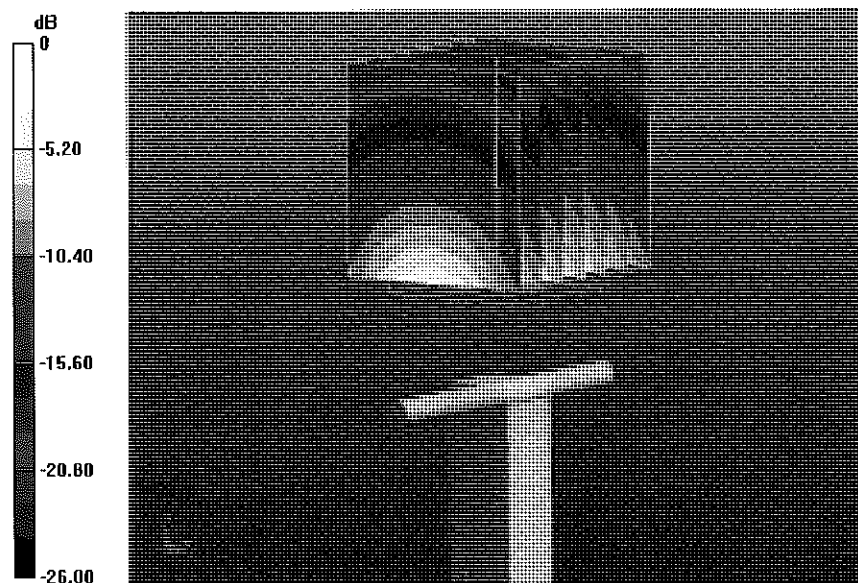
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.915 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 30.8 W/kg

SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.23 W/kg

Maximum value of SAR (measured) = 18.7 W/kg

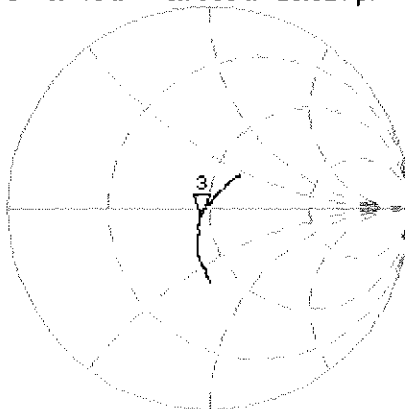


0 dB = 18.7 W/kg = 12.72 dBW/kg

Impedance Measurement Plot for Body TSL

15 Nov 2013 14:33:25
 [CH1] S11 1 U FS 3: 45.449 Ω -3.7500 Ω 16.324 pF 2 500.000 000 MHz

*
 De1
 CA



Avg
 16

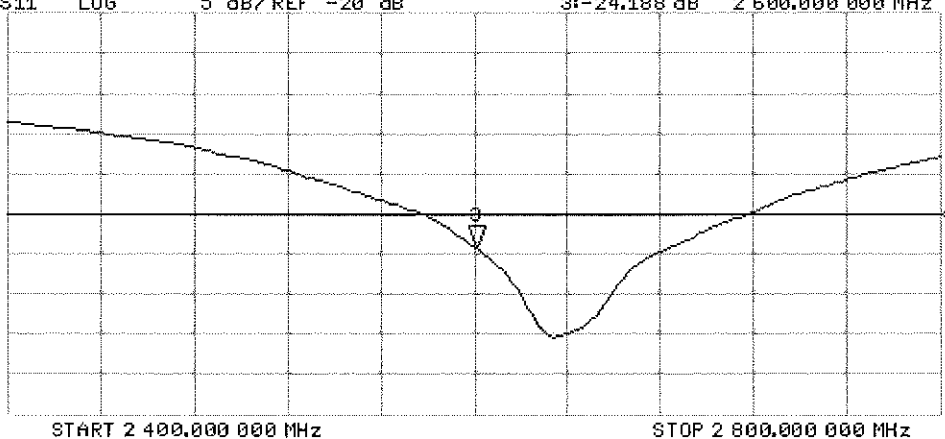
H1d

CH2 S11 LOG 5 dB/REF -20 dB 3:-24.188 dB 2 500.000 000 MHz

CA

Avg
 16

H1d





Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client **PC Test**

Certificate No: **D5GHzV2-1007_Sep13/2**

CALIBRATION CERTIFICATE (Replacement of No: D5GHzV2-1007_Sep13)

Object **D5GHzV2 - SN: 1007**

Calibration procedure(s) **QA CAL-22.v2**
Calibration procedure for dipole validation kits between 3-6 GHz

CC✓
10/15/13

Calibration date: **September 23, 2013**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe EX3DV4	SN: 3503	28-Dec-12 (No. EX3-3503_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

Calibrated by: **Leif Klysner** Function: **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** Technical Manager

Issued: October 4, 2013

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEC 62209-2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", March 2010
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"
- c) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

Additional Documentation:

- d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz $\pm$ 1 MHz 5300 MHz $\pm$ 1 MHz 5500 MHz $\pm$ 1 MHz 5600 MHz $\pm$ 1 MHz 5800 MHz $\pm$ 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	35.8 $\pm$ 6 %	4.48 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.77 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.5 W/kg $\pm$ 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.23 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.2 W/kg $\pm$ 19.5 % (k=2)

Head TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.6 ± 6 %	4.62 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5300 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.04 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.2 W / kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.9 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.4 ± 6 %	4.76 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.4 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.1 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.2 ± 6 %	4.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.03 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.7 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.0 ± 6 %	5.07 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.78 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.20 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.9 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.3 ± 6 %	5.36 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.28 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	72.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.03 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.2 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.1 ± 6 %	5.56 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5300 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.49 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	74.7 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.8 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.8 ± 6 %	5.75 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.61 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	75.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.11 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.0 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.6 ± 6 %	5.88 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.75 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	77.3 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.5 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.3 ± 6 %	6.17 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.31 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	72.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.02 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.1 W/kg ± 19.5 % (k=2)

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	52.4 Ω - 11.0 j Ω
Return Loss	- 19.2 dB

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	56.8 Ω - 4.4 j Ω
Return Loss	- 22.3 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	48.8 Ω - 5.4 j Ω
Return Loss	- 25.1 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	57.3 Ω - 8.7 j Ω
Return Loss	- 19.5 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	56.9 Ω + 1.6 j Ω
Return Loss	- 23.5 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	53.1 Ω - 10.3 j Ω
Return Loss	- 19.7 dB

Antenna Parameters with Body TSL at 5300 MHz

Impedance, transformed to feed point	54.3 Ω - 1.5 j Ω
Return Loss	- 27.2 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	49.7 Ω - 3.6 j Ω
Return Loss	- 28.7 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	58.2 Ω - 5.2 j Ω
Return Loss	- 20.9 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	58.7 Ω + 3.9 j Ω
Return Loss	- 21.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 28, 2003

DASY5 Validation Report for Head TSL

Date: 23.09.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1007

Communication System: UID 0 - CW ; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 4.48$ S/m; $\epsilon_r = 35.8$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5300$ MHz; $\sigma = 4.62$ S/m; $\epsilon_r = 35.6$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5500$ MHz; $\sigma = 4.76$ S/m; $\epsilon_r = 35.4$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 4.86$ S/m; $\epsilon_r = 35.2$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5800$ MHz; $\sigma = 5.07$ S/m; $\epsilon_r = 35$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.41, 5.41, 5.41); Calibrated: 28.12.2012, ConvF(5.1, 5.1, 5.1); Calibrated: 28.12.2012, ConvF(4.91, 4.91, 4.91); Calibrated: 28.12.2012, ConvF(4.76, 4.76, 4.76); Calibrated: 28.12.2012, ConvF(4.81, 4.81, 4.81); Calibrated: 28.12.2012;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.505 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 28.1 W/kg

SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.23 W/kg

Maximum value of SAR (measured) = 18.1 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.817 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 29.7 W/kg

SAR(1 g) = 8.04 W/kg; SAR(10 g) = 2.3 W/kg

Maximum value of SAR (measured) = 18.7 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 64.029 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 32.0 W/kg

SAR(1 g) = 8.17 W/kg; SAR(10 g) = 2.32 W/kg

Maximum value of SAR (measured) = 19.7 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.403 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 31.3 W/kg

SAR(1 g) = 8.03 W/kg; SAR(10 g) = 2.28 W/kg

Maximum value of SAR (measured) = 19.3 W/kg

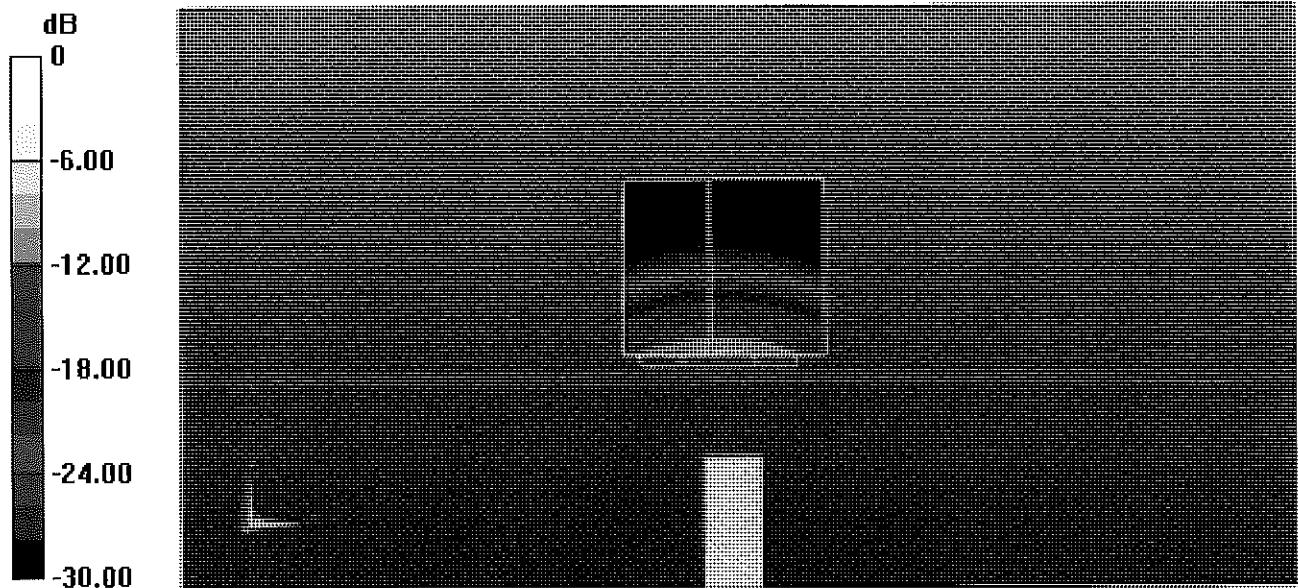
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 60.987 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 31.9 W/kg

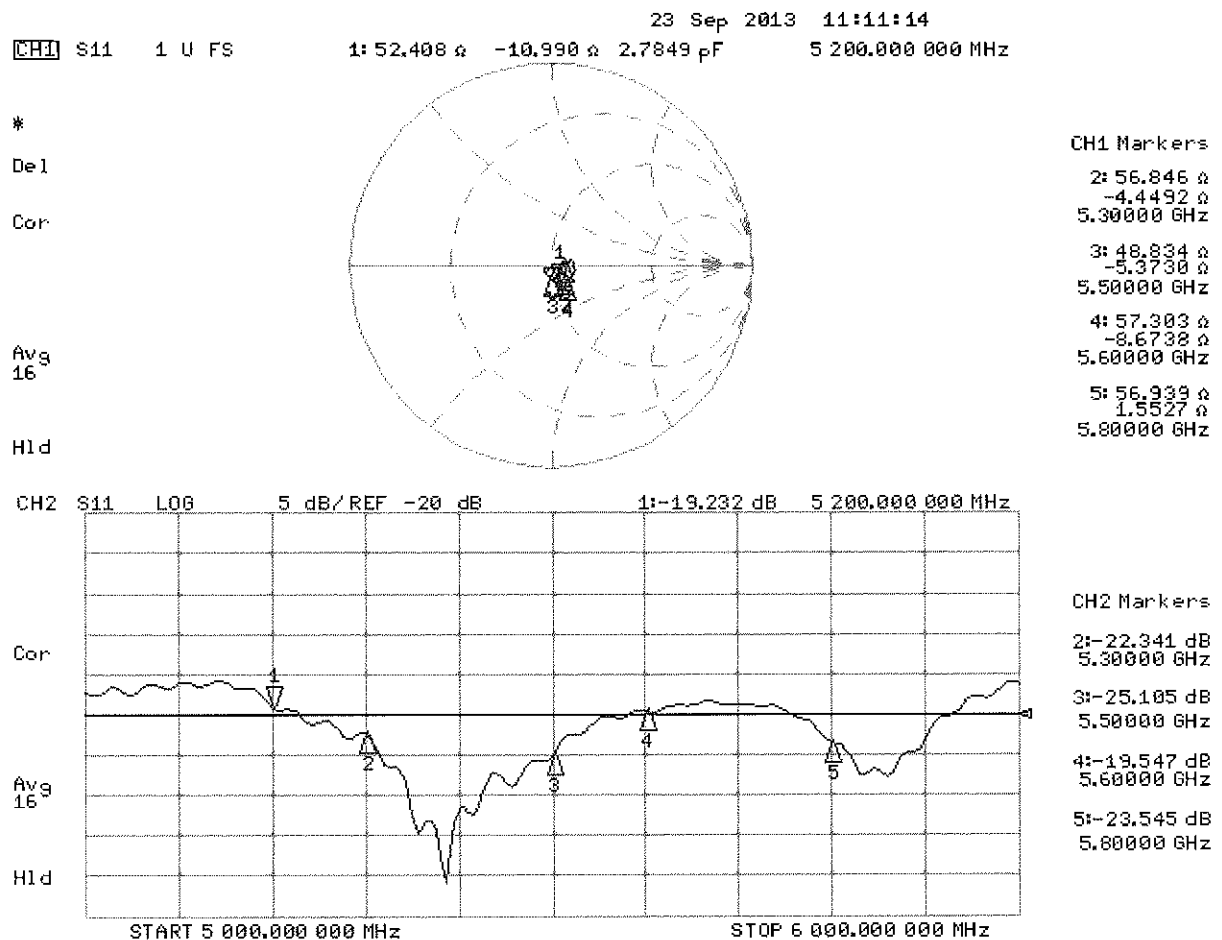
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.2 W/kg

Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 19.0 W/kg = 12.79 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 20.09.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1007

Communication System: UID 0 - CW ; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 5.36$ S/m; $\epsilon_r = 48.3$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5300$ MHz; $\sigma = 5.56$ S/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5500$ MHz; $\sigma = 5.75$ S/m; $\epsilon_r = 47.8$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 5.88$ S/m; $\epsilon_r = 47.6$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5800$ MHz; $\sigma = 6.17$ S/m; $\epsilon_r = 47.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.91, 4.91, 4.91); Calibrated: 28.12.2012, ConvF(4.67, 4.67, 4.67); Calibrated: 28.12.2012, ConvF(4.43, 4.43, 4.43); Calibrated: 28.12.2012, ConvF(4.22, 4.22, 4.22); Calibrated: 28.12.2012, ConvF(4.38, 4.38, 4.38); Calibrated: 28.12.2012;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 58.606 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 28.6 W/kg

SAR(1 g) = 7.28 W/kg; SAR(10 g) = 2.03 W/kg

Maximum value of SAR (measured) = 17.2 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 58.305 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 30.3 W/kg

SAR(1 g) = 7.49 W/kg; SAR(10 g) = 2.09 W/kg

Maximum value of SAR (measured) = 17.8 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 58.471 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 32.4 W/kg

SAR(1 g) = 7.61 W/kg; SAR(10 g) = 2.11 W/kg

Maximum value of SAR (measured) = 18.5 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 58.333 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 33.8 W/kg

SAR(1 g) = 7.75 W/kg; SAR(10 g) = 2.16 W/kg

Maximum value of SAR (measured) = 19.1 W/kg

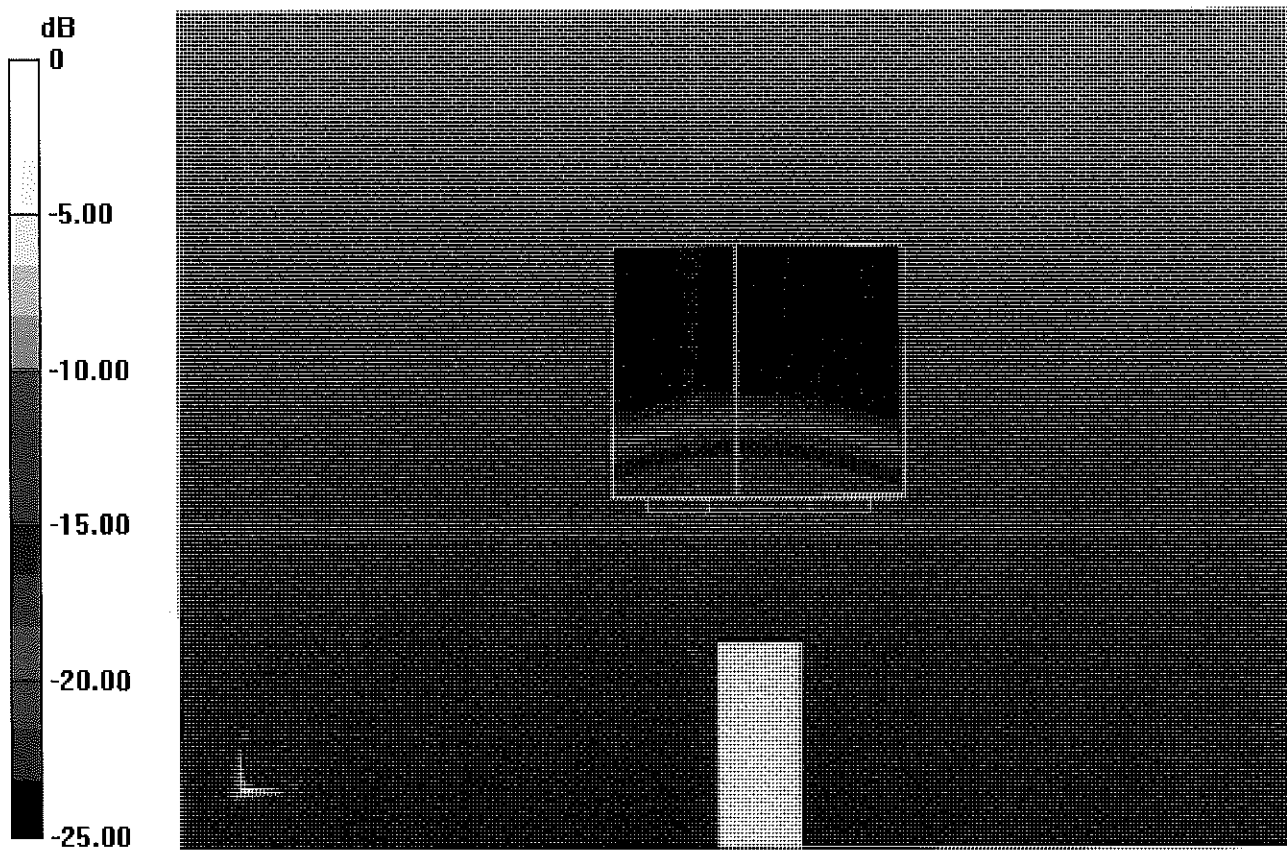
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 55.389 V/m; Power Drift = 0.00 dB

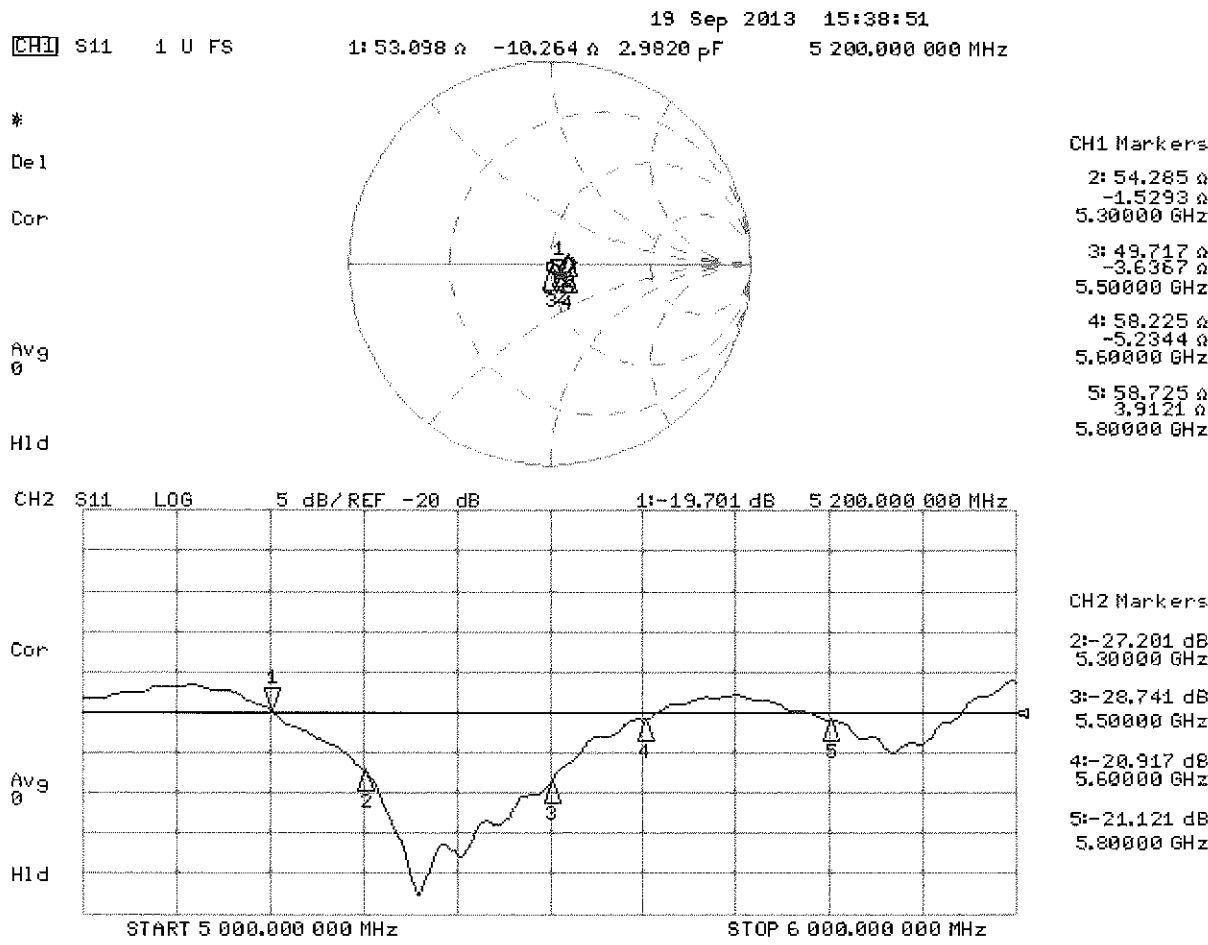
Peak SAR (extrapolated) = 34.1 W/kg

SAR(1 g) = 7.31 W/kg; SAR(10 g) = 2.02 W/kg

Maximum value of SAR (measured) = 18.3 W/kg



Impedance Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **PC Test**

Certificate No: **ES3-3258_Feb14**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3258**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6**
Calibration procedure for dosimetric E-field probes

CCV
 3/6/14

Calibration date: **February 25, 2014**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	04-Apr-13 (No. 217-01733)	Apr-14
Power sensor E4412A	MY41498087	04-Apr-13 (No. 217-01733)	Apr-14
Reference 3 dB Attenuator	SN: S5054 (3c)	04-Apr-13 (No. 217-01737)	Apr-14
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-13 (No. 217-01735)	Apr-14
Reference 30 dB Attenuator	SN: S5129 (30b)	04-Apr-13 (No. 217-01738)	Apr-14
Reference Probe ES3DV2	SN: 3013	30-Dec-13 (No. ES3-3013_Dec13)	Dec-14
DAE4	SN: 660	13-Dec-13 (No. DAE4-660_Dec13)	Dec-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

Calibrated by:	Name Israe El-Naouq	Function Laboratory Technician	Signature
Approved by:	Katja Pokovic	Technical Manager	
			Issued: February 27, 2014
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization ϕ	ϕ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

