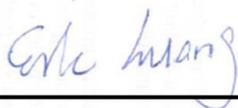


FCC SAR Test Report

APPLICANT : Hewlett-Packard Company
EQUIPMENT : Tablet PC
BRAND NAME : HP
MODEL NAME : HSTNN-I22C
FCC ID : B94HNI22CFX468
STANDARD : FCC 47 CFR Part 2 (2.1093)
ANSI/IEEE C95.1-1992
IEEE 1528-2003

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Eric Huang / Deputy Manager



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



Table of Contents

1. Statement of Compliance 4

2. Administration Data 5

3. Guidance Standard 5

4. Equipment Under Test (EUT) 6

 4.1 General Information 6

 4.2 Maximum Tune-up Limit..... 7

 4.3 General LTE SAR Test and Reporting Considerations12

5. Proximity Sensor Triggering Test.....14

6. RF Exposure Limits.....17

 6.1 Uncontrolled Environment.....17

 6.2 Controlled Environment.....17

7. Specific Absorption Rate (SAR).....18

 7.1 Introduction 18

 7.2 SAR Definition.....18

8. System Description and Setup19

9. Measurement Procedures20

 9.1 Spatial Peak SAR Evaluation.....20

 9.2 Power Reference Measurement.....21

 9.3 Area Scan21

 9.4 Zoom Scan.....22

 9.5 Volume Scan Procedures.....22

 9.6 Power Drift Monitoring.....22

10. Test Equipment List.....23

11. System Verification24

 11.1 Tissue Verification24

 11.2 System Performance Check Results25

12. RF Exposure Positions25

 12.1 SAR Testing for Tablet.....25

13. Conducted RF Output Power (Unit: dBm).....26

14. Antenna Location53

15. SAR Test Results56

 15.1 Body SAR56

 15.2 Repeated SAR Measurement62

16. Simultaneous Transmission Analysis.....63

 16.1 Body Exposure Conditions.....64

 16.2 SPLSR Evaluation and Analysis.....71

17. Uncertainty Assessment78

18. References80

Appendix A. Plots of System Performance Check

Appendix B. Plots of High SAR Measurement

Appendix C. DASYS Calibration Certificate

Appendix D. Test Setup Photos



1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Hewlett-Packard Company, Tablet PC, HSTNN-I22C are as follows.

Equipment Class	Frequency Band	Highest SAR Summary	
		Body 1g SAR (W/kg)	Simultaneous Transmission 1g SAR (W/kg)
PCB	GSM850	1.22	1.58
	GSM1900	1.31	
	WCDMA Band V	1.15	
	WCDMA Band IV	1.45	
	WCDMA Band II	1.41	
	CDMA 2000 BC0	0.94	
	CDMA 2000 BC1	1.38	
	LTE Band 17	1.03	
	LTE Band 13	1.14	
	LTE Band 5	1.23	
	LTE Band 4	1.40	
	LTE Band 2	1.35	
	LTE Band 25	1.14	
Date of Testing:		09/25/2014 ~ 09/30/2014	

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003.



2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Hewlett-Packard Company
Address	11445 Compaq Center Drive W Houston, TX 77070, USA

Manufacturer	
Company Name	Inventec Corporation
Address	Inventec Building, No.66 Hou-Kang Street Shilin District, Taipei 11170, Taiwan

3. Guidance Standard

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)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r01
- FCC KDB 941225 D01 3G SAR Procedures v03
- FCC KDB 941225 D05 SAR for LTE Devices v02r03



4. Equipment Under Test (EUT)

4.1 General Information

Product Feature & Specification	
Equipment Name	Tablet PC
Brand Name	HP
Model Name	HSTNN-I22C
FCC ID	B94HNI22CFX468
Integrated Module	Brand Name: Foxconn Model Name: T77H468
IMEI Code	359339050015295
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz
Mode	<ul style="list-style-type: none"> • GPRS/EGPRS • RMC 12.2Kbps • HSDPA • HSUPA • CDMA2000: 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) • LTE: QPSK, 16QAM
EUT Stage	Identical Prototype
Remark:	
<ol style="list-style-type: none"> 1. This device has a keyboard and it can separation or combination with this host becomes a notebook PC or Tablet PC. 2. The below table WLAN module are also integrated into this host and the 2.4GHz WLAN and Bluetooth SAR testing results are also used perform transmission simultaneous analysis. 	

WLAN Module Information				
Integrated Module	Brand Name	Intel		
	Model Name	Intel® Dual Band Wireless-AC 7265 (Model 7265NGW, 7265NGW AN, 7265NGW BN, 7265NGW NB)		
	FCC ID	PD97265NG		
	Report No	SAR.20141005		
	Mode	<ul style="list-style-type: none"> • 802.11 a/b/g/n/ac • Bluetooth 		
Battery	Brand Name	hp	Model Name	HSTNN-DB5Z
	Power Rating	7.4Vdc, 4250mAh	Type	Li-ion



4.2 Maximum Tune-up Limit

Mode / Band	Burst Average Power (dBm)			
	GSM 850		GSM 1900	
Output Power Status	Full Power Mode	Reduce Power Mode	Full Power Mode	Reduce Power Mode
GPRS (GMSK, 1 Tx slot)	33.50	28.00	31.00	24.50
GPRS (GMSK, 2 Tx slots)	33.00	28.00	30.50	24.00
GPRS (GMSK, 3 Tx slots)	31.00	26.00	28.00	21.50
GPRS (GMSK, 4 Tx slots)	29.00	24.00	26.00	19.50
EDGE (8PSK, 1 Tx slot)	28.00	27.00	27.00	24.50
EDGE (8PSK, 2 Tx slots)	27.00	25.00	26.00	23.00
EDGE (8PSK, 3 Tx slot)	27.00	25.00	26.00	22.00
EDGE (8PSK, 4 Tx slots)	25.00	23.00	24.00	20.00

Mode / Band	Average Power (dBm)					
	WCDMA Band V		WCDMA Band II		WCDMA Band IV	
Output Power Status	Full Power Mode	Reduce Power Mode	Full Power Mode	Reduce Power Mode	Full Power Mode	Reduce Power Mode
RMC 12.2Kbps	24.50	20.00	24.50	18.00	24.50	19.00
HSDPA Subtest-1	23.00	19.50	23.00	17.50	23.00	18.50
HSUPA Subtest-5	22.50	19.50	22.50	17.50	22.50	18.50

Mode / Band	Average Power (dBm)			
	CDMA BC0		CDMA BC1	
Output Power Status	Full Power Mode	Reduce Power Mode	Full Power Mode	Reduce Power Mode
1xRTT RC1 SO55	24.50	20.00	24.50	19.50
1xRTT RC3 SO55	24.50	20.00	24.50	19.50
1xEV-DO Rev 0	24.50	20.00	24.50	19.50
1xEV-DO Rev A	24.50	20.00	24.50	19.50

LTE Band 17						
Modulation	BW (MHz)	RB size	Full Power Mode		Reduce Power Mode	
			MPR	Average Power (dBm)	MPR	Average Power (dBm)
QPSK	10	≤ 12	0	24.00	0	22.00
QPSK	10	> 12	1	23.00	0	22.00
16QAM	10	≤ 12	1	23.00	0	22.00
16QAM	10	> 12	2	22.00	0	22.00
QPSK	5	≤ 8	0	24.00	0	22.00
QPSK	5	> 8	1	23.00	0	22.00
16QAM	5	≤ 8	1	23.00	0	22.00
16QAM	5	> 8	2	22.00	0	22.00



LTE Band 13						
Modulation	BW (MHz)	RB size	Full Power Mode		Reduce Power Mode	
			MPR	Average Power (dBm)	MPR	Average Power (dBm)
QPSK	10	≤ 12	0	24.00	0	20.50
QPSK	10	> 12	1	23.00	0	20.50
16QAM	10	≤ 12	1	23.00	0	20.50
16QAM	10	> 12	2	22.00	0	20.50
QPSK	5	≤ 8	0	24.00	0	20.50
QPSK	5	> 8	1	23.00	0	20.50
16QAM	5	≤ 8	1	23.00	0	20.50
16QAM	5	> 8	2	22.00	0	20.50

LTE Band 5						
Modulation	BW (MHz)	RB size	Full Power Mode		Reduce Power Mode	
			MPR	Average Power (dBm)	MPR	Average Power (dBm)
QPSK	10	≤ 12	0	24.00	0	21.00
QPSK	10	> 12	1	23.00	0	21.00
16QAM	10	≤ 12	1	23.00	0	21.00
16QAM	10	> 12	2	22.00	0	21.00
QPSK	5	≤ 8	0	24.00	0	21.00
QPSK	5	> 8	1	23.00	0	21.00
16QAM	5	≤ 8	1	23.00	0	21.00
16QAM	5	> 8	2	22.00	0	21.00
QPSK	3	≤ 4	0	24.00	0	21.00
QPSK	3	> 4	1	23.00	0	21.00
16QAM	3	≤ 4	1	23.00	0	21.00
16QAM	3	> 4	2	22.00	0	21.00
QPSK	1.4	≤ 5	0	24.00	0	21.00
QPSK	1.4	> 5	1	23.00	0	21.00
16QAM	1.4	≤ 5	1	23.00	0	21.00
16QAM	1.4	> 5	2	22.00	0	21.00



LTE Band 4						
Modulation	BW (MHz)	RB size	Full Power Mode		Reduce Power Mode	
			MPR	Average Power (dBm)	MPR	Average Power (dBm)
QPSK	20	≤ 18	0	24.00	0	19.00
QPSK	20	> 18	1	23.00	0	19.00
16QAM	20	≤ 18	1	23.00	0	19.00
16QAM	20	> 18	2	22.00	0	19.00
QPSK	15	≤ 16	0	24.00	0	19.00
QPSK	15	> 16	1	23.00	0	19.00
16QAM	15	≤ 16	1	23.00	0	19.00
16QAM	15	> 16	2	22.00	0	19.00
QPSK	10	≤ 12	0	24.00	0	19.00
QPSK	10	> 12	1	23.00	0	19.00
16QAM	10	≤ 12	1	23.00	0	19.00
16QAM	10	> 12	2	22.00	0	19.00
QPSK	5	≤ 8	0	24.00	0	19.00
QPSK	5	> 8	1	23.00	0	19.00
16QAM	5	≤ 8	1	23.00	0	19.00
16QAM	5	> 8	2	22.00	0	19.00
QPSK	3	≤ 4	0	24.00	0	19.00
QPSK	3	> 4	1	23.00	0	19.00
16QAM	3	≤ 4	1	23.00	0	19.00
16QAM	3	> 4	2	22.00	0	19.00
QPSK	1.4	≤ 5	0	24.00	0	19.00
QPSK	1.4	> 5	1	23.00	0	19.00
16QAM	1.4	≤ 5	1	23.00	0	19.00
16QAM	1.4	> 5	2	22.00	0	19.00



LTE Band 2						
Modulation	BW (MHz)	RB size	Full Power Mode		Reduce Power Mode	
			MPR	Average Power (dBm)	MPR	Average Power (dBm)
QPSK	20	≤ 18	0	24.00	0	17.50
QPSK	20	> 18	1	23.00	0	17.50
16QAM	20	≤ 18	1	23.00	0	17.50
16QAM	20	> 18	2	22.00	0	17.50
QPSK	15	≤ 16	0	24.00	0	17.50
QPSK	15	> 16	1	23.00	0	17.50
16QAM	15	≤ 16	1	23.00	0	17.50
16QAM	15	> 16	2	22.00	0	17.50
QPSK	10	≤ 12	0	24.00	0	17.50
QPSK	10	> 12	1	23.00	0	17.50
16QAM	10	≤ 12	1	23.00	0	17.50
16QAM	10	> 12	2	22.00	0	17.50
QPSK	5	≤ 8	0	24.00	0	17.50
QPSK	5	> 8	1	23.00	0	17.50
16QAM	5	≤ 8	1	23.00	0	17.50
16QAM	5	> 8	2	22.00	0	17.50
QPSK	3	≤ 4	0	24.00	0	17.50
QPSK	3	> 4	1	23.00	0	17.50
16QAM	3	≤ 4	1	23.00	0	17.50
16QAM	3	> 4	2	22.00	0	17.50
QPSK	1.4	≤ 5	0	24.00	0	17.50
QPSK	1.4	> 5	1	23.00	0	17.50
16QAM	1.4	≤ 5	1	23.00	0	17.50
16QAM	1.4	> 5	2	22.00	0	17.50



