SAR TEST REPORT

for

Planet Computers Limited

COSMO

Model No.: COSMO COMMUNICATOR VE

FCC ID: 2AO7Q-COSMOVE

The MAX Report SAR(1g)	
Body SAR	0.786W/Kg
Head SAR	0.727W/Kg

Prepared for : Planet Computers Limited
Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park,
Nanshan District, Shenzhen, Guangdong, China

Tel: (0755) 26639496
Fax: (0755) 26632877

Report No. : ACS-SF19002
Date of Test : Aug.30~Sep.07, 2019
Date of Report : Nov.13, 2019

TABLE OF CONTENTS

Description Page

Test Report Verification.....3

1. GENERAL INFORMATION.....4

1.1. Description of Equipment Under Test.....4
1.2. Description of Device (EUT).....5

2. GENERAL DESCRIPTION.....8

2.1. Product Description For EUT.....8
2.2. Applied Standards.....8
2.3. Device Category and SAR Limits.....8
2.4. Test Conditions.....8
2.5. Exposure Positions Consideration.....9
2.6. Standalone SAR Test Exclusion Considerations.....11
2.7. EUT Configuration and operation conditions for test.....12
2.8. Test Equipments.....12
2.9. Laboratory Environment.....16
2.10. Measurement Uncertainty.....16

3. MEASURE PROCEDURES.....19

3.1. General description of test procedures.....19

4. SAR MEASUREMENTS SYSTEM.....20

4.1. SAR Measurement Set-up.....20
4.2. ELI Phantom.....21
4.3. Device Holder for SAM Twin Phantom.....22
4.4. DASY5 E-field Probe System.....23
4.5. E-field Probe Calibration.....24
4.6. Scanning procedure.....25

5. DATA STORAGE AND EVALUATION.....27

5.1. Data Storage.....27
5.2. Data Evaluation by SEMCAD.....27

6. SYSTEM CHECK.....29

7. TEST RESULTS.....30

7.1. Output power.....30
7.2. System Check for Body & Head Tissue simulating liquid.....103
7.3. Test Results.....105
7.4. Simultaneously SAR Evaluation.....120
7.5. Dielectric Performance for Body & Head Tissue simulating liquid.....121

ANNEX A: System Check Results
ANNEX B: Graph Results
ANNEX C: DASY Cablibration Certificate
ANNEX D: Test Setup Photos
ANNEX E: Photos of The EUT

SAR TEST REPORT

Applicant : Planet Computers Limited

Product : COSMO

(A) Model No. : COSMO COMMUNICATOR VE

(B) Power Supply : 3.85V

Measurement Standard Used:

- FCC 47 CFR Part 2 (2.1093)
- IEEE C95.1-1999
- IEEE 1528-2013
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 447498 D01 v06
- FCC KDB 248227 D01 v02r02
- FCC KDB 616217 D04 v01r02
- FCC KDB 865664 D01 v01r04
- FCC KDB 865664 D02 v01r02
- FCC KDB 941225 D01 v03r01
- FCC KDB 941225 D05 v02r05

FCC KDB 941225 D06 v02r01
FCC KDB 941225 D07 v01r02
FCC KDB 648474 D04 v01r03
FCC PBA Tracking Number 460335

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the EUT is technically compliant with the FCC SAR test requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Aug.30~Sep.07, 2019 Report of date: Nov.13, 2019

Prepared by : Monica Liu
Monica Liu / Assistant

Reviewed by : Sunny Lu
Sunny Lu/ Deputy Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report
Signature: David Jin

Approved & Authorized Signer
David Jin / Manager

1. GENERAL INFORMATION

1.1.Description of Equipment Under Test

Applicant	Planet Computers Limited Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom
Manufacturer	Planet Computers Limited Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom
Factory	Shenzhen Eastaeon Technology Limited Company 4F, B block, Kingdee Software Park, 2 Keji South 12 Road, Nanshan District, Shenzhen
Product	COSMO
Model No.	COSMO COMMUNICATOR VE
FCC ID	2AO7Q-COSMOVE
Power Adapter	Manufacturer: SHENZHEN TIANYIN ELECTRONICS CO., LTD. Model: TPA-10120125UU-MTK Input: 100-240V~, 50/60Hz, 0.6A Output: 5V, 2A / 7V, 1.67A / 9V, 1.67A / 12V, 1.25A
Rechargeable Li-ion Battery	Manufacturer: Shenzhen 3sun Electronics Co., Ltd.; M/N: Gemini Standard Battery; Rating Voltage: 3.85V; Capacity: 4220mAh; Charge Voltage: 4.4V.
USB Cable	Shielded, Detachable, 0.8m
Sample Type	Prototype production
Date of Receipt	Jul.12, 2019
Date of Test	Aug.30~Sep.07, 2019

1.2.Description of Device (EUT)

Product Feature & Specification		
Product	COSMO	
Model No.	COSMO COMMUNICATOR VE	
Radio	IEEE802.11 a/b/g/n/ac; Bluetooth V3.0+EDR; Bluetooth V4.0; NFC; GSM Class B; GPRS/EDGE Class 12; WCDMA cat 8; LTE rel 12	
Power Source	☒ Commercial Power	AC 100 ~ 240V, 0.6A
	☒ External Power Source	DC 5/7/9/12V, 2/1.67/1.67/1.25A
	☒ Lithium battery	DC 3.85V, 4220mAh
	☐ UM battery	DC V
NFC		
Frequency Range	13.56MHz	
Type of Modulation	ASK	
Bluetooth		
Bluetooth Version	V4.0 dual mode	
Frequency Range	2402-2480MHz	
Type of Modulation	GFSK, π/4DQPSK, 8DPSK	
Data Rate	1Mbps, 2Mbps, 3Mbps	
Quantity of Channels	79/40	
Channel Separation	1MHz/2MHz	
2.4GHz Wi-Fi		
Support Modes	802.11b/g/n20/n40	
Frequency Range	2412-2462MHz	
Type of Modulation	802.11b(DSSS): CCK, QPSK, BPSK; 802.11g/n(OFDM): 64QAM,16QAM, QPSK, BPSK	
Data Rate	802.11b: 11/5.5/2/1 Mbps; 802.11g: 54/48/36/24/18/12/9/6 Mbps; 802.11n: up to 150Mbps	
Channel Separation	5MHz	
5GHz Wi-Fi		
Support Modes	802.11a/n20/n40/ac20/ac40/ac80	
Frequency Range	5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz	
Type of Modulation	802.11a/ac/n (OFDM): QPSK, BPSK, 16QAM, 64QAM,256QAM	
Data Rate	802.11a: 54/48/36/24/18/12/9/6 Mbps; 802.11n up to 150 Mbps; 802.11ac: up to 400Mbps	
Channel Separation	5MHz	
Type of Product	Slave device without Radar detection	
Transmit Power Control	No Support	

GSM, EDGE	
Frequency Range	GSM 850: 824-849MHz; PCS 1900: 1850-1910MHz
Type of Modulation	GMSK, 8PSK
Power Class	GSM850 PCL5; PCS1900 PCL0
WCDMA	
Frequency Range	**Band 2:** Uplink: 1850-1910MHz, Downlink: 1930-1990MHz; **Band 5**: Uplink: 824-849MHz, Downlink: 869-894MHz
Type of Modulation	QPSK,16QAM
Power Class	WCDMA Power Class 3
LTE	
Frequency Range	**Band 2:** Uplink: 1850-1910MHz, Downlink: 1930-1990MHz; **Band 4:** Uplink: 1710-1755MHz, Downlink: 2110-2155MHz; **Band 5**: Uplink: 824-849MHz, Downlink: 869-894MHz; **Band 7**: Uplink: 2500-2570MHz, Downlink: 2620-2690MHz; **Band 12:** Uplink: 699-716MHz, Downlink: 729-746MHz; **Band 13:** Uplink: 777-787MHz, Downlink: 746-756MHz; **Band 17:** Uplink: 704-716MHz, Downlink: 734-746MHz; **Band 25:** Uplink: 1850-1915MHz, Downlink: 1930-1995MHz; **Band 41:** 2555-2655MHz; **Band 66:** Uplink: 1710-1780MHz, Downlink: 2110-2200MHz
Type of Modulation	QPSK,16QAM,64QAM
Power Class	LTE Power Class 3

Antenna System

NFC	
Type of Antenna	FPC Antenna
Antenna number	1
Antenna Peak Gain	0dBi
Bluetooth	
Type of Antenna	MONOPOLE Antenna
Antenna number	1
Antenna Peak Gain	-0.1dBi
Wi-Fi	
Type of Antenna	MONOPOLE Antenna
Antenna number	1
Antenna Peak Gain	DTS Band (2400-2483.5MHz) Peak Gain: -0.1dBi U-NII-1 Band(5150-5250MHz) Peak Gain: 0.6dBi U-NII-2A Band(5250-5350MHz) Peak Gain: 0.6dBi U-NII-2C Band(5470-5725MHz) Peak Gain: 0.4dBi U-NII-3 Band (5725-5850MHz) Peak Gain: 0.3dBi
GSM, EDGE	
Type of Antenna	PIFA Antenna
Antenna number	1
Antenna Peak Gain	GSM: GSM850: -4.1dBi PCS1900: 2.1dBi
WCDMA	
Type of Antenna	PIFA Antenna
Antenna number	1
Antenna Peak Gain	WCDMA: Band 2: 2.1dBi; Band 5: -4.1dBi
LTE	
Type of Antenna	PIFA Antenna
Antenna number	1
Antenna Peak Gain	LTE: Band 2: 2.1dBi; Band 4: 0.9dBi; Band 5: -5.1dBi; Band 7: -2.7dBi; Band 12: -5.6dBi; Band 13: -6.3dBi; Band 17: -5.6dBi; Band 25: 2.1dBi; Band 41: -1.5dBi; Band 66: 0.9dBi.

2. GENERAL DESCRIPTION

2.1.Product Description For EUT

[None]

2.2.Applied Standards

The Specific Absorption Rate (SAR) testing specification, method and procedure for this device is in accordance with the following standards:

· FCC 47 CFR Part 2 (2.1093)
· IEEE C95.1-1999
· IEEE 1528-2013
· FCC OET Bulletin 65 Supplement C (Edition 01-01)
· FCC KDB 447498 D01 v06
· FCC KDB 248227 D01 v02r02
· FCC KDB 616217 D04 v01r02
· FCC KDB 865664 D01/D02
· FCC KDB 941125 D01 v03r01
· FCC KDB 941125 D05 v02r05
FCC KDB 941225 D06 v02r01
FCC KDB 941225 D07 v01r02
FCC KDB 648474 D04 v01r03
FCC PBA Tracking Number 460335

2.3.Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

2.4.Test Conditions

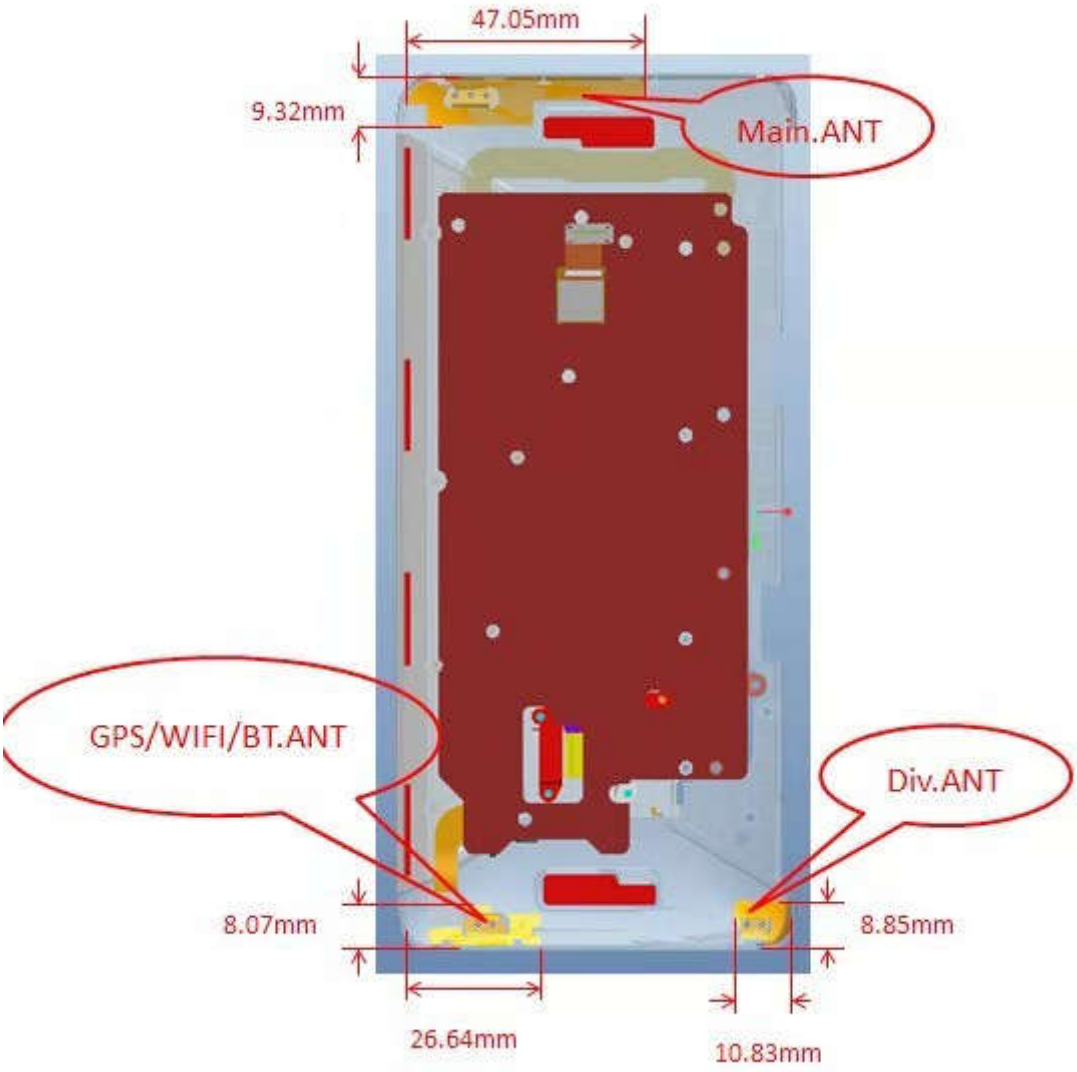
2.4.1. **Ambient Condition**

Ambient Temperature	20 to 24 ℃
Humidity	< 60 %

2.4.2. **Test Configuration**

The distance between the EUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during all tests.

2.5.Exposure Positions Consideration



Antenna	Description
WIFI/Bluetooth antenna	802.11 b/g/n HT20/n HT40/ac VHT20/ ac VHT40/ac VHT80/ Bluetooth3.0+EDR, Bluetooth4.0

Note:

1. The distance from the WLAN antenna to the back surface is 8mm
2. The distance from the main antenna to the back surface is 8mm.
3. The Diversity antenna only have Rx function
4. The WiFi/Bluetooth and the main antenna were located on the screen area of the device.
5. The WLAN and Bluetooth can not transmit simultaneously.

Sides for SAR tests Test distance: 0 mm(Body)														
Band	Body						Head Touch				Head (15°)			
	Back	Front	Top	Bottom	Left	Right	Left	Left-Right	Right	Right-Right	Left	Left-Right	Right	Right-Right
WLAN 2.4GHz	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓
WLAN 5GHz	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓
GSM	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓
WCDMA	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓
LTE	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note:

1. **The length of the diagonal dimension of the EUT is less than 20cm.**
2. **The side which has a distance larger than 2.5cm from antenna can be excluded from SAR measurement.**
3. **This device support hotspot function.**

2.6.Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] ·[√ f(GHz)] ≤ 3.0 for 1-g SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

According to the KDB447498 appendix A, the SAR test exclusion threshold for 2450MHz at 5mm test separation distances is 10 mW,5.2GHz is 7 mW, 5.4GHz and 5.8GHz is 6mW

Appendix A

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

Standalone SAR test exclusion considerations

Band/Mode	F(MHz)	SAR test exclusion threshold (mW)	RF output power		SAR test Exclusion
			dBm	mW	
Bluetooth	2441	10	9.5	8.91	Yes
2.4GHz WLAN	2450	10	17.00	50.12	NO
5.2GHz WLAN	5200	7	14.00	25.12	NO
5.8GHz WLAN	5800	6	14.50	28.18	NO
750MHz	750	16	23.00	199.53	NO
900MHz	900	16	32.50	1778.28	NO
1800MHz	1800	11	39.50	891.25	NO
2600MHz	2600	10	23.50	223.87	NO

2.7.EUT Configuration and operation conditions for test.

EUT

(EUT: COSMO)

2.8.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal Date	Cal. Interval	Calibration unit
1.	DASY5 SAR Test System	Speag	TX60 L speag	F09/5B1H1/01	NCR	NCR	N/A
2.	Wireless Communication Test Set	Agilent	E5515C	GB443002433	2019.04.13	1.0 Year	CCIC
3.	Power Meter	Anritsu	ML2487A	6K00003262	2019.04.13	1.0 Year	CCIC
4.	Power Sensor	Anritsu	MA2491A	032516	2019.04.13	1.0 Year	CCIC
5.	Dipole Validation Kits	Speag	D900V2	1d088	2017.06.07	3.0 Year	SPEAG
6.	Dipole Validation Kits	Speag	D1800V2	2d186	2017.06.05	3.0 Year	SPEAG
7.	Dipole Validation Kits	Speag	D2000V2	1055	2017.06.06	3.0 Year	SPEAG
8.	Dipole Validation Kits	Speag	D2450V2	862	2017.06.06	3.0 Year	SPEAG
9.	Dipole Validation Kits	Speag	D5GHzV2	1102	2017.05.25	3.0 Year	SPEAG
10.	Dipole Validation Kits	Auden	D750V3	1159	2019.05.22	3.0 Year	CCTL
11.	Dipole Validation Kits	Auden	D2600V2	1123	2019.05.20	3.0 Year	CCTL
12.	Attenuator	MCL	VAT-20W2-2W	1527-01	2018.10.14	1.0 Year	CCIC
13.	Date Acquisition Electronics	Speag	DAE4	899	2019.03.19	1.0 Year	CCTL
14.	E-Field Probe	Speag	EX3DV4	3767	2019.03.19	1.0 Year	CCTL
15.	ENA Series Analyzer	Agilent	E5071B	MY42403549	2019.04.13	1.0 Year	CCIC
16.	Signal Generator	HP	83732B	US34490501	2019.04.13	1.0 Year	CCIC
17.	Amplifier	Milmega	ZVE-8G+	103201624	NCR	NCR	N/A
18.	Radio Communication Analyzer	R&S	CMW500	103249	2018.12.01	1.0 Year	CCIC
19.	Directional Coupler	AR	DC6180A	19325	2019.04.14	1.0 Year	CCIC
20.	Directional Coupler	AR	DC7144A	311987	2019.04.14	1.0 Year	CCIC
21.	Test Software	Schmid&Partner Englinnering AG	DASY5	52.8.7.1137	NCR	NCR	N/A
Note: NCR means no calibration required(calibrated with system).							

Note: Dipole antenna calibration interval is 3 year, annual check result to be follow (Refer to KDB 865664, Dipole calibration)

Dipole: 2450V2-SN862

Antenna Parameters with Body TSL

Date	2017.06.06	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	50.7Ω+4.98jΩ	50.3Ω+4.83jΩ	49.9Ω+4.77jΩ
Return Loss	-26.0dB	-25.4dB	-25.3dB

Antenna Parameters with Head TSL

Date	2017.06.06	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	48.6Ω+5.14jΩ	47.5Ω+5.04jΩ	47.1Ω+4.98jΩ
Return Loss	-25.4dB	-24.7dB	-25.1dB

Dipole: D5GHzV2-SN1102

Antenna Parameters with Body TSL at 5250MHz

Date	2017.05.25	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	48.2Ω-2.57jΩ	47.5Ω-2.50jΩ	48.9Ω-2.49jΩ
Return Loss	-30.0dB	-29.7dB	-29.9dB

Antenna Parameters with Body TSL at 5600MHz

Date	2017.05.25	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	56.5Ω-1.31jΩ	56.7Ω-1.21jΩ	56.0Ω-1.33jΩ
Return Loss	-24.1dB	-24.9dB	-23.8dB

Antenna Parameters with Body TSL at 5750MHz

Date	2017.05.25	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	52.2Ω-1.49jΩ	52.0Ω-1.51jΩ	51.8Ω-1.39jΩ
Return Loss	-31.7dB	-31.8dB	-31.0dB

Dipole: D5GHzV2-SN1102

Antenna Parameters with Head TSL at 5250MHz

Date	2017.05.25	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	47.0Ω+4.13j	47.8Ω+4.05j	46.3Ω+4.0j
Return Loss	-25.6dB	-25.4dB	-25.3dB

Antenna Parameters with Head TSL at 5600MHz

Date	2017.05.25	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	55.2Ω-3.97jΩ	54.8Ω-3.91jΩ	55.8Ω-3.83jΩ
Return Loss	-24.2dB	-24.5dB	-23.9dB

Antenna Parameters with Head TSL at 5750MHz

Date	2017.05.25	2018.07.01	2019.05.20
Inpedance, Transformed to Feed point	51.0Ω-1.92jΩ	50.7Ω-1.88jΩ	51.7Ω-1.98jΩ
Return Loss	-33.4dB	-33.1dB	-33.9dB

Dipole: D900V2-SN: 1d088

Antenna Parameters with Body TSL

Date	2017.06.07	2018.06.25	2019.05.28
Inpedance, Transformed to Feed point	48.8Ω-5.51jΩ	49.1Ω-5.87jΩ	47.9Ω-6.11jΩ
Return Loss	-23.5dB	-24.1dB	-23.8dB

Antenna Parameters with Head TSL

Date	2017.06.07	2018.06.25	2019.05.28
Inpedance, Transformed to Feed point	47.6Ω-5.51jΩ	46.9Ω-5.12jΩ	48.0Ω-6.01jΩ
Return Loss	-24.2dB	-24.9dB	-25.1dB

Dipole:D1800V2-SN:2d186

Antenna Parameters with Body TSL

Date	2017.06.05	2018.06.18	2019.05.09
Inpedance, Transformed to Feed point	47.2Ω-3.56jΩ	47.4Ω-3.41jΩ	46.8Ω-3.11jΩ
Return Loss	-26.7dB	-25.9dB	-24.8dB

Antenna Parameters with Head TSL

Date	2017.06.05	2018.06.18	2019.05.09
Inpedance, Transformed to Feed point	49.2Ω+1.57jΩ	48.4Ω+1.38jΩ	48.7Ω+1.21jΩ
Return Loss	-35.0dB	-34.1dB	-35.1dB

Dipole: D2000V2-SN1055

Antenna Parameters with Body TSL

Date	2017.06.06	2018.07.02	2019.05.21
Inpedance, Transformed to Feed point	53.3Ω+1.04jΩ	52.2Ω+1.11jΩ	52.0Ω+1.30jΩ
Return Loss	-29.4dB	-30.5dB	-31.2dB

Antenna Parameters with Head TSL

Date	2017.06.06	2018.07.02	2019.05.21
Inpedance, Transformed to Feed point	51.0Ω-1.42jΩ	51.5Ω-1.38jΩ	52.0Ω-1.29jΩ
Return Loss	-35.4dB	-34.7dB	-35.1dB

2.9.Laboratory Environment

Temperature	Min:20℃,Max.25℃
Relative humidity	Min. = 30%, Max. = 70%
Note: Ambient noise is checked and found very low and in compliance with requirement of standards.	

2.10.Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for SAR test	1g: 21.14
	10g: 20.64
Uncertainty for test site temperature and humidity	0.6℃

Source	Type	Uncertainly Value (%)	Probability Distribution	K	C1(1g)	C1(10g)	Standard uncertainty ul(%)1g	Standard uncertainty ul(%)10g	Degree of freedom Veff or Vi
Measurement system repetivity	A	0.5	N	1		1	0.5	0.5	9
Probe calibration	B	5.9	N	1	1	1	5.9	5.9	∞
Isotropy	B	4.7	R	√3	1	1	2.7	2.7	∞
Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
Probe modulation response	B	0	R	√3	1	1	0	0	∞
Detection limits	B	1.0	R	√3	1	1	0.6	0.6	∞
Boundary effect	B	1.9	R	√3	1	1	1.1	1.1	∞
Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
Response time	B	0	R	√3	1	1	0	0	∞
Integration time	B	4.32	R	√3	1	1	2.5	2.5	∞
RF ambient conditions – noise	B	0	R	√3	1	1	0	0	∞
RF ambient conditions – reflections	B	3	R	√3	1	1	1.73	1.73	∞
Probe positioner mech. Restrictions	B	0.4	R	√3	1	1	0.2	0.2	∞
Probe positioning with respect to phantom shell	B	2.9	R	√3	1	1	1.7	1.7	∞
Post-processing	B	0	R	√3	1	1	0	0	∞
Test sample related									
Device holder uncertainty	A	2.94	N	1	1	1	2.94	2.94	M-1
Test sample positioning	A	4.1	N	1	1	1	4.1	4.1	M-1
Power scaling	B	5.0	R	√3	1	1	2.9	2.9	∞
Drift of output power (measured SAR drift)	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up									
Phantom uncertainty (shape and thickness tolerances)	B	4.0	R	√3	1	1	2.3	2.1	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	B	1.9	N	1	1	0,84	1,9	1,6	∞
Liquid conductivity (meas.)	A	0.55	N	1	0.78	0.71	0.24	0.21	M-1
Liquid permittivity (meas.)	A	0.19	N	1	0.23	0.26	0.09	0.06	M
Liquid permittivity – temperature uncertainty	A	5.0	R	√3	0,78	0,71	1.4	1.1	∞
Liquid conductivity – temperature uncertainty	A	5.0	R	√3	0.23	0,26	1.2	0.8	∞
Combined standard uncertainty	$u_c' = \sqrt{\sum_{i=1}^{23} c_i^2 u_i^2}$						**10.57**	**10.32**	
Expanded uncertainty (95 % conf. interval)	$u_e = 2u_c$		N		K=2		**21.14**	**20.64**	

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
Water: De-ionized, 16 MΩ+ resistivity HEC: Hydroxyethyl Cellulose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

Simulating Liquids for 5 GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	78
Mineral oil	11
Emulsifiers	9
Additives and Salt	2

3. MEASURE PROCEDURES

3.1.General description of test procedures

For the 802.11a/b/g SAR body tests, a communication link is set up with the test mode software for WIFI mode test. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest data rate. Testing at higher data rates is not required when the maximum average output power is less than 0.25dB higher than those measured at the lowest data rate.