Probe ES3DV3

SN:3258

Manufactured: January 25, 2010
Calibrated: February 25, 2014

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3258

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	1.29	1.19	1.23	$\pm 10.1 \%$
DCP (mV) ^B	104.5	107.0	103.0	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	222.4	$\pm 3.8 \%$
		Y	0.0	0.0	1.0		202.2	
		Z	0.0	0.0	1.0		207.1	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	5.09	65.6	14.1	10.00	44.8	$\pm 1.9 \%$
		Y	1.68	57.4	9.3		40.7	
		Z	4.01	62.4	13.0		51.1	
10011- CAB	UMTS-FDD (WCDMA)	X	3.34	67.5	18.9	2.91	131.2	$\pm 0.5 \%$
		Y	3.43	67.9	18.7		137.1	
		Z	3.42	67.8	19.0		146.0	
10012- CAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	3.40	70.9	19.8	1.87	134.2	$\pm 0.7 \%$
		Y	3.19	70.2	19.2		137.9	
		Z	3.46	70.8	19.6		149.6	
10021- DAB	GSM-FDD (TDMA, GMSK)	X	30.24	99.7	28.7	9.39	131.2	$\pm 1.4 \%$
		Y	12.91	88.5	23.9		147.5	
		Z	30.37	99.5	28.9		128.0	
10023- DAB	GPRS-FDD (TDMA, GMSK, TN 0)	X	29.88	100.0	29.0	9.57	123.0	$\pm 1.9 \%$
		Y	16.02	92.5	25.4		140.7	
		Z	30.01	100.0	29.4		125.8	
10024- DAB	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	44.57	99.7	25.9	6.56	119.6	$\pm 1.7 \%$
		Y	28.97	95.3	23.2		127.6	
		Z	43.72	99.8	26.3		120.1	
10027- DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	53.52	99.7	24.4	4.80	129.4	$\pm 2.2 \%$
		Y	54.55	99.9	22.9		143.3	
		Z	51.63	99.7	24.8		127.5	
10028- DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	58.93	99.8	23.4	3.55	133.4	$\pm 2.2 \%$
		Y	77.54	99.7	21.3		125.3	
		Z	56.64	99.8	23.8		130.8	
10032- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	47.03	99.5	21.3	1.16	136.3	$\pm 1.7 \%$
		Y	95.86	95.2	17.1		138.2	
		Z	39.68	100.0	22.2		132.3	
10039- CAB	CDMA2000 (1xRTT, RC1)	X	4.84	66.8	19.1	4.57	131.3	$\pm 0.9 \%$
		Y	4.75	67.0	18.9		135.2	
		Z	4.86	66.7	19.0		127.2	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	4.06	66.8	19.0	3.97	148.4	±0.7 %
		Y	3.96	66.6	18.6		134.7	
		Z	4.13	66.9	19.1		143.4	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	4.63	66.8	18.7	3.98	137.3	±0.7 %
		Y	4.75	67.5	18.8		148.4	
		Z	4.65	66.7	18.7		133.2	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.66	68.5	20.3	5.67	144.0	±1.2 %
		Y	6.27	67.1	19.3		130.6	
		Z	6.62	68.2	20.1		140.5	
10108-CAB	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.53	68.0	20.2	5.80	142.6	±1.4 %
		Y	6.17	66.8	19.3		129.2	
		Z	6.52	67.8	20.1		139.0	
10110-CAB	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	6.19	67.3	19.9	5.75	137.9	±1.4 %
		Y	6.12	67.3	19.6		149.5	
		Z	6.19	67.1	19.8		136.1	
10114-CAA	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	10.49	69.5	21.7	8.10	132.4	±2.5 %
		Y	10.23	69.1	21.3		144.3	
		Z	10.45	69.3	21.6		129.5	
10117-CAA	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	10.46	69.5	21.7	8.07	133.9	±2.5 %
		Y	10.26	69.2	21.3		147.4	
		Z	10.47	69.4	21.7		130.5	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	11.61	77.4	26.8	9.28	118.8	±3.0 %
		Y	9.89	75.2	25.7		144.9	
		Z	12.01	77.8	26.9		119.6	
10154-CAB	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.20	67.3	19.9	5.75	139.2	±1.2 %
		Y	5.86	66.2	19.0		128.5	
		Z	6.22	67.3	19.9		136.3	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.63	67.8	20.1	5.82	144.1	±1.4 %
		Y	6.31	66.8	19.3		133.1	
		Z	6.66	67.7	20.0		140.9	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	5.25	67.5	20.2	5.73	143.6	±1.2 %
		Y	4.92	66.7	19.5		131.0	
		Z	5.29	67.4	20.2		140.7	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	13.49	87.5	31.6	9.21	139.0	±2.7 %
		Y	7.83	75.5	26.0		124.9	
		Z	13.47	86.5	31.1		137.8	
10175-CAB	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	5.22	67.4	20.1	5.72	144.3	±1.4 %
		Y	5.08	67.5	19.9		147.9	
		Z	5.26	67.2	20.0		139.6	
10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	5.24	67.5	20.1	5.72	144.5	±1.2 %
		Y	5.06	67.4	19.8		147.0	
		Z	5.29	67.3	20.1		139.2	

10193-CAA	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	10.12	69.1	21.6	8.09	128.8	±2.2 %
		Y	9.76	68.4	21.0		132.8	
		Z	10.08	68.9	21.5		123.4	
10196-CAA	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	10.15	69.2	21.7	8.10	130.2	±2.2 %
		Y	9.77	68.5	21.0		134.1	
		Z	10.10	69.0	21.5		124.0	
10219-CAA	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	10.02	69.0	21.5	8.03	128.7	±2.2 %
		Y	9.67	68.5	21.0		133.3	
		Z	10.02	68.9	21.5		123.9	
10222-CAA	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	10.46	69.6	21.7	8.06	134.0	±2.2 %
		Y	10.09	68.8	21.1		139.7	
		Z	10.40	69.3	21.6		128.7	
10225-CAB	UMTS-FDD (HSPA+)	X	7.09	67.1	19.6	5.97	131.2	±1.4 %
		Y	6.98	67.2	19.4		138.0	
		Z	7.06	66.8	19.4		127.2	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	13.63	87.8	31.7	9.21	141.6	±3.0 %
		Y	7.85	75.5	26.0		126.5	
		Z	13.99	87.7	31.6		141.4	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	12.86	81.4	28.9	9.24	142.1	±3.0 %
		Y	8.91	73.4	24.8		129.9	
		Z	13.15	81.4	28.8		142.0	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	11.63	77.5	26.8	9.30	118.7	±3.0 %
		Y	9.62	74.3	25.2		138.4	
		Z	11.96	77.7	26.9		119.3	
10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	6.14	67.4	19.3	4.87	149.9	±0.9 %
		Y	5.90	66.9	18.7		132.8	
		Z	6.20	67.5	19.3		146.6	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	4.45	66.9	18.9	3.96	130.1	±0.7 %
		Y	4.50	67.2	18.8		137.9	
		Z	4.64	67.6	19.3		149.2	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	3.79	67.5	19.2	3.46	145.3	±0.7 %
		Y	3.74	67.5	18.9		128.2	
		Z	3.78	67.3	19.1		139.1	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	3.77	67.8	19.3	3.39	147.0	±0.5 %
		Y	3.69	67.7	18.9		130.1	
		Z	3.73	67.3	19.0		141.3	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.52	67.9	20.1	5.81	141.4	±1.4 %
		Y	6.41	67.6	19.7		147.4	
		Z	6.51	67.7	20.1		135.4	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	7.17	68.7	20.7	6.06	147.7	±1.4 %
		Y	6.69	67.2	19.6		128.6	
		Z	7.12	68.4	20.5		142.0	

10315-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	3.04	70.0	19.6	1.71	129.8	±0.5 %
		Y	3.25	71.3	19.7		136.9	
		Z	3.09	69.9	19.5		148.7	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	4.73	67.3	18.6	3.76	135.7	±0.5 %
		Y	4.93	69.1	19.0		141.5	
		Z	4.73	67.1	18.4		132.7	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	4.67	67.5	18.6	3.77	134.0	±0.5 %
		Y	4.92	69.4	19.1		139.8	
		Z	4.65	67.1	18.5		130.7	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 8 and 9).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3258

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	41.9	0.89	6.53	6.53	6.53	0.40	1.60	± 12.0 %
835	41.5	0.90	6.27	6.27	6.27	0.80	1.17	± 12.0 %
1750	40.1	1.37	5.19	5.19	5.19	0.80	1.10	± 12.0 %
1900	40.0	1.40	5.04	5.04	5.04	0.68	1.27	± 12.0 %
2450	39.2	1.80	4.52	4.52	4.52	0.78	1.23	± 12.0 %
2600	39.0	1.96	4.34	4.34	4.34	0.76	1.33	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3258

Calibration Parameter Determined in Body Tissue Simulating Media

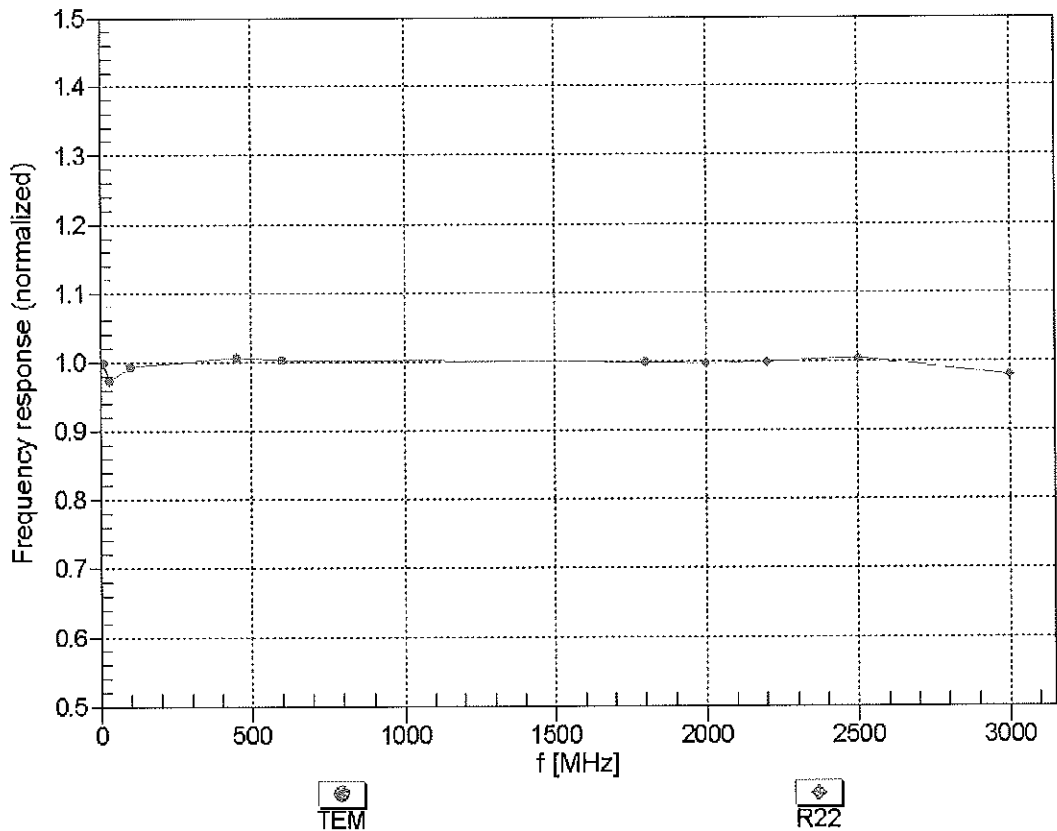
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	55.5	0.96	6.15	6.15	6.15	0.61	1.32	± 12.0 %
835	55.2	0.97	6.11	6.11	6.11	0.80	1.15	± 12.0 %
1750	53.4	1.49	4.83	4.83	4.83	0.47	1.74	± 12.0 %
1900	53.3	1.52	4.61	4.61	4.61	0.55	1.59	± 12.0 %
2450	52.7	1.95	4.14	4.14	4.14	0.80	1.11	± 12.0 %
2600	52.5	2.16	3.91	3.91	3.91	0.80	1.00	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

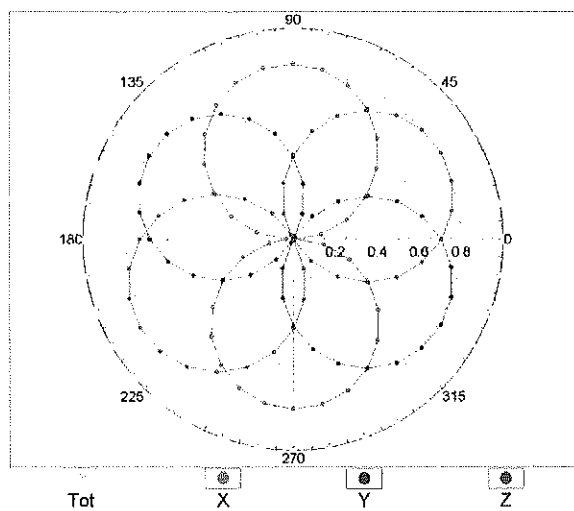
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



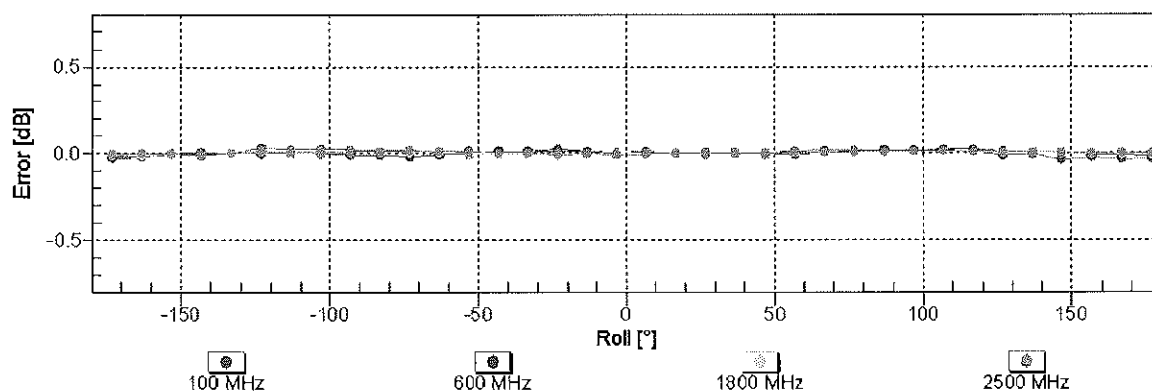
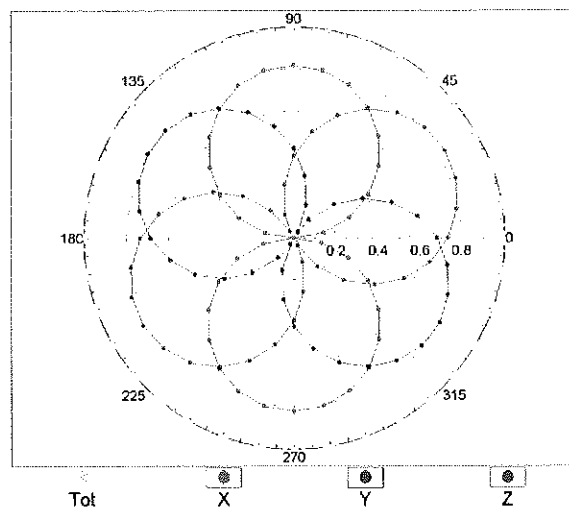
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz,TEM