LTE Band 25						
Modulation	BW (MHz)	RB size	Full Power Mode		Reduce Power Mode	
			MPR	Average Power (dBm)	MPR	Average Power (dBm)
QPSK	20	≤ 18	0	24.00	0	17.50
QPSK	20	> 18	1	23.00	0	17.50
16QAM	20	≤ 18	1	23.00	0	17.50
16QAM	20	> 18	2	22.00	0	17.50
QPSK	15	≤ 16	0	24.00	0	17.50
QPSK	15	> 16	1	23.00	0	17.50
16QAM	15	≤ 16	1	23.00	0	17.50
16QAM	15	> 16	2	22.00	0	17.50
QPSK	10	≤ 12	0	24.00	0	17.50
QPSK	10	> 12	1	23.00	0	17.50
16QAM	10	≤ 12	1	23.00	0	17.50
16QAM	10	> 12	2	22.00	0	17.50
QPSK	5	≤ 8	0	24.00	0	17.50
QPSK	5	> 8	1	23.00	0	17.50
16QAM	5	≤ 8	1	23.00	0	17.50
16QAM	5	> 8	2	22.00	0	17.50
QPSK	3	≤ 4	0	24.00	0	17.50
QPSK	3	> 4	1	23.00	0	17.50
16QAM	3	≤ 4	1	23.00	0	17.50
16QAM	3	> 4	2	22.00	0	17.50
QPSK	1.4	≤ 5	0	24.00	0	17.50
QPSK	1.4	> 5	1	23.00	0	17.50
16QAM	1.4	≤ 5	1	23.00	0	17.50
16QAM	1.4	> 5	2	22.00	0	17.50



4.3 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r03																																							
FCC ID	B94HNI22CFX468																																						
Equipment Name	Tablet PC																																						
Operating Frequency Range of each LTE transmission band	LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz																																						
Channel Bandwidth	LTE Band 17: 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																						
Release Version	Release9, cat3																																						
uplink modulations used	QPSK, and 16QAM																																						
LTE Voice / Data requirements	Data only																																						
LTE MPR permanently built-in by design	<p style="text-align: center;">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 2</td> </tr> </tbody> </table>	Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)																																
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz																																	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1																																
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1																																
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2																																
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																						
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																						
Power reduction applied to satisfy SAR compliance	Yes, proximity sensor.																																						



Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)					
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		23800		711					
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5									
M	23230		782		23230		782					
H	23255		784.5									
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905



5. Proximity Sensor Triggering Test

Proximity sensor power reduction

Exposure Position / wireless mode	Bottom Face ⁽¹⁾	Edge 1 ⁽¹⁾	Curved surface of Edge1 ⁽¹⁾	Edge 2	Edge 3	Edge 4
GSM850 GPRS (GMSK 1 Tx slot) - CS1	5.5 dB	5.5 dB	5.5 dB	0 dB	0 dB	0 dB
GSM850 GPRS (GMSK 2 Tx slots) - CS1	5.0 dB	5.0 dB	5.0 dB			
GSM850 GPRS (GMSK 3 Tx slots) - CS1	5.0 dB	5.0 dB	5.0 dB			
GSM850 GPRS (GMSK 4 Tx slots) - CS1	5.0 dB	5.0 dB	5.0 dB			
GSM850 EDGE (8PSK 1 Tx slot) - MCS5	1.0 dB	1.0 dB	1.0 dB			
GSM850 EDGE (8PSK 2 Tx slots) - MCS5	2.0 dB	2.0 dB	2.0 dB			
GSM850 EDGE (8PSK 3 Tx slots) - MCS5	2.0 dB	2.0 dB	2.0 dB			
GSM850 EDGE (8PSK 4 Tx slots) - MCS5	2.0 dB	2.0 dB	2.0 dB			
GSM1900 GPRS (GMSK 1 Tx slot) - CS1	6.5 dB	6.5 dB	6.5 dB			
GSM1900 GPRS (GMSK 2 Tx slots) - CS1	6.5 dB	6.5 dB	6.5 dB			
GSM1900 GPRS (GMSK 3 Tx slots) - CS1	6.5 dB	6.5 dB	6.5 dB			
GSM1900 GPRS (GMSK 4 Tx slots) - CS1	6.5 dB	6.5 dB	6.5 dB			
GSM1900 EDGE (8PSK 1 Tx slots) - MCS5	2.5 dB	2.5 dB	2.5 dB			
GSM1900 EDGE (8PSK 2 Tx slots) - MCS5	3.0 dB	3.0 dB	3.0 dB			
GSM1900 EDGE (8PSK 3 Tx slots) - MCS5	4.0 dB	4.0 dB	4.0 dB			
GSM1900 EDGE (8PSK 4 Tx slots) - MCS5	4.0 dB	4.0 dB	4.0 dB			
WCDMA Band V	4.5 dB	4.5 dB	4.5 dB			
WCDMA Band II	6.5 dB	6.5 dB	6.5 dB			
WCDMA Band IV	5.5 dB	5.5 dB	5.5 dB			
CDMA2000 BC0	4.5 dB	4.5 dB	4.5 dB			
CDMA2000 BC1	5.0 dB	5.0 dB	5.0 dB			
LTE Band 17	2.0 dB	2.0 dB	2.0 dB			
LTE Band 13	3.5 dB	3.5 dB	3.5 dB			
LTE Band 5	3.0 dB	3.0 dB	3.0 dB			
LTE Band 4	5.0 dB	5.0 dB	5.0 dB			
LTE Band 2	6.5 dB	6.5 dB	6.5 dB			
LTE Band 25	6.5 dB	6.5 dB	6.5 dB			

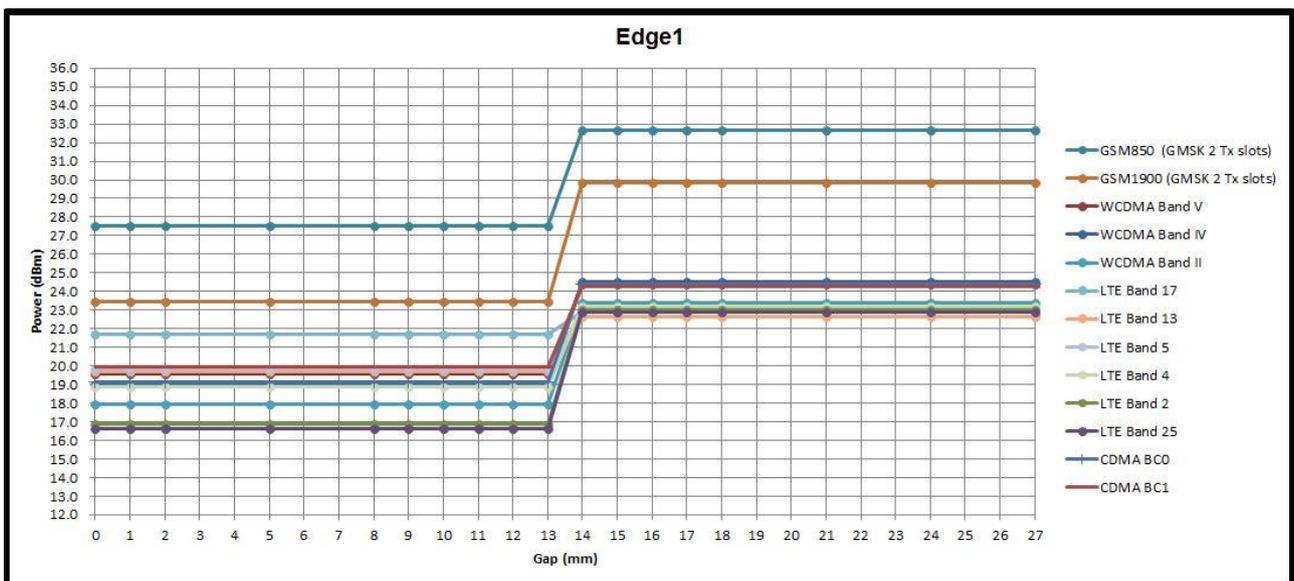
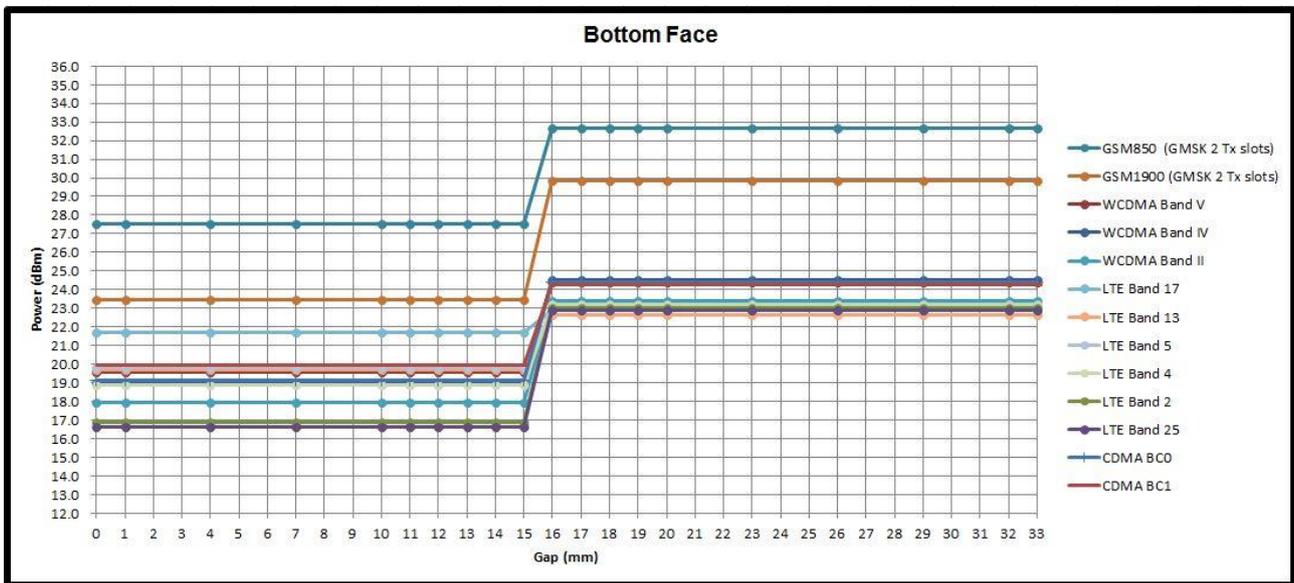
Remark:

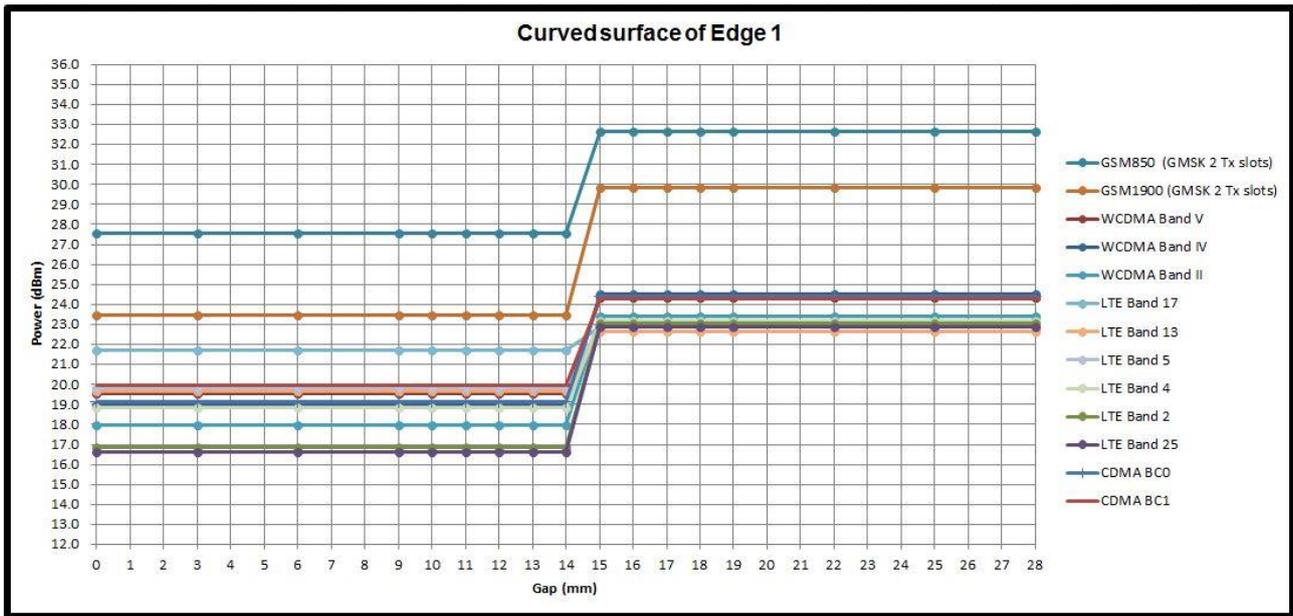
- ⁽¹⁾: Reduced maximum limit applied by activation of proximity sensor.
- Power reduction is not applicable for WLAN and Bluetooth.
- Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit "P-Sensor operational description"
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
 - Bottom Face: [12 mm](#)
 - Edge1: [12 mm](#)
 - Curved surface of Edge1: [12 mm](#)



Power Measurement during Sensor Trigger distance testing

Band/Mode	Ch #	Measured power reduction (dBm)		Reduction Levels (dB)
		w/o power back-off	w/ power back-off	
GSM850 GPRS (GMSK 2 Tx slot)	189	32.68	27.54	5.14
GSM1900 GPRS (GMSK 2 Tx slot)	810	29.83	23.47	6.36
WCDMA Band V (RMC 12.2Kbps)	4132	24.37	19.56	4.81
WCDMA Band IV (RMC 12.2Kbps)	1312	24.49	18.97	5.52
WCDMA Band II (RMC 12.2Kbps)	9538	23.39	17.95	5.44
EVDO BC0 (RTAP 153.6Kbps)	384	24.39	19.16	5.23
EVDO BC1 (RTAP 153.6Kbps)	25	24.28	19.95	4.33
LTE Band 17 1RB 24 offset	23790	22.89	21.69	1.20
LTE Band 13 1RB 24 offset	23230	22.66	19.69	2.97
LTE Band 5 1RB 0offset	20600	22.92	19.83	3.09
LTE Band 4 1RB 0offset	20050	23.18	18.86	4.32
LTE Band 2 1RB 0offset	18900	23.04	16.88	6.16
LTE Band 25 1RB 0offset	26340	22.89	16.61	6.28





6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

7. Specific Absorption Rate (SAR)

7.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

7.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

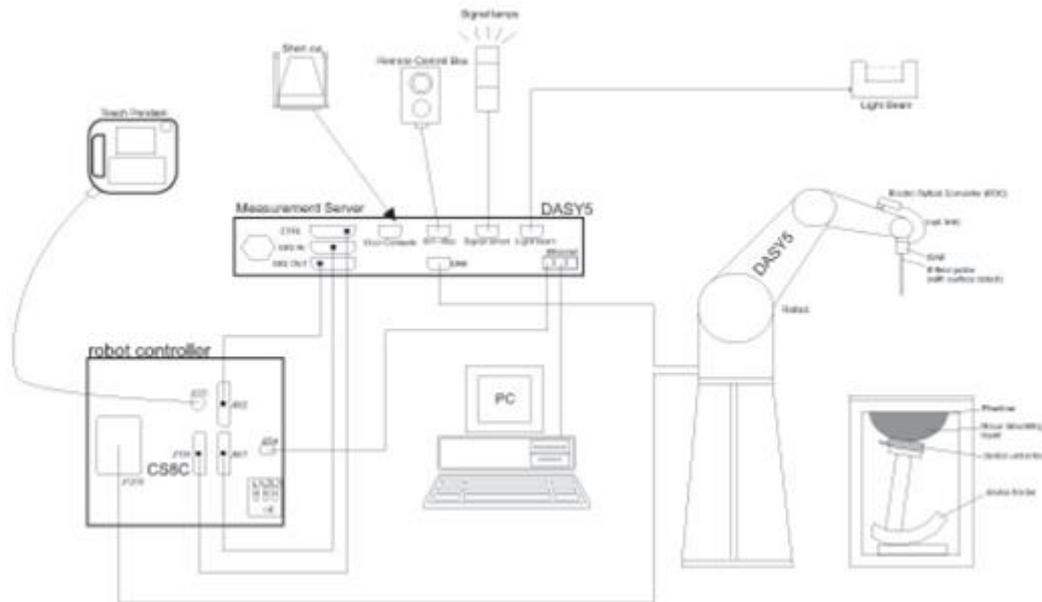
SAR is expressed in units of Watts per kilogram (W/kg)

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

8. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (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.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

9.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

9.4 Zoom Scan

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

9.5 Volume Scan Procedures

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASYS measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.



10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 16, 2014	May. 15, 2015
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 24, 2014	Mar. 23, 2015
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 27, 2013	Nov. 26, 2014
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Mar. 21, 2014	Mar. 20, 2015
SPEAG	Data Acquisition Electronics	DAE4	1338	Nov. 05, 2013	Nov. 04, 2014
SPEAG	Data Acquisition Electronics	DAE3	495	May. 19, 2014	May. 18, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3935	Nov. 04, 2013	Nov. 03, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 22, 2014	May. 21, 2015
Wisewind	Thermometer	HTC-1	TM281	Oct. 22, 2013	Oct. 21, 2014
WonDer	Thermometer	WD-5015	TM225	Dec. 02, 2013	Dec. 01, 2014
Anritsu	Radio Communication Analyzer	MT8820C	6201074414	Feb. 11, 2014	Feb. 10, 2015
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 27, 2014	May. 26, 2015
SPEAG	Device Holder	N/A	N/A	NCR	NCR
R&S	Signal Generator	SMU200A	102502	Jul. 07, 2014	Jul. 06, 2015
SPEAG	Dielectric Probe Kit	DAKS-3.5	0004	Mar. 04, 2014	Mar. 03, 2015
Agilent	ENA Network Analyzer	E5071C	MY46101588	May. 31, 2014	May. 30, 2015
Anritsu	Power Meter	ML2495A	1036004	Aug. 09, 2014	Aug. 08, 2015
Anritsu	Power Sensor	MA2411B	1027253	Aug. 11, 2014	Aug. 10, 2015
R&S	Spectrum Analyzer	FSP 7	101131	Jul. 10, 2014	Jul. 09, 2015
Agilent	Dual Directional Coupler	778D	50422	Note1	
Woken	Attenuator 1	WK0602-XX	N/A	Note1	
PE	Attenuator 2	PE7005-10	N/A	Note1	
PE	Attenuator 3	PE7005- 3	N/A	Note1	
AR	Power Amplifier	5S1G4M2	0328767	Note1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note1	
Mini-Circuits	Power Amplifier	ZHL-42W+	13440021344	Note1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.



11. System Verification

11.1 Tissue Verification

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.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	MSL	22.5	0.963	54.233	0.96	55.50	0.31	-2.28	±5	2014/9/28
835	MSL	22.6	0.964	54.475	0.97	55.20	-0.62	-1.31	±5	2014/9/29
835	MSL	22.4	0.964	54.492	0.97	55.20	-0.62	-1.28	±5	2014/9/30
1750	MSL	22.4	1.526	52.021	1.49	53.40	2.42	-2.58	±5	2014/9/25
1750	MSL	22.3	1.529	52.312	1.49	53.40	2.62	-2.04	±5	2014/9/26
1900	MSL	22.5	1.532	52.328	1.52	53.30	0.79	-1.82	±5	2014/9/25
1900	MSL	22.5	1.535	52.471	1.52	53.30	0.99	-1.56	±5	2014/9/26
1900	MSL	22.7	1.548	52.056	1.52	53.30	1.84	-2.33	±5	2014/9/27
1900	MSL	22.2	1.534	51.986	1.52	53.30	0.92	-2.47	±5	2014/9/30

11.2 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2014/9/28	750	MSL	250	D750V3-1012	EX3DV4 - SN3925	DAE3 Sn495	2.12	8.65	8.48	-1.97
2014/9/29	835	MSL	250	D835V2-499	EX3DV4 - SN3935	DAE4 Sn1338	2.45	9.46	9.80	3.59
2014/9/30	835	MSL	250	D835V2-499	EX3DV4 - SN3935	DAE4 Sn1338	2.36	9.46	9.44	-0.21
2014/9/25	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3935	DAE4 Sn1338	9.59	37.50	38.36	2.29
2014/9/26	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3935	DAE4 Sn1338	9.94	37.50	39.76	6.03
2014/9/25	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3935	DAE4 Sn1338	10.90	41.00	43.60	6.34
2014/9/26	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3935	DAE4 Sn1338	10.80	41.00	43.20	5.37
2014/9/27	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3935	DAE4 Sn1338	9.99	41.00	39.96	-2.54
2014/9/30	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3935	DAE4 Sn1338	10.70	41.00	42.80	4.39

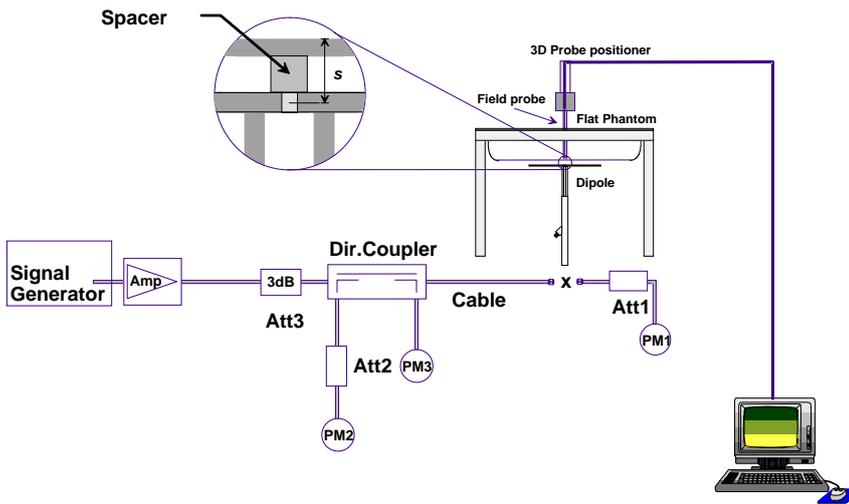


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

12. RF Exposure Positions

12.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v05r02 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

13. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. Per KDB 447498 D01v05r02, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03, for Body SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance, for modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested, therefore, the GPRS 2Tx slots modes was selected when EUT operating without power back-off, the GPRS 2Tx slots modes was selected when EUT operating with power back-off, according to the highest source-based time-averaged output power.