802.11b/g operating modes are tested independently according to the service requirements in each frequency band.802.11b/g modes are tested on channels1,6,11;however,if output power reduction is necessary for channels 1 and /or 11 to meet restricted band requirements the highest output channels closest to each of these channels must be tested instead.

SAR is not required for 802.11g channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels. When the maximum average output channel in each frequency band is not included in the “default test channels”, the maximum channel should be tested instead of an adjacent “default test channels”, these are referred to as the “required test channels” and are illustrated in table 1.

Please apply the following guidance for SAR testing:

1. Please use a 0 mm (touching) test separation distance on the flat phantom during SAR testing of this device. This separation distance is based on the guidance found in FCC KDB Publication 447498 D01, Section 5.2.3 3)
2. Please utilize a body tissue simulating liquid (TSL) of the appropriate frequency during SAR testing.
3. Please use the guidance found in FCC KDB Publication 447498 D01 to determine which sides of the device need to be tested for SAR.
4. FCC KDB Publication 248227 D01 should be used for selection of the WiFi channels, data rates, etc.
5. Use the Voice(GSM) mode and choose the channel which has the maximum output power(include the tune up procedure) for GSM850 and PCS1900 SAR Test.
6. Use the RMC mode and choose the channel which has the maximum output power(include the tune up procedure) for the WCDMA 3G SAR test.
7. Test LTE SAR with QPSK Modulation,1RB allocation and choose the channel which has the maximum output power(include the tune up procedure) for the primary SAR test.

4. SAR MEASUREMENTS SYSTEM

4.1.SAR Measurement Set-up

DASY5 system for performing compliance tests consists of the following items:

(1) A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
(2) A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage It issue simulating liquid. The probe is equipped with an optical surface detector system.
(3) A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
(4) A unit to operate the optical surface detector which is connected to the EOC.
(5) The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
(6) The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003.
(7) DASY5 software and SEMCAD data evaluation software.
(8) Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
(9) The generic twin phantom enabling the testing of left-hand and right-hand usage.
(10) The device holder for handheld mobile phones.
(11) Tissue simulating liquid mixed according to the given recipes.
(12) System validation dipoles allowing to validate the proper functioning of the system.

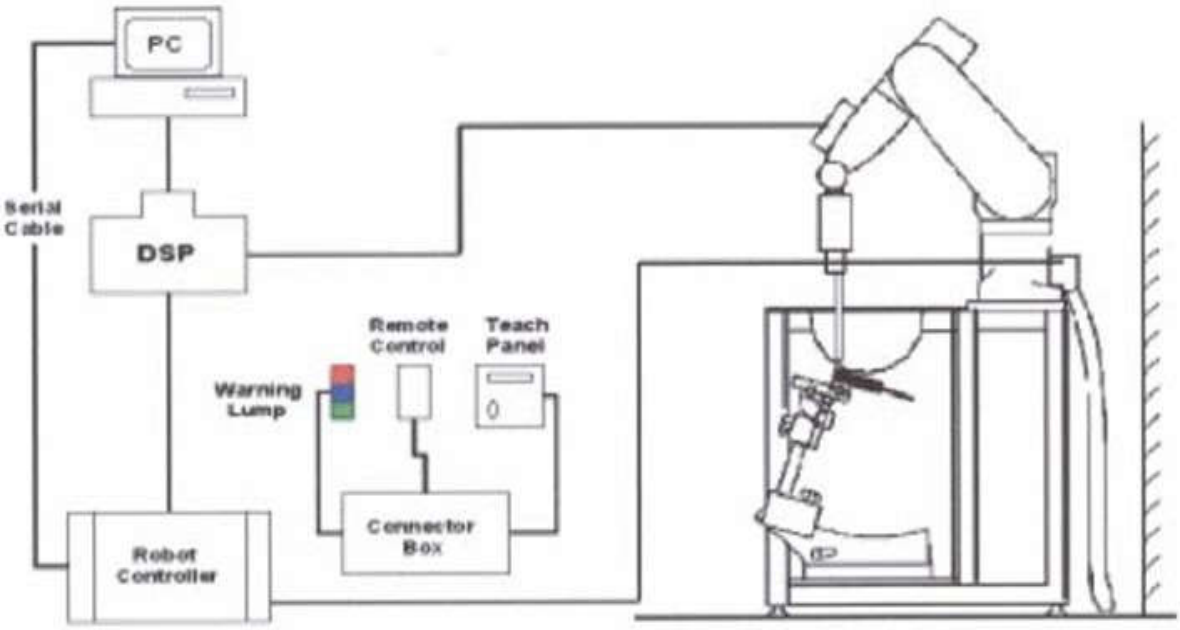
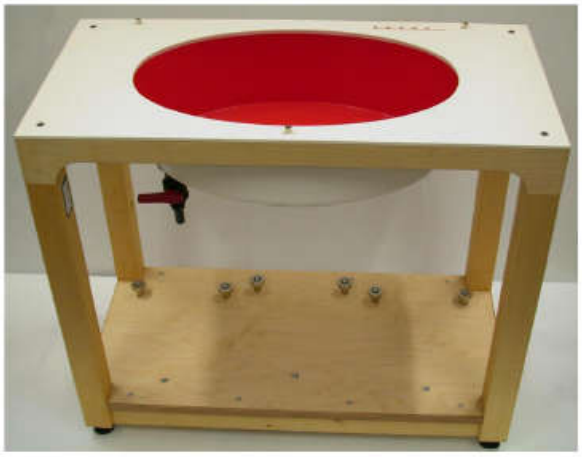


Figure 4.1 SAR Lab Test Measurement Set-up

4.2. ELI Phantom

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.



Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2.0 ± 0.2 mm (bottom plate)
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Filling Volume	approx. 30 liters
Wooden Support	SPEAG standard phantom table

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.

Figure 6.2 Top View of Twin Phantom

A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters.

On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

The phantom can be used with the following tissue simulating liquids:

*Water-sugar based liquid
*Glycol based liquids

4.3.Device Holder for SAM Twin Phantom

The SAR in the Phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source in 5 mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ± 20%. An accurate device position is therefore crucial for accurate and repeatable measurement. The position in which the devices must be measured, are defined by the standards.

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (EPR).

Thus the device needs no repositioning when changing the angles.

The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε_r=3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

Figure 4.3 Device Holder

4.4.DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangul -ar configuration and optimized for dosimetric evaluation.

Figure 4.4 EX3DV4 E-field Probe

4.4.1. EX3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 µW/g)
Dimensions	Overall length: PRS-T2 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

4.5.E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$\mathbf{SAR} = \mathbf{C}\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.
Or

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

4.6.Scanning procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

The ”reference“ and ”drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.The indicated drift is mainly the variation of the EUT’s output power and should vary max. ± 5 %.

The ”surface check“ measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles.

The difference between the optical surface detection and the actual surface depends on the Probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:

- maximum search
- extrapolation
- boundary correction
- peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space.They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

5. DATA STORAGE AND EVALUATION

5.1.Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for thedata evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

5.2.Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai0, ai1, ai2
	- Conversion factor	ConvFi
	- Diode compression point	Dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$Vi = Ui + Ui2 \cdot cf / dcpi$$

With ***Vi*** = compensated signal of channel i (i = x, y, z)

Ui = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcpi = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: ***Ei = (Vi / Normi · ConvF)1/2***

H-field probes: ***Hi = (Vi)1/2 · (ai0 + ai1 f + ai2f2) / f***

With ***Vi*** = compensated signal of channel i (i = x, y, z)

Normi = sensor sensitivity of channel i (i = x, y, z)

ConvF = sensitivity enhancement in solution

aij = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

Ei = electric field strength of channel i in V/m

Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

Etot = (Ex2+ EY2+ Ez2)1/2

The primary field data are used to calculate the derived field units.

SAR = (Etot2·) / (· 1000) with

SAR = local specific absorption rate in mW/g

Etot = total field strength in V/m

= conductivity in [mho/m] or [Siemens/m]

= equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

Ppwe = *Etot2 / 3770* or ***Ppwe = Htot2 · 37.7***

with ***Ppwe*** = equivalent power density of a plane wave in mW/cm2

Etot = total electric field strength in V/m

Htot = total magnetic field strength in A/m

6. SYSTEM CHECK

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the ANNEX A.

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system (±10 %).

System check is performed regularly on all frequency bands where tests are performed with the DASY5 system.

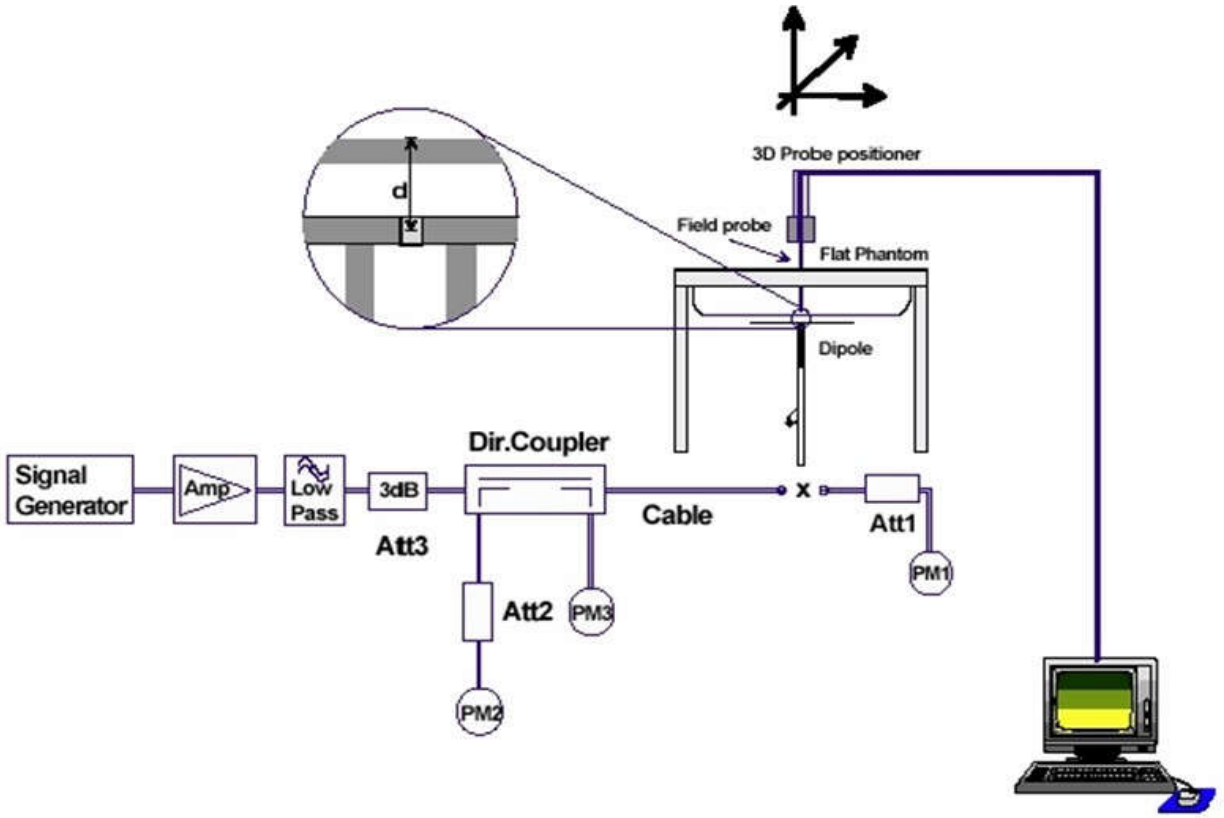


Figure 6.1: System Check Set-up

7. TEST RESULTS

7.1.Output power

(Classic Bluetooth)

Test Mode	Data Rate	Packet Type	Output power (dBm)
GFSK	1Mbps	DH1	7.817
		DH3	**9.210**
		DH5	8.321
π/4DQPSK	2Mbps	2-DH1	5.324
		2-DH3	5.896
		2-DH5	6.475
8DPSK	3Mbps	3-DH1	7.638
		3-DH3	9.119
		3-DH5	6.902

(Bluetooth: BLE)

Test Mode	Data Rate	CH	Output power (dBm)
GFSK	1Mbps	0	5.198
		19	**5.360**
		39	3.355

(WIFI 2.4GHz)

Test Mode	Data Rate	CH	Output power (dBm)
11b	1Mbps	CH1	16.34
		CH6	**16.69**
		CH11	15.99
	2Mbps	CH1	15.87
		CH6	15.94
		CH11	15.67
	5.5Mbps	CH1	15.25
		CH6	15.47
		CH11	15.18
	11Mbps	CH1	15.25
		CH6	15.66
		CH11	15.19
11g	6Mbps	CH1	14.82
		CH6	15.46
		CH11	14.69
	9Mbps	CH1	14.54
		CH6	14.60
		CH11	14.43
	12Mbps	CH1	14.42
		CH6	14.57
		CH11	14.36
	18Mbps	CH1	14.54
		CH6	14.62
		CH11	14.49
	24Mbps	CH1	14.58
		CH6	14.60
		CH11	14.47
	36Mbps	CH1	14.52
		CH6	14.58
		CH11	14.43
	48Mbps	CH1	14.39
		CH6	14.45
		CH11	14.35
	54Mbps	CH1	14.42
		CH6	14.49
		CH11	14.37

Test Mode	Data Rate	CH	Output power (dBm)
11n HT20	MCS 0	CH1	14.75
		CH6	15.35
		CH11	14.63
	MCS 1	CH1	14.60
		CH6	14.62
		CH11	14.57
	MCS 2	CH1	14.58
		CH6	14.61
		CH11	14.55
	MCS 3	CH1	14.48
		CH6	14.51
		CH11	14.45
	MCS 4	CH1	14.43
		CH6	14.50
		CH11	14.39
	MCS 5	CH1	14.35
		CH6	14.37
		CH11	14.32
	MCS 6	CH1	14.48
		CH6	14.42
		CH11	14.39
	MCS 7	CH1	14.51
		CH6	14.52
		CH11	14.47

Test Mode	Data Rate	CH	Output power (dBm)
11n HT40	MCS 0	CH3	14.78
		CH6	15.15
		CH9	15.20
	MCS 1	CH3	14.68
		CH6	14.70
		CH9	14.76
	MCS 2	CH3	14.55
		CH6	14.59
		CH9	14.60
	MCS 3	CH3	14.57
		CH6	14.58
		CH9	14.59
	MCS 4	CH3	14.47
		CH6	14.50
		CH9	14.52
	MCS 5	CH3	14.51
		CH6	14.55
		CH9	14.58
	MCS 6	CH3	14.49
		CH6	14.56
		CH9	14.58
	MCS 7	CH3	14.47
		CH6	14.51
		CH9	14.53

Notes:

1. Use the data rate with the maximum output level for the SAR test.
2. BT and WIFI can't transmit at same time.

(U-NII-1 Band)

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11a	6Mbps	5180	12.88
		5200	12.93
		5240	**13.31**
	9Mbps	5180	12.80
		5200	12.85
		5240	12.87
	12Mbps	5180	12.78
		5200	12.79
		5240	12.83
	18Mbps	5180	12.75
		5200	12.79
		5240	12.82
	24Mbps	5180	12.85
		5200	12.65
		5240	12.67
	36Mbps	5180	12.65
		5200	12.68
		5240	12.75
	48Mbps	5180	12.59
		5200	12.64
		5240	12.75
	54Mbps	5180	12.68
		5200	12.71
		5240	12.73

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT20	MCS 0	5180	12.55
		5200	12.51
		5240	12.95
	MCS 1	5180	12.35
		5200	12.34
		5240	12.37
	MCS 2	5180	12.41
		5200	12.40
		5240	12.50
	MCS 3	5180	12.43
		5200	12.39
		5240	12.48
	MCS 4	5180	12.47
		5200	12.45
		5240	12.49
	MCS 5	5180	12.43
		5200	12.40
		5240	12.46
	MCS 6	5180	12.39
		5200	12.35
		5240	12.46
	MCS 7	5180	12.28
		5200	12.24
		5240	12.35

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT40	MCS 0	5190	12.52
		5230	12.78
	MCS 1	5190	12.47
		5230	12.49
	MCS 2	5190	12.46
		5230	12.48
	MCS 3	5190	12.37
		5230	12.40
	MCS 4	5190	12.34
		5230	12.39
	MCS 5	5190	12.35
		5230	12.38
	MCS 6	5190	12.45
		5230	12.48
	MCS 7	5190	12.46
		5230	12.50

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT20	MCS 0	5180	12.47
		5200	12.67
		5240	12.92
	MCS 1	5180	12.41
		5200	12.43
		5240	12.45
	MCS 2	5180	12.37
		5200	12.39
		5240	12.42
	MCS 3	5180	12.31
		5200	12.38
		5240	12.40
	MCS 4	5180	12.32
		5200	12.36
		5240	12.38
	MCS 5	5180	12.30
		5200	12.32
		5240	12.35
	MCS 6	5180	12.39
		5200	12.40
		5240	12.42
	MCS 7	5180	12.29
		5200	12.31
		5240	12.35
	MCS 8	5180	12.27
		5200	12.30
		5240	12.34

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT40	MCS 0	5190	12.54
		5230	12.77
	MCS 1	5190	12.41
		5230	12.45
	MCS 2	5190	12.42
		5230	12.48
	MCS 3	5190	12.37
		5230	12.39
	MCS 4	5190	12.40
		5230	12.42
	MCS 5	5190	12.41
		5230	12.43
	MCS 6	5190	12.35
		5230	12.36
	MCS 7	5190	12.38
		5230	12.44
	MCS 8	5190	12.19
		5230	12.24
11ac VHT80	MCS 0	5210	12.53
	MCS 1	5210	12.49
	MCS 2	5210	12.47
	MCS 3	5210	12.43
	MCS 4	5210	12.39
	MCS 5	5210	12.38
	MCS 6	5210	12.37
	MCS 7	5210	12.40

Note: Use the data rate which has the maximum output power for the output power test

(U-NII-2A Band)

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11a	6Mbps	5260	13.28
		5300	13.30
		5320	**13.60**
	9Mbps	5260	13.21
		5300	13.25
		5320	13.24
	12Mbps	5260	13.15
		5300	13.14
		5320	13.19
	18Mbps	5260	13.20
		5300	13.25
		5320	13.21
	24Mbps	5260	13.10
		5300	13.17
		5320	13.18
	36Mbps	5260	12.98
		5300	12.99
		5320	13.04
	48Mbps	5260	12.95
		5300	13.01
		5320	13.14
	54Mbps	5260	13.07
		5300	13.14
		5320	13.15

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT20	MCS 0	5260	13.05
		5300	13.42
		5320	13.33
	MCS 1	5260	12.96
		5300	13.09
		5320	13.05
	MCS 2	5260	12.86
		5300	13.01
		5320	13.00
	MCS 3	5260	12.98
		5300	13.05
		5320	13.04
	MCS 4	5260	12.95
		5300	13.09
		5320	13.07
	MCS 5	5260	12.96
		5300	13.08
		5320	13.06
	MCS 6	5260	12.89
		5300	13.09
		5320	13.06
	MCS 7	5260	12.85
		5300	13.05
		5320	13.01

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT40	MCS 0	5270	12.85
		5310	13.01
	MCS 1	5270	12.80
		5310	12.84
	MCS 2	5270	12.75
		5310	12.79
	MCS 3	5270	12.69
		5310	12.75
	MCS 4	5270	12.63
		5310	12.71
	MCS 5	5270	12.58
		5310	12.64
	MCS 6	5270	12.63
		5310	12.68
	MCS 7	5270	12.61
		5310	12.70

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT20	MCS 0	5260	13.01
		5300	13.45
		5320	12.92
	MCS 1	5260	12.75
		5300	12.78
		5320	12.67
	MCS 2	5260	12.69
		5300	12.71
		5320	12.65
	MCS 3	5260	12.68
		5300	12.70
		5320	12.64
	MCS 4	5260	12.62
		5300	12.63
		5320	12.59
	MCS 5	5260	12.58
		5300	12.60
		5320	12.54
	MCS 6	5260	12.48
		5300	12.54
		5320	12.45
	MCS 7	5260	12.43
		5300	12.46
		5320	12.41
	MCS 8	5260	12.35
		5300	12.39
		5320	12.34

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT40	MCS 0	5270	12.89
		5310	13.05
	MCS 1	5270	12.75
		5310	12.79
	MCS 2	5270	12.64
		5310	12.68
	MCS 3	5270	12.57
		5310	12.59
	MCS 4	5270	12.61
		5310	12.63
	MCS 5	5270	12.48
		5310	12.53
	MCS 6	5270	12.75
		5310	12.79
	MCS 7	5270	12.64
		5310	12.80
	MCS 8	5270	12.67
		5310	12.71
11ac VHT80	MCS 0	5290	12.41
	MCS 1	5290	12.50
	MCS 2	5290	12.53
	MCS 3	5290	12.54
	MCS 4	5290	12.60
	MCS 5	5290	12.62
	MCS 6	5290	12.64
	MCS 7	5290	12.67

Note: Use the data rate which has the maximum output power for the output power test

(U-NII-2C Band)

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11a	6Mbps	5500	13.87
		5600	13.92
		5700	**14.00**
	9Mbps	5500	13.45
		5600	13.50
		5700	13.54
	12Mbps	5500	13.29
		5600	13.34
		5700	13.35
	18Mbps	5500	13.27
		5600	13.31
		5700	13.33
	24Mbps	5500	13.28
		5600	13.36
		5700	13.38
	36Mbps	5500	13.29
		5600	13.35
		5700	13.36
	48Mbps	5500	13.27
		5600	13.31
		5700	13.35
	54Mbps	5500	13.24
		5600	13.29
		5700	13.30

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT20	MCS 0	5500	13.75
		5600	13.77
		5700	13.71
	MCS 1	5500	13.53
		5600	13.57
		5700	13.51
	MCS 2	5500	13.62
		5600	13.67
		5700	13.60
	MCS 3	5500	13.57
		5600	13.59
		5700	13.55
	MCS 4	5500	13.47
		5600	13.53
		5700	13.45
	MCS 5	5500	13.48
		5600	13.54
		5700	13.47
	MCS 6	5500	13.51
		5600	13.58
		5700	13.49
	MCS 7	5500	13.53
		5600	13.59
		5700	13.50

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT40	MCS 0	5510	13.30
		5590	13.40
		5670	13.26
	MCS 1	5510	13.19
		5590	13.20
		5670	13.18
	MCS 2	5510	13.17
		5590	13.19
		5670	13.16
	MCS 3	5510	13.15
		5590	13.18
		5670	13.14
	MCS 4	5510	13.19
		5590	13.20
		5670	13.17
	MCS 5	5510	13.15
		5590	13.18
		5670	13.14
	MCS 6	5510	13.20
		5590	13.24
		5670	13.19
	MCS 7	5510	13.18
		5590	13.21
		5670	13.17

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT20	MCS 0	5500	13.75
		5600	13.73
		5700	13.70
	MCS 1	5500	13.61
		5600	13.60
		5700	13.58
	MCS 2	5500	13.57
		5600	13.56
		5700	13.54
	MCS 3	5500	13.59
		5600	13.58
		5700	13.56
	MCS 4	5500	13.64
		5600	13.63
		5700	13.60
	MCS 5	5500	13.66
		5600	13.65
		5700	13.62
	MCS 6	5500	13.59
		5600	13.57
		5700	13.54
	MCS 7	5500	13.56
		5600	13.54
		5700	13.51
	MCS 8	5500	13.53
		5600	13.52
		5700	13.50

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT40	MCS 0	5510	13.34
		5590	13.44
		5670	13.31
	MCS 1	5510	13.29
		5590	13.30
		5670	13.27
	MCS 2	5510	13.28
		5590	13.31
		5670	13.26
	MCS 3	5510	13.21
		5590	13.24
		5670	13.20
	MCS 4	5510	13.19
		5590	13.22
		5670	13.17
	MCS 5	5510	13.18
		5590	13.21
		5670	13.16
	MCS 6	5510	13.15
		5590	13.17
		5670	13.14
	MCS 7	5510	13.15
		5590	13.18
		5670	13.14
	MCS 8	5510	13.10
		5590	13.13
		5670	13.07

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT80	MCS 0	5530	13.23
		5610	13.31
	MCS 1	5530	13.19
		5610	13.21
	MCS 2	5530	13.17
		5610	13.20
	MCS 3	5530	13.15
		5610	13.18
	MCS 4	5530	13.10
		5610	13.17
	MCS 5	5530	13.06
		5610	13.11
	MCS 6	5530	13.04
		5610	13.07
	MCS 7	5530	13.09
		5610	13.14

Note: Use the data rate which has the maximum output power for the output power test

(U-NII-3 Band)

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11a	6Mbps	5745	13.82
		5785	13.98
		5825	**14.21**
	9Mbps	5745	13.74
		5785	13.75
		5825	13.78
	12Mbps	5745	13.69
		5785	13.71
		5825	13.75
	18Mbps	5745	13.67
		5785	13.68
		5825	13.72
	24Mbps	5745	13.58
		5785	13.62
		5825	13.65
	36Mbps	5745	13.57
		5785	13.60
		5825	13.62
	48Mbps	5745	13.61
		5785	13.63
		5825	13.67
	54Mbps	5745	13.51
		5785	13.59
		5825	13.64

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT20	MCS 0	5745	13.56
		5785	13.76
		5825	13.97
	MCS 1	5745	13.44
		5785	13.46
		5825	13.47
	MCS 2	5745	13.49
		5785	13.50
		5825	13.52
	MCS 3	5745	13.43
		5785	13.44
		5825	13.48
	MCS 4	5745	13.37
		5785	13.40
		5825	13.41
	MCS 5	5745	13.39
		5785	13.42
		5825	13.43
	MCS 6	5745	13.41
		5785	13.44
		5825	13.45
	MCS 7	5745	13.36
		5785	13.38
		5825	13.42

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11n HT40	MCS 0	5755	13.52
		5795	13.50
	MCS 1	5755	13.35
		5795	13.39
	MCS 2	5755	13.38
		5795	13.42
	MCS 3	5755	13.41
		5795	13.43
	MCS 4	5755	13.45
		5795	13.48
	MCS 5	5755	13.34
		5795	13.39
	MCS 6	5755	13.37
		5795	13.40
	MCS 7	5755	13.41
		5795	13.44

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT20	MCS 0	5745	13.65
		5785	13.76
		5825	14.03
	MCS 1	5745	13.54
		5785	13.56
		5825	13.59
	MCS 2	5745	13.48
		5785	13.49
		5825	13.51
	MCS 3	5745	13.34
		5785	13.42
		5825	13.45
	MCS 4	5745	13.37
		5785	13.40
		5825	13.43
	MCS 5	5745	13.36
		5785	13.39
		5825	13.41
	MCS 6	5745	13.35
		5785	13.38
		5825	13.42
	MCS 7	5745	13.32
		5785	13.34
		5825	13.38
	MCS 8	5745	13.37
		5785	13.40
		5825	13.41

Test Mode	Data Rate	Frequency (MHz)	Output power (dBm)
11ac VHT40	MCS 0	5755	13.23
		5795	13.48
	MCS 1	5755	13.19
		5795	13.20
	MCS 2	5755	13.17
		5795	13.21
	MCS 3	5755	13.15
		5795	13.18
	MCS 4	5755	13.10
		5795	13.16
	MCS 5	5755	13.09
		5795	13.11
	MCS 6	5755	13.07
		5795	13.13
	MCS 7	5755	13.15
		5795	13.17
	MCS 8	5755	13.08
		5795	13.12
11ac VHT80	MCS 0	5775	13.38
	MCS 1	5775	13.24
	MCS 2	5775	13.19
	MCS 3	5775	13.20
	MCS 4	5775	13.17
	MCS 5	5775	13.21
	MCS 6	5775	13.22
	MCS 7	5775	13.18

Note: 1.Use the data rate which has the maximum output power for the SAR test
2.Higher maximum output power is not specified for the other channels except the channels in above table.