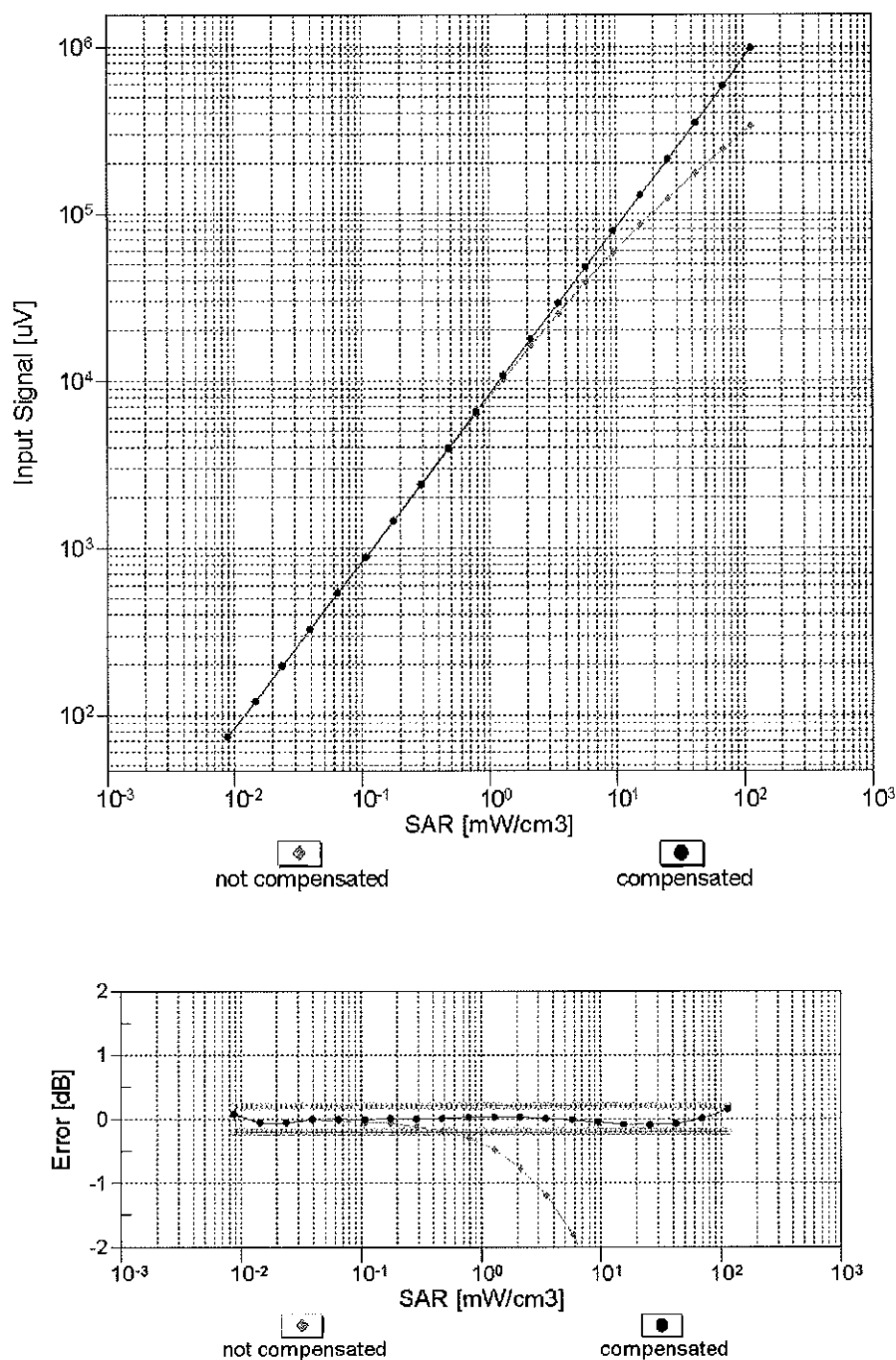
f=1800 MHz,R22



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

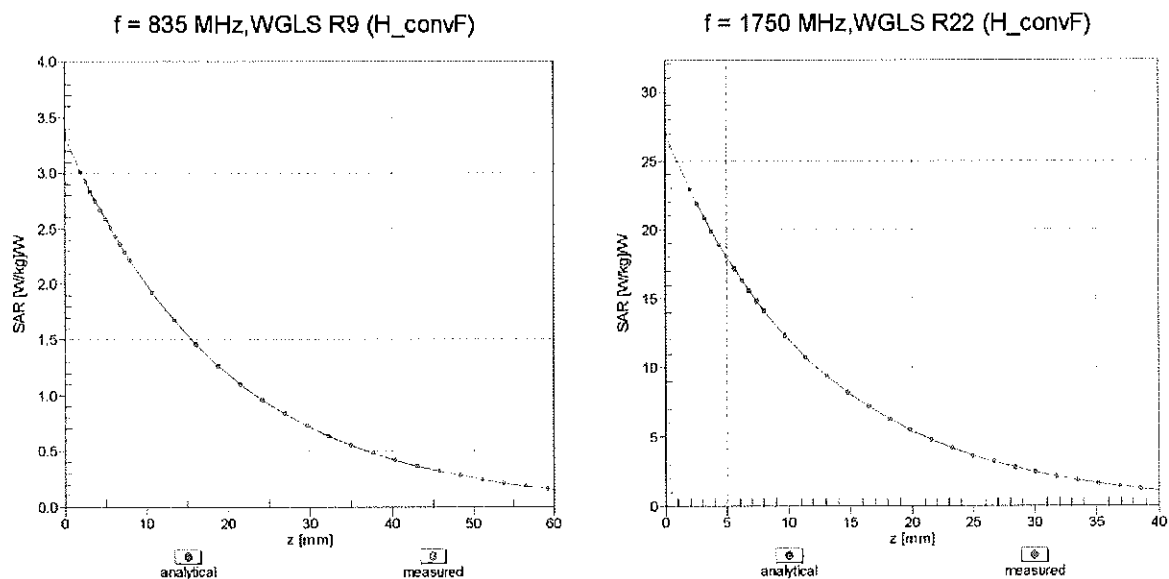
Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)



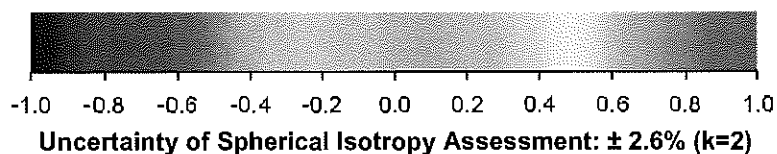
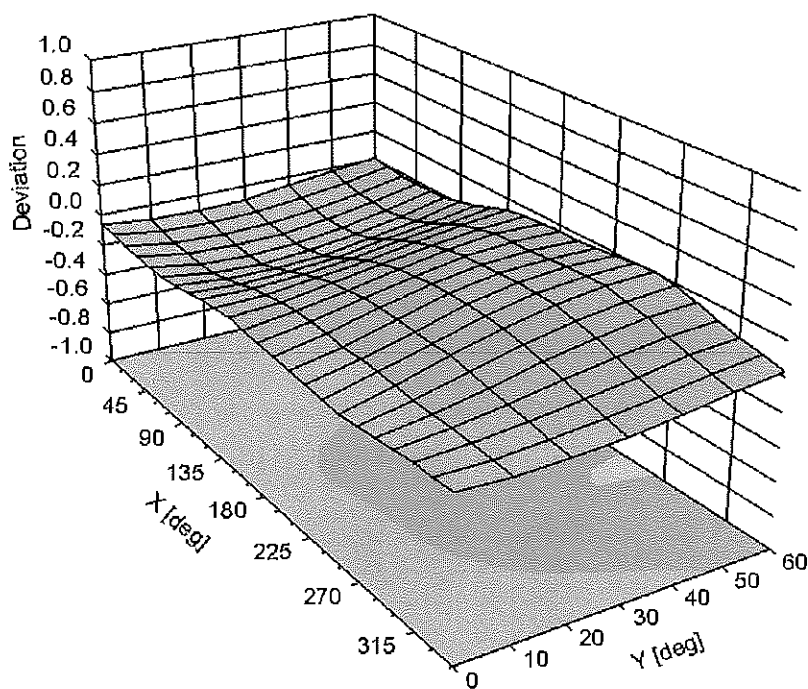
Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), $f = 900 \text{ MHz}$



DASY/EASY - Parameters of Probe: ES3DV3 - SN:3258**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	-123.1
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm



Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **PC Test**

Certificate No: **ES3-3288_Sep13/2**

CALIBRATION CERTIFICATE (Replacement of No: ES3-3288_Sep13)

Object **ES3DV3 - SN:3288**

CCV
10/4/13

Calibration procedure(s) **QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6**
Calibration procedure for dosimetric E-field probes

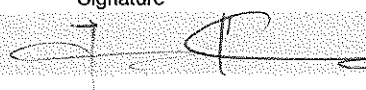
Calibration date: **September 23, 2013**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	04-Apr-13 (No. 217-01733)	Apr-14
Power sensor E4412A	MY41498087	04-Apr-13 (No. 217-01733)	Apr-14
Reference 3 dB Attenuator	SN: S5054 (3c)	04-Apr-13 (No. 217-01737)	Apr-14
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-13 (No. 217-01735)	Apr-14
Reference 30 dB Attenuator	SN: S5129 (30b)	04-Apr-13 (No. 217-01738)	Apr-14
Reference Probe ES3DV2	SN: 3013	28-Dec-12 (No. ES3-3013_Dec12)	Dec-13
DAE4	SN: 660	4-Sep-13 (No. DAE4-660_Sep13)	Apr-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-15
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 

Issued: October 4, 2013

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Probe ES3DV3

SN:3288

Manufactured: July 6, 2010
Calibrated: September 23, 2013

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization ϕ	ϕ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3288

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.87	0.97	0.75	± 10.1 %
DCP (mV) ^B	103.3	103.2	100.2	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	171.1	±3.5 %
		Y	0.0	0.0	1.0		135.0	
		Z	0.0	0.0	1.0		154.3	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3288

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.56	6.56	6.56	0.32	1.89	± 12.0 %
835	41.5	0.90	6.37	6.37	6.37	0.34	1.82	± 12.0 %
1750	40.1	1.37	5.67	5.67	5.67	0.56	1.51	± 12.0 %
1900	40.0	1.40	5.47	5.47	5.47	0.80	1.29	± 12.0 %
2450	39.2	1.80	4.63	4.63	4.63	0.80	1.34	± 12.0 %
2600	39.0	1.96	4.55	4.55	4.55	0.80	1.41	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3288