Full Power mode (Proximity Sensor Inactive)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	128	189		251	128	189	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS (GMSK, 1 Tx slot)	32.75	32.71	32.69	33.50	23.75	23.71	23.69	24.50
GPRS (GMSK, 2 Tx slots)	32.74	32.68	32.66	33.00	26.74	26.68	26.66	27.00
GPRS (GMSK, 3 Tx slots)	30.94	30.84	30.52	31.00	26.68	26.58	26.26	26.74
GPRS (GMSK, 4 Tx slots)	28.63	28.60	28.09	29.00	25.63	25.60	25.09	26.00
EDGE (8PSK, 1 Tx slot)	26.95	26.71	26.49	28.00	17.95	17.71	17.49	19.00
EDGE (8PSK, 2 Tx slots)	26.75	26.61	26.32	27.00	20.75	20.61	20.32	21.00
EDGE (8PSK, 3 Tx slots)	26.54	26.39	26.11	27.00	22.28	22.13	21.85	22.74
EDGE (8PSK, 4 Tx slots)	24.54	24.23	23.87	25.00	21.54	21.23	20.87	22.00

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	512	661		810	512	661	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS (GMSK, 1 Tx slot)	29.39	29.56	29.84	31.00	20.39	20.56	20.84	22.00
GPRS (GMSK, 2 Tx slots)	29.38	29.55	29.83	30.50	23.38	23.55	23.83	24.50
GPRS (GMSK, 3 Tx slots)	27.43	27.62	27.68	28.00	23.17	23.36	23.42	23.74
GPRS (GMSK, 4 Tx slots)	25.65	25.68	25.86	26.00	22.65	22.68	22.86	23.00
EDGE (8PSK, 1 Tx slot)	25.01	25.14	25.23	27.00	16.01	16.14	16.23	18.00
EDGE (8PSK, 2 Tx slots)	24.45	24.53	24.66	26.00	18.45	18.53	18.66	20.00
EDGE (8PSK, 3 Tx slots)	24.31	24.48	24.54	26.00	20.05	20.22	20.28	21.74
EDGE (8PSK, 4 Tx slots)	23.69	23.81	23.90	24.00	20.69	20.81	20.90	21.00



Reduced Power Mode (Proximity Sensor active)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	128	189		251	128	189	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS (GMSK, 1 Tx slot)	27.09	27.64	27.59	28.00	18.09	18.64	18.59	19.00
GPRS (GMSK, 2 Tx slots)	27.06	27.54	27.53	28.00	21.06	21.54	21.53	22.00
GPRS (GMSK, 3 Tx slots)	24.90	24.85	24.41	26.00	20.64	20.59	20.15	21.74
GPRS (GMSK, 4 Tx slots)	23.34	23.37	22.94	24.00	20.34	20.37	19.94	21.00
EDGE (8PSK, 1 Tx slot)	25.95	25.71	25.49	27.00	16.95	16.71	16.49	18.00
EDGE (8PSK, 2 Tx slots)	24.75	24.61	24.32	25.00	18.75	18.61	18.32	19.00
EDGE (8PSK, 3 Tx slots)	24.42	24.28	24.13	25.00	20.16	20.02	19.87	20.74
EDGE (8PSK, 4 Tx slots)	22.53	22.22	21.91	23.00	19.53	19.22	18.91	20.00

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	512	661		810	512	661	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS (GMSK, 1 Tx slot)	24.41	24.26	24.48	24.50	15.41	15.26	15.48	15.50
GPRS (GMSK, 2 Tx slots)	23.80	23.69	23.88	24.00	17.80	17.69	17.88	18.00
GPRS (GMSK, 3 Tx slots)	20.87	20.85	20.98	21.50	16.61	16.59	16.72	17.24
GPRS (GMSK, 4 Tx slots)	19.26	19.22	19.35	19.50	16.26	16.22	16.35	16.50
EDGE (8PSK, 1 Tx slot)	24.30	24.14	24.22	24.50	15.30	15.14	15.22	15.50
EDGE (8PSK, 2 Tx slots)	21.62	21.58	21.74	23.00	15.62	15.58	15.74	17.00
EDGE (8PSK, 3 Tx slots)	21.52	21.64	21.72	22.00	17.26	17.38	17.46	17.74
EDGE (8PSK, 4 Tx slots)	19.51	19.89	19.92	20.00	16.51	16.89	16.92	17.00

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (β_c and β_d) and parameters were set according to each
 - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - iii. Set RMC 12.2Kbps + HSDPA mode.
 - iv. Set Cell Power = -86 dBm
 - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
 - vi. Select HSDPA Uplink Parameters
 - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
 - viii. Set Ack-Nack Repetition Factor to 3
 - ix. Set CQI Feedback Cycle (k) to 4 ms
 - x. Set CQI Repetition Factor to 2
 - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Setup Configuration

HSUPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCl
 - viii. Confirm that E-TFCl is equal to the target E-TFCl of 75 for sub-test 1, and other subtest's E-TFCl
- d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCl
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration



<WCDMA Conducted Power>

General Note:

- Per KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA.

Full Power mode (Proximity Sensor Inactive)

Band			WCDMA V			WCDMA II			WCDMA IV		
TX Channel			4132	4182	4233	9262	9400	9538	1312	1413	1513
Rx Channel			4357	4407	4458	9662	9800	9938	1537	1638	1738
Frequency (MHz)			826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
MPR (dB)	3GPP Rel 99	RMC 12.2Kbps	24.37	24.23	23.68	23.24	23.43	23.39	24.49	24.22	24.13
0	3GPP Rel 6	HSDPA Subtest-1	22.01	21.85	21.36	21.57	21.58	21.65	21.79	21.28	21.29
0	3GPP Rel 6	HSDPA Subtest-2	21.98	21.84	21.35	21.51	21.57	21.64	21.78	21.25	21.28
0.5	3GPP Rel 6	HSDPA Subtest-3	21.55	21.41	20.94	21.14	21.15	21.29	21.32	20.86	20.87
0.5	3GPP Rel 6	HSDPA Subtest-4	21.50	21.40	20.93	21.11	21.12	21.17	21.31	20.85	20.86
0	3GPP Rel 6	HSUPA Subtest-1	21.81	21.80	20.79	20.94	20.97	21.29	21.34	20.75	20.76
2	3GPP Rel 6	HSUPA Subtest-2	20.87	20.39	20.29	20.29	20.30	20.31	20.78	20.27	20.32
1	3GPP Rel 6	HSUPA Subtest-3	20.50	20.49	20.00	20.03	20.21	20.22	20.41	19.88	19.97
2	3GPP Rel 6	HSUPA Subtest-4	21.35	21.08	20.30	20.53	20.55	21.15	20.74	20.26	20.27
0	3GPP Rel 6	HSUPA Subtest-5	22.01	22.00	21.40	21.60	21.61	21.80	22.00	21.30	21.40

Reduced Power Mode (Proximity Sensor active)

Band			WCDMA V			WCDMA II			WCDMA IV		
TX Channel			4132	4182	4233	9262	9400	9538	1312	1413	1513
Rx Channel			4357	4407	4458	9662	9800	9938	1537	1638	1738
Frequency (MHz)			826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
MPR (dB)	3GPP Rel 99	RMC 12.2Kbps	19.56	19.38	18.95	17.70	17.74	17.95	18.98	18.70	18.82
0	3GPP Rel 6	HSDPA Subtest-1	19.04	18.89	18.50	17.09	17.12	17.21	18.34	17.72	17.75
0	3GPP Rel 6	HSDPA Subtest-2	19.07	18.90	18.51	17.13	17.14	17.22	18.31	17.86	17.89
0.5	3GPP Rel 6	HSDPA Subtest-3	18.57	18.49	18.01	16.64	16.65	16.73	17.84	17.38	17.41
0.5	3GPP Rel 6	HSDPA Subtest-4	18.58	18.49	18.02	16.63	16.64	16.73	17.84	17.38	17.42
0	3GPP Rel 6	HSUPA Subtest-1	18.54	18.86	17.97	16.42	16.51	17.18	18.39	17.21	17.75
2	3GPP Rel 6	HSUPA Subtest-2	18.01	17.56	17.46	15.79	16.08	15.99	17.18	16.53	16.36
1	3GPP Rel 6	HSUPA Subtest-3	17.70	17.66	17.08	15.70	15.67	15.82	16.76	16.72	16.48
2	3GPP Rel 6	HSUPA Subtest-4	17.99	17.95	17.37	16.25	15.95	16.18	17.49	16.83	17.04
0	3GPP Rel 6	HSUPA Subtest-5	19.20	19.00	18.50	17.10	17.10	17.20	18.40	17.90	17.80



<CDMA2000 Conducted Power>

General Note:

- 1. Per KDB 941225 D01v03, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.

Full Power mode (Proximity Sensor Inactive)

Band	CDMA2000 BC1			CDMA2000 BC0		
TX Channel	25	600	1175	1013	384	777
Frequency (MHz)	1851.25	1880	1908.75	824.7	836.52	848.31
1xRTT RC1 SO55	24.21	23.97	23.62	24.13	24.21	23.56
1xRTT RC3 SO55	24.23	24.29	23.54	24.18	24.28	23.50
1xEVDO RTAP 153.6Kbps	24.29	24.00	23.57	24.23	24.28	23.58
1xEVDO RETAP 4096Bits	24.27	23.99	23.50	24.08	24.11	23.57

Reduced Power Mode (Proximity Sensor active)

Band	CDMA2000 BC1			CDMA2000 BC0		
TX Channel	25	600	1175	1013	384	777
Frequency (MHz)	1851.25	1880	1908.75	824.7	836.52	848.31
1xRTT RC1 SO55	19.14	18.91	18.93	19.81	19.84	19.27
1xRTT RC3 SO55	19.15	18.97	18.99	19.88	19.91	19.33
1xEVDO RTAP 153.6Kbps	19.16	18.92	18.88	19.93	19.95	19.37
1xEVDO RETAP 4096Bits	19.13	18.86	18.72	19.94	19.91	19.34



<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r03, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r03, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r03, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r03, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, smaller bandwidth SAR testing is not required.