(GSM/GPRS)

Band	GSM850			GSM1900		
Channel	**128**	**190**	**251**	**512**	**661**	**810**
Frequency	**824.2**	**836.6**	**848.8**	**1850.2**	**1880**	**1909.8**
GSM (GMSK, 1Tx-slot)	32.28	**32.31**	32.30	**29.20**	29.02	29.04
GPRS (GMSK, 1Tx-slot)	32.27	32.30	32.29	29.04	28.94	29.01
GPRS (GMSK, 2Tx-slot)	31.43	31.45	31.42	28.22	28.12	28.21
GPRS (GMSK, 3Tx-slot)	29.50	29.52	29.51	26.17	26.05	26.17
GPRS (GMSK, 4Tx-slot)	28.36	28.37	28.38	24.75	24.66	24.74
EDGE (8PSK, 1Tx-slot)	26.39	26.43	26.42	25.23	24.84	24.72
EDGE (8PSK, 2Tx-slot)	25.21	25.12	25.14	24.22	23.94	23.87
EDGE (8PSK, 3Tx-slot)	22.87	22.78	22.85	22.26	22.09	22.04
EDGE (8PSK, 4Tx-slot)	21.52	21.44	21.42	21.37	20.94	20.91

Note: GSM has the maximum output power compared with GPRS and EDGE.

(WCDMA)

Band	WCDMA II			WCDMA V		
Channel	**9262**	**9400**	**9538**	**4132**	**4182**	**4233**
Rx Channel	**9662**	**9800**	**9938**	**4357**	**4407**	**4458**
Frequency	**1852.4**	**1880**	**1907.6**	**826.4**	**836.4**	**846.6**
AMR	-	-	-	-	-	-
RMC 12.2K	18.95	19.08	**19.15**	22.58	**22.61**	22.59
HSDPA Subtest-1	17.99	18.14	18.20	21.68	21.62	21.67
HSDPA Subtest-2	18.00	18.12	18.23	22.43	22.36	22.42
HSDPA Subtest-3	17.53	17.65	17.75	21.14	21.12	21.17
HSDPA Subtest-4	17,52	17.63	17.72	21.09	21.07	21.12
HSUPA Subtest-1	17.54	17.67	18.22	19.60	19.59	19.62
HSUPA Subtest-2	18.03	18.14	18.23	19.64	19.62	19.67
HSUPA Subtest-3	17.06	17.16	17.27	20.58	20.56	20.59
HSUPA Subtest-4	18.03	18.15	18.23	19.14	19.15	19.18
HSUPA Subtest-5	17.03	17.15	17.23	21.19	21.18	21.24

(LTE)
Band 2

BW	Modulation	RB Size	RB Offset	Low CH18607 Frequency: 1850.7MHz	Mid CH18900 Frequency: 1880MHz	High CH19193 Frequency: 1909.3MHz
1.4 MHz	QPSK	1	0	18.72	18.75	18.86
		1	2	18.83	18.88	19.00
		1	5	18.72	18.74	18.88
		3	0	18.81	18.83	18.97
		3	1	18.87	18.89	**19.02**
		3	3	18.81	18.83	18.97
		6	0	17,79	17.80	17,93
	16QAM	1	0	17.87	18.13	18.30
		1	2	18.00	18.25	18.45
		1	5	17.87	18.19	18.31
		3	0	17.81	17.97	18.14
		3	1	17.88	18.07	18.20
		3	3	17.81	18.03	18.15
		6	0	16.78	17.00	17.11
	64QAM	1	0	17.23	17.31	17.47
		1	2	17.33	17.43	17.58
		1	5	17.17	17.33	17.46
		3	0	17.09	17.20	17.33
		3	1	17.17	17.25	17.39
		3	3	17.13	17.22	17.35
		6	0	16.10	16.21	16.32

BW	Modulation	RB Size	RB Offset	Low CH18615 Frequency: 1851.5MHz	Mid CH18900 Frequency: 1880MHz	High CH19185 Frequency: 1908.5MHz
3 MHz	QPSK	1	0	18.80	18.82	18.93
		1	7	18.95	18.97	**19.01**
		1	14	18.78	18.80	18.93
		8	0	17.83	17.83	17.95
		8	3	17.87	17.86	17.99
		8	7	17.82	17.84	17.98
		15	0	17.83	17.81	17.95
	16QAM	1	0	18.09	18.19	18.34
		1	7	18.31	18.44	18.58
		1	14	18.16	18.19	18.32
		8	0	16.93	17.05	17.17
		8	3	16.97	17.04	17.21
		8	7	16.96	17.03	17.19
		15	0	16.83	16.93	17.07
	64QAM	1	0	17.27	17.32	17.49
		1	7	17.42	17.55	17.66
		1	14	17.30	17.42	17.50
		8	0	16.09	16.20	16.28
		8	3	16.12	16.24	16.34
		8	7	16.09	16.19	16.30
		15	0	16.08	16.18	16.29

BW	Modulation	RB Size	RB Offset	Low CH18625 Frequency: 1852.5MHz	Mid CH18900 Frequency: 1880MHz	High CH19175 Frequency: 1907.5MHz
5 MHz	QPSK	1	0	18.64	18.70	18.81
		1	12	18.95	19.04	18.86
		1	24	18.61	18.70	18.83
		12	0	17.73	17.85	17.95
		12	6	17.83	17.91	18.03
		12	13	17.81	17.85	17.99
		25	0	17.77	17.86	17.97
	16QAM	1	0	18.15	18.16	18.26
		1	12	18.41	18.48	18.58
		1	24	**19.09**	18.13	18.27
		12	0	16.95	17.06	17.13
		12	6	17.07	17.12	17.21
		12	13	17.01	17.07	17.14
		25	0	16.96	17.03	17.09
	64QAM	1	0	17.13	17.29	17.37
		1	12	17.46	17.60	17.69
		1	24	17.15	17.23	17.38
		12	0	16.04	16.18	16.26
		12	6	16.14	16.25	16.35
		12	13	16.13	16.18	16.28
		25	0	16.08	16.18	16.27

BW	Modulation	RB Size	RB Offset	Low CH18650 Frequency: 1855MHz	Mid CH18900 Frequency: 1880MHz	High CH19150 Frequency: 1905MHz
10 MHz	QPSK	1	0	18.73	18.76	18.83
		1	24	18.90	**18.96**	18.87
		1	49	18.74	18.81	18.93
		25	0	17.73	17.92	18.10
		25	12	17.82	17.88	18.02
		25	25	17.94	17.94	18.05
		50	0	17.85	17.92	18.08
	16QAM	1	0	18.14	18.22	18.26
		1	24	18.38	18.46	18.49
		1	49	18.21	18.32	18.33
		25	0	16.89	17.09	17.19
		25	12	16.97	17.04	17.10
		25	25	17.08	17.10	17.09
		50	0	16.98	17.07	17.14
	64QAM	1	0	17.25	17.31	17.41
		1	24	17.34	17.54	17.77
		1	49	17.22	17.08	17.25
		25	0	16.16	16.21	16.13
		25	12	16.11	16.34	16.24
		25	25	16.27	16.22	16.30
		50	0	16.04	16.09	16.12

BW	Modulation	RB Size	RB Offset	Low CH18675 Frequency: 1857.5MHz	Mid CH18900 Frequency: 1880MHz	High CH19125 Frequency: 1902.5MHz
15 MHz	QPSK	1	0	18.69	18.73	18.78
		1	37	18.94	**18.98**	18.89
		1	74	18.66	18.77	18.89
		36	0	17.69	17.89	18.01
		36	19	17.82	17.86	17.98
		36	39	17.83	17.91	17.97
		75	0	17.79	17.92	18.01
	16QAM	1	0	18.14	18.15	18.16
		1	37	18.39	18.45	18.42
		1	74	18.09	18.17	18.30
		36	0	16.79	16.98	17.04
		36	19	16.87	16.94	17.02
		36	39	16.90	16.99	17.00
		75	0	16.88	17.00	17.06
	64QAM	1	0	17.22	17,27	12.34
		1	37	17.45	17,55	17.58
		1	74	17.21	17.34	17.42
		36	0	16.01	16.19	16.29
		36	19	16.07	16.16	16.27
		36	39	16.12	16.21	16.24
		75	0	16.10	16.24	16.31

BW	Modulation	RB Size	RB Offset	Low CH18700 Frequency: 1860MHz	Mid CH18900 Frequency: 1880MHz	High CH19100 Frequency: 1900MHz
20 MHz	QPSK	1	0	18.63	18,69	18.71
		1	50	18.87	18.95	**19.21**
		1	99	18.61	18.72	18.81
		50	0	17.52	17.95	17.94
		50	25	17.77	17.86	17.91
		50	50	17.68	17.98	17.82
		100	0	17.61	17.98	17.87
	16QAM	1	0	17.95	18.04	18.09
		1	50	18.19	18.35	18.31
		1	99	17.98	18.10	18.17
		50	0	16.56	16.99	16.97
		50	25	16.81	16.88	16.94
		50	50	16.73	17.01	16.86
		100	0	16.66	17.03	16.92
	64QAM	1	0	17.15	17.28	17.28
		1	50	17.42	17.51	17.54
		1	99	17.21	17.29	17.36
		50	0	15.89	16.29	16.25
		50	25	16.09	16.18	16.23
		50	50	16.04	16.28	16.14
		100	0	15.94	16.27	16.18

Band 4

BW	Modulation	RB Size	RB Offset	Low CH19957 Frequency: 1710.7MHz	Mid CH20175 Frequency: 1732.5MHz	High CH20393 Frequency: 1754.3MHz
1.4 MHz	QPSK	1	0	16.25	16.24	16.27
		1	2	16.37	**16.41**	16.39
		1	5	16.23	16.24	16.24
		3	0	16.33	16.24	16.33
		3	1	16.37	16.39	16.38
		3	3	16.32	16.35	16.32
		6	0	15.25	15.30	15.28
	16QAM	1	0	15.59	15.53	15.59
		1	2	15.71	15.64	15.76
		1	5	15.62	15.59	15.52
		3	0	15.42	15.43	15.47
		3	1	15.45	15.44	15.48
		3	3	15.39	15.38	15.46
		6	0	14.31	14.32	14.37
	64QAM	1	0	14.37	14.40	14.46
		1	2	14.53	14.57	14.62
		1	5	14.35	14.36	14.45
		3	0	14.28	14.27	14.36
		3	1	14.32	14.33	14.35
		3	3	14.28	14.32	14.32
		6	0	13.35	13.34	14.37

BW	Modulation	RB Size	RB Offset	Low CH19965 Frequency: 1711.5MHz	Mid CH20175 Frequency: 1732.5MHz	High CH20385 Frequency: 1753.5MHz
3 MHz	QPSK	1	0	16.26	16.29	16.33
		1	7	16.50	16.47	**16.53**
		1	14	16.30	16.28	16.29
		8	0	15.29	15.29	15.28
		8	3	15.32	15.34	15.33
		8	7	15.28	15.28	15.28
		15	0	15.26	15.26	15.27
	16QAM	1	0	15.57	15.66	15.68
		1	7	15.84	15.72	15.73
		1	14	15,67	15.57	15.67
		8	0	14.38	14.38	14.40
		8	3	14.43	14.41	14.45
		8	7	14.38	14.37	14.39
		15	0	14.30	14.28	14.31
	64QAM	1	0	14.42	14.37	14.50
		1	7	14.67	14.57	14.68
		1	14	14.44	14.45	14.46
		8	0	13.35	13.30	13.32
		8	3	13.38	13.36	13,38
		8	7	13.32	13.29	13.34
		15	0	13.33	13.28	13.33

BW	Modulation	RB Size	RB Offset	Low CH19975 Frequency: 1712.5MHz	Mid CH20175 Frequency: 1732.5MHz	High CH20375 Frequency: 1752.5MHz
5 MHz	QPSK	1	0	16.19	16.18	16.24
		1	12	**16.50**	16.26	16.25
		1	24	16.23	16.19	16.23
		12	0	15.29	15.33	15.35
		12	6	15.35	15.32	15.34
		12	13	15.30	15.28	15.32
		25	0	15.28	15.29	15.33
	16QAM	1	0	15.49	15.54	15.63
		1	12	15.88	15.80	15.90
		1	24	15.56	15.52	15.55
		12	0	14.32	14.37	14.39
		12	6	14.38	14.35	14.38
		12	13	14.34	14.28	14.35
		25	0	14,28	14,28	14.31
	64QAM	1	0	14.33	14.34	14.45
		1	12	14.69	14.61	14.72
		1	24	14.38	14.34	14.36
		12	0	13.32	13.33	13.38
		12	6	13.38	11.35	13.37
		12	13	13.33	13.30	13.38
		25	0	13.32	13.31	13.35

BW	Modulation	RB Size	RB Offset	Low CH20000 Frequency: 1715MHz	Mid CH20175 Frequency: 1732.5MHz	High CH20350 Frequency: 1750MHz
10 MHz	QPSK	1	0	16.26	16.27	16.31
		1	24	16.43	16.39	**16.46**
		1	49	16.28	16.27	16.28
		25	0	15.33	15.34	15.34
		25	12	15.31	15.33	15.35
		25	25	15.34	15.30	15.33
		50	0	15.34	15.32	15.37
	16QAM	1	0	15.64	15.60	15.69
		1	24	15.79	15.75	15.82
		1	49	15.58	15.57	15.64
		25	0	14.35	14.33	14.36
		25	12	14.31	14.30	14.36
		25	25	14.36	14.27	14.33
		50	0	14.34	14.30	14.35
	64QAM	1	0	14.42	14.43	14.50
		1	24	14.61	14.56	14.58
		1	49	14.45	14.44	14.43
		25	0	13.39	13.36	13.39
		25	12	13.37	13.34	13.39
		25	25	13.36	13.29	13.37
		50	0	13.38	13.35	13.41

BW	Modulation	RB Size	RB Offset	Low CH20025 Frequency: 1717.5MHz	Mid CH20175 Frequency: 1732.5MHz	High CH20325 Frequency: 1747.5MHz
15 MHz	QPSK	1	0	16.24	16.23	16.24
		1	37	**16.49**	16.47	**16.49**
		1	74	16.20	16.22	16.21
		36	0	15.31	15.32	15.38
		36	19	15.34	15.33	15.35
		36	39	15.36	15.28	15.36
		75	0	15.32	15.27	15.35
	16QAM	1	0	15.59	15.55	15.59
		1	37	15.82	15.85	15.78
		1	74	15.53	15.54	15.56
		36	0	14.28	14.27	14.34
		36	19	14,33	14.29	14.32
		36	39	14.33	14.22	14.31
		75	0	14.31	14,26	14.32
	64QAM	1	0	14.37	14.37	14.37
		1	37	14.69	14.63	14.72
		1	74	14.25	14.38	14.40
		36	0	13.32	13.32	13.39
		36	19	13.35	13.35	13.38
		36	39	13.37	13.28	13.37
		75	0	13.38	13.32	13.38

BW	Modulation	RB Size	RB Offset	Low CH20050 Frequency: 1720MHz	Mid CH20175 Frequency: 1732.5MHz	High CH20300 Frequency: 1745MHz
20 MHz	QPSK	1	0	16.17	16.18	16.19
		1	50	16.37	**16.67**	16.46
		1	99	16.13	16.16	16.15
		50	0	15.26	15.27	15,40
		50	25	15.33	15.31	15.34
		50	50	15.35	15.17	15.30
		100	0	15.31	15.22	15.36
	16QAM	1	0	15.51	15.47	15.45
		1	50	15.79	15.76	15.77
		1	99	15.43	15.52	15.49
		50	0	14.24	14.23	14.39
		50	25	14.32	14.28	14.34
		50	50	14.32	14.15	14.28
		100	0	14.31	14.21	14.34
	64QAM	1	0	14.32	14.32	14.31
		1	50	14.57	14.57	14.63
		1	99	14.25	14.33	14.35
		50	0	13.30	13.30	13.45
		50	25	13.37	13.34	13.37
		50	50	13.40	13.21	13.35
		100	0	15.38	13.23	13.40

Band 5

BW	Modulation	RB Size	RB Offset	Low CH20407 Frequency: 824.7MHz	Mid CH20525 Frequency: 836.5MHz	High CH20643 Frequency: 848.3MHz
1.4 MHz	QPSK	1	0	22.54	22.70	22.55
		1	2	22.78	22.65	22.71
		1	5	22.60	22.72	22.62
		3	0	22.62	**22.83**	22.70
		3	1	22.74	22.77	22.55
		3	3	22.79	22.69	22.69
		6	0	21.75	21.70	21.73
	16QAM	1	0	22.32	21.82	21.69
		1	2	22.26	21.75	21.71
		1	5	22.30	21.79	21.50
		3	0	21.82	21.83	21.80
		3	1	21.84	21.78	21.79
		3	3	21.87	21.86	21.65
		6	0	20.80	20.79	20.67
	64QAM	1	0	21.07	20.74	20.61
		1	2	21.30	20.90	20.58
		1	5	21.13	20.65	20.48
		3	0	20.65	20.74	20.66
		3	1	20.69	20.62	20.78
		3	3	20.70	20.79	20.57
		6	0	19.84	19.69	19.48

BW	Modulation	RB Size	RB Offset	Low CH20415 Frequency: 825.5MHz	Mid CH20525 Frequency: 836.5MHz	High CH20635 Frequency: 847.5MHz
3 MHz	QPSK	1	0	22.61	**22.72**	22.64
		1	7	22.65	22.67	22.61
		1	14	22.69	22.66	22.60
		8	0	21.70	21.69	21.68
		8	3	21.71	21.66	21.65
		8	7	21.71	21.70	21.53
		15	0	21.70	21.71	21.67
	16QAM	1	0	22.16	21.70	21.65
		1	7	22.36	21.92	21.89
		1	14	22.33	21.80	21.53
		8	0	20.70	20.80	20.89
		8	3	20.77	20.77	20.74
		8	7	20.84	20.91	20.67
		15	0	20.87	20.82	20.79
	64QAM	1	0	21.09	20.70	20.65
		1	7	21.32	20.85	20.65
		1	14	21.21	20.74	20.47
		8	0	19.65	19.56	19.81
		8	3	19.76	19.60	19.69
		8	7	19.63	19.73	19.57
		15	0	19.81	19.66	19.65

BW	Modulation	RB Size	RB Offset	Low CH20425 Frequency: 826.5MHz	Mid CH20525 Frequency: 836.5MHz	High CH20625 Frequency: 846.5MHz
5 MHz	QPSK	1	0	22.51	22.60	22.72
		1	12	22.72	**22.73**	22.71
		1	24	22.67	22.71	22.68
		12	0	21.76	21.78	21.61
		12	6	21.64	21.80	21.59
		12	13	21.77	21.78	21.55
		25	0	21.60	21.72	21.78
	16QAM	1	0	22.26	21.76	21.62
		1	12	22.37	21.78	21.88
		1	24	22.31	21.83	21.61
		12	0	20.78	20.81	20.86
		12	6	20.87	20.71	20.85
		12	13	20.90	20.81	20.72
		25	0	20.70	20.83	20.80
	64QAM	1	0	21.02	20.81	20.60
		1	12	21.23	20.88	20.67
		1	24	21.22	20.67	20.36
		12	0	19.72	19.65	19.80
		12	6	19.71	19.60	19.60
		12	13	19.72	19.86	19.46
		25	0	19.87	19.74	19.50

BW	Modulation	RB Size	RB Offset	Low CH20450 Frequency: 829MHz	Mid CH20525 Frequency: 836.5MHz	High CH20600 Frequency: 844MHz
10 MHz	QPSK	1	0	22.69	22.75	22.72
		1	24	22.80	**22.82**	22.81
		1	49	22.71	22.76	22.73
		25	0	21.79	21.83	21.78
		25	12	21.80	21.84	21.75
		25	25	21.83	21.86	21.69
		50	0	21.80	21.84	21.80
	16QAM	1	0	22.33	21.90	21.81
		1	24	22.42	21.95	21.90
		1	49	22.34	21.89	21.68
		25	0	20.88	20.89	20.95
		25	12	20.92	20.90	20.94
		25	25	20.94	20.92	20.80
		50	0	20.89	20.90	20.83
	64QAM	1	0	21.16	20.82	20.73
		1	24	21.37	20.95	20.73
		1	49	21.27	20.83	20.55
		25	0	19.75	19.75	19.81
		25	12	19.77	19.72	19.79
		25	25	19.78	19.91	19.62
		50	0	19.88	19.81	19.67

Band 7

BW	Modulation	RB Size	RB Offset	Low CH20775 Frequency: 2502.5MHz	Mid CH21100 Frequency: 2535MHz	High CH21425 Frequency: 2567.5MHz
5 MHz	QPSK	1	0	22.52	22.46	22.49
		1	12	**22.77**	22.69	22.55
		1	24	22.66	22.49	22.44
		12	0	21.62	21.62	21.60
		12	6	21.65	21.74	21.62
		12	13	21.77	21.45	21.60
		25	0	21.75	21.58	21.51
	16QAM	1	0	21.85	22.00	21.82
		1	12	22.21	22.08	22.02
		1	24	22.04	21.99	21.94
		12	0	20.71	20.76	20.57
		12	6	20.66	20.73	20.69
		12	13	20.89	20.61	20.72
		25	0	20.82	20.66	20.64
	64QAM	1	0	20.80	20.80	20.89
		1	12	21.05	21.06	20.87
		1	24	20.91	20.82	20.65
		12	0	19.72	19.54	19.43
		12	6	19.53	19.48	19.55
		12	13	19.78	19.74	19.45
		25	0	19.72	19.59	19.56

BW	Modulation	RB Size	RB Offset	Low CH20800 Frequency: 2505MHz	Mid CH21100 Frequency: 2535MHz	High CH21400 Frequency: 2565MHz
10 MHz	QPSK	1	0	22.54	22.36	22.55
		1	24	**22.88**	22.68	22.59
		1	49	22.65	22.56	22.57
		25	0	21.70	21.64	21.54
		25	12	21.66	21.65	21.55
		25	25	21.76	21.44	21.64
		50	0	21.79	21.44	21.64
	16QAM	1	0	21.89	21.90	21.87
		1	24	22.10	22.08	21.90
		1	49	22.01	22.00	21.78
		25	0	20.69	20.67	20.67
		25	12	20.76	20.69	20.53
		25	25	20.88	20.69	20.72
		50	0	20.76	20.79	20.58
	64QAM	1	0	20.77	20.81	20.77
		1	24	21.15	21.04	20.80
		1	49	20.89	20.96	20.70
		25	0	19.70	19.61	19.54
		25	12	19.59	19.51	19.56
		25	25	19.81	19.65	19.39
		50	0	19.71	19.62	19.49