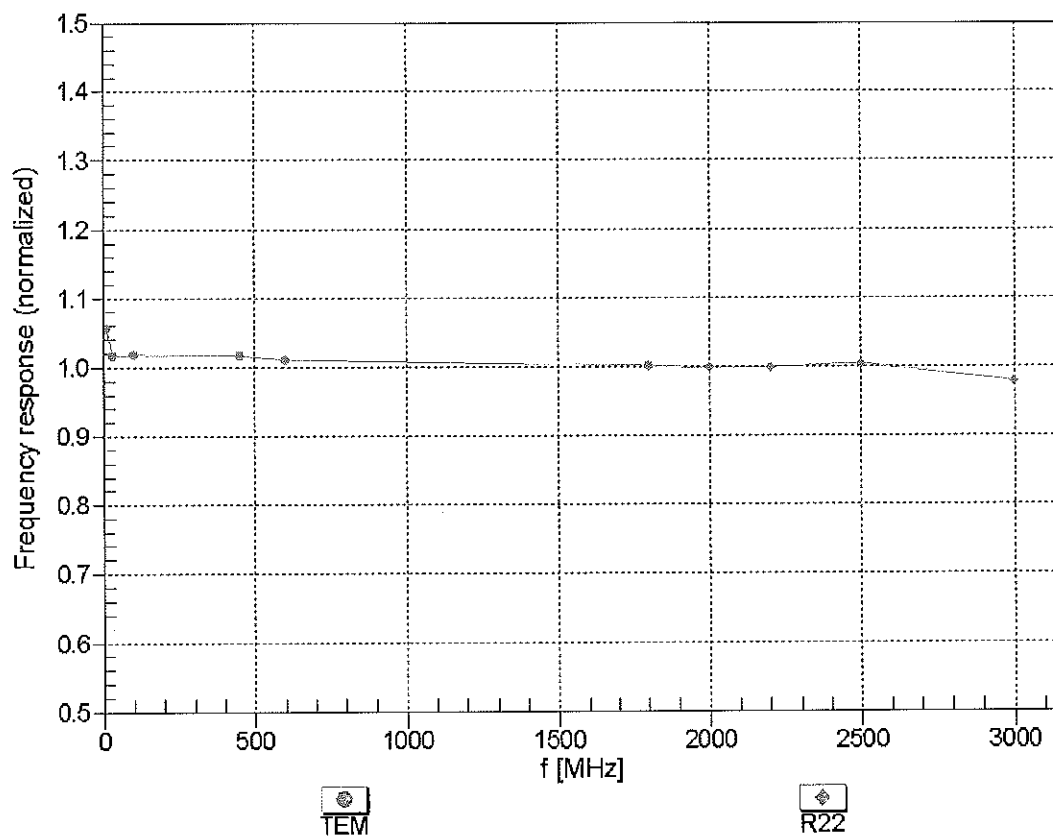
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	6.25	6.25	6.25	0.70	1.27	± 12.0 %
835	55.2	0.97	6.27	6.27	6.27	0.75	1.22	± 12.0 %
1750	53.4	1.49	5.10	5.10	5.10	0.59	1.46	± 12.0 %
1900	53.3	1.52	4.82	4.82	4.82	0.53	1.54	± 12.0 %
2450	52.7	1.95	4.37	4.37	4.37	0.80	1.02	± 12.0 %
2600	52.5	2.16	4.14	4.14	4.14	0.64	0.94	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

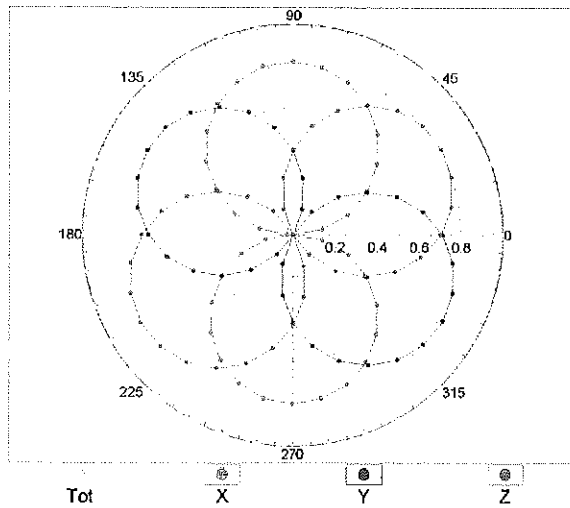
Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



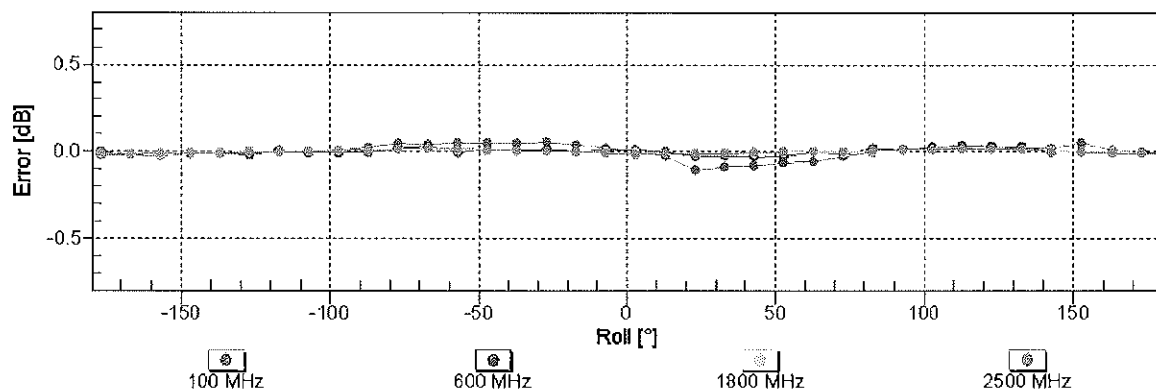
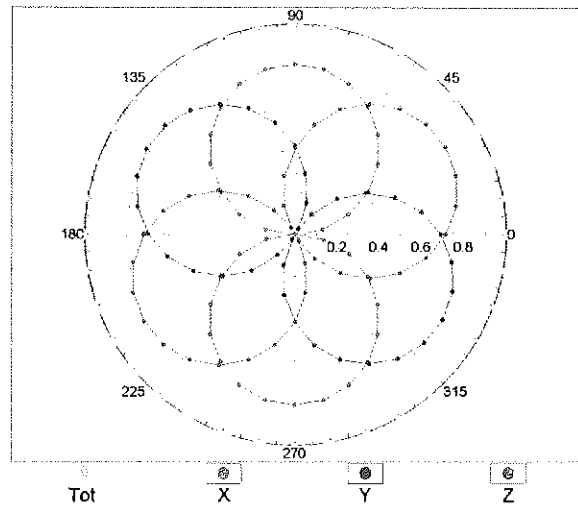
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$

f=600 MHz,TEM

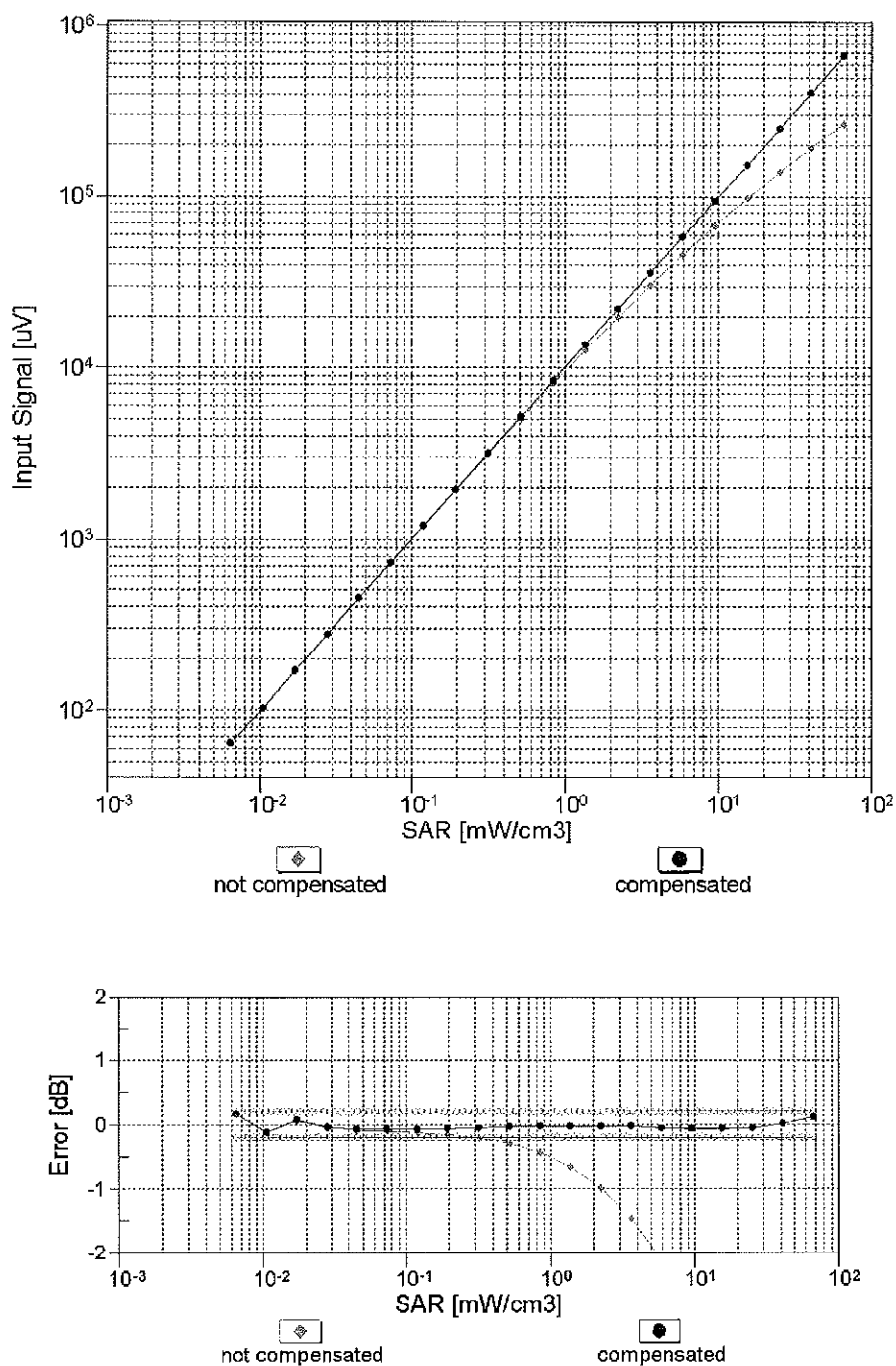


f=1800 MHz,R22



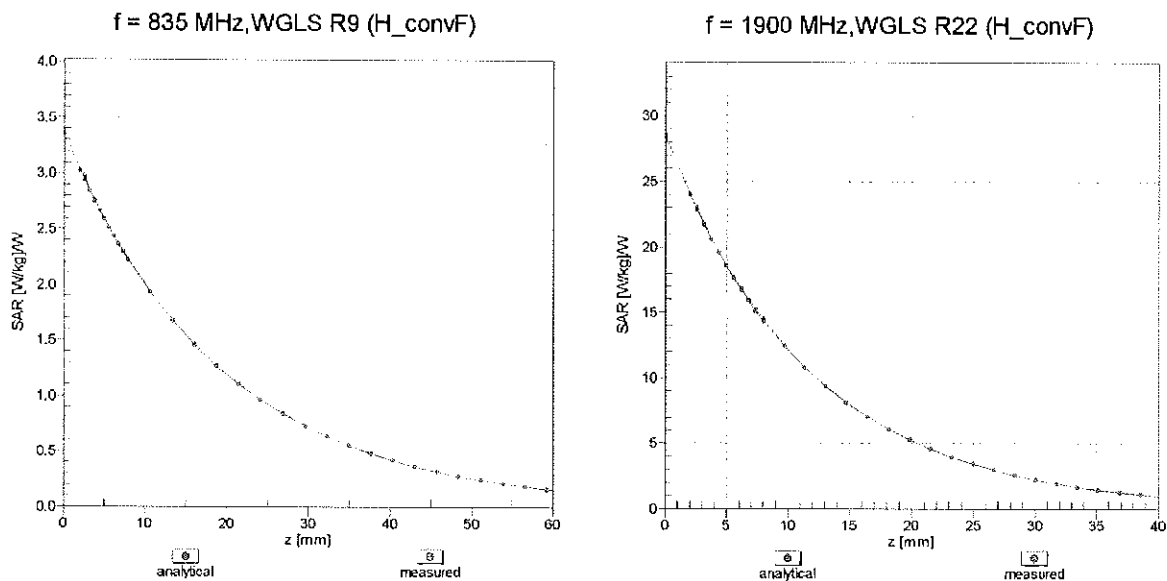
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

Dynamic Range f(SAR_{head}) (TEM cell , f = 900 MHz)



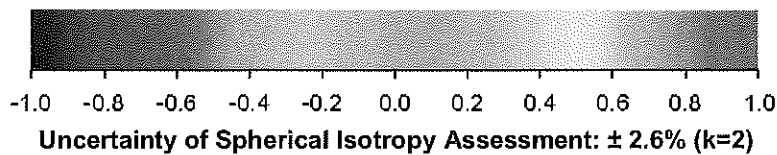
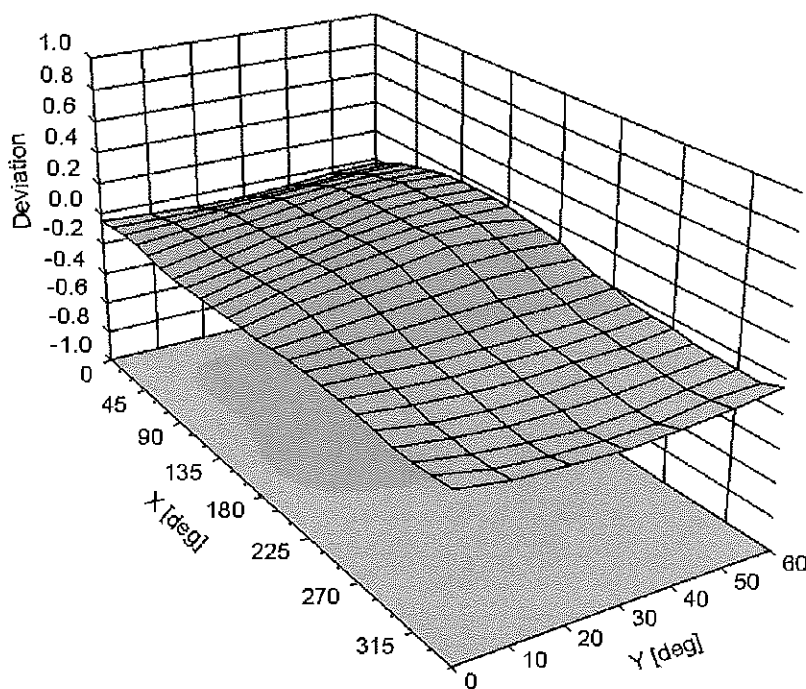
Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$