Maximum Average RF Power (Proximity Sensor Inactive)

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	22.88	22.89	22.71	24	0
10	QPSK	1	24	22.84	22.68	22.61		
10	QPSK	1	49	22.53	22.45	22.45		
10	QPSK	25	0	21.54	21.57	21.52	23	1
10	QPSK	25	12	21.53	21.55	21.49		
10	QPSK	25	24	21.48	21.53	21.45		
10	QPSK	50	0	21.47	21.51	21.37	23	1
10	16QAM	1	0	21.75	21.73	21.67		
10	16QAM	1	24	21.49	21.60	21.57		
10	16QAM	1	49	21.74	21.43	21.44	22	2
10	16QAM	25	0	20.49	20.43	20.46		
10	16QAM	25	12	20.63	20.46	20.51		
10	16QAM	25	24	20.63	20.56	20.49	22	2
10	16QAM	50	0	20.41	20.34	20.32		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.53	22.53	22.62	24	0
5	QPSK	1	12	22.42	22.46	22.50		
5	QPSK	1	24	22.51	22.43	22.52		
5	QPSK	12	0	21.40	21.55	21.49	23	1
5	QPSK	12	6	21.40	21.54	21.52		
5	QPSK	12	11	21.50	21.55	21.58		
5	QPSK	25	0	21.35	21.39	21.48	23	1
5	16QAM	1	0	21.54	21.54	21.55		
5	16QAM	1	12	21.48	21.51	21.47		
5	16QAM	1	24	21.50	21.48	21.47	22	2
5	16QAM	12	0	20.42	20.55	20.52		
5	16QAM	12	6	20.43	20.51	20.54		
5	16QAM	12	11	20.53	20.50	20.67	22	2
5	16QAM	25	0	20.36	20.36	20.40		



<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel					23230			
Frequency (MHz)					782			
10	QPSK	1	0		22.66		24	0
10	QPSK	1	24		22.23			
10	QPSK	1	49		22.33			
10	QPSK	25	0		21.33		23	1
10	QPSK	25	12		21.26			
10	QPSK	25	24		21.24			
10	QPSK	50	0		21.17			
10	16QAM	1	0		21.64		23	1
10	16QAM	1	24		21.28			
10	16QAM	1	49		21.30			
10	16QAM	25	0		20.32		22	2
10	16QAM	25	12		20.16			
10	16QAM	25	24		20.23			
10	16QAM	50	0		20.24			
Channel				23205	23230	23255	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.63	22.54	22.28	24	0
5	QPSK	1	12	22.39	22.26	22.07		
5	QPSK	1	24	22.40	22.18	22.18		
5	QPSK	12	0	21.51	21.50	21.11	23	1
5	QPSK	12	6	21.42	21.29	21.09		
5	QPSK	12	11	21.41	21.17	21.16		
5	QPSK	25	0	21.32	21.06	21.01		
5	16QAM	1	0	21.56	21.52	21.27	23	1
5	16QAM	1	12	21.41	21.25	21.09		
5	16QAM	1	24	21.41	21.15	21.19		
5	16QAM	12	0	20.48	20.42	20.16	22	2
5	16QAM	12	6	20.47	20.30	20.15		
5	16QAM	12	11	20.42	20.20	20.20		
5	16QAM	12	11	20.42	20.20	20.20		
5	16QAM	25	0	20.26	20.09	20.01		



<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	23.14	23.27	22.92	24	0
10	QPSK	1	24	23.08	23.10	22.70		
10	QPSK	1	49	23.22	22.80	22.78		
10	QPSK	25	0	22.08	22.28	21.85	23	1
10	QPSK	25	12	22.18	22.20	21.87		
10	QPSK	25	24	22.14	22.00	21.66		
10	QPSK	50	0	21.96	21.98	21.54		
10	16QAM	1	0	22.30	22.30	21.97	23	1
10	16QAM	1	24	22.10	22.13	21.81		
10	16QAM	1	49	22.15	21.85	21.77		
10	16QAM	25	0	21.03	21.20	20.81	22	2
10	16QAM	25	12	21.20	21.08	20.77		
10	16QAM	25	24	21.17	20.84	20.70		
10	16QAM	50	0	21.02	20.85	20.65		
Channel				20425	20525	20625	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	23.23	23.11	22.74	24	0
5	QPSK	1	12	23.12	23.08	22.66		
5	QPSK	1	24	23.06	23.00	22.57		
5	QPSK	12	0	22.13	22.37	21.92	23	1
5	QPSK	12	6	22.20	22.26	21.86		
5	QPSK	12	11	22.18	22.12	21.83		
5	QPSK	25	0	22.01	22.14	21.68		
5	16QAM	1	0	22.28	22.38	21.95	23	1
5	16QAM	1	12	22.14	22.22	21.79		
5	16QAM	1	24	22.07	22.11	21.68		
5	16QAM	12	0	21.16	21.38	20.94	22	2
5	16QAM	12	6	21.22	21.29	20.82		
5	16QAM	12	11	21.21	21.13	20.88		
5	16QAM	25	0	21.07	21.17	20.72		
Channel				20415	20525	20635	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.11	23.16	22.86	24	0
3	QPSK	1	7	23.06	23.10	22.76		
3	QPSK	1	14	23.09	23.01	22.73		
3	QPSK	8	0	22.16	22.29	21.94	23	1
3	QPSK	8	4	22.16	22.19	21.93		
3	QPSK	8	7	22.18	22.18	21.91		
3	QPSK	15	0	22.17	22.19	21.74		
3	16QAM	1	0	22.20	22.35	21.88	23	1
3	16QAM	1	7	22.10	22.24	21.81		
3	16QAM	1	14	22.14	22.01	21.83		
3	16QAM	8	0	21.11	21.27	20.91	22	2
3	16QAM	8	4	21.14	21.15	20.90		
3	16QAM	8	7	21.15	21.06	20.87		
3	16QAM	15	0	21.11	21.23	20.81		



Channel				20407	20525	20643	Tune up Limit (dBm)	Target MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.15	23.18	22.95	24	0
1.4	QPSK	1	2	23.14	23.16	22.89		
1.4	QPSK	1	5	23.12	23.08	22.78		
1.4	QPSK	3	0	23.14	23.16	22.91		
1.4	QPSK	3	1	23.14	23.10	22.90		
1.4	QPSK	3	2	23.11	23.09	22.85		
1.4	QPSK	6	0	22.13	22.24	21.91	23	1
1.4	16QAM	1	0	22.20	22.28	21.98	23	1
1.4	16QAM	1	2	22.14	22.21	21.88		
1.4	16QAM	1	5	22.13	22.09	21.82		
1.4	16QAM	3	0	22.19	22.22	21.94		
1.4	16QAM	3	1	22.19	22.20	21.95		
1.4	16QAM	3	2	22.15	22.17	21.89		
1.4	16QAM	6	0	21.16	21.25	20.97	22	2



<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	23.18	22.93	22.79	24	0
20	QPSK	1	49	23.11	22.76	22.75		
20	QPSK	1	99	22.85	22.72	22.70		
20	QPSK	50	0	21.92	21.75	21.48	23	1
20	QPSK	50	24	21.88	21.55	21.40		
20	QPSK	50	49	21.77	21.51	21.39		
20	QPSK	100	0	21.85	21.62	21.55	23	1
20	16QAM	1	0	22.14	21.98	21.87		
20	16QAM	1	49	22.12	21.76	21.80		
20	16QAM	1	99	21.85	21.72	21.74	22	2
20	16QAM	50	0	20.89	20.65	20.58		
20	16QAM	50	24	20.85	20.52	20.42		
20	16QAM	50	49	20.71	20.46	20.26	22	2
20	16QAM	100	0	20.79	20.53	20.48		
Channel				20025	20175	20325		
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	23.17	22.80	22.82	24	0
15	QPSK	1	37	23.13	22.79	22.70		
15	QPSK	1	74	22.74	22.68	22.70		
15	QPSK	36	0	21.93	21.65	21.51	23	1
15	QPSK	36	18	21.85	21.54	21.52		
15	QPSK	36	37	21.77	21.52	21.45		
15	QPSK	75	0	21.79	21.43	21.47	23	1
15	16QAM	1	0	22.10	21.83	21.82		
15	16QAM	1	37	22.11	21.78	21.70		
15	16QAM	1	74	21.80	21.74	21.67	22	2
15	16QAM	36	0	20.98	20.68	20.55		
15	16QAM	36	18	20.91	20.55	20.49		
15	16QAM	36	37	20.74	20.49	20.51	22	2
15	16QAM	75	0	20.78	20.44	20.44		
Channel				20000	20175	20350		
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	23.12	22.86	22.78	24	0
10	QPSK	1	24	23.11	22.63	22.73		
10	QPSK	1	49	23.01	22.55	22.75		
10	QPSK	25	0	21.95	21.74	21.64	23	1
10	QPSK	25	12	21.95	21.57	21.59		
10	QPSK	25	24	21.99	21.59	21.63		
10	QPSK	50	0	21.75	21.44	21.42	23	1
10	16QAM	1	0	22.17	21.87	21.78		
10	16QAM	1	24	22.10	21.71	21.76		
10	16QAM	1	49	22.02	21.66	21.75	22	2
10	16QAM	25	0	20.94	20.68	20.59		
10	16QAM	25	12	20.96	20.60	20.61		
10	16QAM	25	24	20.95	20.65	20.64	22	2
10	16QAM	50	0	20.74	20.46	20.44		



Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	23.16	22.77	22.76	24	0
5	QPSK	1	12	23.02	22.74	22.72		
5	QPSK	1	24	23.06	22.71	22.72		
5	QPSK	12	0	22.06	21.77	21.77	23	1
5	QPSK	12	6	22.01	21.78	21.82		
5	QPSK	12	11	22.04	21.81	21.79		
5	QPSK	25	0	21.89	21.63	21.59		
5	16QAM	1	0	22.11	21.84	21.76	23	1
5	16QAM	1	12	22.06	21.80	21.74		
5	16QAM	1	24	22.07	21.74	21.75		
5	16QAM	12	0	21.15	20.81	20.81	22	2
5	16QAM	12	6	21.06	20.74	20.82		
5	16QAM	12	11	21.14	20.84	20.80		
5	16QAM	25	0	20.94	20.61	20.67		
5	16QAM	25	0	20.94	20.61	20.67		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	23.17	22.79	22.79	24	0
3	QPSK	1	7	23.15	22.73	22.74		
3	QPSK	1	14	23.08	22.74	22.72		
3	QPSK	8	0	22.07	21.78	21.80	23	1
3	QPSK	8	4	22.15	21.69	21.83		
3	QPSK	8	7	22.19	21.85	21.79		
3	QPSK	15	0	22.12	21.73	21.75		
3	QPSK	15	0	22.12	21.73	21.75		
3	16QAM	1	0	22.09	21.73	21.83	23	1
3	16QAM	1	7	22.05	21.76	21.78		
3	16QAM	1	14	22.01	21.73	21.75		
3	16QAM	8	0	21.10	20.76	20.74	22	2
3	16QAM	8	4	21.07	20.70	20.77		
3	16QAM	8	7	21.13	20.82	20.76		
3	16QAM	15	0	21.13	20.70	20.76		
3	16QAM	15	0	21.13	20.70	20.76		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	23.12	22.78	22.83	24	0
1.4	QPSK	1	2	23.11	22.76	22.80		
1.4	QPSK	1	5	23.10	22.70	22.80		
1.4	QPSK	3	0	23.08	22.68	22.80		
1.4	QPSK	3	1	22.82	22.69	22.81		
1.4	QPSK	3	2	23.05	22.67	22.82		
1.4	QPSK	6	0	22.21	21.79	21.88	23	1
1.4	16QAM	1	0	22.11	21.81	21.88	23	1
1.4	16QAM	1	2	22.12	21.76	21.80		
1.4	16QAM	1	5	22.06	21.71	21.78		
1.4	16QAM	3	0	22.16	21.78	21.84		
1.4	16QAM	3	1	22.21	21.78	21.86		
1.4	16QAM	3	2	22.14	21.76	21.87		
1.4	16QAM	6	0	21.25	20.82	20.89	22	2



<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.78	23.04	22.61	24	0
20	QPSK	1	49	22.43	22.88	22.43		
20	QPSK	1	99	22.36	22.69	22.34		
20	QPSK	50	0	21.36	21.83	21.34	23	1
20	QPSK	50	24	21.33	21.82	21.33		
20	QPSK	50	49	21.33	21.76	21.30		
20	QPSK	100	0	21.36	21.70	21.24		
20	16QAM	1	0	21.78	21.76	21.81	23	1
20	16QAM	1	49	21.42	21.74	21.57		
20	16QAM	1	99	21.36	21.53	21.46		
20	16QAM	50	0	20.47	20.85	20.55	22	2
20	16QAM	50	24	20.44	20.92	20.51		
20	16QAM	50	49	20.32	20.65	20.77		
20	16QAM	100	0	20.30	20.71	20.49		
Channel				18675	18900	19125	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.75	22.68	22.40	24	0
15	QPSK	1	37	22.38	22.58	22.38		
15	QPSK	1	74	22.33	22.39	22.39		
15	QPSK	36	0	21.49	21.58	21.21	23	1
15	QPSK	36	18	21.45	21.55	21.50		
15	QPSK	36	37	21.42	21.41	21.57		
15	QPSK	75	0	21.35	21.42	21.27	23	1
15	16QAM	1	0	21.76	21.60	21.43		
15	16QAM	1	37	21.37	21.54	21.33		
15	16QAM	1	74	21.32	21.40	21.35	22	2
15	16QAM	36	0	20.71	20.62	20.22		
15	16QAM	36	18	20.56	20.57	20.54		
15	16QAM	36	37	20.52	20.47	20.62		
15	16QAM	75	0	20.45	20.42	20.33		
Channel				18650	18900	19150	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.99	22.82	22.78	24	0
10	QPSK	1	24	22.87	22.62	22.76		
10	QPSK	1	49	22.97	22.54	22.69		
10	QPSK	25	0	21.96	21.68	21.62	23	1
10	QPSK	25	12	21.97	21.61	21.62		
10	QPSK	25	24	21.90	21.56	21.66		
10	QPSK	50	0	21.77	21.48	21.47	23	1
10	16QAM	1	0	22.23	21.89	21.77		
10	16QAM	1	24	22.15	21.68	21.74		
10	16QAM	1	49	21.99	21.59	21.76	22	2
10	16QAM	25	0	21.01	20.69	20.61		
10	16QAM	25	12	20.92	20.60	20.61		
10	16QAM	25	24	20.96	20.59	20.61		
10	16QAM	50	0	20.73	20.45	20.38		