BW	Modulation	RB Size	RB Offset	Low CH20825 Frequency: 2507.5MHz	Mid CH21100 Frequency: 2535MHz	High CH21375 Frequency: 2562.5MHz
15 MHz	QPSK	1	0	22.48	22.40	22.53
		1	37	22.77	**22.79**	22.66
		1	74	22.70	22.43	22.54
		36	0	21.69	21.56	21.66
		36	19	21.78	21.68	21.55
		36	39	21.91	21.46	21.67
		75	0	21.69	21.46	21.48
	16QAM	1	0	22.00	21.94	21.86
		1	37	22.20	22.24	22.07
		1	74	21.97	22.04	21.83
		36	0	20.68	20.76	20.72
		36	19	20.80	20.69	20.64
		36	39	20.91	20.63	20.54
		75	0	20.75	20.66	20.61
	64QAM	1	0	20.90	20.84	20.86
		1	37	21.04	21.08	20.78
		1	74	20.92	20.86	20.65
		36	0	19.69	19.46	19.62
		36	19	19.54	19.56	19.56
		36	39	19.80	19.59	19.39
		75	0	19.78	19.56	19.42

BW	Modulation	RB Size	RB Offset	Low CH20850 Frequency: 2510MHz	Mid CH21100 Frequency: 2535MHz	High CH21350 Frequency: 2560MHz
20 MHz	QPSK	1	0	22.67	22.52	22.56
		1	50	**22.95**	22.80	22.75
		1	99	22.70	22.57	22.63
		50	0	21.80	21.64	21.68
		50	25	21.79	21.74	21.67
		50	50	21.94	21.63	21.67
		100	0	21.80	21.64	21.66
	16QAM	1	0	22.01	22.04	21.97
		1	50	22.24	22.25	22.08
		1	99	22.08	22.10	21.96
		50	0	20.84	20.80	20.76
		50	25	20.80	20.75	20.72
		50	50	20.94	20.79	20.73
		100	0	20.83	20.81	20.69
	64QAM	1	0	20.96	20.93	20.90
		1	50	21.18	21.13	20.96
		1	99	20.95	21.02	20.85
		50	0	19.75	19.63	19.62
		50	25	19.70	19.58	19.59
		50	50	19.92	19.76	19.54
		100	0	19.80	19.65	19.60

Band 12

BW	Modulation	RB Size	RB Offset	Low CH23017 Frequency: 699.7MHz	Mid CH23095 Frequency: 707.5MHz	High CH23173 Frequency: 715.3MHz
1.4 MHz	QPSK	1	0	22.30	22.23	22.08
		1	2	22.39	22.43	22.34
		1	5	22.20	22.36	22.40
		3	0	22.24	22.27	22.36
		3	1	22.40	22.40	22.29
		3	3	22.43	**22.48**	22.25
		6	0	21.26	21.31	21.25
	16QAM	1	0	21.35	21.17	21.88
		1	2	21.51	21.36	21.89
		1	5	21.51	21.29	21.78
		3	0	21.37	21.39	21.48
		3	1	21.59	21.61	21.45
		3	3	21.50	21.59	21.41
		6	0	20.49	20.55	20.40
	64QAM	1	0	20.38	20.01	20.83
		1	2	20.31	20.23	20.88
		1	5	20.44	20.19	20.72
		3	0	20.34	20.26	20.31
		3	1	20.50	20.62	20.33
		3	3	20.66	20.34	20.40
		6	0	19.32	19.23	19.41

BW	Modulation	RB Size	RB Offset	Low CH23025 Frequency: 700.5MHz	Mid CH23095 Frequency: 707.5MHz	High CH23165 Frequency: 714.5MHz
3 MHz	QPSK	1	0	22.22	22.28	22.22
		1	7	22.31	**22.42**	22.29
		1	14	22.36	22.30	22.26
		8	0	21.36	21.29	21.27
		8	3	21.39	21.24	21.37
		8	7	21.36	21.48	21.24
		15	0	21.33	21.36	21.35
	16QAM	1	0	21.42	21.30	21.90
		1	7	21.51	21.40	21.88
		1	14	21.48	21.23	21.88
		8	0	20.40	20.46	20.40
		8	3	20.50	20.75	20.38
		8	7	20.50	20.61	20.55
		15	0	20.50	20.42	20.41
	64QAM	1	0	20.29	20.10	20.79
		1	7	20.36	20.37	20.81
		1	14	20.45	20.33	20.62
		8	0	19.29	19.27	19.27
		8	3	19.48	19.62	19.34
		8	7	19.55	19.40	19.28
		15	0	19.47	19.35	19.27

BW	Modulation	RB Size	RB Offset	Low CH23035 Frequency: 701.5MHz	Mid CH23095 Frequency: 707.5MHz	High CH23155 Frequency: 713.5MHz
5 MHz	QPSK	1	0	22.23	22.10	22.06
		1	12	22.30	**22.49**	22.43
		1	24	22.39	22.23	22.24
		12	0	21.42	21.36	21.23
		12	6	21.38	21.33	21.29
		12	13	21.33	21.50	21.37
		25	0	21.34	21.30	21.31
	16QAM	1	0	21.32	21.27	21.76
		1	12	21.52	21.43	21.77
		1	24	21.42	21.28	21.70
		12	0	20.46	20.48	20.55
		12	6	20.48	20.72	20.55
		12	13	20.57	20.54	20.40
		25	0	20.47	20.47	20.36
	64QAM	1	0	20.37	20.16	20.87
		1	12	20.41	20.39	20.72
		1	24	20.39	20.16	20.74
		12	0	19.28	19.32	19.38
		12	6	19.52	19.62	19.35
		12	13	19.65	19.37	19.42
		25	0	19.41	19.32	19.34

BW	Modulation	RB Size	RB Offset	Low CH23060 Frequency: 704MHz	Mid CH23095 Frequency: 707.5MHz	High CH23130 Frequency: 711MHz
10 MHz	QPSK	1	0	22.31	22.29	22.26
		1	24	22.49	**22.52**	22.47
		1	49	22.40	22.38	22.41
		25	0	21.43	21.37	21.40
		25	12	21.46	21.41	21.38
		25	25	21.49	21.50	21.41
		50	0	21.43	21.41	21.39
	16QAM	1	0	21.45	21.35	21.91
		1	24	21.64	21.45	21.93
		1	49	21.56	21.38	21.90
		25	0	20.53	20.55	20.57
		25	12	20.61	20.77	20.56
		25	25	20.68	20.62	20.57
		50	0	20.52	20.56	20.52
	64QAM	1	0	20.41	20.17	20.91
		1	24	20.49	20.40	20.90
		1	49	20.54	20.33	20.82
		25	0	19.38	19.40	19.38
		25	12	19.60	19.76	19.40
		25	25	19.67	19.43	19.43
		50	0	19.51	19.41	19.42

Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH23205 Frequency: 779.5MHz	Mid CH23230 Frequency: 782.0MHz	High CH23255 Frequency: 784.5MHz
5 MHz	QPSK	1	0	22.39	22.36	22.35
		1	12	**22.54**	22.45	22.50
		1	24	22.46	22.41	22.43
		12	0	21.51	21.37	21.46
		12	6	21.47	21.50	21.48
		12	13	21.53	21.50	21.51
		25	0	21.47	21.45	21.48
	16QAM	1	0	21.69	21.54	21.46
		1	12	21.82	21.74	21.60
		1	24	21.74	21.54	21.54
		12	0	20.52	20.49	20.45
		12	6	20.51	20.51	20.48
		12	13	20.54	20.58	20.43
		25	0	20.53	20.43	20.55
	64QAM	1	0	20.55	20.41	20.44
		1	12	20.68	20.66	20.52
		1	24	20.62	20.40	20.45
		12	0	19.33	19.37	19.35
		12	6	19.41	19.43	19.34
		12	13	19.46	19.61	19.32
		25	0	19.51	19.35	19.47

Band/BW	Modulation	RB Size	RB Offset	-	CH23230	-
				-	Frequency: 782.0MHz	-
10 MHz	QPSK	1	0	-	22.47	-
		1	24	-	**22.65**	-
		1	49	-	22.52	-
		25	0	-	21.52	-
		25	12	-	21.53	-
		25	25	-	21.54	-
		50	0	-	21.51	-
	16QAM	1	0	-	21.60	-
		1	24	-	21.80	-
		1	49	-	21.64	-
		25	0	-	20.58	-
		25	12	-	20.62	-
		25	25	-	20.65	-
		50	0	-	20.57	-
	64QAM	1	0	-	20.51	-
		1	24	-	20.76	-
		1	49	-	20.60	-
		25	0	-	19.41	-
		25	12	-	19.48	-
		25	25	-	19.64	-
		50	0	-	19.52	-

Band 17

Band/BW	Modulation	RB Size	RB Offset	Low CH23755 Frequency: 706.5MHz	Mid CH23790 Frequency: 710MHz	High CH23825 Frequency: 713.5MHz
5 MHz	QPSK	1	0	22.27	22.39	22.20
		1	12	**22.54**	22.42	22.47
		1	24	22.29	22.26	22.34
		12	0	21.26	21.31	21.41
		12	6	21.43	21.37	21.27
		12	13	21.48	21.30	21.27
		25	0	21.28	21.38	21.41
	16QAM	1	0	21.51	21.24	21.84
		1	12	21.65	21.56	21.83
		1	24	21.37	21.29	21.72
		12	0	20.44	20.53	20.55
		12	6	20.48	20.59	20.55
		12	13	20.50	20.57	20.48
		25	0	20.51	20.46	20.56
	64QAM	1	0	20.38	20.07	20.73
		1	12	20.54	20.30	20.85
		1	24	20.43	20.39	20.83
		12	0	19.30	19.35	19.43
		12	6	19.27	19.57	19.38
		12	13	19.33	19.25	19.41
		25	0	19.38	19.49	19.43

Band/BW	Modulation	RB Size	RB Offset	Low CH23780 Frequency: 709MHz	Mid CH23790 Frequency: 710MHz	High CH23800 Frequency: 711MHz
10 MHz	QPSK	1	0	22.43	22.42	22.36
		1	24	22.57	**22.58**	22.55
		1	49	22.45	22.42	22.45
		25	0	21.46	21.45	21.43
		25	12	21.49	21.43	21.41
		25	25	21.50	21.46	21.44
		50	0	21.45	21.45	21.44
	16QAM	1	0	21.55	21.41	21.98
		1	24	21.72	21.60	21.93
		1	49	21.56	21.47	21.92
		25	0	20.56	20.63	20.57
		25	12	20.53	20.61	20.59
		25	25	20.57	20.62	20.61
		50	0	20.57	20.61	20.57
	64QAM	1	0	20.54	20.23	20.78
		1	24	20.58	20.41	20.99
		1	49	20.54	20.40	20.87
		25	0	19.44	19.46	19.48
		25	12	19.34	19.58	19.41
		25	25	19.52	19.43	19.46
		50	0	19.42	19.60	19.57

Band 25

BW	Modulation	RB Size	RB Offset	Low CH26047 Frequency: 1850.7MHz	Mid CH26365 Frequency: 1882.5MHz	High CH26683 Frequency: 1914.3MHz
1.4 MHz	QPSK	1	0	17.88	18.00	18.11
		1	2	18.02	18.15	18.25
		1	5	17.88	18.02	18.10
		3	0	17.97	18.11	18.19
		3	1	18.04	18.17	**18.26**
		3	3	17.97	18.07	18.21
		6	0	16.97	17.08	17.17
	16QAM	1	0	16.48	16.57	16.73
		1	2	16.65	16.76	16.83
		1	5	16.48	16.56	16.69
		3	0	16,33	16.43	16.53
		3	1	16.38	16.54	16.64
		3	3	16.33	16.44	16.59
		6	0	15.25	15.38	15.47
	64QAM	1	0	16.13	16.24	16.32
		1	2	16.28	16.42	16.46
		1	5	16.09	16.24	16.35
		3	0	16.01	16.14	16.22
		3	1	16.05	16.18	16.25
		3	3	16.03	16.14	16.21
		6	0	15.02	15.09	15.20

BW	Modulation	RB Size	RB Offset	Low CH26055 Frequency: 1851.5MHz	Mid CH26365 Frequency: 1882.5MHz	High CH26675 Frequency: 1913.5MHz
3 MHz	QPSK	1	0	17.93	18.02	18.08
		1	7	18.07	18.19	**18.28**
		1	14	17.92	18.01	18.12
		8	0	16.94	17.06	17.18
		8	3	16.99	17.08	17.21
		8	7	16.95	17.05	17.14
		15	0	16.92	17.03	17.13
	16QAM	1	0	16.51	16.69	16.68
		1	7	16.66	16.84	16.89
		1	14	16.49	16.59	16.74
		8	0	15.26	15.37	15.47
		8	3	15.28	15.45	15.53
		8	7	15.25	15.42	15.46
		15	0	15.15	15.28	15.40
	64QAM	1	0	16.16	16.24	16.37
		1	7	16.25	16.43	16.58
		1	14	16.15	16.27	16.37
		8	0	14.92	15.02	15.16
		8	3	14.94	15.08	15.19
		8	7	14.92	15.04	15.14
		15	0	14.91	15.03	15.12

BW	Modulation	RB Size	RB Offset	Low CH26065 Frequency: 1852.5MHz	Mid CH26365 Frequency: 1882.5MHz	High CH26665 Frequency: 1912.5MHz
5 MHz	QPSK	1	0	17.84	17.92	17.99
		1	12	18.09	18.16	**18.28**
		1	24	17.81	17.94	18.03
		12	0	16.92	17.05	17.06
		12	6	17.00	17.10	17.21
		12	13	16.99	17.09	17.07
		25	0	16,94	17.06	17.09
	16QAM	1	0	16.47	16.55	16.63
		1	12	16,75	16.83	16.80
		1	24	16.45	16.61	16.69
		12	0	15.20	15.32	15.36
		12	6	15.26	15.39	15.50
		12	13	15.25	15.35	15.35
		25	0	15.24	15.38	15.33
	64QAM	1	0	16.08	16.11	16.24
		1	12	16.27	16.45	16.54
		1	24	16.07	16.14	16.28
		12	0	14.88	15.02	15.07
		12	6	14.97	15.12	15.18
		12	13	14.99	15.05	15.05
		25	0	14.93	15.04	15.07

BW	Modulation	RB Size	RB Offset	Low CH26090 Frequency: 1855MHz	Mid CH26365 Frequency: 1882.5MHz	High CH26640 Frequency: 1910MHz
10 MHz	QPSK	1	0	17.88	18.01	18.07
		1	24	18.06	18.16	**18.21**
		1	49	17.91	18.01	18.07
		25	0	16.96	17.10	17.15
		25	12	17.01	17.11	17.19
		25	25	17.12	17.18	17.15
		50	0	17.03	17.13	17.18
	16QAM	1	0	16.54	16.60	16.67
		1	24	16.65	16.76	16.86
		1	49	16.53	16.63	16.75
		25	0	15.16	15.35	15.40
		25	12	15.24	15.34	15.45
		25	25	15.35	15.42	15.39
		50	0	15.24	15.37	15.38
	64QAM	1	0	16.13	16.26	17.33
		1	24	16.30	16.41	16.48
		1	49	16.15	16.28	16.36
		25	0	14.93	15.09	15,16
		25	12	14.98	15.09	15.19
		25	25	15.13	15.14	15.15
		50	0	15.04	15.13	15.17

BW	Modulation	RB Size	RB Offset	Low CH26115 Frequency: 1857.5MHz	Mid CH26365 Frequency: 1882.5MHz	High CH26615 Frequency: 1907.5MHz
15 MHz	QPSK	1	0	17.83	17.95	18.03
		1	37	18.11	18.18	**18.29**
		1	74	17.83	17.95	18.06
		36	0	16.89	17.09	17.21
		36	19	17.00	17.10	17.18
		36	39	17.02	17.16	17.20
		75	0	16.98	17.12	17.22
	16QAM	1	0	16.57	16.57	16.70
		1	37	16.74	16.78	16.92
		1	74	16.48	16.59	16.67
		36	0	15.13	15.31	15.42
		36	19	15.21	15.32	15.40
		36	39	15.22	15.37	15.41
		75	0	15.21	15.34	15.42
	64QAM	1	0	16.16	16.22	16.27
		1	37	16.35	16.52	16.52
		1	74	16,07	16.24	16.30
		36	0	14.84	15.08	15.18
		36	19	14.97	15.07	15.17
		36	39	14.98	15.11	15.16
		75	0	14.97	15.13	15.20

BW	Modulation	RB Size	RB Offset	Low CH26140 Frequency: 1860MHz	Mid CH26365 Frequency: 1882.5MHz	High CH26590 Frequency: 1905MHz
20 MHz	QPSK	1	0	17.78	17.89	17.95
		1	50	**18.32**	18.14	18.25
		1	99	17.78	17.91	18.01
		50	0	16.78	17.15	17.35
		50	25	16.97	17.11	17.18
		50	50	16.91	17.22	17.21
		100	0	16.82	17.18	16.00
	16QAM	1	0	16.41	16.46	16.52
		1	50	16.65	16.82	16.83
		1	99	16.47	16.48	16.57
		50	0	14.97	15.34	15.57
		50	25	15.18	15.32	15.39
		50	50	15.11	15.43	15.42
		100	0	15.04	15.40	15.50
	64QAM	1	0	16.07	16.15	16.15
		1	50	16.32	16.38	16.43
		1	99	16.02	16.15	16.25
		50	0	14.78	15.14	15.37
		50	25	14.97	15.13	15.22
		50	50	14.91	15.21	15.25
		100	0	14.81	15.17	15.29

Band 41

BW	Modulation	RB Size	RB Offset	Low CH40265 Frequency: 2557.5MHz	Mid CH40740 Frequency: 2605MHz	High CH41215 Frequency: 2652.5MHz
5 MHz	QPSK	1	0	22.76	22.68	22.65
		1	12	**23.20**	23.05	22.98
		1	24	22.86	22.78	22.79
		12	0	21.79	21.80	21.93
		12	6	21.85	21.76	21.84
		12	13	21.88	21.78	21.93
		25	0	21.78	21.95	21.93
	16QAM	1	0	22.00	21.70	21.68
		1	12	22.33	21.96	22.02
		1	24	21.85	21.73	21.78
		12	0	20.80	20.71	20.87
		12	6	20.81	20.60	20.87
		12	13	20.68	20.67	21.01
		25	0	20.73	20.93	20.96
	64QAM	1	0	20.77	20.55	20.55
		1	12	21.11	20.78	20.80
		1	24	20.77	20.62	20.68
		12	0	19.74	19.74	19.85
		12	6	19.45	19.49	19.85
		12	13	19.75	19.70	19.93
		25	0	19.66	19.74	19.95

BW	Modulation	RB Size	RB Offset	Low CH40290 Frequency: 2560MHz	Mid CH40740 Frequency: 2605MHz	High CH41190 Frequency: 2650MHz
10 MHz	QPSK	1	0	22.78	22.59	22.66
		1	24	**23.23**	23.08	23.06
		1	49	22.88	22.69	22.62
		25	0	21.82	21.79	21.83
		25	12	21.72	21.66	21.84
		25	25	21.91	21.69	21.86
		50	0	21.65	21.85	21.92
	16QAM	1	0	21.96	21.72	21.68
		1	24	22.34	21.97	22.13
		1	49	21.99	21.71	21.63
		25	0	20.68	20.78	20.97
		25	12	20.70	20.58	20.79
		25	25	20.69	20.80	20.89
		50	0	20.82	20.91	20.98
	64QAM	1	0	20.75	20.65	20.62
		1	24	21.01	20.80	20.97
		1	49	20.67	20.73	20.67
		25	0	19.65	19.82	19.97
		25	12	19.46	19.46	19.86
		25	25	19.75	19.72	19.81
		50	0	19.76	19.80	19.92

BW	Modulation	RB Size	RB Offset	Low CH40315 Frequency: 2562.5MHz	Mid CH40740 Frequency: 2605MHz	High CH41165 Frequency: 2647.5MHz
15 MHz	QPSK	1	0	22.83	22.60	22.70
		1	37	**23.17**	23.04	23.04
		1	74	22.86	22.76	22.70
		36	0	21.76	21.83	21.96
		36	19	21.69	21.70	21.83
		36	39	21.76	21.76	21.98
		75	0	21.79	21.84	21.85
	16QAM	1	0	21.91	21.74	21.64
		1	37	22.24	21.91	22.12
		1	74	22.00	21.65	21.73
		36	0	20.66	20.71	21.00
		36	19	20.71	20.70	20.89
		36	39	20.76	20.76	21.06
		75	0	20.85	20.92	20.98
	64QAM	1	0	20.78	20.53	20.68
		1	37	21.01	20.82	20.90
		1	74	20.70	20.75	20.70
		36	0	19.78	19.70	20.00
		36	19	19.43	19.47	19.74
		36	39	19.76	19.80	19.91
		75	0	19.78	19.84	19.93

BW	Modulation	RB Size	RB Offset	Low CH40340 Frequency: 2565MHz	Mid CH40740 Frequency: 2605MHz	High CH41140 Frequency: 2645MHz
20 MHz	QPSK	1	0	22.91	22.76	22.79
		1	50	**23.27**	23.11	23.17
		1	99	22.98	22.87	22.81
		50	0	21.83	21.85	22.00
		50	25	21.86	21.83	21.98
		50	50	21.93	21.85	22.00
		100	0	21.83	21.98	22.04
	16QAM	1	0	22.06	21.78	21.80
		1	50	22.39	22.09	22.17
		1	99	22.03	21.82	21.79
		50	0	20.83	20.87	21.06
		50	25	20.81	20.78	20.95
		50	50	20.87	20.86	21.07
		100	0	20.91	20.96	21.08
	64QAM	1	0	20.94	20.67	20.69
		1	50	21.19	20.96	20.98
		1	99	20.84	20.75	20.76
		50	0	19.78	19.84	20.02
		50	25	19.61	19.64	19.86
		50	50	19.79	19.81	19.93
		100	0	19.86	19.87	20.00

Band 41 CA

E-UTRA CA Config	Channel	Mode	PCC					SCC					Tune Up	UL CA Power	NRB_alloc	3GPP MPR (dB)
			BW	Ch.	Freq.	RB Size	RB Offset	BW	Ch.	Freq.	RB Size	RB Offset				
20+20	Low	QPSK	20	40340	2565	1	99	20	40538	2584.8	1	0	24.0	**22.41**	2	0
		QPSK	20	40340	2565	100	0	20	40538	2584.8	0	0	23.0	21.42	100	1
		QPSK	20	40340	2565	100	0	20	40538	2584.8	100	0	22.0	20.37	200	2
		16QAM	20	40340	2565	1	99	20	40538	2584.8	1	0	23.0	22.16	2	1
		16QAM	20	40340	2565	100	0	20	40538	2584.8	0	0	22.0	20.37	100	2
		16QAM	20	40340	2565	100	0	20	40538	2584.8	100	0	21.0	19.51	200	3
		64QAM	20	40340	2565	1	99	20	40538	2584.8	1	0	22.0	20.33	2	2
		64QAM	20	40340	2565	100	0	20	40538	2584.8	0	0	21.0	19.39	100	3
		64QAM	20	40340	2565	100	0	20	40538	2584.8	100	0	21.0	19.41	200	3
		QPSK	20	40340	2565	1	0	20	40538	2584.8	1	99	15.5	14.05	2	8.5
	Mid	QPSK	20	40740	2605	1	99	20	40938	2624.8	1	0	24.0	22.38	2	0
		QPSK	20	40740	2605	100	0	20	40938	2624.8	0	0	23.0	21.41	100	1
		QPSK	20	40740	2605	100	0	20	40938	2624.8	100	0	22.0	20.52	200	2
		16QAM	20	40740	2605	1	99	20	40938	2624.8	1	0	23.0	21.84	2	1
		16QAM	20	40740	2605	100	0	20	40938	2624.8	0	0	22.0	20.47	100	2
		16QAM	20	40740	2605	100	0	20	40938	2624.8	100	0	21.0	19.59	200	3
		64QAM	20	40740	2605	1	99	20	40938	2624.8	1	0	22.0	20.39	2	2
		64QAM	20	40740	2605	100	0	20	40938	2624.8	0	0	21.0	19.44	100	3
		64QAM	20	40740	2605	100	0	20	40938	2624.8	100	0	21.0	19.48	200	3
		QPSK	20	40740	2605	1	0	20	40938	2624.8	1	99	15.5	14.03	2	8.5
	High	QPSK	20	41140	2645	1	0	20	40942	2625.2	1	99	24.0	22.37	2	0
		QPSK	20	41140	2645	100	0	20	40942	2625.2	0	0	23.0	21.44	100	1
		QPSK	20	41140	2645	100	0	20	40942	2625.2	100	0	22.0	20.39	200	2
		16QAM	20	41140	2645	1	0	20	40942	2625.2	1	99	23.0	22.06	2	1
		16QAM	20	41140	2645	100	0	20	40942	2625.2	0	0	22.0	20.48	100	2
		16QAM	20	41140	2645	100	0	20	40942	2625.2	100	0	21.0	19.47	200	3
		64QAM	20	41140	2645	1	99	20	40942	2625.2	1	0	22.0	20.35	2	2
		64QAM	20	41140	2645	100	0	20	40942	2625.2	0	0	21.0	19.47	100	3
		64QAM	20	41140	2645	100	0	20	40942	2625.2	100	0	21.0	19.44	200	3
		QPSK	20	41140	2645	1	99	20	40942	2625.2	1	0	15.5	13.67	2	8.5
5+20	Low	QPSK	5	40265	2557.5	1	24	20	40382	2569.2	1	0	24.0	**22.54**	2	0
		16QAM	5	40265	2557.5	1	24	20	40382	2569.2	1	0	23.0	22.05	2	1
		64QAM	5	40265	2557.5	1	24	20	40382	2569.2	1	0	22.0	20.58	2	2
	Mid	QPSK	5	40740	2605	1	24	20	40857	2616.7	1	0	24.0	22.33	2	0
		16QAM	5	40740	2605	1	24	20	40857	2616.7	1	0	23.0	21.95	2	1
		64QAM	5	40740	2605	1	24	20	40857	2616.7	1	0	22.0	20.61	2	2
	High	QPSK	5	41215	2652.5	1	0	20	41098	2640.8	1	99	24.0	22.36	2	0
		16QAM	5	41215	2652.5	1	0	20	41098	2640.8	1	99	23.0	21.96	2	1
		64QAM	5	41215	2652.5	1	0	20	41098	2640.8	1	99	22.0	20.55	2	2