DASY/EASY - Parameters of Probe: ES3DV3 - SN:3288

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-127.1
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm



Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **PC Test**

Certificate No: **EX3-3920_Dec13**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3920**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6**
Calibration procedure for dosimetric E-field probes

Calibration date: **December 18, 2013**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	04-Apr-13 (No. 217-01733)	Apr-14
Power sensor E4412A	MY41498087	04-Apr-13 (No. 217-01733)	Apr-14
Reference 3 dB Attenuator	SN: S5054 (3c)	04-Apr-13 (No. 217-01737)	Apr-14
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-13 (No. 217-01735)	Apr-14
Reference 30 dB Attenuator	SN: S5129 (30b)	04-Apr-13 (No. 217-01738)	Apr-14
Reference Probe ES3DV2	SN: 3013	28-Dec-12 (No. ES3-3013_Dec12)	Dec-13
DAE4	SN: 660	13-Dec-13 (No. DAE4-660_Dec13)	Dec-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-15
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
Issued: December 19, 2013			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}; A, B, C, D** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

Probe EX3DV4

SN:3920

Manufactured: December 18, 2012
Calibrated: December 18, 2013

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3920

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.34	0.50	0.49	$\pm 10.1 \%$
DCP (mV) ^B	102.9	99.5	98.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	182.5	$\pm 2.7 \%$
		Y	0.0	0.0	1.0		164.9	
		Z	0.0	0.0	1.0		153.0	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	0.76	53.8	6.5	10.00	44.1	$\pm 2.2 \%$
		Y	2.33	62.8	11.4		43.7	
		Z	1.15	55.6	7.5		53.0	
10011-CAA	UMTS-FDD (WCDMA)	X	3.36	66.5	17.5	2.91	142.4	$\pm 0.5 \%$
		Y	3.15	65.0	16.7		131.4	
		Z	3.26	66.0	17.7		121.6	
10012-CAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	2.69	66.4	16.9	1.87	138.1	$\pm 0.5 \%$
		Y	2.56	65.1	16.2		130.7	
		Z	2.72	66.6	17.2		121.4	
10021-DAA	GSM-FDD (TDMA, GMSK)	X	2.06	63.4	11.7	9.39	99.7	$\pm 1.9 \%$
		Y	2.43	66.1	14.1		94.7	
		Z	2.90	69.9	16.1		121.8	
10023-DAA	GPRS-FDD (TDMA, GMSK, TN 0)	X	1.94	62.4	11.3	9.57	95.1	$\pm 1.9 \%$
		Y	2.31	64.8	13.1		90.1	
		Z	2.98	70.4	16.4		117.0	
10024-DAA	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	2.19	67.1	12.2	6.56	140.1	$\pm 1.4 \%$
		Y	2.35	67.0	12.9		134.0	
		Z	3.45	73.5	16.1		131.4	
10027-DAA	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	1.18	61.7	8.5	4.80	121.6	$\pm 1.2 \%$
		Y	1.57	63.4	10.0		116.0	
		Z	1.57	65.5	11.9		109.2	
10028-DAA	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	3.80	74.5	13.3	3.55	130.3	$\pm 0.9 \%$
		Y	1.00	60.5	8.0		123.9	
		Z	1.58	66.1	11.1		119.0	
10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	0.18	55.2	3.4	1.16	111.6	$\pm 0.7 \%$
		Y	0.34	57.4	4.4		143.6	
		Z	0.40	59.2	5.7		136.6	
10039-CAA	CDMA2000 (1xRTT, RC1)	X	4.49	65.9	18.1	4.57	131.8	$\pm 0.9 \%$
		Y	4.57	65.1	17.5		123.0	
		Z	4.66	65.9	18.3		118.6	
10062-CAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	10.09	68.6	21.3	8.68	126.5	$\pm 2.5 \%$
		Y	10.31	68.5	21.1		121.9	
		Z	10.12	68.3	21.3		115.8	

10098-CAA	UMTS-FDD (HSUPA, Subtest 2)	X	4.64	66.6	18.1	3.98	144.6	±0.7 %
		Y	4.54	65.4	17.4		133.9	
		Z	4.60	66.1	18.0		128.0	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.00	65.5	18.3	5.67	104.2	±1.4 %
		Y	6.44	66.7	18.8		138.2	
		Z	6.54	67.4	19.4		134.7	
10108-CAB	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.37	67.0	19.2	5.80	149.0	±1.4 %
		Y	6.40	66.6	18.9		141.2	
		Z	6.40	66.9	19.4		132.1	
10110-CAB	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	5.96	66.3	18.9	5.75	142.3	±1.4 %
		Y	6.05	66.1	18.7		136.6	
		Z	6.03	66.3	19.1		128.2	
10114-CAA	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	10.28	68.7	20.9	8.10	137.3	±2.5 %
		Y	10.32	68.5	20.7		131.3	
		Z	10.24	68.5	20.9		124.5	
10117-CAA	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	10.29	68.8	20.9	8.07	138.5	±2.5 %
		Y	10.34	68.6	20.8		131.9	
		Z	10.26	68.5	20.9		125.5	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	7.20	67.5	21.6	9.28	118.6	±2.2 %
		Y	7.59	67.9	21.6		116.7	
		Z	7.78	69.2	22.7		110.7	
10154-CAB	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	5.98	66.4	18.9	5.75	142.7	±1.2 %
		Y	5.97	65.7	18.4		132.7	
		Z	6.06	66.4	19.1		128.6	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.41	66.8	19.1	5.82	147.7	±1.4 %
		Y	6.48	66.5	18.8		137.3	
		Z	6.53	67.0	19.4		134.9	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.59	65.5	18.6	5.73	120.3	±1.2 %
		Y	4.76	65.0	18.2		113.9	
		Z	4.82	65.6	18.9		112.0	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	5.77	69.3	22.7	9.21	128.1	±1.9 %
		Y	6.15	69.3	22.6		123.8	
		Z	6.22	70.3	23.6		120.8	
10175-CAB	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.62	65.6	18.7	5.72	120.2	±0.9 %
		Y	4.75	65.0	18.2		113.5	
		Z	4.80	65.6	18.8		110.7	
10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.57	65.4	18.6	5.72	118.9	±0.9 %
		Y	4.72	64.8	18.1		113.1	
		Z	4.81	65.6	18.8		110.4	
10193-CAA	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	9.77	68.3	20.8	8.09	128.1	±2.5 %
		Y	9.84	67.9	20.5		117.1	
		Z	9.80	68.1	20.8		116.6	
10196-CAA	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	9.78	68.4	20.8	8.10	128.4	±2.5 %
		Y	9.86	68.0	20.5		120.3	
		Z	9.82	68.1	20.9		119.1	

10219-CAA	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	9.70	68.4	20.8	8.03	128.0	±2.5 %
		Y	9.79	68.0	20.5		119.6	
		Z	9.72	68.1	20.8		118.7	
10222-CAA	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	10.27	68.8	20.9	8.06	137.0	±2.5 %
		Y	10.18	68.3	20.6		125.2	
		Z	10.20	68.5	20.9		124.8	
10225-CAA	UMTS-FDD (HSPA+)	X	6.64	66.1	18.7	5.97	108.8	±1.4 %
		Y	7.23	67.1	19.1		148.9	
		Z	7.31	67.7	19.7		146.5	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	5.82	69.6	23.0	9.21	130.2	±1.9 %
		Y	6.14	69.2	22.6		123.9	
		Z	6.25	70.4	23.7		122.2	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.85	67.5	21.7	9.24	112.9	±2.2 %
		Y	7.54	69.0	22.4		149.2	
		Z	7.80	70.6	23.7		147.3	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	7.23	67.6	21.6	9.30	118.3	±2.2 %
		Y	7.55	67.7	21.5		111.5	
		Z	7.79	69.2	22.7		109.6	
10274-CAA	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	5.64	65.9	18.1	4.87	105.5	±1.2 %
		Y	6.04	66.4	18.2		142.6	
		Z	6.09	66.9	18.7		138.4	
10275-CAA	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	4.42	66.3	18.1	3.96	135.8	±0.7 %
		Y	4.26	65.0	17.3		119.3	
		Z	4.40	65.9	18.0		120.4	
10291-AAA	CDMA2000, RC3, SO55, Full Rate	X	3.62	66.7	18.1	3.46	123.6	±0.7 %
		Y	3.38	64.3	16.7		112.5	
		Z	3.59	66.0	17.9		114.3	
10292-AAA	CDMA2000, RC3, SO32, Full Rate	X	3.46	66.0	17.7	3.39	127.3	±0.5 %
		Y	3.35	64.5	16.8		113.7	
		Z	3.50	65.7	17.7		115.4	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.35	66.9	19.2	5.81	145.7	±1.2 %
		Y	6.26	66.1	18.7		129.2	
		Z	6.42	67.0	19.4		131.3	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.45	65.9	18.7	6.06	103.7	±1.7 %
		Y	6.90	66.9	19.1		137.2	
		Z	7.04	67.7	19.8		137.5	
10315-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	2.85	67.8	17.7	1.71	135.6	±0.5 %
		Y	2.45	64.7	16.0		121.4	
		Z	2.75	67.3	17.6		122.1	
10317-AAA	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	9.93	68.5	21.0	8.36	128.1	±2.7 %
		Y	10.02	68.1	20.7		117.9	
		Z	10.01	68.3	21.1		119.4	
10400-AAA	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	10.09	68.8	21.2	8.37	134.9	±2.5 %
		Y	10.16	68.3	20.8		119.8	
		Z	10.14	68.5	21.2		121.0	

10402-AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	11.18	69.8	21.5	8.53	147.1	±2.7 %
		Y	10.79	68.6	20.8		126.5	
		Z	11.17	69.6	21.6		131.4	
10403-AAA	CDMA2000 (1xEV-DO, Rev. 0)	X	4.83	69.6	18.9	3.76	139.6	±0.5 %
		Y	4.70	67.1	17.6		128.1	
		Z	4.90	68.4	18.6		127.8	
10404-AAA	CDMA2000 (1xEV-DO, Rev. A)	X	4.73	69.5	18.9	3.77	134.8	±0.5 %
		Y	4.62	67.1	17.7		124.9	
		Z	4.67	67.7	18.1		125.9	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 8 and 9).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3920

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	41.9	0.89	10.05	10.05	10.05	0.27	1.13	± 12.0 %
835	41.5	0.90	9.69	9.69	9.69	0.50	0.76	± 12.0 %
1750	40.1	1.37	7.91	7.91	7.91	0.72	0.62	± 12.0 %
1900	40.0	1.40	7.70	7.70	7.70	0.77	0.61	± 12.0 %
2450	39.2	1.80	6.98	6.98	6.98	0.37	0.86	± 12.0 %
2600	39.0	1.96	6.74	6.74	6.74	0.34	0.97	± 12.0 %
5200	36.0	4.66	4.87	4.87	4.87	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.66	4.66	4.66	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.54	4.54	4.54	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.37	4.37	4.37	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.11	4.11	4.11	0.50	1.80	± 13.1 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3920

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	55.5	0.96	9.54	9.54	9.54	0.32	1.07	± 12.0 %
835	55.2	0.97	9.47	9.47	9.47	0.45	0.85	± 12.0 %
1750	53.4	1.49	7.77	7.77	7.77	0.59	0.74	± 12.0 %
1900	53.3	1.52	7.50	7.50	7.50	0.37	0.91	± 12.0 %
2450	52.7	1.95	7.18	7.18	7.18	0.80	0.56	± 12.0 %
2600	52.5	2.16	6.91	6.91	6.91	0.80	0.57	± 12.0 %
5200	49.0	5.30	4.23	4.23	4.23	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.11	4.11	4.11	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.80	3.80	3.80	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.62	3.62	3.62	0.50	1.90	± 13.1 %
5800	48.2	6.00	4.00	4.00	4.00	0.50	1.90	± 13.1 %