Channel				18625	18900	19175	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.72	22.93	23.02	24	0
5	QPSK	1	12	22.57	22.75	22.78		
5	QPSK	1	24	22.40	22.72	22.44		
5	QPSK	12	0	21.59	21.89	21.86	23	1
5	QPSK	12	6	21.54	21.80	21.74		
5	QPSK	12	11	21.48	21.80	21.62		
5	QPSK	25	0	21.40	21.68	21.54	23	1
5	16QAM	1	0	21.70	21.98	22.00		
5	16QAM	1	12	21.59	21.78	21.80		
5	16QAM	1	24	21.38	21.72	21.44	22	2
5	16QAM	12	0	20.73	20.88	20.95		
5	16QAM	12	6	20.64	20.79	20.80		
5	16QAM	12	11	20.55	20.83	20.63	22	2
5	16QAM	12	11	20.55	20.83	20.63		
5	16QAM	25	0	20.45	20.66	20.60		
Channel				18615	18900	19185	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.77	22.83	22.84	24	0
3	QPSK	1	7	22.66	22.76	22.62		
3	QPSK	1	14	22.55	22.71	22.26		
3	QPSK	8	0	21.68	21.81	21.74	23	1
3	QPSK	8	4	21.60	21.79	21.60		
3	QPSK	8	7	21.67	21.76	21.53		
3	QPSK	15	0	21.55	21.75	21.57	23	1
3	16QAM	1	0	21.77	21.91	21.82		
3	16QAM	1	7	21.68	21.88	21.67		
3	16QAM	1	14	21.61	21.73	21.25	22	2
3	16QAM	8	0	20.71	20.78	20.75		
3	16QAM	8	4	20.66	20.78	20.57		
3	16QAM	8	7	20.62	20.77	20.48	22	2
3	16QAM	8	7	20.62	20.77	20.48		
3	16QAM	15	0	20.66	20.78	20.59		
Channel				18607	18900	19193	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.78	22.79	22.51	24	0
1.4	QPSK	1	2	22.77	22.75	22.46		
1.4	QPSK	1	5	22.72	22.76	22.26		
1.4	QPSK	3	0	22.76	22.78	22.43		
1.4	QPSK	3	1	22.76	22.78	22.41		
1.4	QPSK	3	2	22.74	22.77	22.34		
1.4	QPSK	6	0	21.70	21.83	21.40	23	1
1.4	16QAM	1	0	21.81	21.89	21.52	23	1
1.4	16QAM	1	2	21.72	21.78	21.43		
1.4	16QAM	1	5	21.66	21.82	21.56		
1.4	16QAM	3	0	21.80	21.88	21.49		
1.4	16QAM	3	1	21.77	21.88	21.45		
1.4	16QAM	3	2	21.78	21.85	21.40		
1.4	16QAM	6	0	20.77	20.88	20.51	22	2



<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	22.87	22.89	22.65	24	0
20	QPSK	1	49	22.42	22.77	22.61		
20	QPSK	1	99	22.27	22.24	22.10		
20	QPSK	50	0	21.30	21.58	21.48	23	1
20	QPSK	50	24	21.27	21.39	21.28		
20	QPSK	50	49	21.20	21.26	21.17		
20	QPSK	100	0	21.35	21.42	21.34	23	1
20	16QAM	1	0	21.84	21.66	21.63		
20	16QAM	1	49	21.30	21.56	21.50		
20	16QAM	1	99	21.24	21.28	21.00	22	2
20	16QAM	50	0	20.25	20.49	20.30		
20	16QAM	50	24	20.35	20.35	20.41		
20	16QAM	50	49	20.29	20.24	20.28	22	2
20	16QAM	100	0	20.34	20.33	20.43		
Channel				26115	26340	26615		
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	22.85	22.82	22.69	24	0
15	QPSK	1	37	22.48	22.76	22.65		
15	QPSK	1	74	22.24	22.13	22.19		
15	QPSK	36	0	21.46	21.52	21.77	23	1
15	QPSK	36	18	21.35	21.42	21.52		
15	QPSK	36	37	21.32	21.31	21.61		
15	QPSK	75	0	21.33	21.28	21.32	23	1
15	16QAM	1	0	21.79	21.81	21.68		
15	16QAM	1	37	21.42	21.74	21.66		
15	16QAM	1	74	21.33	21.15	21.18	22	2
15	16QAM	36	0	20.70	20.52	20.82		
15	16QAM	36	18	20.64	20.48	20.55		
15	16QAM	36	37	20.58	20.42	20.70	22	2
15	16QAM	75	0	20.45	20.27	20.22		
Channel				26090	26340	26640		
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	22.81	22.86	22.82	24	0
10	QPSK	1	24	22.54	22.80	22.40		
10	QPSK	1	49	22.20	22.32	22.41		
10	QPSK	25	0	21.59	21.64	21.66	23	1
10	QPSK	25	12	21.38	21.64	21.88		
10	QPSK	25	24	21.34	21.43	21.50		
10	QPSK	50	0	21.21	21.42	21.56	23	1
10	16QAM	1	0	21.79	21.87	22.05		
10	16QAM	1	24	21.56	21.78	21.40		
10	16QAM	1	49	21.22	21.36	21.41	22	2
10	16QAM	25	0	20.53	20.64	20.60		
10	16QAM	25	12	20.42	20.58	20.51		
10	16QAM	25	24	20.42	20.44	20.53	22	2
10	16QAM	50	0	20.28	20.36	20.68		



Channel				26065	26340	26665	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	22.84	22.81	22.44	24	0
5	QPSK	1	12	22.68	22.78	22.32		
5	QPSK	1	24	22.60	22.55	22.38		
5	QPSK	12	0	21.78	21.81	21.33	23	1
5	QPSK	12	6	21.71	21.78	21.29		
5	QPSK	12	11	21.61	21.75	21.28		
5	QPSK	25	0	21.48	21.61	21.20		
5	16QAM	1	0	21.78	21.77	21.34	23	1
5	16QAM	1	12	21.66	21.75	21.28		
5	16QAM	1	24	21.52	21.58	21.26		
5	16QAM	12	0	20.81	20.78	20.35	22	2
5	16QAM	12	6	20.69	20.80	20.30		
5	16QAM	12	11	20.66	20.77	20.36		
5	16QAM	25	0	20.54	20.57	20.43		
Channel				26055	26340	26675	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	22.80	22.84	22.64	24	0
3	QPSK	1	7	22.74	22.78	22.59		
3	QPSK	1	14	22.62	22.66	22.56		
3	QPSK	8	0	21.83	21.82	21.73	23	1
3	QPSK	8	4	21.74	21.85	21.72		
3	QPSK	8	7	21.73	21.73	21.68		
3	QPSK	15	0	21.68	21.71	21.63		
3	16QAM	1	0	21.79	21.87	21.69	23	1
3	16QAM	1	7	21.75	21.78	21.55		
3	16QAM	1	14	21.64	21.69	21.64		
3	16QAM	8	0	20.74	20.78	20.63	22	2
3	16QAM	8	4	20.69	20.73	20.63		
3	16QAM	8	7	20.64	20.69	20.49		
3	16QAM	15	0	20.75	20.74	20.54		
Channel				26047	26340	26683	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	22.83	22.88	22.71	24	0
1.4	QPSK	1	2	22.79	22.81	22.62		
1.4	QPSK	1	5	22.75	22.79	22.70		
1.4	QPSK	3	0	22.80	22.87	22.65		
1.4	QPSK	3	1	22.80	22.86	22.62		
1.4	QPSK	3	2	22.79	22.82	22.67		
1.4	QPSK	6	0	21.86	21.80	21.60	23	1
1.4	16QAM	1	0	21.85	21.93	21.90	23	1
1.4	16QAM	1	2	21.80	21.80	21.65		
1.4	16QAM	1	5	21.77	21.72	21.54		
1.4	16QAM	3	0	21.83	21.87	21.67		
1.4	16QAM	3	1	21.81	21.86	21.83		
1.4	16QAM	3	2	21.80	21.86	21.88		
1.4	16QAM	6	0	20.85	20.80	20.55	22	2



Reduced Average RF Power (Proximity Sensor active)

<LTE Band 17 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	21.39	21.69	21.41	22	0
10	QPSK	1	24	21.50	21.51	21.44		
10	QPSK	1	49	21.54	21.67	21.63		
10	QPSK	25	0	21.41	21.57	21.41	22	0
10	QPSK	25	12	21.39	21.35	21.41		
10	QPSK	25	24	21.47	21.52	21.44		
10	QPSK	50	0	21.32	21.37	21.26	22	0
10	16QAM	1	0	21.44	21.38	21.39		
10	16QAM	1	24	21.53	21.53	21.47		
10	16QAM	1	49	21.53	21.64	21.64	22	0
10	16QAM	25	0	20.33	20.36	20.37		
10	16QAM	25	12	20.38	20.35	20.40		
10	16QAM	25	24	20.45	20.43	20.44	22	0
10	16QAM	50	0	20.27	20.21	20.20		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	21.52	21.45	21.53	22	0
5	QPSK	1	12	21.44	21.49	21.44		
5	QPSK	1	24	21.54	21.48	21.60		
5	QPSK	12	0	21.43	21.54	21.46	22	0
5	QPSK	12	6	21.45	21.44	21.51		
5	QPSK	12	11	21.46	21.51	21.62		
5	QPSK	25	0	21.38	21.30	21.37	22	0
5	16QAM	1	0	21.47	21.42	21.45		
5	16QAM	1	12	21.46	21.50	21.44		
5	16QAM	1	24	21.53	21.50	21.60	22	0
5	16QAM	12	0	20.44	20.50	20.48		
5	16QAM	12	6	20.46	20.48	20.53		
5	16QAM	12	11	20.54	20.49	20.67	22	0
5	16QAM	25	0	20.28	20.33	20.38		



<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel					23230			
Frequency (MHz)					782			
10	QPSK	1	0		19.69		20.5	0
10	QPSK	1	24		19.30			
10	QPSK	1	49		19.32			
10	QPSK	25	0		19.43		20.5	0
10	QPSK	25	12		19.25			
10	QPSK	25	24		19.22			
10	QPSK	50	0		19.23			
10	16QAM	1	0		19.53		20.5	0
10	16QAM	1	24		19.32			
10	16QAM	1	49		19.32			
10	16QAM	25	0		19.38		20.5	0
10	16QAM	25	12		19.31			
10	16QAM	25	24		19.28			
10	16QAM	50	0		19.23			
Channel				23205	23230	23255	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	19.59	19.57	19.29	20.5	0
5	QPSK	1	12	19.52	19.33	19.18		
5	QPSK	1	24	19.44	19.19	19.39		
5	QPSK	12	0	19.51	19.48	19.17	20.5	0
5	QPSK	12	6	19.56	19.26	19.16		
5	QPSK	12	11	19.48	19.25	19.21		
5	QPSK	25	0	19.43	19.15	19.08		
5	16QAM	1	0	19.58	19.51	19.21	20.5	0
5	16QAM	1	12	19.52	19.33	19.25		
5	16QAM	1	24	19.43	19.20	19.37		
5	16QAM	12	0	19.49	19.47	19.22	20.5	0
5	16QAM	12	6	19.44	19.32	19.23		
5	16QAM	12	11	19.48	19.28	19.28		
5	16QAM	25	0	19.33	19.12	19.08		