E-UTRA CA Config	Channel	Mode	PCC					SCC					Tune Up	UL CA Power	NRB_alloc	3GPP MPR (dB)
			BW	Ch.	Freq.	RB Size	RB Offset	BW	Ch.	Freq.	RB Size	RB Offset				
10+15	Low	QPSK	10	40290	2560	1	49	15	40410	2572	1	0	24.0	**22.60**	2	0
		16QAM	10	40290	2560	1	49	15	40410	2572	1	0	23.0	21.62	2	1
		64QAM	10	40290	2560	1	49	15	40410	2572	1	0	22.0	20.57	2	2
	Mid	QPSK	10	40740	2605	1	49	15	40860	2617	1	0	24.0	22.42	2	0
		16QAM	10	40740	2605	1	49	15	40860	2617	1	0	23.0	21.60	2	1
		64QAM	10	40740	2605	1	49	15	40860	2617	1	0	22.0	20.66	2	2
	High	QPSK	10	41190	2650	1	49	15	41070	2638	1	0	24.0	22.57	2	0
		16QAM	10	41190	2650	1	49	15	41070	2638	1	0	23.0	21.45	2	1
		64QAM	10	41190	2650	1	49	15	41070	2638	1	0	22.0	20.61	2	2
10+20	Low	QPSK	10	40290	2560	1	49	20	40434	2574.4	1	0	24.0	**22.51**	2	0
		16QAM	10	40290	2560	1	49	20	40434	2574.4	1	0	23.0	21.63	2	1
		64QAM	10	40290	2560	1	49	20	40434	2574.4	1	0	22.0	20.53	2	2
	Mid	QPSK	10	40740	2605	1	49	20	40884	2619.4	1	0	24.0	22.47	2	0
		16QAM	10	40740	2605	1	49	20	40884	2619.4	1	0	23.0	21.53	2	1
		64QAM	10	40740	2605	1	49	20	40884	2619.4	1	0	22.0	20.57	2	2
	High	QPSK	10	41190	2650	1	0	20	41046	2635.6	1	99	24.0	22.39	2	0
		16QAM	10	41190	2650	1	0	20	41046	2635.6	1	99	23.0	21.56	2	1
		64QAM	10	41190	2650	1	0	20	41046	2635.6	1	99	22.0	20.64	2	2
15+10	Low	QPSK	15	40315	2562.5	1	74	10	40435	2574.5	1	0	24.0	22.45	2	0
		16QAM	15	40315	2562.5	1	74	10	40435	2574.5	1	0	23.0	21.63	2	1
		64QAM	15	40315	2562.5	1	74	10	40435	2574.5	1	0	22.0	20.61	2	2
	Mid	QPSK	15	40740	2605	1	74	10	40860	2617	1	0	24.0	22.32	2	0
		16QAM	15	40740	2605	1	74	10	40860	2617	1	0	23.0	21.47	2	1
		64QAM	15	40740	2605	1	74	10	40860	2617	1	0	22.0	20.57	2	2
	High	QPSK	15	41165	2647.5	1	74	10	41285	2659.5	1	0	24.0	**22.48**	2	0
		16QAM	15	41165	2647.5	1	74	10	41285	2659.5	1	0	23.0	21.41	2	1
		64QAM	15	41165	2647.5	1	74	10	41285	2659.5	1	0	22.0	20.54	2	2
15+15	Low	QPSK	15	40315	2562.5	1	74	15	40465	2577.5	1	0	24.0	22.44	2	0
		16QAM	15	40315	2562.5	1	74	15	40465	2577.5	1	0	23.0	21.64	2	1
		64QAM	15	40315	2562.5	1	74	15	40465	2577.5	1	0	22.0	20.67	2	2
	Mid	QPSK	15	40740	2605	1	74	15	40890	2620	1	0	24.0	22.33	2	0
		16QAM	15	40740	2605	1	74	15	40890	2620	1	0	23.0	21.20	2	1
		64QAM	15	40740	2605	1	74	15	40890	2620	1	0	22.0	20.63	2	2
	High	QPSK	15	41165	2647.5	1	74	15	41015	2632.5	1	0	24.0	**22.46**	2	0
		16QAM	15	41165	2647.5	1	74	15	41015	2632.5	1	0	23.0	21.59	2	1
		64QAM	15	41165	2647.5	1	74	15	41015	2632.5	1	0	22.0	20.69	2	2

E-UTRA CA Config	Channel	Mode	PCC					SCC					Tune Up	UL CA Power	NRB_alloc	3GPP MPR (dB)
			BW	Ch.	Freq.	RB Size	RB Offset	BW	Ch.	Freq.	RB Size	RB Offset				
15+20	Low	QPSK	15	40315	2562.5	1	74	20	40486	2579.6	1	0	24.0	**22.40**	2	0
		16QAM	15	40315	2562.5	1	74	20	40486	2579.6	1	0	23.0	21.73	2	1
		64QAM	15	40315	2562.5	1	74	20	40486	2579.6	1	0	22.0	20.71	2	2
	Mid	QPSK	15	40740	2605	1	74	20	40911	2622.1	1	0	24.0	22.37	2	0
		16QAM	15	40740	2605	1	74	20	40911	2622.1	1	0	23.0	21.49	2	1
		64QAM	15	40740	2605	1	74	20	40911	2622.1	1	0	22.0	20.72	2	2
	High	QPSK	15	41165	2647.5	1	74	20	40994	2630.4	1	0	24.0	22.45	2	0
		16QAM	15	41165	2647.5	1	74	20	40994	2630.4	1	0	23.0	21.63	2	1
		64QAM	15	41165	2647.5	1	74	20	40994	2630.4	1	0	22.0	20.78	2	2
20+5	Low	QPSK	20	40340	2565	1	99	5	40357	2576.7	1	0	24.0	22.43	2	0
		16QAM	20	40340	2565	1	99	5	40357	2576.7	1	0	23.0	21.72	2	1
		64QAM	20	40340	2565	1	99	5	40357	2576.7	1	0	22.0	20.69	2	2
	Mid	QPSK	20	40740	2605	1	99	5	40857	2616.7	1	0	24.0	22.35	2	0
		16QAM	20	40740	2605	1	99	5	40857	2616.7	1	0	23.0	21.59	2	1
		64QAM	20	40740	2605	1	99	5	40857	2616.7	1	0	22.0	20.65	2	2
	High	QPSK	20	41140	2645	1	0	5	41023	2633.3	1	24	24.0	**22.48**	2	0
		16QAM	20	41140	2645	1	0	5	41023	2633.3	1	24	23.0	21.85	2	1
		64QAM	20	41140	2645	1	0	5	41023	2633.3	1	24	22.0	20.63	2	2
20+10	Low	QPSK	20	40340	2565	1	99	10	40484	2579.4	1	0	24.0	**22.43**	2	0
		16QAM	20	40340	2565	1	99	10	40484	2579.4	1	0	23.0	21.84	2	1
		64QAM	20	40340	2565	1	99	10	40484	2579.4	1	0	22.0	20.63	2	2
	Mid	QPSK	20	40740	2605	1	99	10	40884	2619.4	1	0	24.0	22.42	2	0
		16QAM	20	40740	2605	1	99	10	40884	2619.4	1	0	23.0	21.56	2	1
		64QAM	20	40740	2605	1	99	10	40884	2619.4	1	0	22.0	20.69	2	2
	High	QPSK	20	41140	2645	1	99	10	40996	2630.6	1	0	24.0	22.36	2	0
		16QAM	20	41140	2645	1	99	10	40996	2630.6	1	0	23.0	21.37	2	1
		64QAM	20	41140	2645	1	99	10	40996	2630.6	1	0	22.0	20.73	2	2
20+15	Low	QPSK	20	40340	2565	1	99	15	40511	2582.1	1	0	24.0	**22.51**	2	0
		16QAM	20	40340	2565	1	99	15	40511	2582.1	1	0	23.0	21.75	2	1
		64QAM	20	40340	2565	1	99	15	40511	2582.1	1	0	22.0	20.72	2	2
	Mid	QPSK	20	40740	2605	1	99	15	40911	2622.1	1	0	24.0	22.37	2	0
		16QAM	20	40740	2605	1	99	15	40911	2622.1	1	0	23.0	21.38	2	1
		64QAM	20	40740	2605	1	99	15	40911	2622.1	1	0	22.0	20.75	2	2
	High	QPSK	20	41140	2645	1	99	15	40969	2627.9	1	0	24.0	22.36	2	0
		16QAM	20	41140	2645	1	99	15	40969	2627.9	1	0	23.0	21.38	2	1
		64QAM	20	41140	2645	1	99	15	40969	2627.9	1	0	22.0	20.77	2	2

Band 66

BW	Modulation	RB Size	RB Offset	Low CH131979 Frequency: 1710.7MHz	Mid CH132322 Frequency: 1745MHz	High CH132665 Frequency: 1779.3MHz
1.4 MHz	QPSK	1	0	16.54	16.56	16.56
		1	2	16.66	16.70	16.69
		1	5	16.51	16.54	16.54
		3	0	16.64	16.63	16.64
		3	1	16.71	**16.72**	16.70
		3	3	16.64	16.65	16.63
		6	0	15.63	15.65	15.63
	16QAM	1	0	15.82	15.83	15.87
		1	2	16.01	16.09	16.08
		1	5	15.91	15.89	15.82
		3	0	15.73	15.76	15.65
		3	1	15.78	15.74	15.75
		3	3	15.72	15.75	15.73
		6	0	14.62	14.66	14.61
	64QAM	1	0	14.70	14.73	14.74
		1	2	14.86	14.92	14.90
		1	5	14.68	14.72	14.71
		3	0	14.58	14.56	14.58
		3	1	14.62	14.65	14.66
		3	3	14.63	14.64	14.63
		6	0	13.57	13.56	13.61

BW	Modulation	RB Size	RB Offset	Low CH131987 Frequency: 1711.5MHz	Mid CH132322 Frequency: 1745MHz	High CH132657 Frequency: 1778.5MHz
3 MHz	QPSK	1	0	16.59	16.59	16.54
		1	7	**16.73**	16.49	16.71
		1	14	16.56	16.58	16.56
		8	0	15.58	15.61	15.60
		8	3	15.62	15.66	15.64
		8	7	15.59	15.64	15.60
		15	0	15.56	15.59	15.57
	16QAM	1	0	15.86	15.93	15.94
		1	7	16.11	16.12	16.17
		1	14	15.84	15.88	15.87
		8	0	14.62	14.68	14.65
		8	3	14.67	14.71	14.73
		8	7	14.65	14.65	14.68
		15	0	14.56	14.57	14.56
	64QAM	1	0	14.73	14.72	14.75
		1	7	14.87	14.99	14.94
		1	14	14.73	14.77	14.71
		8	0	13.54	13.52	13.53
		8	3	13.58	13.58	13.60
		8	7	13.51	13.55	13.55
		15	0	13.50	13.53	13.52

BW	Modulation	RB Size	RB Offset	Low CH131997 Frequency: 1712.5MHz	Mid CH132322 Frequency: 1745MHz	High CH132647 Frequency: 1777.5MHz
5 MHz	QPSK	1	0	16.40	16,46	16.46
		1	12	**16.74**	16.71	16.58
		1	24	16.45	16.43	16.43
		12	0	15.59	15.56	15.60
		12	6	15.65	15.65	15.65
		12	13	15.55	15.63	15.60
		25	0	15.54	15.61	15.59
	16QAM	1	0	15.68	15.75	15.78
		1	12	16.02	16.16	16.09
		1	24	15.75	15.85	15.75
		12	0	14.57	14.58	14.61
		12	6	14.64	14.65	14.63
		12	13	14.53	14.66	14.58
		25	0	14.52	14.57	14.57
	64QAM	1	0	14.57	14.65	14.65
		1	12	14.90	14.96	15.00
		1	24	14.64	14.67	14.63
		12	0	13.52	13.52	13.58
		12	6	13.59	13.62	13.62
		12	13	13.47	13.58	13.55
		25	0	13.51	13.55	13.57

BW	Modulation	RB Size	RB Offset	Low CH132022 Frequency: 1715MHz	Mid CH132322 Frequency: 1745MHz	High CH132622 Frequency: 1775MHz
10 MHz	QPSK	1	0	16.51	16.52	16.54
		1	24	16.69	**16.70**	**16.70**
		1	49	16.53	16.51	16.49
		25	0	15.64	15.54	15.72
		25	12	15.62	15.61	15.66
		25	25	15.57	15.67	15.60
		50	0	15.58	15.62	15.65
	16QAM	1	0	15.88	15.84	15.88
		1	24	15.95	16.04	16.13
		1	49	15.91	15.86	15.90
		25	0	14.62	14.52	14.71
		25	12	14.57	14.60	14.63
		25	25	14.53	14.69	14.56
		50	0	14.56	14.58	14.65
	64QAM	1	0	14.72	14.69	14.75
		1	24	14.87	14.89	14.87
		1	49	14.66	14.77	14.74
		25	0	13.60	13.51	13.68
		25	12	13.57	13.57	13.63
		25	25	13.52	13.64	13.53
		50	0	13.56	13.60	13.66

BW	Modulation	RB Size	RB Offset	Low CH132047 Frequency: 1717.5MHz	Mid CH132322 Frequency: 1745MHz	High CH132597 Frequency: 1772.5MHz
15 MHz	QPSK	1	0	16.46	16.47	16.48
		1	37	16.75	**16.76**	16.72
		1	74	16.43	16.49	16.46
		36	0	15.65	15.56	15.66
		36	19	15.64	15.62	15.64
		36	39	16.57	15.68	15.55
		75	0	15.64	15.59	15.61
	16QAM	1	0	15.77	15.83	15.83
		1	37	16.05	16.14	16.15
		1	74	15.86	15.88	15.80
		36	0	14.58	14.55	14.63
		36	19	14,58	14.57	14.58
		36	39	14.52	14.63	14.50
		75	0	14.58	14.58	14.56
	64QAM	1	0	14.71	14.69	14.67
		1	37	14.95	14.99	14.97
		1	74	14.60	14.68	14.67
		36	0	13.59	13.49	13.63
		36	19	13.57	13.57	13.59
		36	39	13.55	13.61	13.48
		75	0	13.57	13.58	13.56

BW	Modulation	RB Size	RB Offset	Low CH132072 Frequency: 1720MHz	Mid CH132322 Frequency: 1745MHz	High CH132572 Frequency: 1770MHz
20 MHz	QPSK	1	0	16.41	16.44	16.46
		1	50	**16.69**	16.67	16.67
		1	99	16.38	16.44	16.39
		50	0	16.73	15.45	15.69
		50	25	15.62	15.61	15.63
		50	50	15.49	15.71	15.45
		100	0	15.61	15.61	15.59
	16QAM	1	0	15.67	15.81	15.87
		1	50	15.97	16.02	16.03
		1	99	15.75	15.77	15.74
		50	0	14.69	14.43	14.65
		50	25	14.58	14.56	14.58
		50	50	14.44	14.65	14.43
		100	0	14.59	14.56	14.57
	64QAM	1	0	14.61	14.58	14.63
		1	50	14.85	14.85	14.89
		1	99	14.63	14.62	14.64
		50	0	13.70	13.43	13.66
		50	25	13.58	13.58	13.58
		50	50	13.44	13.67	13.41
		100	0	13.56	13.56	13.52

7.2.System Check for Body & Head Tissue simulating liquid

Body:

Frequency	Description	SAR(W/kg) (±10 window)		Dielectric Parameters (±5% window)		Temp
		1g	10g	εr	σ(s/m)	℃
2450MHz	Recommended value	13.1 11.79 - 14.41	6.00 5.40 - 6.60	52.7 50.065 – 55.335	1.95 1.8525 – 2.0475	/
	Measurement value **2019-09-05**	12.85	5.91	52.441	1.919	**22.11**
5250MHz	Recommended value	19.125 17.2125-21.0375	5.4 4.86 - 5.94	49.0 46.55 – 51.45	5.3 5.035 – 5.565	/
	Measurement value **2019-09-06**	20.55	5.49	47.60	5.41	**22.05**
5600MHz	Recommended value	20.825 18.7425-22.9075	5.85 5.265-6.435	48.60 46.17 – 51.03	5.65 5.3675 – 5.9325	/
	Measurement value **2019-09-07**	19.88	5.79	47.18	5.812	**22.07**
5800MHz	Recommended value	19.5 17.55 - 21.45	5.475 4.9275 - 6.0225	48.2 45.79 – 50.61	6.0 5.70 – 6.30	/
	Measurement value **2019-09-07**	19.28	5.81	47.12	5.913	**22.05**
750MHz	Recommended value	2.1225 1.91025–2.33475	1.3875 1.24875–1.52625	55.5 52.725 – 58.275	0.96 0.912 - 1.008	/
	Measurement value **2019-09-01**	2.101	1.319	55.89	0.924	**22.05**
750MHz	Recommended value	2.1225 1.91025–2.33475	1.3875 1.24875–1.52625	55.5 52.725 – 58.275	0.96 0.912 - 1.008	/
	Measurement value **2019-08-31**	2.15	1.32	56.226	0.925	**22.04**
900MHz	Recommended value	2.725 2.4525 – 2.9975	1.7475 1.57275-1.92225	55.0 52.25 – 57.75	1.05 0.9975-1.1025	/
	Measurement value **2019-08-30**	2.81	1.70	55.43	1.079	**22.11**
1800MHz	Recommended value	9.6 8.64 – 10.56	5.025 4.5225 – 5.5275	53.3 50.635 – 55.965	1.52 1.444-1.596	/
	Measurement value **2019-09-02**	9.92	5.19	53.271	1.564	**22.01**
1800MHz	Recommended value	9.6 8.64 – 10.56	5.025 4.5225 – 5.5275	53.3 50.635 – 55.965	1.52 1.444-1.596	/
	Measurement value **2019-09-03**	10.08	5.31	53.24	1.459	**22.02**
2000MHz	Recommended value	10.275 9.2475-11.3025	5.275 4.7475-5.8025	53.3 50.635 – 55.965	1.52 1.444-1.596	/
	Measurement value **2019-09-04**	9.97	5.33	52.709	1.537	**22.04**
2600MHz	Recommended value	13.825 12.4425–15.2075	6.15 5.535 – 6.765	52.5 49.875 – 55.125	2.16 2.052 – 2.268	/
	Measurement value **2019-09-05**	14.33	6.51	52.428	2.22	**22.01**

Head:

Frequency	Description	SAR(W/kg) (±10 window)		Dielectric Parameters (±5% window)		Temp
		1g	10g	εr	σ(s/m)	℃
2450MHz	Recommended value	13.1 11.79 - 14.41	6.00 5.40 - 6.60	39.20 37.24-41.16	1.80 1.71-1.89	/
	Measurement value **2019-09-05**	13.15	6.11	39.441	1.819	**22.11**
5250MHz	Recommended value	19.125 17.2125-21.0375	5.4 4.86 - 5.94	36.00 34.20-37.80	4.66 4.194-5.126	/
	Measurement value **2019-09-06**	21.02	5.35	35.60	4.61	**22.05**
5600MHz	Recommended value	20.825 18.7425-22.9075	5.85 5.265-6.435	35.5 33.725-37.275	5.07 4.563-5.577	/
	Measurement value **2019-09-07**	20.11	5.82	36.018	4.920	**22.07**
5800MHz	Recommended value	19.5 17.55 - 21.45	5.475 4.9275 - 6.0225	35.3 33.535-37.065	5.27 5.0065-5.5335	/
	Measurement value **2019-09-07**	20.169	5.16	36.07	5.097	**22.05**
750MHz	Recommended value	2.1225 1.91025–2.33475	1.3875 1.24875–1.52625	41.9 39.805-43.995	0.89 0.8455-0.9345	/
	Measurement value **2019-09-01**	2.24	1.28	42.225	0.924	**22.05**
750MHz	Recommended value	2.1225 1.91025–2.33475	1.3875 1.24875–1.52625	41.9 39.805-43.995	0.89 0.8455-0.9345	/
	Measurement value **2019-08-31**	2.27	1.32	42.225	0.924	**22.04**
900MHz	Recommended value	2.725 2.4525 – 2.9975	1.7475 1.57275-1.92225	41.5 39.425-43.575	0.97 0.873-1.067	/
	Measurement value **2019-08-30**	2.58	1.69	41.43	0.979	**22.11**
1800MHz	Recommended value	9.6 8.64 – 10.56	5.025 4.5225 – 5.5275	40.0 38.0-42.0	1.40 1.26-1.54	/
	Measurement value **2019-09-02**	8.99	4.85	40.271	1.364	**22.01**
1800MHz	Recommended value	9.6 8.64 – 10.56	5.025 4.5225 – 5.5275	40.0 38.0-42.0	1.40 1.26-1.54	/
	Measurement value **2019-09-03**	8.86	4.79	40.271	1.364	**22.02**
2000MHz	Recommended value	10.275 9.2475-11.3025	5.275 4.7475-5.8025	40.0 38.0-42.0	1.40 1.26-1.54	/
	Measurement value **2019-09-04**	9.325	4.754	39.709	1.437	**22.04**
2600MHz	Recommended value	13.825 12.4425–15.2075	6.15 5.535 – 6.765	39.0 37.05-40.95	1.96 1.862-2.058	/
	Measurement value **2019-09-05**	14.13	6.52	38.428	1.991	**22.01**

Note: Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

7.3.Test Results

WIFI 2.4GHz, 11b:

Channel	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
		Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
6	Back	17	16.69	0.018	0.00749	0.110	0.046	0.110	0.046	0.07
	Front			0.65	0.24	0.698	0.258	**0.698**	0.258	-0.15
	Top			0.015	0.00699	0.016	0.008	0.016	0.008	0.13
	Bottom			0.016	0.00757	0.017	0.008	0.017	0.008	-0.07
	Left			0.163	0.058	0.175	0.062	0.175	0.062	0.03
	Head 15 Degree Left-Right			0.023	0.013	0.025	0.014	0.025	0.014	0.03
	Head 15 Degree Right-Right			0.034	0.017	0.037	0.018	0.037	0.018	0.11
	Head Touch Left-Right			0.028	0.014	0.030	0.015	0.030	0.015	0.06
	Head Touch Right-Right			0.035	0.019	0.038	0.020	0.038	0.020	0.07
	Head 15 Degree Left			0.171	0.072	0.184	0.077	0.184	0.077	0.07
	Head 15 Degree Right			0.215	0.085	0.231	0.091	0.231	0.091	-0.17
	Head Touch Left			0.174	0.077	0.187	0.083	0.187	0.083	0.08
	Head Touch Right			0.238	0.143	0.256	0.154	**0.256**	0.154	0.11
Conclusion: PASS										
Note : Factor= Max. Scaled AV Power(W)/Measured Power(W) Scaled SAR-1= Measured SAR*Factor Scaled-Final= Scaled SAR-1*(1/Duty Cycle) The Max. Reported SAR : 0.698**W/kg for 1g SAR**										

Notes: 1. Because the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, so the OFDM SAR for 11g/n mode can be exempted.

2.11b CH6 has the maximum output power so the SAR test was performed with this channel, and the Max scaled SAR less than 0.8W/Kg. so other channel can be excluded.

3.The WIFI 2.4GHz Duty Cycle is 100%.

4.The test value for some side are very lower than other side，and do not put the test plot in the report.