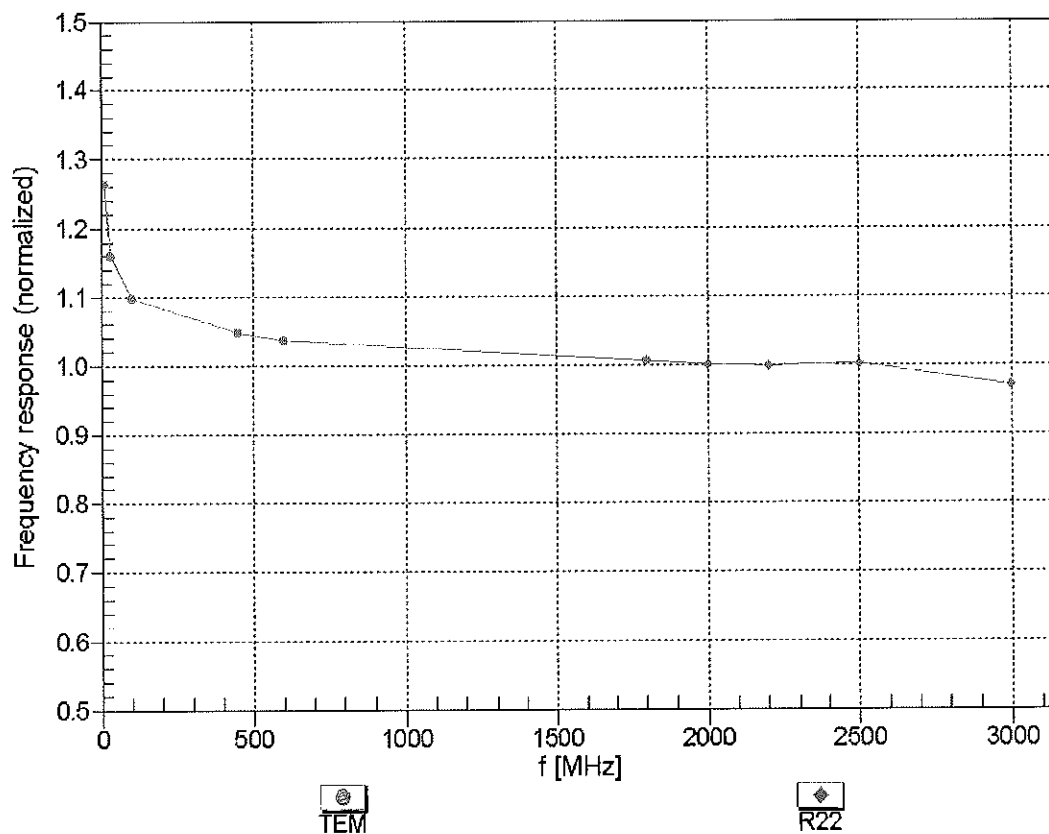
^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Frequency Response of E-Field

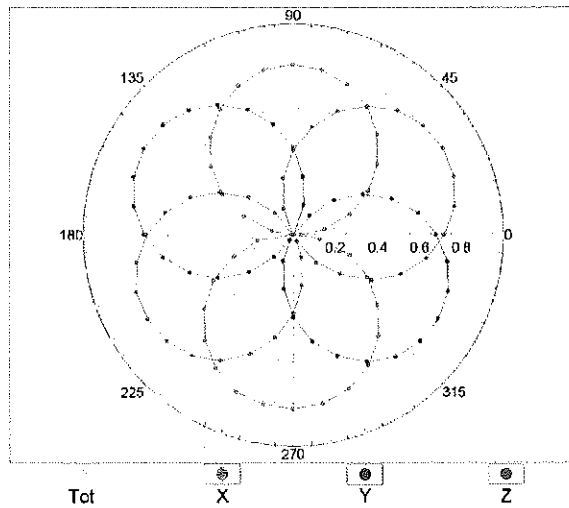
(TEM-Cell:ifi110 EXX, Waveguide: R22)



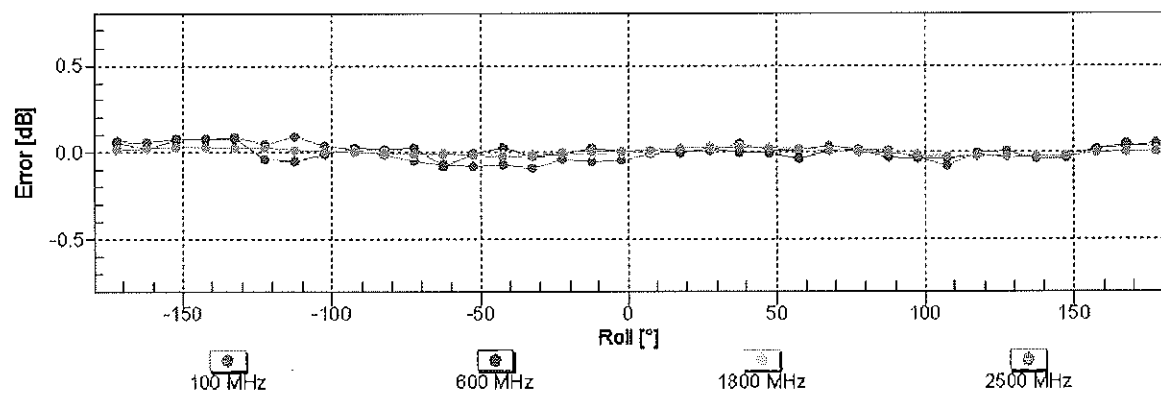
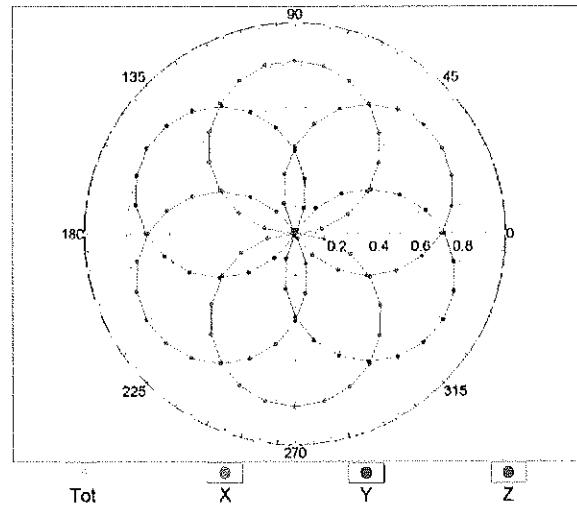
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\theta = 0^\circ$

$f=600$ MHz, TEM

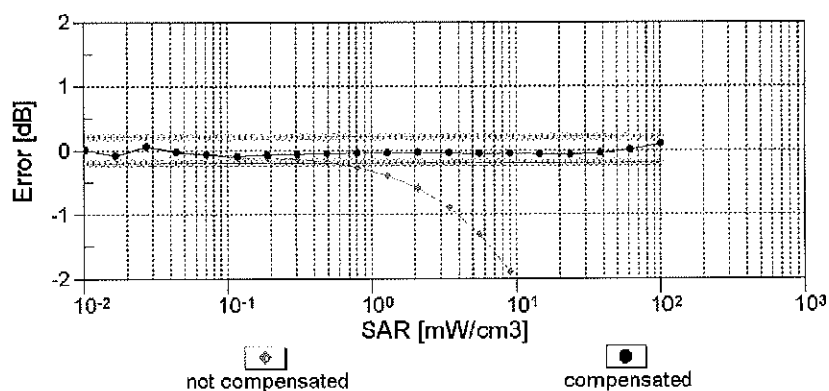
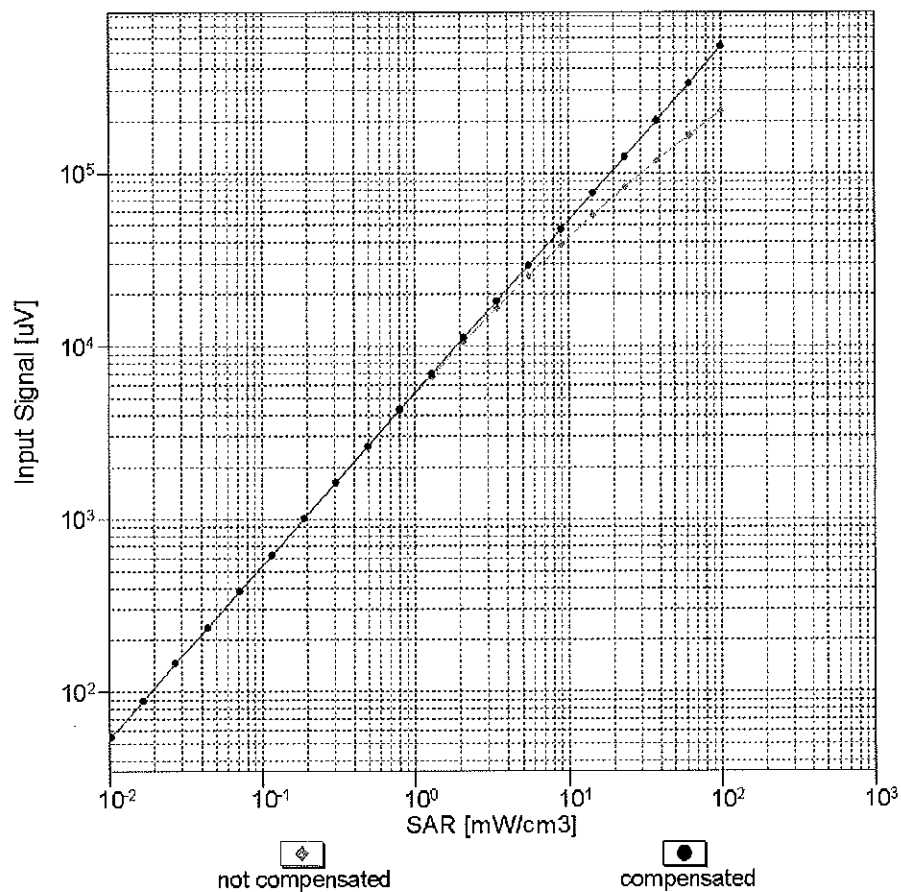


$f=1800$ MHz, R22



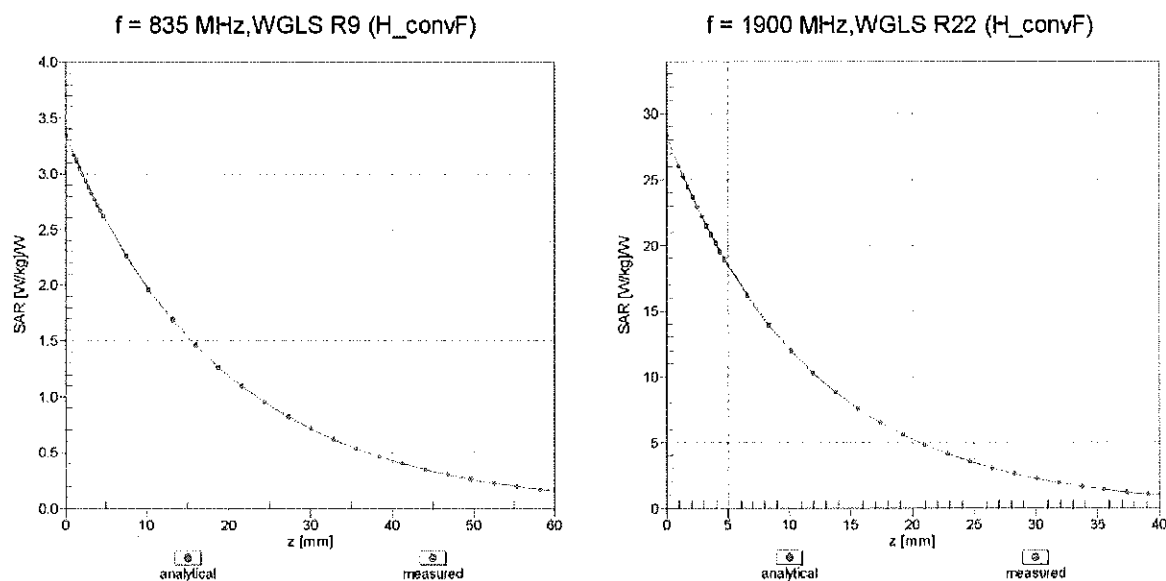
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell , $f = 900 \text{ MHz}$)



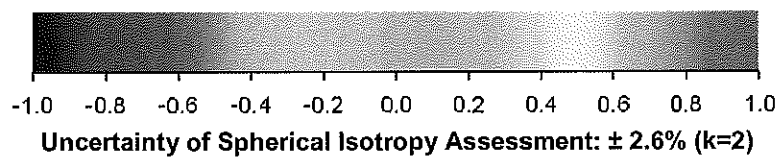
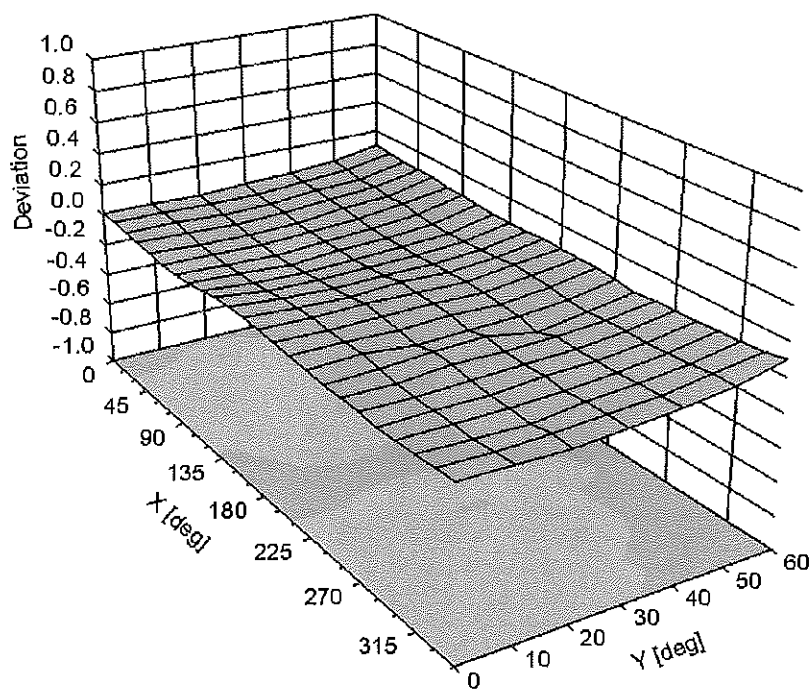
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3920