<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	19.60	19.56	19.83	21	0
10	QPSK	1	24	19.57	19.41	19.74		
10	QPSK	1	49	19.54	19.31	19.70		
10	QPSK	25	0	19.53	19.47	19.73	21	0
10	QPSK	25	12	19.49	19.41	19.68		
10	QPSK	25	24	19.45	19.30	19.63		
10	QPSK	50	0	19.39	19.29	19.59		
10	16QAM	1	0	19.58	19.53	19.68	21	0
10	16QAM	1	24	19.56	19.44	19.70		
10	16QAM	1	49	19.52	19.35	19.74		
10	16QAM	25	0	19.44	19.40	19.69	21	0
10	16QAM	25	12	19.41	19.35	19.64		
10	16QAM	25	24	19.40	19.20	19.61		
10	16QAM	50	0	19.37	19.22	19.57		
Channel				20425	20525	20625	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	19.47	19.50	19.73	21	0
5	QPSK	1	12	19.64	19.35	19.69		
5	QPSK	1	24	19.61	19.25	19.65		
5	QPSK	12	0	19.40	19.41	19.63	21	0
5	QPSK	12	6	19.56	19.35	19.62		
5	QPSK	12	11	19.52	19.24	19.59		
5	QPSK	25	0	19.36	19.23	19.54		
5	16QAM	1	0	19.48	19.47	19.68	21	0
5	16QAM	1	12	19.55	19.38	19.64		
5	16QAM	1	24	19.59	19.29	19.64		
5	16QAM	12	0	19.31	19.34	19.59	21	0
5	16QAM	12	6	19.51	19.29	19.54		
5	16QAM	12	11	19.57	19.18	19.51		
5	16QAM	25	0	19.34	19.16	19.47		
Channel				20415	20525	20635	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	19.34	19.44	19.63	21	0
3	QPSK	1	7	19.51	19.29	19.54		
3	QPSK	1	14	19.48	19.19	19.50		
3	QPSK	8	0	19.27	19.35	19.53	21	0
3	QPSK	8	4	19.43	19.29	19.48		
3	QPSK	8	7	19.39	19.18	19.46		
3	QPSK	15	0	19.23	19.17	19.44		
3	16QAM	1	0	19.35	19.41	19.58	21	0
3	16QAM	1	7	19.42	19.32	19.60		
3	16QAM	1	14	19.46	19.23	19.54		
3	16QAM	8	0	19.18	19.28	19.49	21	0
3	16QAM	8	4	19.38	19.23	19.48		
3	16QAM	8	7	19.44	19.08	19.45		
3	16QAM	15	0	19.21	19.00	19.42		



Channel				20407	20525	20643	Tune up Limit (dBm)	Target MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	19.27	19.39	19.62	21	0
1.4	QPSK	1	2	19.44	19.24	19.60		
1.4	QPSK	1	5	19.41	19.14	19.56		
1.4	QPSK	3	0	19.20	19.30	19.54		
1.4	QPSK	3	1	19.36	19.24	19.51		
1.4	QPSK	3	2	19.32	19.13	19.49		
1.4	QPSK	6	0	19.16	19.12	19.45	21	0
1.4	16QAM	1	0	19.28	19.36	19.54	21	0
1.4	16QAM	1	2	19.35	19.27	19.56		
1.4	16QAM	1	5	19.39	19.18	19.60		
1.4	16QAM	3	0	19.11	19.23	19.55		
1.4	16QAM	3	1	19.31	19.18	19.50		
1.4	16QAM	3	2	19.37	19.13	19.47		
1.4	16QAM	6	0	19.14	19.05	19.43	21	0



<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	18.86	18.58	18.43	19	0
20	QPSK	1	49	18.74	18.44	18.40		
20	QPSK	1	99	18.52	18.37	18.35		
20	QPSK	50	0	18.59	18.42	18.21	19	0
20	QPSK	50	24	18.52	18.28	18.16		
20	QPSK	50	49	18.38	18.13	18.18		
20	QPSK	100	0	18.44	18.32	18.29	19	0
20	16QAM	1	0	18.76	18.60	18.45		
20	16QAM	1	49	18.72	18.39	18.46		
20	16QAM	1	99	18.50	18.37	18.35	19	0
20	16QAM	50	0	18.54	18.36	18.13		
20	16QAM	50	24	18.49	18.16	18.12		
20	16QAM	50	49	18.36	18.10	18.12	19	0
20	16QAM	50	99	18.36	18.10	18.12		
20	16QAM	100	0	18.43	18.20	18.17		
Channel				20025	20175	20325		
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	18.75	18.58	18.58	19	0
15	QPSK	1	37	18.83	18.57	18.47		
15	QPSK	1	74	18.49	18.44	18.40		
15	QPSK	36	0	18.62	18.38	18.33	19	0
15	QPSK	36	18	18.65	18.34	18.25		
15	QPSK	36	37	18.50	18.29	18.26		
15	QPSK	75	0	18.51	18.21	18.25	19	0
15	16QAM	1	0	18.74	18.54	18.50		
15	16QAM	1	37	18.82	18.53	18.42		
15	16QAM	1	74	18.50	18.41	18.37	19	0
15	16QAM	36	0	18.65	18.37	18.30		
15	16QAM	36	18	18.59	18.25	18.23		
15	16QAM	36	37	18.45	18.22	18.23	19	0
15	16QAM	75	0	18.47	18.20	18.14		
Channel				20000	20175	20350		
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	18.80	18.58	18.48	19	0
10	QPSK	1	24	18.75	18.44	18.43		
10	QPSK	1	49	18.66	18.36	18.43		
10	QPSK	25	0	18.62	18.47	18.36	19	0
10	QPSK	25	12	18.66	18.36	18.35		
10	QPSK	25	24	18.69	18.42	18.34		
10	QPSK	50	0	18.57	18.28	18.18	19	0
10	16QAM	1	0	18.79	18.60	18.48		
10	16QAM	1	24	18.77	18.44	18.43		
10	16QAM	1	49	18.65	18.35	18.39	19	0
10	16QAM	25	0	18.57	18.40	18.34		
10	16QAM	25	12	18.64	18.35	18.27		
10	16QAM	25	24	18.62	18.36	18.31	19	0
10	16QAM	25	99	18.62	18.36	18.31		
10	16QAM	50	0	18.47	18.21	18.16		



Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	18.76	18.52	18.47	19	0
5	QPSK	1	12	18.71	18.56	18.43		
5	QPSK	1	24	18.75	18.46	18.49		
5	QPSK	12	0	18.77	18.48	18.47	19	0
5	QPSK	12	6	18.74	18.48	18.49		
5	QPSK	12	11	18.72	18.46	18.41		
5	QPSK	25	0	18.62	18.35	18.37		
5	16QAM	1	0	18.75	18.54	18.45	19	0
5	16QAM	1	12	18.73	18.52	18.48		
5	16QAM	1	24	18.75	18.46	18.43		
5	16QAM	12	0	18.75	18.50	18.48	19	0
5	16QAM	12	6	18.69	18.40	18.44		
5	16QAM	12	11	18.77	18.48	18.42		
5	16QAM	12	11	18.77	18.48	18.42		
5	16QAM	25	0	18.56	18.36	18.30		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	18.76	18.51	18.49	19	0
3	QPSK	1	7	18.75	18.57	18.47		
3	QPSK	1	14	18.77	18.46	18.48		
3	QPSK	8	0	18.70	18.50	18.48	19	0
3	QPSK	8	4	18.73	18.49	18.45		
3	QPSK	8	7	18.77	18.52	18.53		
3	QPSK	15	0	18.74	18.43	18.48		
3	16QAM	1	0	18.71	18.51	18.44		
3	16QAM	1	7	18.75	18.50	18.47	19	0
3	16QAM	1	14	18.68	18.46	18.47		
3	16QAM	8	0	18.67	18.41	18.41		
3	16QAM	8	4	18.70	18.42	18.35	19	0
3	16QAM	8	7	18.75	18.49	18.42		
3	16QAM	8	7	18.75	18.49	18.42		
3	16QAM	15	0	18.73	18.45	18.44		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	18.74	18.50	18.49	19	0
1.4	QPSK	1	2	18.82	18.48	18.51		
1.4	QPSK	1	5	18.79	18.57	18.53		
1.4	QPSK	3	0	18.78	18.48	18.57		
1.4	QPSK	3	1	18.85	18.48	18.51		
1.4	QPSK	3	2	18.72	18.46	18.53		
1.4	QPSK	6	0	18.78	18.47	18.50	19	0
1.4	16QAM	1	0	18.73	18.47	18.45	19	0
1.4	16QAM	1	2	18.77	18.42	18.48		
1.4	16QAM	1	5	18.72	18.50	18.49		
1.4	16QAM	3	0	18.77	18.51	18.54		
1.4	16QAM	3	1	18.84	18.51	18.48		
1.4	16QAM	3	2	18.72	18.49	18.49		
1.4	16QAM	6	0	18.80	18.46	18.52		



<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	16.68	16.88	16.40	17.5	0
20	QPSK	1	49	16.50	16.48	16.33		
20	QPSK	1	99	16.46	16.46	16.23		
20	QPSK	50	0	16.43	16.58	16.24	17.5	0
20	QPSK	50	24	16.36	16.33	16.29		
20	QPSK	50	49	16.29	16.38	16.21		
20	QPSK	100	0	16.22	16.39	16.07		
20	16QAM	1	0	16.65	16.62	16.40	17.5	0
20	16QAM	1	49	16.62	16.43	16.38		
20	16QAM	1	99	16.60	16.37	16.27		
20	16QAM	50	0	16.32	16.16	16.21	17.5	0
20	16QAM	50	24	16.30	16.13	16.14		
20	16QAM	50	49	16.05	16.17	16.07		
20	16QAM	100	0	16.03	16.11	16.05		
Channel				18675	18900	19125	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	16.40	16.38	16.11	17.5	0
15	QPSK	1	37	16.12	16.35	16.06		
15	QPSK	1	74	16.17	16.29	15.85		
15	QPSK	36	0	16.19	16.26	15.83	17.5	0
15	QPSK	36	18	16.16	16.21	16.00		
15	QPSK	36	37	16.15	16.08	15.98		
15	QPSK	75	0	16.04	16.07	15.76		
15	16QAM	1	0	16.33	16.60	16.14	17.5	0
15	16QAM	1	37	16.28	16.50	16.23		
15	16QAM	1	74	16.27	16.44	16.14		
15	16QAM	36	0	16.27	16.31	16.03	17.5	0
15	16QAM	36	18	16.16	16.16	16.07		
15	16QAM	36	37	16.07	16.07	16.07		
15	16QAM	75	0	16.10	16.02	15.81		
Channel				18650	18900	19150	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	16.38	16.49	16.27	17.5	0
10	QPSK	1	24	16.33	16.40	16.23		
10	QPSK	1	49	16.25	16.42	16.07		
10	QPSK	25	0	16.27	16.45	16.22	17.5	0
10	QPSK	25	12	16.16	16.30	16.20		
10	QPSK	25	24	16.16	16.28	15.97		
10	QPSK	50	0	16.07	16.22	15.96		
10	16QAM	1	0	16.41	16.52	16.49	17.5	0
10	16QAM	1	24	16.34	16.48	16.40		
10	16QAM	1	49	16.29	16.37	16.08		
10	16QAM	25	0	16.25	16.31	16.27	17.5	0
10	16QAM	25	12	16.24	16.25	16.46		
10	16QAM	25	24	16.18	16.22	16.01		
10	16QAM	50	0	16.20	16.18	16.06		