WIFI 5GHz, 11a:

U-NII Band	Channel	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
1	48	Back	13.50	13.31	0.134	0.050	0.140	0.052	0.140	0.052	0.12
		Front			0.723	0.232	0.755	0.242	**0.755**	0.242	0.13
		Top			0.061	0.026	0.064	0.027	0.064	0.027	0.12
		Bottom			0.142	0.057	0.148	0.060	0.148	0.060	0.11
		Left			0.534	0.155	0.558	0.162	0.558	0.162	-0.04
		Head 15 Degree Left-Right			0.189	0.062	0.197	0.065	0.197	0.065	0.16
		Head 15 Degree Right-Right			0.104	0.046	0.109	0.048	0.109	0.048	-0.1
		Head Touch Left-Right			0.189	0.075	0.197	0.078	0.197	0.078	-0.04
		Head Touch Right-Right			0.118	0.048	0.123	0.050	0.123	0.050	0.1
		Head 15 Degree Left			0.324	0.103	0.338	0.108	0.338	0.108	-0.17
		Head 15 Degree Right			0.214	0.054	0.224	0.056	0.224	0.056	0.03
		Head Touch Left			0.352	0.122	0.368	0.127	**0.368**	0.127	-0.14
		Head Touch Right			0.227	0.081	0.237	0.085	0.237	0.085	0.09

U-NII Band	Channel	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
2A	64	Back	14	13.60	0.135	0.050	0.148	0.055	0.148	0.055	0.12
		Front			0.709	0.242	0.777	0.265	**0.777**	0.265	0.08
		Top			0.066	0.027	0.072	0.030	0.072	0.030	0.03
		Bottom			0.131	0.051	0.144	0.056	0.144	0.056	0.09
		Left			0.561	0.167	0.615	0.183	0.615	0.183	-0.14
		Head 15 Degree Left-Right			0.202	0.071	0.221	0.078	0.221	0.078	-0.15
		Head 15 Degree Right-Right			0.113	0.05	0.124	0.055	0.124	0.055	-0.12
		Head Touch Left-Right			0.204	0.073	0.224	0.080	0.224	0.080	0.04
		Head Touch Right-Right			0.115	0.05	0.126	0.055	0.126	0.055	0.11
		Head 15 Degree Left			0.449	0.145	0.492	0.159	0.492	0.159	-0.09
		Head 15 Degree Right			0.503	0.164	0.552	0.180	0.552	0.180	0.04
		Head Touch Left			0.487	0.147	0.534	0.161	0.534	0.161	0.05
		Head Touch Right			0.511	0.166	0.560	0.182	**0.560**	0.182	0.13

U-NII Band	Channel	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
2C	140	Back	14.0	14.0	0.173	0.064	0.173	0.064	0.173	0.064	0.12
		Front			0.726	0.297	0.726	0.297	**0.726**	0.297	0.09
		Top			0.081	0.031	0.081	0.031	0.081	0.031	0.12
		Bottom			0.164	0.066	0.164	0.066	0.164	0.066	0.16
		Left			0.670	0.206	0.670	0.206	0.670	0.206	-0.03
		Head 15 Degree Left-Right			0.102	0.041	0.102	0.041	0.102	0.041	0.14
		Head 15 Degree Right-Right			0.132	0.060	0.132	0.060	0.132	0.060	0.18
		Head Touch Left-Right			0.105	0.045	0.105	0.045	0.105	0.045	0.1
		Head Touch Right-Right			0.128	0.056	0.128	0.056	0.128	0.056	0.07
		Head 15 Degree Left			0.552	0.178	0.552	0.178	**0.552**	0.178	-0.14
		Head 15 Degree Right			0.295	0.105	0.295	0.105	0.295	0.105	0.1
		Head Touch Left			0.499	0.162	0.499	0.162	0.499	0.162	-0.01
		Head Touch Right			0.296	0.107	0.296	0.107	0.296	0.107	0.05

U-NII Band	Channel	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
3	165	Back	14.5	14.21	0.181	0.069	0.193	0.074	0.193	0.074	0.12
		Front			0.718	0.304	0.768	0.325	**0.768**	0.325	0.11
		Top			0.090	0.037	0.096	0.040	0.096	0.040	0.10
		Bottom			0.176	0.070	0.188	0.075	0.188	0.075	0.12
		Left			0.711	0.213	0.760	0.228	0.760	0.228	-0.05
		Head 15 Degree Left -Right			0.237	0.080	0.253	0.086	0.253	0.086	0.03
		Head 15 Degree Right-Right			0.138	0.064	0.148	0.068	0.148	0.068	0.04
		Head Touch Left-Right			0.243	0.084	0.260	0.090	0.260	0.090	0.09
		Head Touch Right-Right			0.139	0.065	0.149	0.069	0.149	0.069	0.07
		Head 15 Degree Left			0.370	0.124	0.396	0.133	0.396	0.133	0.16
		Head 15 Degree Right			0.411	0.109	0.439	0.117	0.439	0.117	0.04
		Head Touch Left			0.377	0.114	0.403	0.122	0.403	0.122	0.18
		Head Touch Right			0.471	0.121	0.504	0.129	**0.504**	0.129	0.01
Conclusion: PASS											

Note:
Factor= Max. Scaled AV Power(W)/Measured Power(W)
Scaled SAR-1= Measured SAR*Factor
Scaled-Final= Scaled SAR-1*(1/Duty Cycle)
The Max. Reported SAR : 0.777**W/kg for 1g SAR**

Notes: 1. The initial test configuration for 2.4 GHz and 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, 11a mode has the maximum output power compared with 11n/ac. So use 11a as the initial SAR test configuration mode.

2. Choose the channel which has the maximum output power for the SAR test, and if the Max scaled SAR less than 0.8W/Kg. other channel can be excluded.

3.The WIFI 5GHz Duty Cycle is 100%.

4.The test value for some side are very lower than other side，and do not put the test plot in the report

GSM:

GSM	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
850	190	Back	32.5	32.31	0.00114	0.000961	0.001	0.001	0.001	0.001	0.19
		Front			0.00348	0.00234	0.004	0.002	0.004	0.002	0.10
		Top			0.000978	0.000781	0.001	0.001	0.001	0.001	0.14
		Bottom			0.00196	0.00127	0.002	0.001	0.002	0.001	0.16
		Right			**0.00369**	0.00231	0.004	0.002	**0.004**	0.002	-0.11
		Head 15 Degree Left-Right			0.00288	0.0021	0.003	0.002	0.003	0.002	0.19
		Head 15 Degree Right-Right			**0.00331**	0.00221	0.003	0.002	**0.003**	0.002	-0.13
		Head Touch Left-Right			0.00239	0.00204	0.002	0.002	0.002	0.002	0.13
		Head Touch Right-Right			0.00305	0.00138	0.003	0.001	0.003	0.001	0.16
		Head 15 Degree Left			0.00144	0.0011	0.002	0.001	0.002	0.001	0.03
		Head 15 Degree Right			0.00114	0.00103	0.001	0.001	0.001	0.001	0.04
		Head Touch Left			0.00147	0.00121	0.002	0.001	0.002	0.001	0.07
		Head Touch Right			0.00128	0.00105	0.001	0.001	0.001	0.001	0.12

GSM	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
1900	512	Back	29.5	29.20	0.013	0.00766	0.014	0.008	0.014	0.008	-0.06
		Front			0.033	0.015	0.035	0.016	0.035	0.016	0.12
		Top			0.00199	0.0013	0.002	0.001	0.002	0.001	0.13
		Bottom			0.0047	0.00282	0.005	0.003	0.005	0.003	-0.13
		Right			0.055	0.023	0.059	0.025	**0.059**	0.025	-0.11
		Head 15 Degree Left-Right			0.027	0.013	0.029	0.014	**0.029**	0.014	0.12
		Head 15 Degree Right-Right			0.019	0.0094	0.020	0.010	0.020	0.010	0.12
		Head Touch Left-Right			0.015	0.00769	0.016	0.008	0.016	0.008	0.10
		Head Touch Right-Right			0.00846	0.00445	0.009	0.005	0.009	0.005	-0.16
		Head 15 Degree Left			0.014	0.0073	0.015	0.008	0.015	0.008	0.03
		Head 15 Degree Right			0.007	0.0054	0.008	0.006	0.008	0.006	0.04
		Head Touch Left			0.016	0.0085	0.017	0.009	0.017	0.009	0.11
		Head Touch Right			0.011	0.0059	0.012	0.006	0.012	0.006	0.05
Conclusion: PASS											
Note: Factor= Max. Scaled AV Power(W)/Measured Power(W) Scaled SAR-1= Measured SAR*Factor Scaled-Final= Scaled SAR-1*(1/Duty Cycle) The Max. Reported SAR : 0.059**W/kg for 1g SAR**											

Notes: 1. GSM mode has the higher output power compared with GPRS and EDGE, so the SAR test was performed with GSM Mode.

2. Choose the channel which has the max. output power for the SAR test, and the max. reported SAR less than 0.8W/kg, so other channels can be excluded.

WCDMA:

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
2	9538	Back	19.5	19.15	0.330	0.181	0.358	0.196	0.358	0.196	0.13
		Front			0.695	0.379	0.753	0.411	0.753	0.411	0.06
		Top			0.043	0.026	0.047	0.028	0.047	0.028	-0.17
		Bottom			0.097	0.053	0.105	0.057	0.105	0.057	0.13
		Right			0.725	0.225	0.786	0.244	**0.786**	0.244	0.02
		Head 15 Degree Left -Right			0.526	0.245	0.570	0.266	**0.570**	0.266	-0.10
		Head 15 Degree Right-Right			0.482	0.231	0.522	0.250	0.522	0.250	-0.04
		Head Touch Left-Right			0.526	0.243	0.570	0.263	**0.570**	0.263	0.04
		Head Touch Right-Right			0.291	0.148	0.315	0.160	0.315	0.160	0.09
		Head 15 Degree Left			0.234	0.084	0.254	0.091	0.254	0.091	0.03
		Head 15 Degree Right			0.236	0.079	0.256	0.086	0.256	0.086	0.01
		Head Touch Left			0.236	0.082	0.256	0.089	0.256	0.089	0.05
		Head Touch Right			0.239	0.085	0.259	0.092	0.259	0.092	0.07

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
5	4182	Back	23.0	22.61	0.00708	0.00508	0.008	0.006	0.008	0.006	-0.14
		Front			0.022	0.014	0.024	0.015	**0.024**	0.015	0.16
		Top			0.00695	0.00509	0.008	0.006	0.008	0.006	0.15
		Bottom			0.00389	0.00304	0.004	0.003	0.004	0.003	-0.15
		Right			0.011	0.00687	0.012	0.008	0.012	0.008	0.18
		Head 15 Degree Left -Right			0.019	0.012	0.021	0.013	**0.021**	0.013	0.12
		Head 15 Degree Right-Right			0.013	0.00888	0.014	0.010	0.014	0.010	-0.05
		Head Touch Left-Right			0.014	0.00995	0.015	0.011	0.015	0.011	0.07
		Head Touch Right-Right			0.011	0.00828	0.012	0.009	0.012	0.009	0.15
		Head 15 Degree Left			0.013	0.0071	0.014	0.008	0.014	0.008	0.05
		Head 15 Degree Right			0.011	0.00623	0.012	0.007	0.012	0.007	0.01
		Head Touch Left			0.016	0.00735	0.018	0.008	0.018	0.008	0.03
		Head Touch Right			0.015	0.00724	0.016	0.008	0.016	0.008	0.07
Conclusion: PASS											

Note:
Factor= Max. Scaled AV Power(W)/Measured Power(W)
Scaled SAR-1= Measured SAR*Factor
Scaled-Final= Scaled SAR-1*(1/Duty Cycle)
The Max. Reported SAR : 0.786**W/kg for 1g SAR**

Notes: 1. WCDMA has the higher output power compared with HSUPA, so the SAR test was performed with WCDMA Mode.
2. Choose the channel which has the max. output power for the SAR test, and the max. reported SAR less than 0.8W/kg, so other channels can be excluded.

LTE:

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
2	19100	Back	19.50	19.21	0.318	0.173	0.340	0.185	0.340	0.185	0.07
		Front			0.720	0.425	0.770	0.454	**0.770**	0.454	-0.07
		Top			0.077	0.044	0.082	0.047	0.082	0.047	0.07
		Bottom			0.137	0.077	0.146	0.082	0.146	0.082	-0.08
		Right			0.652	0.305	0.697	0.326	0.697	0.326	-0.04
		Head 15 Degree Left -Right			0.632	0.318	0.676	0.340	0.676	0.340	-0.03
		Head 15 Degree Right-Right			0.492	0.265	0.526	0.283	0.526	0.283	-0.13
		Head Touch Left-Right			0.68	0.387	0.727	0.414	**0.727**	0.414	-0.17
		Head Touch Right-Right			0.649	0.324	0.694	0.346	0.694	0.346	-0.15
		Head 15 Degree Left			0.154	0.064	0.165	0.068	0.165	0.068	0.11
		Head 15 Degree Right			0.132	0.027	0.141	0.029	0.141	0.029	0.15
		Head Touch Left			0.156	0.068	0.167	0.073	0.167	0.073	0.08
		Head Touch Right			0.134	0.029	0.143	0.031	0.143	0.031	0.07
4	20175	Back	17.0	16.67	0.397	0.215	0.428	0.232	0.428	0.232	0.11
		Front			0.265	0.128	0.286	0.138	0.286	0.138	-0.15
		Top			0.038	0.025	0.041	0.027	0.041	0.027	0.09
		Bottom			0.205	0.109	0.221	0.118	0.221	0.118	-0.11
		Right			0.701	0.385	0.756	0.415	**0.756**	0.415	-0.01
		Head 15 Degree Left -Right			0.295	0.153	0.318	0.165	0.318	0.165	0.09
		Head 15 Degree Right-Right			0.249	0.132	0.269	0.142	0.269	0.142	0.13
		Head Touch Left-Right			0.296	0.153	0.319	0.165	**0.319**	0.165	0.07
		Head Touch Right-Right			0.206	0.113	0.222	0.122	0.222	0.122	0.14
		Head 15 Degree Left			0.167	0.058	0.180	0.063	0.180	0.063	0.2
		Head 15 Degree Right			0.143	0.043	0.154	0.046	0.154	0.046	0.04
		Head Touch Left			0.178	0.064	0.192	0.069	0.192	0.069	0.13
		Head Touch Right			0.152	0.047	0.164	0.051	0.164	0.051	0.05

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
5	20525	Back	23.0	22.83	0.00755	0.00488	0.008	0.005	0.008	0.005	0.10
		Front			0.020	0.011	0.021	0.011	**0.021**	0.011	0.09
		Top			0.0058	0.0402	0.006	0.042	0.006	0.042	-0.11
		Bottom			0.00499	0.00327	0.005	0.003	0.005	0.003	0.16
		Right			0.013	0.00825	0.014	0.009	0.014	0.009	0.13
		Head 15 Degree Left -Right			0.014	0.011	0.015	0.011	0.015	0.011	0.2
		Head 15 Degree Right-Right			0.013	0.0095	0.014	0.010	0.014	0.010	0.07
		Head Touch Left-Right			0.015	0.011	0.016	0.011	**0.016**	0.011	0.12
		Head Touch Right-Right			0.013	0.00958	0.014	0.010	0.014	0.010	0.14
		Head 15 Degree Left			0.0093	0.0083	0.010	0.009	0.010	0.009	0.2
		Head 15 Degree Right			0.0057	0.0064	0.006	0.007	0.006	0.007	0.16
		Head Touch Left			0.0098	0.0092	0.010	0.010	0.010	0.010	0.12
		Head Touch Right			0.0059	0.0071	0.006	0.007	0.006	0.007	0.09
7	20850	Back	23	22.95	0.178	0.085	0.18006	0.08598	0.18006	0.08598	-0.05
		Front			0.402	0.192	0.40665	0.19422	0.40665	0.19422	0.05
		Top			0.029	0.015	0.02934	0.01517	0.02934	0.01517	0.01
		Bottom			0.279	0.151	0.28223	0.15275	0.28223	0.15275	0.01
		Right			0.529	0.251	0.53513	0.25391	**0.53513**	0.25391	-0.04
		Head 15 Degree Left -Right			0.683	0.327	0.69091	0.33079	0.69091	0.33079	0.05
		Head 15 Degree Right-Right			0.693	0.385	0.70102	0.38946	0.70102	0.38946	-0.10
		Head Touch Left-Right			0.697	0.338	0.70507	0.34191	0.70507	0.34191	0
		Head Touch Right-Right			0.716	0.4	0.72429	0.40463	**0.72429**	0.40463	-0.09
		Head 15 Degree Left			0.234	0.136	0.23671	0.13757	0.23671	0.13757	0.02
		Head 15 Degree Right			0.264	0.128	0.26706	0.12948	0.26706	0.12948	0.07
		Head Touch Left			0.243	0.139	0.24581	0.14061	0.24581	0.14061	0.09
		Head Touch Right			0.271	0.131	0.27414	0.13252	0.27414	0.13252	0.05

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
12	23095	Back	23.0	22.52	0.00151	0.00118	0.002	0.001	0.002	0.001	0.12
		Front			0.018	0.011	0.020	0.012	**0.020**	0.012	0.12
		Top			0.00364	0.00267	0.004	0.003	0.004	0.003	0.19
		Bottom			0.00969	0.00677	0.011	0.008	0.011	0.008	0.15
		Right			0.00652	0.0034	0.007	0.004	0.007	0.004	0.11
		Head 15 Degree Left -Right			0.014	0.011	0.016	0.012	0.016	0.012	0.05
		Head 15 Degree Right-Right			0.014	0.011	0.016	0.012	0.016	0.012	0.03
		Head Touch Left-Right			0.015	0.012	0.017	0.013	**0.017**	0.013	0.05
		Head Touch Right-Right			0.014	0.011	0.016	0.012	0.016	0.012	0.03
		Head 15 Degree Left			0.0092	0.0032	0.010	0.004	0.010	0.004	0.01
		Head 15 Degree Right			0.0067	0.0027	0.007	0.003	0.007	0.003	0.02
		Head Touch Left			0.0098	0.0043	0.011	0.005	0.011	0.005	0.05
		Head Touch Right			0.0074	0.0031	0.008	0.003	0.008	0.003	0.07
13	23230	Back	23.00	22.65	0.00469	0.00343	0.005	0.004	0.005	0.004	0.04
		Front			0.013	0.00848	0.014	0.009	0.014	0.009	-0.17
		Top			0.00596	0.00385	0.007	0.004	0.007	0.004	0.19
		Bottom			0.017	0.011	0.019	0.012	**0.019**	0.012	0.14
		Right			0.010	0.00627	0.011	0.007	0.011	0.007	0.04
		Head 15 Degree Left -Right			0.016	0.012	0.017	0.013	0.017	0.013	0.2
		Head 15 Degree Right-Right			0.016	0.012	0.017	0.013	0.017	0.013	0.11
		Head Touch Left-Right			0.017	0.012	0.019	0.013	**0.019**	0.013	0.11
		Head Touch Right-Right			0.016	0.012	0.017	0.013	0.017	0.013	0.12
		Head 15 Degree Left			0.0075	0.0037	0.008	0.004	0.008	0.004	0.11
		Head 15 Degree Right			0.0064	0.0034	0.007	0.004	0.007	0.004	0.06
		Head Touch Left			0.0086	0.0047	0.009	0.005	0.009	0.005	0.08
		Head Touch Right			0.0075	0.0046	0.008	0.005	0.008	0.005	0.17

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
17	23790	Back	23.0	22.58	0.000853	0.000618	0.001	0.001	0.001	0.001	0.15
		Front			0.012	0.00832	0.013	0.009	**0.013**	0.009	0.2
		Top			0.00391	0.0026	0.004	0.003	0.004	0.003	0.12
		Bottom			0.00788	0.00549	0.009	0.006	0.009	0.006	0.11
		Right			0.0037	0.00202	0.004	0.002	0.004	0.002	0.14
		Head 15 Degree Left -Right			0.016	0.013	0.018	0.014	**0.018**	0.014	0.15
		Head 15 Degree Right-Right			0.015	0.012	0.017	0.013	0.017	0.013	0.07
		Head Touch Left-Right			0.016	0.013	0.018	0.014	**0.018**	0.014	0.07
		Head Touch Right-Right			0.015	0.012	0.017	0.013	0.017	0.013	0.03
		Head 15 Degree Left			0.0081	0.0043	0.009	0.005	0.009	0.005	0.2
		Head 15 Degree Right			0.0074	0.0038	0.008	0.004	0.008	0.004	0.02
		Head Touch Left			0.0089	0.0047	0.010	0.005	0.010	0.005	0.06
		Head Touch Right			0.0078	0.0042	0.009	0.005	0.009	0.005	0.17
25	26140	Back	18.50	18.32	0.066	0.034	0.069	0.035	0.069	0.035	0.04
		Front			0.258	0.118	0.269	0.123	0.269	0.123	0.13
		Top			0.010	0.00599	0.010	0.006	0.010	0.006	0.11
		Bottom			0.029	0.014	0.030	0.015	0.030	0.015	0.01
		Right			0.333	0.144	0.347	0.150	**0.347**	0.150	0.15
		Head 15 Degree Left -Right			0.226	0.116	0.236	0.121	0.236	0.121	0.05
		Head 15 Degree Right-Right			0.154	0.076	0.161	0.079	0.161	0.079	-0.07
		Head Touch Left-Right			0.227	0.117	0.237	0.122	**0.237**	0.122	0.08
		Head Touch Right-Right			0.157	0.079	0.164	0.082	0.164	0.082	-0.04
		Head 15 Degree Left			0.115	0.057	0.120	0.059	0.120	0.059	0.03
		Head 15 Degree Right			0.126	0.082	0.131	0.085	0.131	0.085	0.12
		Head Touch Left			0.125	0.064	0.130	0.067	0.130	0.067	0.05
		Head Touch Right			0.136	0.083	0.142	0.087	0.142	0.087	0.08

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
41	40340	Back	23.5	23.27	0.152	0.078	0.160	0.082	0.160	0.082	0.05
		Front			0.119	0.063	0.125	0.066	0.125	0.066	-0.10
		Top			0.049	0.027	0.052	0.028	0.052	0.028	-0.04
		Bottom			0.235	0.115	0.248	0.121	**0.248**	0.121	0.00
		Right			0.033	0.020	0.035	0.021	0.035	0.021	0.15
		Head 15 Degree Left -Right			0.450	0.202	0.474	0.213	0.474	0.213	-0.03
		Head 15 Degree Right-Right			0.590	0.245	0.622	0.258	0.622	0.258	0.09
		Head Touch Left-Right			0.604	0.278	0.637	0.293	**0.637**	0.293	0.02
		Head Touch Right-Right			0.465	0.298	0.490	0.314	0.490	0.314	0.01
		Head 15 Degree Left			0.236	0.105	0.249	0.111	0.249	0.111	0.04
		Head 15 Degree Right			0.243	0.117	0.256	0.123	0.256	0.123	0.02
		Head Touch Left			0.243	0.118	0.256	0.124	0.256	0.124	0.13
		Head Touch Right			0.259	0.127	0.273	0.134	0.273	0.134	0.16
41 CA	41290+ 41410	Back	23	22.60	0.087	0.040	0.095	0.044	0.095	0.044	0.10
		Front			0.568	0.198	0.623	0.217	**0.623**	0.217	0.07
		Top			0.00624	0.00276	0.007	0.003	0.007	0.003	0.07
		Bottom			0.133	0.056	0.146	0.061	0.146	0.061	-0.16
		Right			0.464	0.162	0.509	0.178	0.509	0.178	-0.17
		Head 15 Degree Left -Right			0.305	0.197	0.334	0.216	0.334	0.216	0.1
		Head 15 Degree Right-Right			0.222	0.103	0.243	0.113	0.243	0.113	0.02
		Head Touch Left-Right			0.426	0.203	0.467	0.223	**0.467**	0.223	0.07
		Head Touch Right-Right			0.280	0.124	0.307	0.136	0.307	0.136	-0.14
		Head 15 Degree Left			0.194	0.094	0.213	0.103	0.213	0.103	0.07
		Head 15 Degree Right			0.136	0.060	0.149	0.066	0.149	0.066	-0.06
		Head Touch Left			0.281	0.109	0.308	0.120	0.308	0.120	0.13
		Head Touch Right			0.186	0.073	0.204	0.080	0.204	0.080	0.16

Band	Ch.	Test Position	Output Power		Measured Results		Scaled-1		Scaled-Final		Power Drift (dB)
			Max. Scaled AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
66	132322	Back	17.0	16.76	0.085	0.044	0.090	0.046	0.090	0.046	0.11
		Front			0.268	0.131	0.283	0.138	0.283	0.138	0.01
		Top			0.00671	0.00439	0.007	0.005	0.007	0.005	0.13
		Bottom			0.027	0.014	0.029	0.015	0.029	0.015	0.07
		Right			0.379	0.170	0.401	0.180	**0.401**	0.180	0.15
		Head 15 Degree Left -Right			0.21	0.109	0.222	0.115	0.222	0.115	0.17
		Head 15 Degree Right-Right			0.17	0.089	0.180	0.094	0.180	0.094	0.07
		Head Touch Left-Right			0.218	0.117	0.230	0.124	**0.230**	0.124	0.13
		Head Touch Right-Right			0.171	0.092	0.181	0.097	0.181	0.097	-0.04
		Head 15 Degree Left			0.152	0.062	0.161	0.066	0.161	0.066	0.02
		Head 15 Degree Right			0.136	0.054	0.144	0.057	0.144	0.057	0.13
		Head Touch Left			0.154	0.067	0.163	0.071	0.163	0.071	0.07
		Head Touch Right			0.142	0.057	0.150	0.060	0.150	0.060	0.08
Conclusion: PASS											
Note: Factor= Max. Scaled AV Power(W)/Measured Power(W) Scaled SAR-1= Measured SAR*Factor Scaled-Final= Scaled SAR-1*(1/Duty Cycle) The Max. Reported SAR : 0.770**W/kg for 1g SAR**											

Notes: 1. The output power in other modulation is not > ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is less than 1.45 W/kg, so other modulation can be excluded.

2. Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, Choose the cannel which has the max. output power for the SAR test, and the max. reported SAR less than 0.8W/kg, so other channels can be excluded.

3. For QPSK with 50% and100% RB allocation, SAR is not required when the highest maximum output power is less than the highest maximum output power in 1 RB allocations, and the highest reported SAR for 1 RB is≤ 0.8 W/kg

7.4.Simultaneously SAR Evaluation

Per KDB 447498 Section 4.3.2(b), When an antenna qualifies for the standalone SAR test exclusion and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria:

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

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

Regard with Bluetooth, The max. power of channel, including tune-up tolerance is 9.5dBm(8.91mW), the min. test separation distance is 5mm.f=2.441GHz,so

The standalone SAR value=8.91mW/5mm*$\sqrt{2.441}$/7.5=0.371W/kg for 1g SAR.

Max Reported SAR		Sum.SAR
WiFi 2.4GHz 0.698W/kg	GSM 0.059W/kg	0.757W/kg
	WCDMA 0.786W/kg	**1.484W/kg**
	LTE 0.770W/kg	1.468W/kg

Max Reported SAR		Sum.SAR
WiFi 5GHz 0.777W/kg	GSM 0.059W/kg	0.836W/kg
	WCDMA 0.786W/kg	**1.563W/kg**
	LTE 0.770W/kg	1.547W/kg

Max Reported SAR		Sum.SAR
Bluetooth 0.371W/kg	GSM 0.059W/kg	0.430W/kg
	WCDMA 0.786W/kg	**1.157W/kg**
	LTE 0.770W/kg	1.141W/kg

Since the Max Sum.SAR 1.563W/kg, which less than the FCC limit 1.6W/kg, so the SAR Evaluation for Simultaneously transmit can be exempted.