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-22.4
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

APPENDIX D: SAR TISSUE SPECIFICATIONS

Measurement Procedure for Tissue verification:

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the tissue. The tissue was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- 3) The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity ϵ can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r'\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

where Y is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

Table D-I
Composition of the Tissue Equivalent Matter

Frequency (MHz)	835	1900	2450	5200-5800
Tissue	Body	Body	Body	Body
Ingredients (% by weight)				
Bactericide	0.1			
DGBE		29.44	26.7	
HEC	1			
NaCl	0.94	0.39	0.1	
Sucrose	44.9			
Polysorbate (Tween) 80				20
Water	53.06	70.17	73.2	80

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet			APPENDIX D: Page 1 of 1

APPENDIX E: SAR SYSTEM VALIDATION

Per FCC KDB 865664 D02v01, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in FCC KDB 865664 D01 v01 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

Table E-I
SAR System Validation Summary

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL. POINT		COND.	PERM.	CW VALIDATION			MOD. VALIDATION		
							(σ)	(ϵ_r)	SENSI- TIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
B	835	11/5/2013	3288	ES3DV3	835	Body	0.952	53.32	PASS	PASS	PASS	GMSK	PASS	N/A
B	1900	11/4/2013	3288	ES3DV3	1900	Body	1.576	51.35	PASS	PASS	PASS	GMSK	PASS	N/A
G	2450	3/5/2014	3258	ES3DV3	2450	Body	2.044	51.30	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
G	2600	3/5/2014	3258	ES3DV3	2600	Body	2.253	50.73	PASS	PASS	PASS	TDD	PASS	N/A
A	5200	1/13/2014	3920	EX3DV4	5200	Body	5.344	47.27	PASS	PASS	PASS	OFDM	N/A	PASS
A	5300	1/13/2014	3920	EX3DV4	5300	Body	5.500	46.91	PASS	PASS	PASS	OFDM	N/A	PASS
A	5500	1/13/2014	3920	EX3DV4	5500	Body	5.826	46.38	PASS	PASS	PASS	OFDM	N/A	PASS
A	5600	1/13/2014	3920	EX3DV4	5600	Body	5.991	46.16	PASS	PASS	PASS	OFDM	N/A	PASS
A	5800	1/23/2014	3920	EX3DV4	5800	Body	6.282	46.05	PASS	PASS	PASS	OFDM	N/A	PASS

NOTE: While the probes have been calibrated for both a CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to KDB 865664.

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Test Dates: 05/05/14 - 05/19/14	DUT Type: Portable Tablet			APPENDIX E: Page 1 of 1

APPENDIX G: SENSOR TRIGGERING DATA SUMMARY

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Test Dates: 05/05/2014 – 05/19/2014	DUT Type: Portable Tablet			APPENDIX G: Page 1 of 5

A3LSMT237P Sensor Triggering Data Summary

Per FCC KDB Publication 616217 D04v01, this device was tested by the manufacturer to determine the proximity sensor triggering distances for the back, top, and left edges of the device. The measured output power within ± 5 mm of the triggering points (or until touching the phantom) is included for back side and each applicable edge.

To ensure all production units are compliant it is necessary to test SAR at a distance 1 mm less than the smallest distance from the device and SAR phantom (determined from these triggering tests according to the KDB 616217 D04v01) with the device at maximum output power without power reduction. These SAR Tests are included in addition to the SAR tests for the device touching the SAR phantom, with reduced power.

The operational description contains information explaining how this device remains compliant in the event of a sensor malfunction.

FCC ID: A3LSMT237P	 SAR EVALUATION REPORT 	Reviewed by: Quality Manager
Test Dates: 05/05/2014 – 05/19/2014	DUT Type: Portable Tablet	APPENDIX G: Page 2 of 5

Back Side

Moving device toward the phantom:

KDB 616217 6.2.6 Measured Power [dBm]											
Distance[mm]	20	19	18	17	16	15	14	13	12	11	10
CDMA BC10 1X	24.9	24.8	24.67	24.64	24.6	18.65	18.65	18.7	18.75	18.64	18.62
CDMA BC0 1X	24.75	24.75	24.81	24.92	24.95	19.43	19.5	19.57	19.57	19.55	19.47
CDMA BC1 1X	24.75	24.86	24.81	24.87	24.65	12.14	12.14	12.36	12.17	12.41	12.4
CDMA BC10 EVDO	24.95	24.87	24.85	24.66	24.64	18.72	18.82	18.7	18.81	18.65	18.68
CDMA BC0 EVDO	24.93	24.63	24.61	24.9	24.72	19.39	19.32	19.31	19.4	19.59	19.51
CDMA BC1 EVDO	24.79	24.84	24.94	24.9	24.93	12.45	12.4	12.24	12.37	12.33	12.23
LTE B26	23.89	23.68	23.6	23.95	23.95	17.63	17.9	17.68	17.72	17.67	17.64
LTE B25	23.79	23.84	23.7	23.87	23.86	13.43	13.34	13.44	13.43	13.22	13.35
LTE B41	23.87	23.84	23.63	23.95	23.9	14.1	14.14	14.18	14.18	14.21	14.31

Moving device away from the phantom:

KDB 616217 6.2.8 Measured Power [dBm]											
Distance[mm]	20	19	18	17	16	15	14	13	12	11	10
CDMA BC10 1X	24.92	24.74	24.82	24.66	24.74	18.9	18.68	18.76	18.67	18.94	18.87
CDMA BC0 1X	24.78	24.87	24.92	24.87	24.92	19.46	19.38	19.48	19.35	19.48	19.38
CDMA BC1 1X	24.68	24.73	24.65	24.77	24.88	12.36	12.41	12.32	12.24	12.3	12.22
CDMA BC10 EVDO	24.86	24.91	24.71	24.66	24.84	18.69	18.95	18.61	18.81	18.83	18.69
CDMA BC0 EVDO	24.82	24.84	24.86	24.95	24.94	19.5	19.46	19.47	19.4	19.56	19.32
CDMA BC1 EVDO	24.74	24.77	24.72	24.86	24.93	12.13	12.28	12.41	12.19	12.19	12.1
LTE B26	23.92	23.65	23.79	23.86	23.64	17.72	17.71	17.8	17.71	17.84	17.85
LTE B25	23.64	23.69	23.78	23.85	23.68	13.21	13.45	13.15	13.39	13.37	13.42
LTE B41	23.92	23.77	23.64	23.63	23.73	14.19	14.41	14.41	14.25	14.33	14.19

Based on the most conservative measured triggering distance of 15 mm, additional SAR measurements were required at 14 mm from the back side.

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Test Dates: 05/05/2014 – 05/19/2014	DUT Type: Portable Tablet			APPENDIX G: Page 3 of 5

Top Edge

Moving device toward the phantom:

KDB 616217 6.2.6 Measured Power [dBm]											
Distance[mm]	18	17	16	15	14	13	12	11	10	9	8
CDMA BC10 1X	24.79	24.83	24.65	24.66	24.69	18.94	18.79	18.94	18.85	18.67	18.89
CDMA BC0 1X	24.89	24.62	24.77	24.81	24.95	19.48	19.35	19.42	19.56	19.56	19.57
CDMA BC1 1X	24.74	24.72	24.89	24.61	24.66	12.16	12.29	12.35	12.22	12.32	12.32
CDMA BC10 EvDO	24.78	24.76	24.67	24.89	24.62	18.82	18.82	18.69	18.86	18.94	18.75
CDMA BC0 EvDO	24.93	24.82	24.93	24.63	24.64	19.4	19.34	19.39	19.55	19.53	19.43
CDMA BC1 EvDO	24.63	24.94	24.84	24.95	24.61	12.11	12.11	12.44	12.28	12.41	12.2
LTE B26	23.9	23.81	23.65	23.87	23.6	17.8	17.7	17.62	17.92	17.87	17.6
LTE B25	23.85	23.84	23.82	23.94	23.9	13.11	13.28	13.12	13.32	13.22	13.41
LTE B41	23.67	23.63	23.72	23.87	23.76	14.26	14.43	14.26	14.36	14.3	14.22

Moving device away from the phantom:

KDB 616217 6.2.8 Measured Power [dBm]											
Distance[mm]	18	17	16	15	14	13	12	11	10	9	8
CDMA BC10 1X	24.76	24.92	24.88	24.95	24.81	18.8	18.91	18.78	18.95	18.84	18.68
CDMA BC0 1X	24.7	24.93	24.69	24.76	24.87	19.33	19.62	19.59	19.32	19.46	19.48
CDMA BC1 1X	24.88	24.67	24.8	24.8	24.66	12.3	12.31	12.45	12.19	12.39	12.17
CDMA BC10 EvDO	24.94	24.84	24.69	24.73	24.66	18.61	18.88	18.92	18.75	18.93	18.77
CDMA BC0 EvDO	24.73	24.93	24.89	24.61	24.61	19.48	19.46	19.46	19.57	19.42	19.43
CDMA BC1 EvDO	24.84	24.66	24.63	24.83	24.81	12.38	12.34	12.25	12.3	12.14	12.21
LTE B26	23.79	23.88	23.63	23.75	23.75	17.61	17.93	17.69	17.62	17.92	17.71
LTE B25	23.71	23.85	23.9	23.85	23.87	13.15	13.34	13.15	13.18	13.16	13.21
LTE B41	23.86	23.76	23.72	23.62	23.68	14.31	14.13	14.12	14.17	14.2	14.35

Based on the most conservative measured triggering distance of 13 mm, additional SAR measurements were required at 12 mm from the top edge

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Test Dates: 05/05/2014 – 05/19/2014	DUT Type: Portable Tablet			APPENDIX G: Page 4 of 5

Left Edge

Moving device toward the phantom:

KDB 616217 6.2.6 Measured Power [dBm]									
Distance[mm]	8	7	6	5	4	3	2	1	0
CDMA BC10 1X	24.87	24.82	24.61	24.73	24.85	18.66	18.69	18.72	18.95
CDMA BC0 1X	24.74	24.87	24.87	24.76	24.8	19.65	19.62	19.4	19.49
CDMA BC11X	24.73	24.78	24.79	24.6	24.87	12.19	12.16	12.22	12.19
CDMA BC10 EvDO	24.79	24.6	24.77	24.67	24.76	18.87	18.84	18.63	18.89
CDMA BC0 EvDO	24.74	24.85	24.91	24.82	24.93	19.35	19.62	19.55	19.64
CDMA BC1EvDO	24.9	24.65	24.73	24.84	24.89	12.4	12.2	12.29	12.21
LTE B26	23.84	23.64	23.82	23.87	23.8	17.76	17.89	17.83	17.84
LTE B25	23.89	23.65	23.9	23.62	23.8	13.18	13.34	13.26	13.38
LTE B41	23.88	23.94	23.91	23.84	23.89	14.22	14.25	14.37	14.45

Moving device away from the phantom:

KDB 616217 6.2.8 Measured Power [dBm]									
Distance[mm]	8	7	6	5	4	3	2	1	0
CDMA BC10 1X	24.73	24.71	24.79	24.91	24.89	18.63	18.63	18.86	18.72
CDMA BC0 1X	24.62	24.9	24.92	24.77	24.65	19.37	19.31	19.49	19.54
CDMA BC11X	24.78	24.64	24.68	24.6	24.88	12.37	12.44	12.39	12.38
CDMA BC10 EvDO	24.71	24.86	24.91	24.77	24.68	18.8	18.81	18.73	18.91
CDMA BC0 EvDO	24.84	24.68	24.65	24.73	24.68	19.41	19.4	19.59	19.48
CDMA BC1EvDO	24.71	24.6	24.66	24.69	24.78	12.22	12.24	12.25	12.31
LTE B26	23.67	23.68	23.62	23.7	23.67	17.76	17.71	17.78	17.6
LTE B25	23.75	23.72	23.66	23.94	23.88	13.32	13.33	13.26	13.14
LTE B41	23.63	23.82	23.73	23.75	23.71	14.33	14.18	14.29	14.23

Based on the most conservative measured triggering distance of 3 mm, additional SAR measurements were required at 2 mm from the left edge

FCC ID: A3LSMT237P	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Test Dates: 05/05/2014 – 05/19/2014	DUT Type: Portable Tablet			APPENDIX G: Page 5 of 5