7.5.Dielectric Performance for Body & Head Tissue simulating liquid

Body:

Frequency	Description	Dielectric Parameters (±5% window)		Temp
		εr	σ(s/m)	℃
2450MHz	Recommended value	52.7 50.065 – 55.335	1.95 1.8525 – 2.0475	/
	Measurement value **2019-09-05**	52.441	1.919	**22.11**
5250MHz	Recommended value	49.0 46.55 – 51.45	5.3 5.035 – 5.565	/
	Measurement value **2019-09-06**	47.60	5.41	**22.05**
5600MHz	Recommended value	48.60 46.17 – 51.03	5.65 5.3675 – 5.9325	/
	Measurement value **2019-09-07**	47.18	5.812	**22.07**
5800MHz	Recommended value	48.2 45.79 – 50.61	6.0 5.70 – 6.30	/
	Measurement value **2019-09-07**	47.12	5.913	**22.05**
750MHz	Recommended value	55.5 52.725 – 58.275	0.96 0.912 - 1.008	/
	Measurement value **2019-09-01**	55.89	0.924	**22.05**
750MHz	Recommended value	55.5 52.725 – 58.275	0.96 0.912 - 1.008	/
	Measurement value **2019-08-31**	56.226	0.925	**22.04**
900MHz	Recommended value	55.0 52.25 – 57.75	1.05 0.9975-1.1025	/
	Measurement value **2019-08-30**	55.43	1.079	**22.11**
1800MHz	Recommended value	53.3 50.635 – 55.965	1.52 1.444-1.596	/
	Measurement value **2019-09-02**	53.271	1.564	**22.01**
1800MHz	Recommended value	53.3 50.635 – 55.965	1.52 1.444-1.596	/
	Measurement value **2019-09-03**	53.24	1.459	**22.02**
2000MHz	Recommended value	53.3 50.635 – 55.965	1.52 1.444-1.596	/
	Measurement value **2019-09-04**	52.709	1.537	**22.04**
2600MHz	Recommended value	52.5 49.875 – 55.125	2.16 2.052 – 2.268	/
	Measurement value **2019-09-05**	52.428	2.22	**22.01**

Head:

Frequency	Description	Dielectric Parameters (±5% window)		Temp
		εr	σ(s/m)	℃
2450MHz	Recommended value	39.20 37.24-41.16	1.80 1.71-1.89	/
	Measurement value **2019-09-05**	39.441	1.819	**22.11**
5250MHz	Recommended value	36.00 34.20-37.80	4.66 4.194-5.126	/
	Measurement value **2019-09-06**	35.60	4.61	**22.05**
5600MHz	Recommended value	35.5 33.725-37.275	5.07 4.563-5.577	/
	Measurement value **2019-09-07**	36.018	4.920	**22.07**
5800MHz	Recommended value	35.3 33.535-37.065	5.27 5.0065-5.5335	/
	Measurement value **2019-09-07**	36.07	5.097	**22.05**
750MHz	Recommended value	41.9 39.805-43.995	0.89 0.8455-0.9345	/
	Measurement value **2019-09-01**	42.225	0.924	**22.05**
750MHz	Recommended value	41.9 39.805-43.995	0.89 0.8455-0.9345	/
	Measurement value **2019-08-31**	42.225	0.924	**22.04**
900MHz	Recommended value	41.5 39.425-43.575	0.97 0.873-1.067	/
	Measurement value **2019-08-30**	41.43	0.979	**22.11**
1800MHz	Recommended value	40.0 38.0-42.0	1.40 1.26-1.54	/
	Measurement value **2019-09-02**	40.271	1.364	**22.01**
1800MHz	Recommended value	40.0 38.0-42.0	1.40 1.26-1.54	/
	Measurement value **2019-09-03**	40.271	1.364	**22.02**
2000MHz	Recommended value	40.0 38.0-42.0	1.40 1.26-1.54	/
	Measurement value **2019-09-04**	39.709	1.437	**22.04**
2600MHz	Recommended value	39.0 37.05-40.95	1.96 1.862-2.058	/
	Measurement value **2019-09-05**	38.428	1.991	**22.01**

Figure 4.4: Liquid depth in the Flat Phantom

ANNEX A: System Check Results

Body:

Test Laboratory: Audix SAR Lab Date: 01/09/2019

CW 750

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1d088

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB;Medium parameters used (interpolated): f = 750 MHz; σ = 0.924 S/m; ε_r = 55.89; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(10.00, 10.00, 10.00); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 835MHz/Area Scan (41x51x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 3.834 W/kg

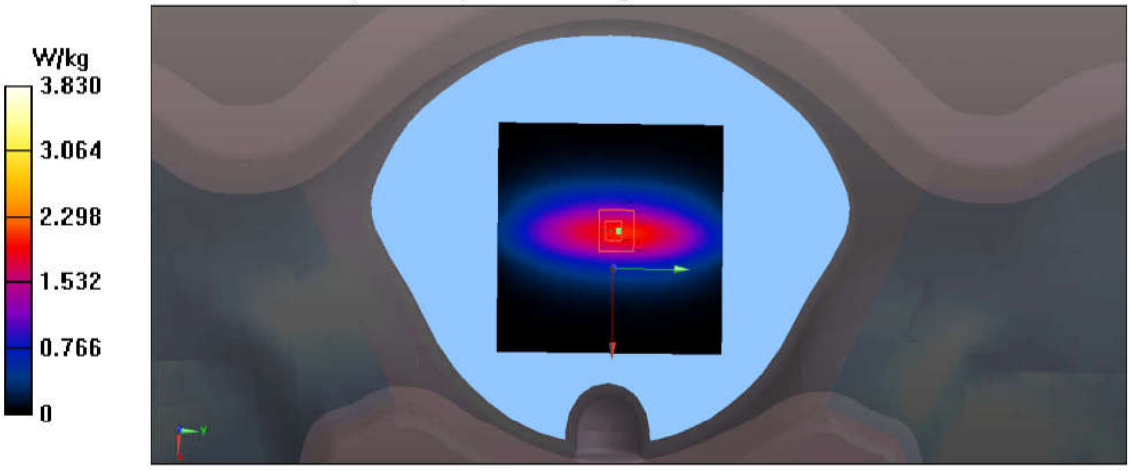
Configuration/CW 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.11 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 6.288 W/kg

SAR(1 g) = 2.101 W/kg; SAR(10 g) = 1.319 W/kg

Maximum value of SAR (measured) = 3.828 W/kg



Test Laboratory: Audix SAR Lab Date: 31/08/2019

CW 750

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1d088

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB;Medium parameters used (interpolated): f = 750 MHz; σ = 0.925 S/m; ε_r = 56.226; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(10.00, 10.00, 10.00); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 835MHz/Area Scan (41x51x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 3.43 W/kg

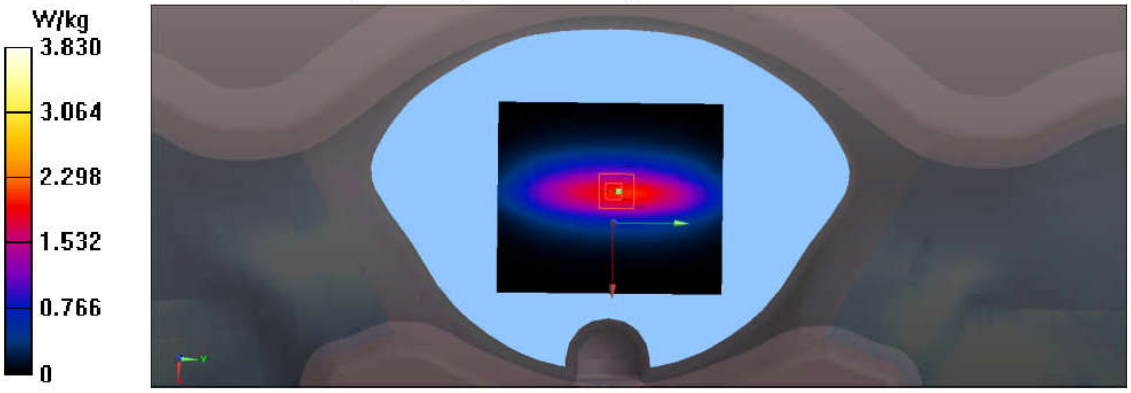
Configuration/CW 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 55.32 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 6.343 W/kg

SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.32 W/kg

Maximum value of SAR (measured) = 3.8304W/kg



Test Laboratory: Audix SAR Lab Date: 30/08/2019

CW 900

DUT: Dipole 900 MHz D900V2; Type: D900V2; Serial: D900V2 - SN:1d088

Communication System: UID 0, CW (0); Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 900 MHz; σ = 1.079 S/m; ε_r = 55.43; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(9.57, 9.57, 9.57); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 900MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 3.881 W/kg

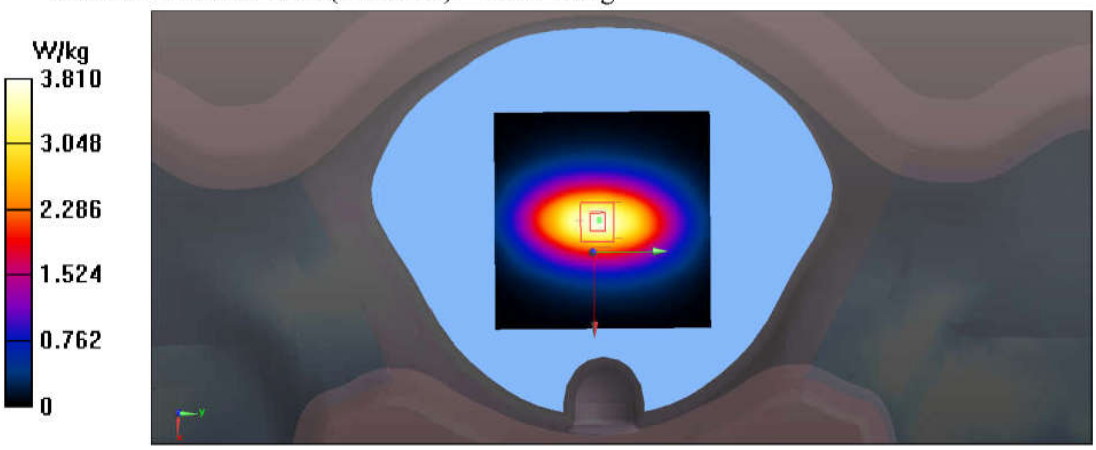
Configuration/CW 900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 62.10 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 4.66 W/kg

SAR(1 g) = 2.81 W/kg; SAR(10 g) = 1.70 W/kg

Maximum value of SAR (measured) = 3.811 W/kg



Test Laboratory: Audix SAR Lab Date: 02/09/2019

CW 1800

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d186

Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1800 MHz; σ = 1.564 S/m; ε_r = 53.271; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(8.00, 8.00, 8.00); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 1800MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 10.307 W/kg

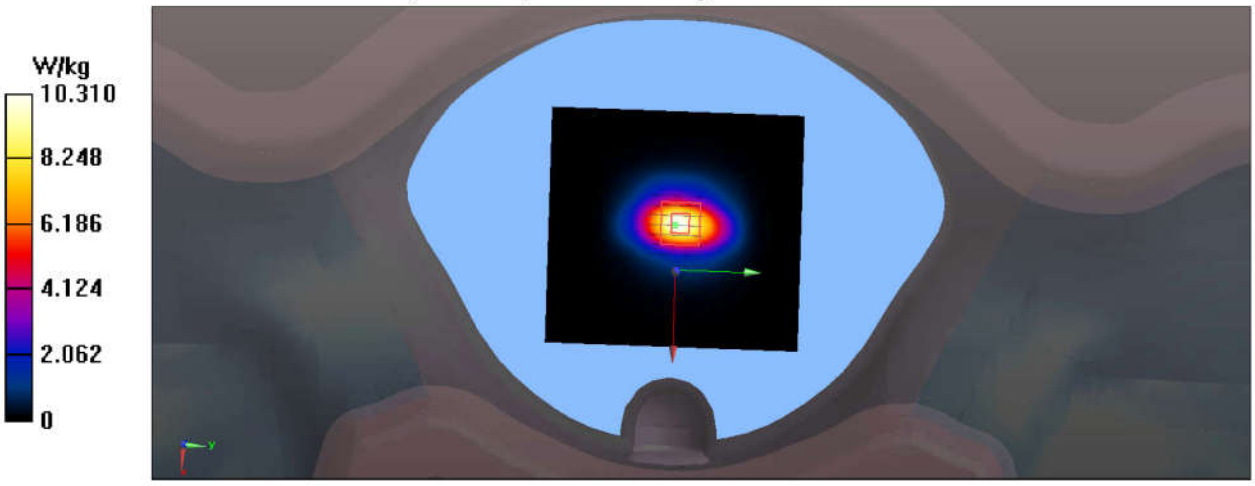
Configuration/CW 1800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 82.79 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 18.56 W/kg

SAR(1 g) = 9.92 W/kg; SAR(10 g) = 5.19 W/kg

Maximum value of SAR (measured) = 10.313 W/kg



Test Laboratory: Audix SAR Lab Date: 03/09/2019

CW 1800

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d186

Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1800 MHz; σ = 1.459 S/m; ε_r = 53.24; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(8.00, 8.00, 8.00); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 1800MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 10.539W/kg

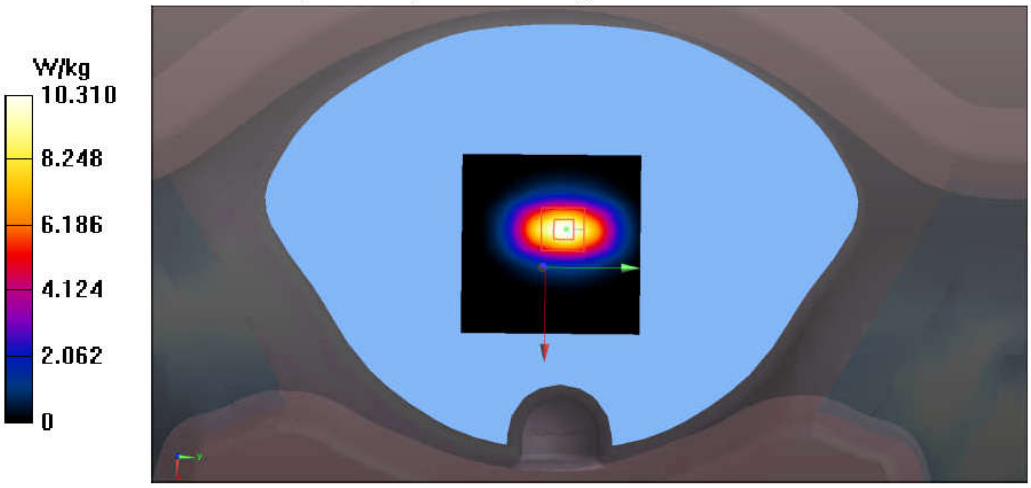
Configuration/CW 1800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.13 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 17.66 W/kg

SAR(1 g) = 10.08 W/kg; SAR(10 g) = 5.31W/kg

Maximum value of SAR (measured) = 10.307W/kg



Test Laboratory: Audix SAR Lab Date: 04/09/2019

CW 2000

DUT: Dipole 2000 MHz D2000V2; Type: D2000V2; Serial: D2000V2 - SN:1055

Communication System: UID 0, CW (0); Communication System Band: D2000 (2000.0 MHz); Frequency: 2000 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2000 MHz; σ = 1.537 S/m; ε_r = 52.709; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(7.71, 7.71, 7.71); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2000MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 10.701 W/kg

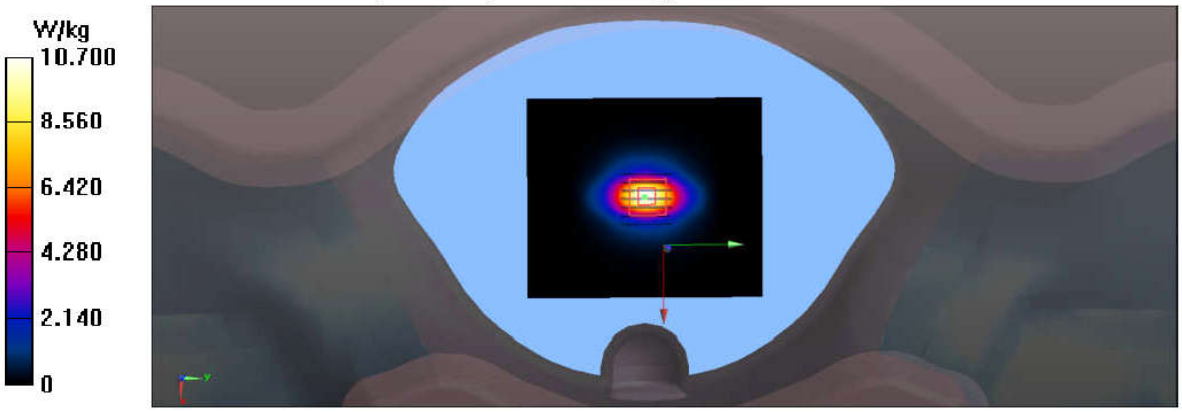
Configuration/CW 2000MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 84.88 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 17.38 W/kg

SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.33 W/kg

Maximum value of SAR (measured) = 10.701 W/kg



Test Laboratory: Audix SAR Lab Date: 05/09/2019

CW 2450

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:862

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2450 MHz; σ = 1.919 S/m; ε_r = 52.441; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(7.58, 7.58, 7.58); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2450MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 14.03 W/kg

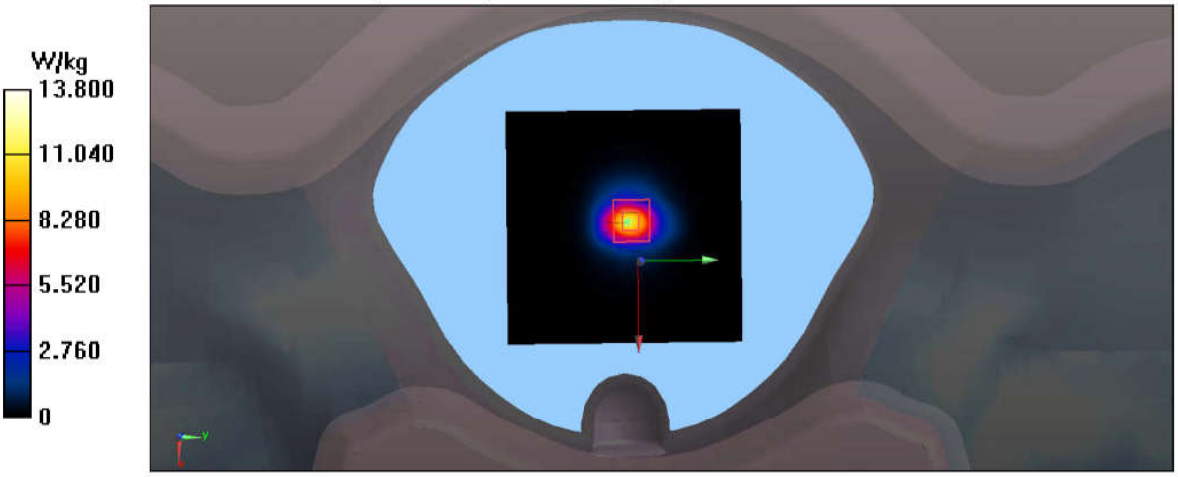
Configuration/CW 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 89.11 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 30.22 W/kg

SAR(1 g) = 12.85 W/kg; SAR(10 g) = 5.91 W/kg

Maximum value of SAR (measured) = 13.801 W/kg



Test Laboratory: Audix SAR Lab Date: 05/09/2019

CW 2600

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1123

Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2600 MHz; σ = 2.22 S/m; ε_r = 52.428; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(7.4, 7.4, 7.4); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2600MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 16.10 W/kg

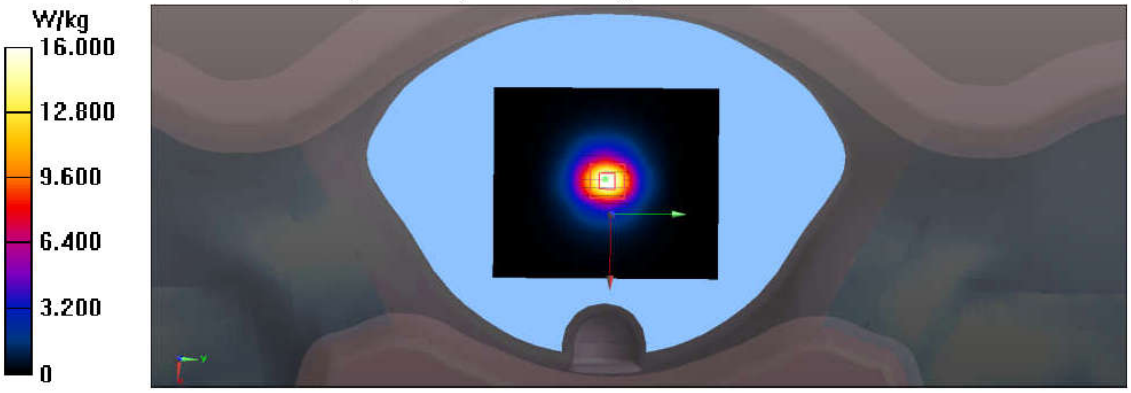
Configuration/CW 2600MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.11 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 30.20 W/kg

SAR(1 g) = 14.33 W/kg; SAR(10 g) = 6.51 W/kg

Maximum value of SAR (measured) = 16.03 W/kg



Test Laboratory: Audix SAR Lab Date: 06/09/2019

CW 5250

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5250 MHz; σ = 5.41 S/m; ε_r = 47.60; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(5.10, 5.10, 5.10); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5250MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 19.650 W/kg

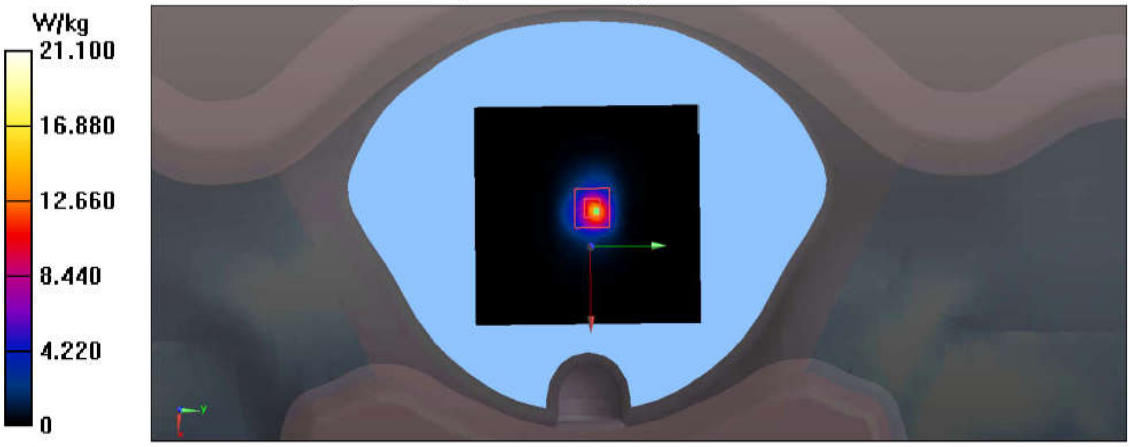
Configuration/CW 5250MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 44.77 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 38.30 W/kg

SAR(1 g) = 20.55 W/kg; SAR(10 g) = 5.49 W/kg

Maximum value of SAR (measured) = 21.142 W/kg



Test Laboratory: Audix SAR Lab Date: 07/09/2019

CW 5600

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5600 MHz; σ = 5.812 S/m; ε_r = 47.18; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(4.36, 4.36, 4.36); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5600MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 21.67 W/kg

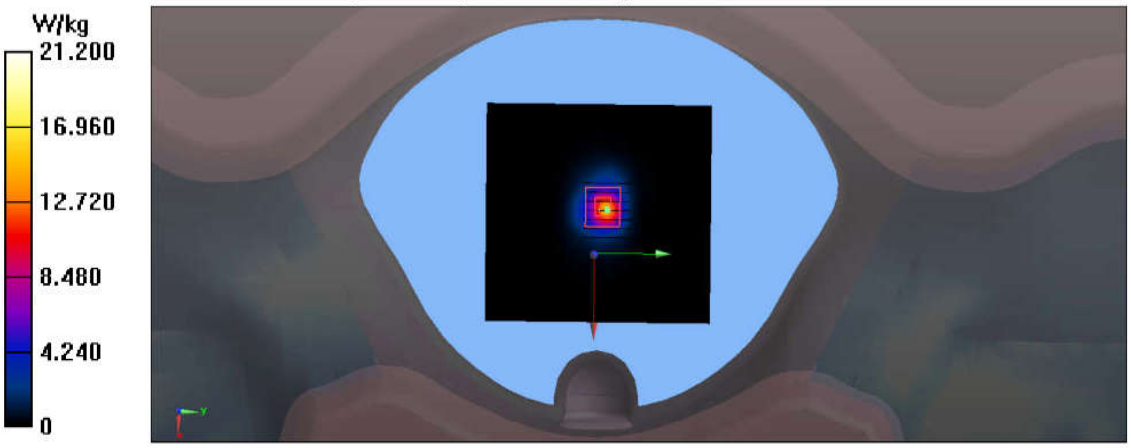
Configuration/CW 5600MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 44.65 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 33.28 W/kg

SAR(1 g) = 19.88 W/kg; SAR(10 g) = 5.79 W/kg

Maximum value of SAR (measured) = 21.19 W/kg



Test Laboratory: Audix SAR Lab Date: 07/09/2019

CW 5600

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5800 MHz; σ = 5.913 S/m; ε_r = 47.12; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(4.39, 4.39, 4.39); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5600MHz/Area Scan (61x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 23.54 W/kg

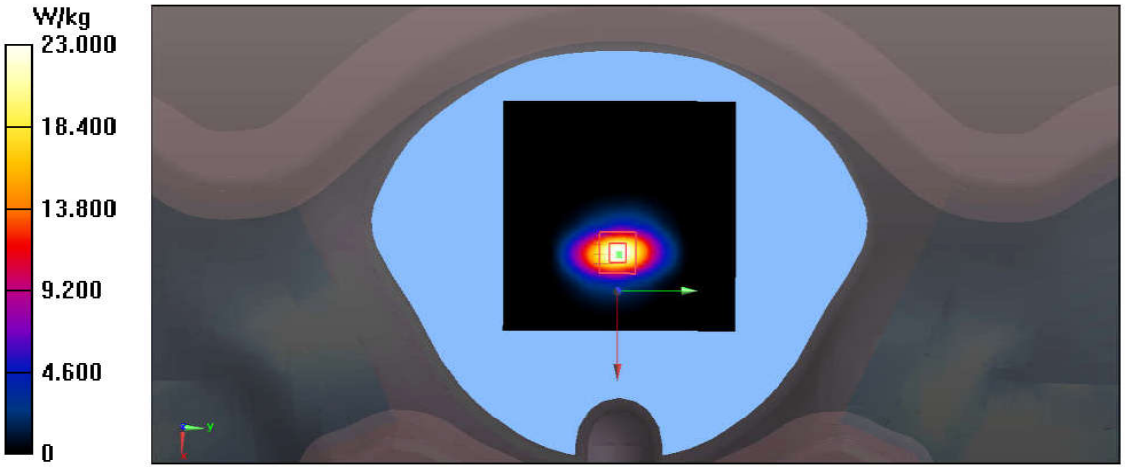
Configuration/CW 5600MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 44.66 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 31.33 W/kg

SAR(1 g) = 19.28 W/kg; SAR(10 g) =5.81 W/kg

Maximum value of SAR (measured) = 23.010 W/kg



Head:

Test Laboratory: Audix SAR Lab Date: 01/09/2019

CW 750

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1d088

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB;Medium parameters used (interpolated): f = 750 MHz; σ = 0.924 S/m; ε_r = 42.225; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(9.72, 9.72, 9.72); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 835MHz/Area Scan (41x51x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 3.785 W/kg

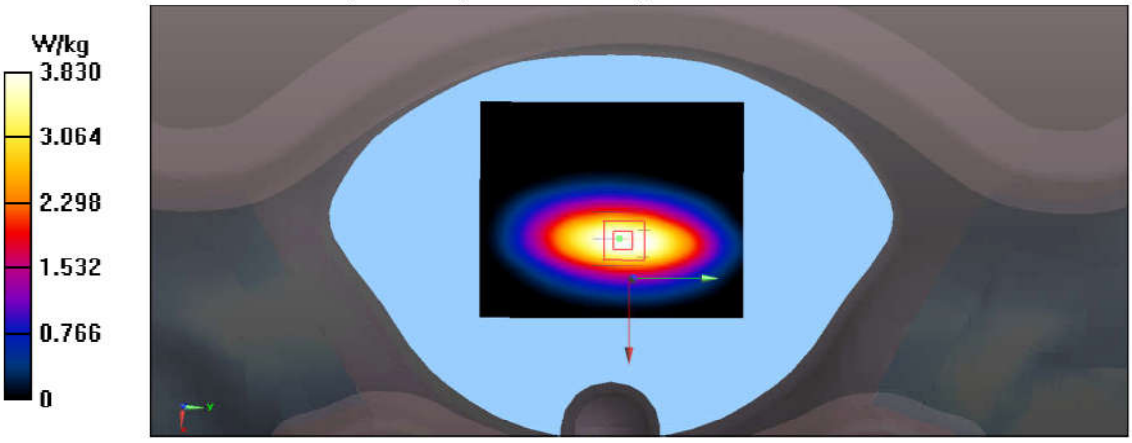
Configuration/CW 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 45.06 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 6.257 W/kg

SAR(1 g) = 2.24 W/kg; SAR(10 g) = 1.28 W/kg

Maximum value of SAR (measured) = 3.8295 W/kg



Test Laboratory: Audix SAR Lab Date: 31/08/2019

CW 750

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1d088

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB;Medium parameters used (interpolated): f = 750 MHz; σ = 0.924 S/m; ε_r = 42.225; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(9.72, 9.72, 9.72); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 835MHz/Area Scan (41x51x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 3.717 W/kg

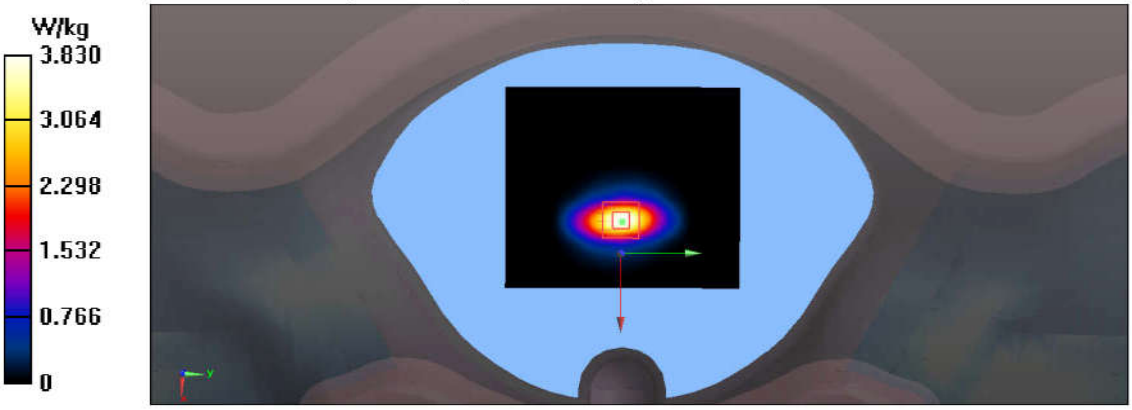
Configuration/CW 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 45.32 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 6.361 W/kg

SAR(1 g) = 2.27 W/kg; SAR(10 g) = 1.32 W/kg

Maximum value of SAR (measured) = 3.8304 W/kg



Test Laboratory: Audix SAR Lab Date: 30/08/2019

CW 900

DUT: Dipole 900 MHz D900V2; Type: D900V2; Serial: D900V2 - SN:1d088

Communication System: UID 0, CW (0); Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 900 MHz; σ = 0.979 S/m; ε_r = 41.43; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(9.38, 9.38, 9.38); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 900MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 3.812 W/kg

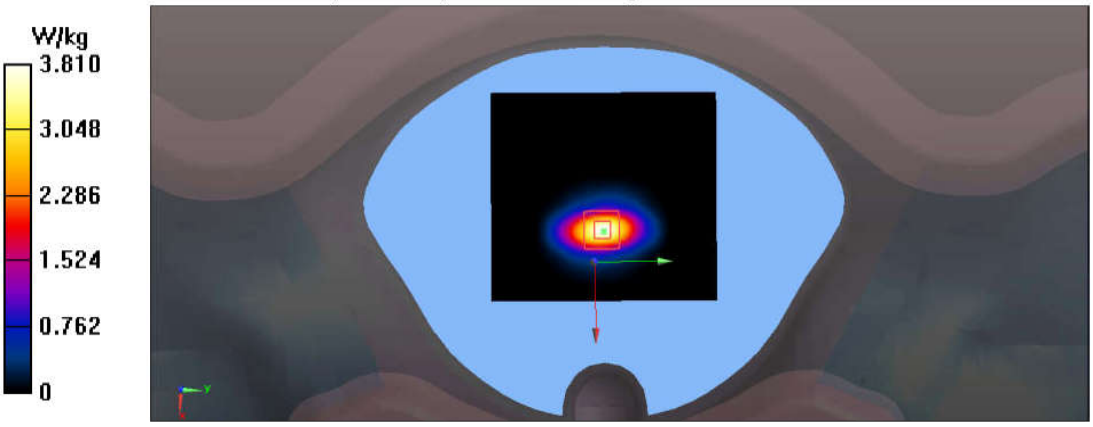
Configuration/CW 900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 62.16 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 4.72W/kg

SAR(1 g) = 2.58 W/kg; SAR(10 g) = 1.69 W/kg

Maximum value of SAR (measured) = 3.81041 W/kg



Test Laboratory: Audix SAR Lab Date: 02/09/2019

CW 1800

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d186

Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1800 MHz; σ = 1.364 S/m; ε_r = 40.271; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(8.32, 8.32, 8.32); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 1800MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 10.254 W/kg

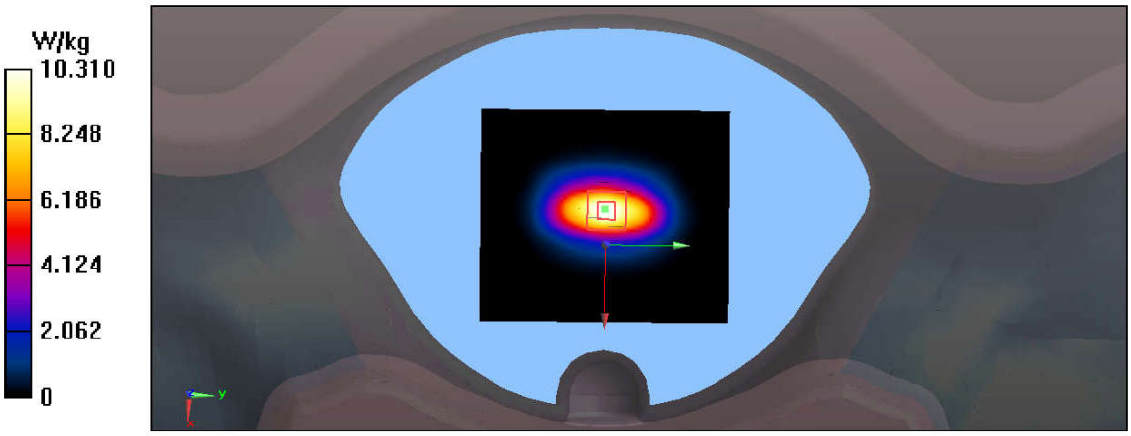
Configuration/CW 1800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 76.79 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 15.27 W/kg

SAR(1 g) = 8.99 W/kg; SAR(10 g) = 4.85 W/kg

Maximum value of SAR (measured) = 10.3094 W/kg



Test Laboratory: Audix SAR Lab Date: 03/09/2019

CW 1800

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d186

Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1800 MHz; σ = 1.364 S/m; ε_r = 40.271; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(8.32, 8.32, 8.32); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 1800MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 10.294 W/kg

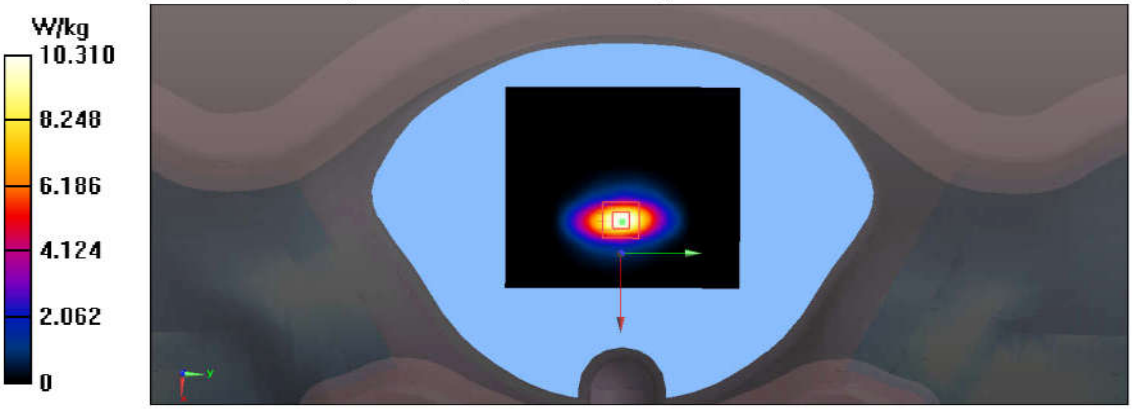
Configuration/CW 1800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 69.31 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 15.34 W/kg

SAR(1 g) = 8.86 W/kg; SAR(10 g) = 4.79 W/kg

Maximum value of SAR (measured) = 10.31005 W/kg



Test Laboratory: Audix SAR Lab Date: 04/09/2019

CW 2000

DUT: Dipole 2000 MHz D2000V2; Type: D2000V2; Serial: D2000V2 - SN:1055

Communication System: UID 0, CW (0); Communication System Band: D2000 (2000.0 MHz); Frequency: 2000 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2000 MHz; σ = 1.437 S/m; ε_r = 39.709; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(7.91, 7.91, 7.91); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2000MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 10.532 W/kg

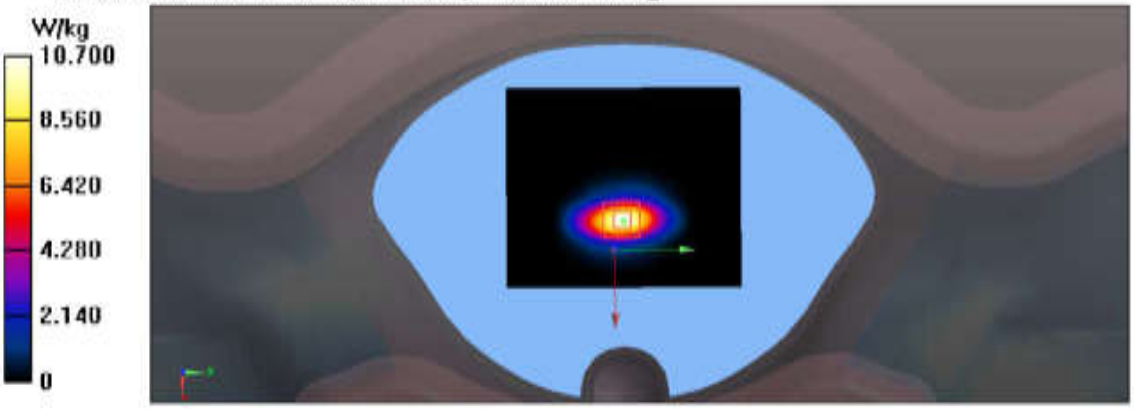
Configuration/CW 2000MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 78.90 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 16.27 W/kg

SAR(1 g) = 9.325 W/kg; SAR(10 g) = 4.754 W/kg

Maximum value of SAR (measured) = 10.7003 W/kg



Test Laboratory: Audix SAR Lab Date: 05/09/2019

CW 2450

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:862

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2450 MHz; σ = 1.819 S/m; ε_r = 39.441; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(7.4, 7.4, 7.4); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2450MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 14.63 W/kg

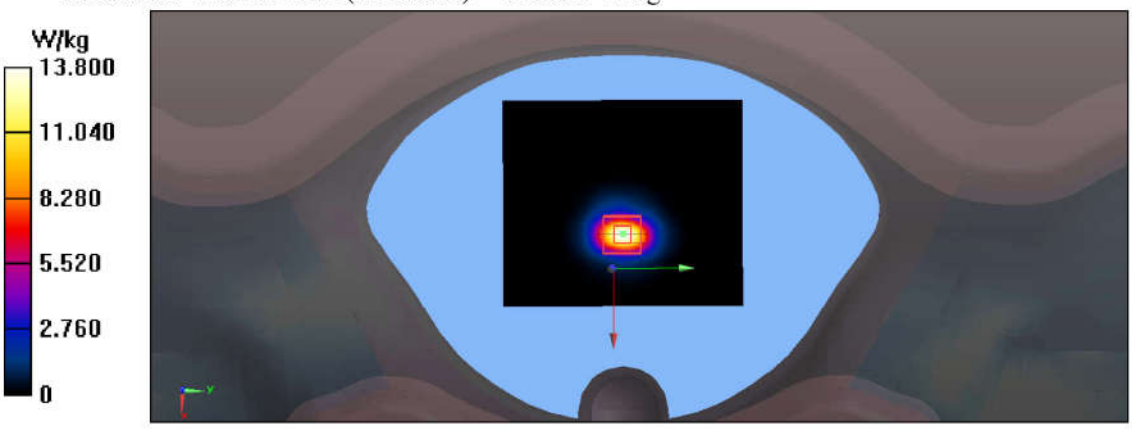
Configuration/CW 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 79.17 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 27.50 W/kg

SAR(1 g) = 13.15 W/kg; SAR(10 g) = 6.11 W/kg

Maximum value of SAR (measured) = 13.7895 W/kg



Test Laboratory: Audix SAR Lab Date: 05/09/2019

CW 2600

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1123

Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2600 MHz; σ = 1.991 S/m; ε_r = 38.428; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(7.25, 7.25, 7.25); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2600MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 16.013W/kg

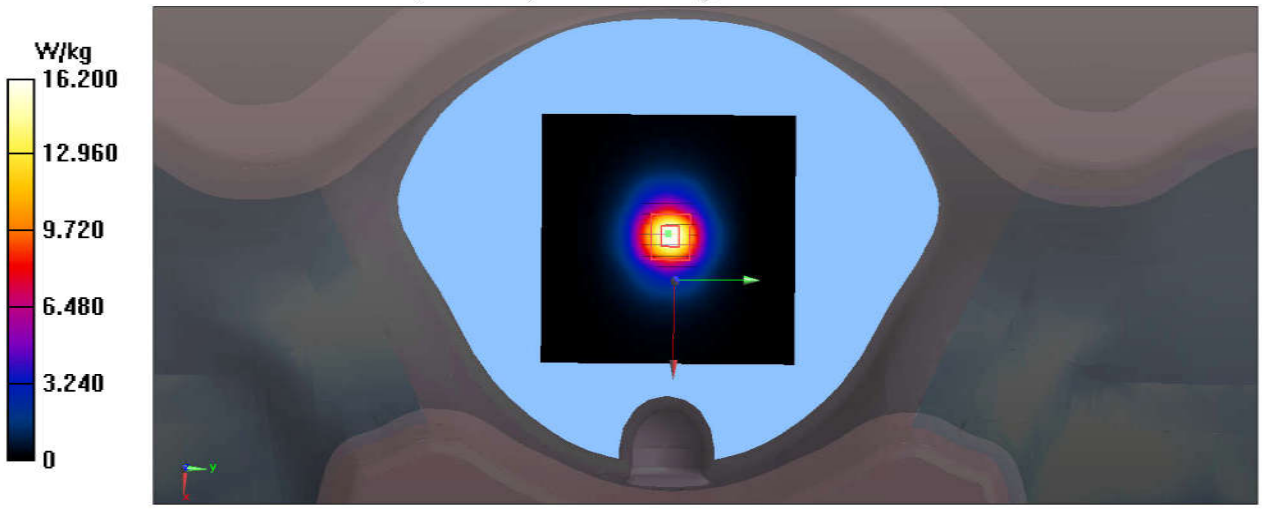
Configuration/CW 2600MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 86.64 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 30.22 W/kg

SAR(1 g) = 14.13 W/kg; SAR(10 g) = 6.52 W/kg

Maximum value of SAR (measured) = 16.197 W/kg



Test Laboratory: Audix SAR Lab Date: 06/09/2019

CW 5250

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5250 MHz; σ = 4.61 S/m; ε_r = 35.60; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(5.55, 5.55, 5.55); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5250MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 21.650 W/kg

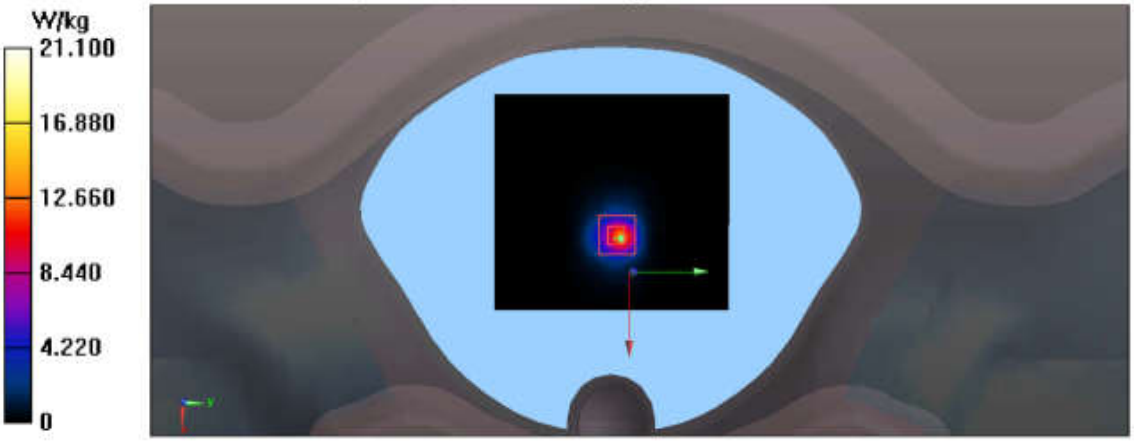
Configuration/CW 5250MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 44.87 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 40.30 W/kg

SAR(1 g) = 21.02 W/kg; SAR(10 g) = 5.35 W/kg

Maximum value of SAR (measured) = 21.097 W/kg



Test Laboratory: Audix SAR Lab Date: 07/09/2019

CW 5600

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5600 MHz; σ = 4.920 S/m; ε_r = 36.018; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(4.87, 4.87, 4.87); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5600MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 21.17 W/kg

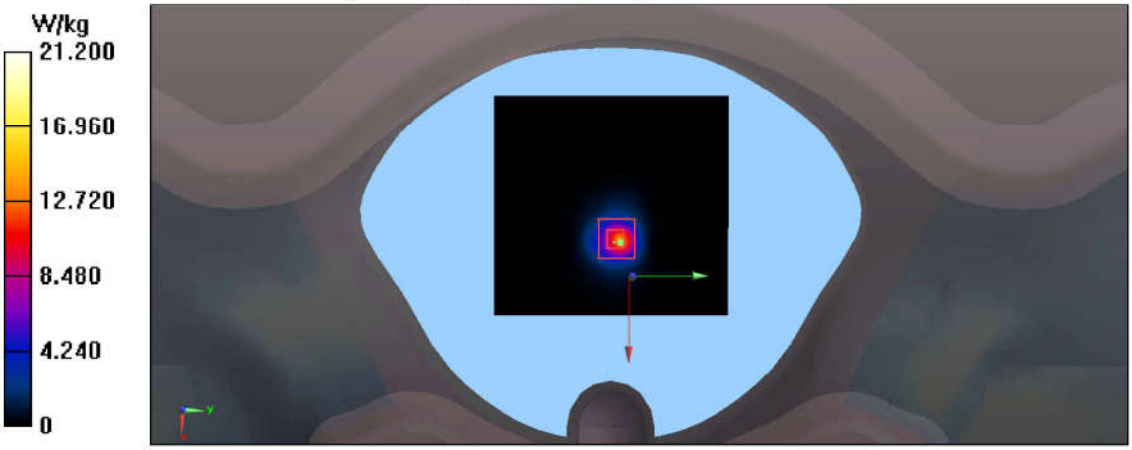
Configuration/CW 5600MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 43.55 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 30.18 W/kg

SAR(1 g) =20.11 W/kg; SAR(10 g) = 5.82 W/kg

Maximum value of SAR (measured) = 21.205 W/kg



Test Laboratory: Audix SAR Lab Date: 07/09/2019

CW 5800

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5800 MHz; σ = 5.097 S/m; ε_r = 36.07; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3767; ConvF(4.71, 4.71, 4.71); Calibrated: 25/03/2019;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 19/03/2019
- Phantom: SAM1; Type: SAM; Serial: TP-1543
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

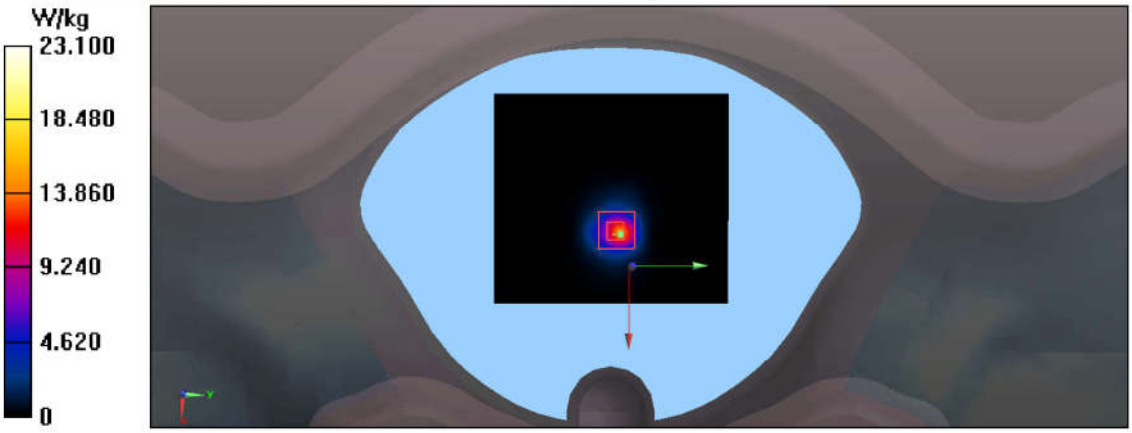
Configuration/CW 5800MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 24.01 W/kg

Configuration/CW 5800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 42.61 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 21.33 W/kg

SAR(1 g) = 20.169 W/kg; SAR(10 g) = 5.16 W/kg

Maximum value of SAR (measured) = 23.1004 W/kg