Channel				18625	18900	19175	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	16.34	16.59	16.60	17.5	0
5	QPSK	1	12	16.31	16.29	16.42		
5	QPSK	1	24	16.29	16.18	16.32		
5	QPSK	12	0	16.25	16.36	16.35	17.5	0
5	QPSK	12	6	16.16	16.38	16.22		
5	QPSK	12	11	16.16	16.27	16.16		
5	QPSK	25	0	16.11	16.22	16.09		
5	16QAM	1	0	16.43	16.67	16.34	17.5	0
5	16QAM	1	12	16.38	16.57	16.26		
5	16QAM	1	24	16.35	16.48	16.21		
5	16QAM	12	0	16.36	16.47	16.25	17.5	0
5	16QAM	12	6	16.28	16.37	16.17		
5	16QAM	12	11	16.26	16.26	16.19		
5	16QAM	25	0	16.24	16.32	16.03		
Channel				18615	18900	19185	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	16.17	16.44	16.18	17.5	0
3	QPSK	1	7	16.06	16.32	16.13		
3	QPSK	1	14	15.93	16.07	16.01		
3	QPSK	8	0	16.08	16.41	16.08	17.5	0
3	QPSK	8	4	16.09	16.39	16.01		
3	QPSK	8	7	15.96	16.24	16.05		
3	QPSK	15	0	16.01	16.33	15.87		
3	16QAM	1	0	16.41	16.52	16.33	17.5	0
3	16QAM	1	7	16.38	16.51	16.13		
3	16QAM	1	14	16.28	16.39	16.06		
3	16QAM	8	0	16.25	16.43	16.07	17.5	0
3	16QAM	8	4	16.26	16.40	16.01		
3	16QAM	8	7	16.13	16.25	15.86		
3	16QAM	15	0	16.15	16.31	15.84		
Channel				18607	18900	19193	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	16.17	16.37	16.12	17.5	0
1.4	QPSK	1	2	16.11	16.34	16.10		
1.4	QPSK	1	5	16.13	16.28	15.99		
1.4	QPSK	3	0	16.08	16.34	15.91		
1.4	QPSK	3	1	16.06	16.38	16.02		
1.4	QPSK	3	2	16.04	16.36	15.92		
1.4	QPSK	6	0	16.03	16.37	15.97	17.5	0
1.4	16QAM	1	0	16.27	16.45	16.17	17.5	0
1.4	16QAM	1	2	16.34	16.31	16.12		
1.4	16QAM	1	5	16.29	16.32	15.97		
1.4	16QAM	3	0	16.22	16.30	15.99		
1.4	16QAM	3	1	16.21	16.28	15.93		
1.4	16QAM	3	2	16.20	16.25	15.89		
1.4	16QAM	6	0	16.18	16.21	15.88	17.5	0



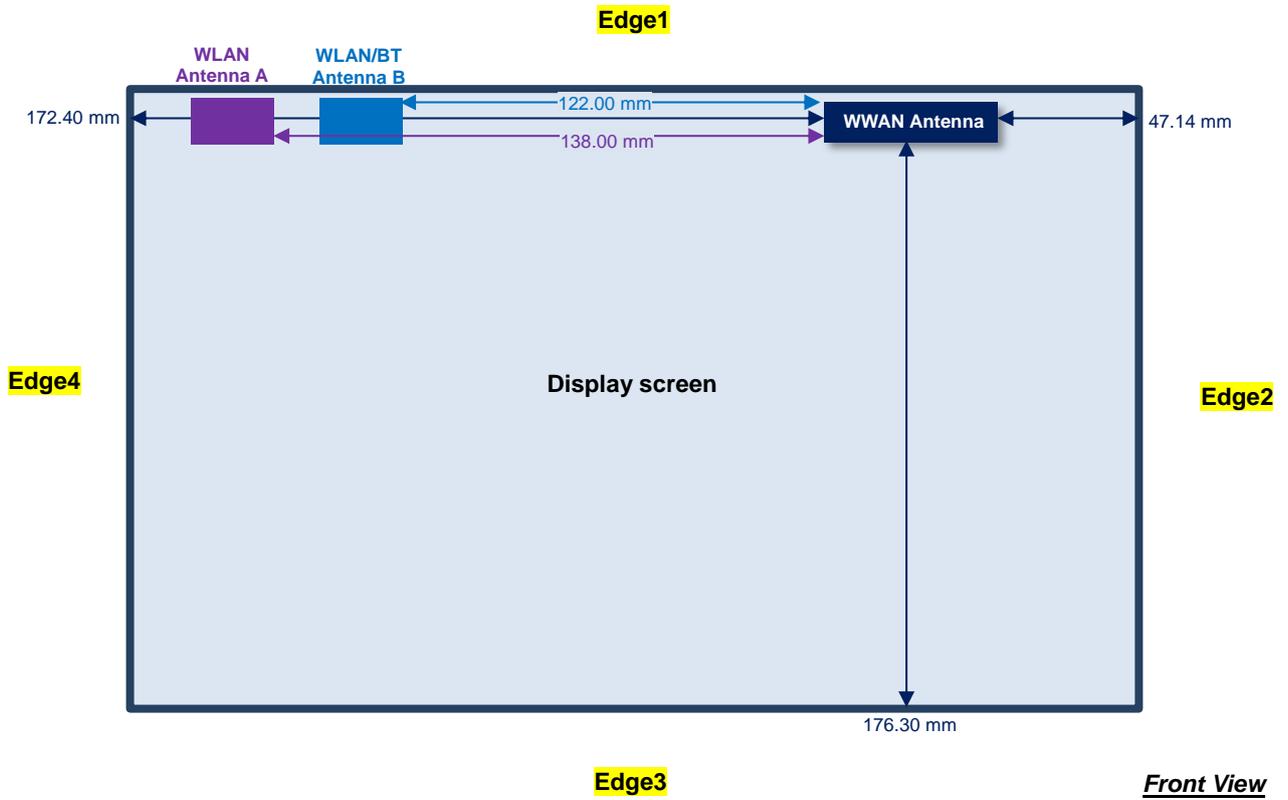
<LTE Band 25>

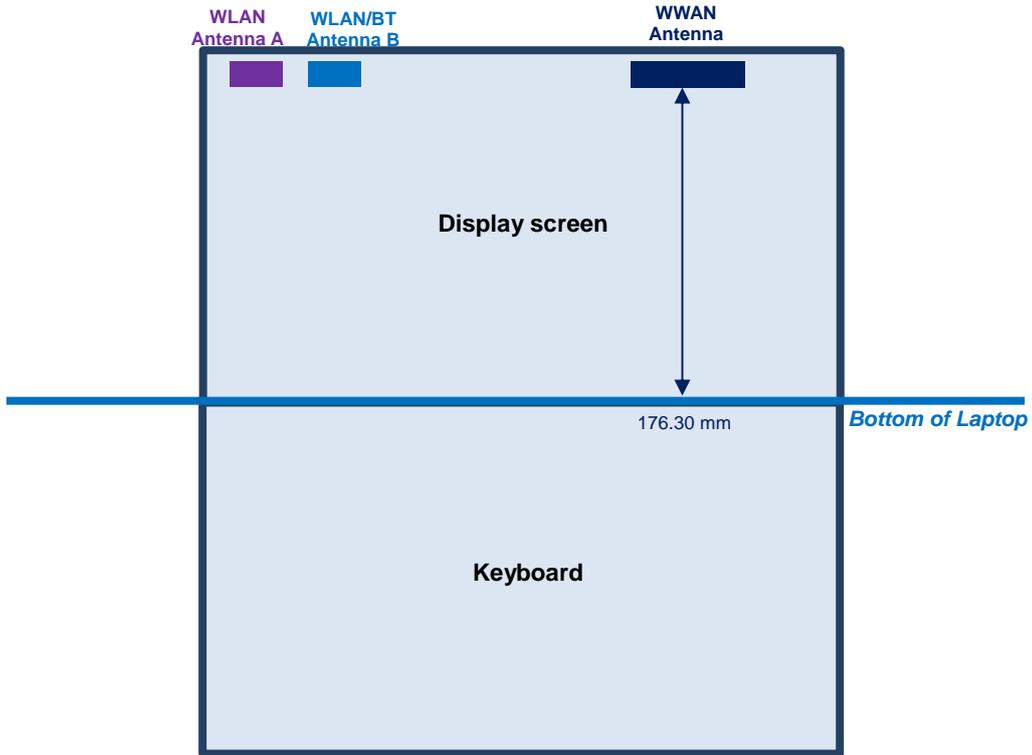
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	16.49	16.61	16.53	17.5	0
20	QPSK	1	49	16.43	16.49	16.48		
20	QPSK	1	99	16.41	16.47	16.18		
20	QPSK	50	0	16.24	16.51	16.17	17.5	0
20	QPSK	50	24	16.04	16.26	16.11		
20	QPSK	50	49	16.10	16.20	16.08		
20	QPSK	100	0	16.01	16.14	16.01		
20	16QAM	1	0	16.40	16.50	16.49	17.5	0
20	16QAM	1	49	16.28	16.42	16.48		
20	16QAM	1	99	16.39	16.41	16.48		
20	16QAM	50	0	16.00	16.30	16.04	17.5	0
20	16QAM	50	24	15.93	16.28	16.14		
20	16QAM	50	49	15.92	16.00	16.03		
20	16QAM	100	0	15.89	16.09	16.04		
Channel				26115	26340	26615	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	16.19	16.27	16.13	17.5	0
15	QPSK	1	37	16.14	16.05	16.12		
15	QPSK	1	74	15.99	16.13	16.09		
15	QPSK	36	0	15.94	16.24	16.22	17.5	0
15	QPSK	36	18	16.01	15.97	16.14		
15	QPSK	36	37	16.03	15.91	16.09		
15	QPSK	75	0	15.85	15.99	16.07		
15	16QAM	1	0	16.07	16.46	16.46	17.5	0
15	16QAM	1	37	16.06	16.36	16.47		
15	16QAM	1	74	16.05	16.31	16.33		
15	16QAM	36	0	16.11	16.32	16.46	17.5	0
15	16QAM	36	18	15.91	16.07	16.12		
15	16QAM	36	37	15.83	16.00	15.94		
15	16QAM	75	0	15.78	16.01	15.95		
Channel				26090	26340	26640	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	16.29	16.24	16.40	17.5	0
10	QPSK	1	24	16.14	16.15	16.38		
10	QPSK	1	49	16.13	16.19	16.27		
10	QPSK	25	0	16.25	16.29	16.09	17.5	0
10	QPSK	25	12	16.01	16.03	16.05		
10	QPSK	25	24	16.09	16.01	16.02		
10	QPSK	50	0	16.11	16.01	15.91		
10	16QAM	1	0	16.39	16.41	16.33	17.5	0
10	16QAM	1	24	16.33	16.37	16.24		
10	16QAM	1	49	16.12	16.17	16.24		
10	16QAM	25	0	16.24	16.19	15.97	17.5	0
10	16QAM	25	12	16.17	16.13	15.94		
10	16QAM	25	24	16.12	16.06	15.88		
10	16QAM	50	0	16.14	16.09	15.80		



Channel				26065	26340	26665	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	15.98	16.28	16.29	17.5	0
5	QPSK	1	12	15.82	16.02	16.14		
5	QPSK	1	24	15.88	16.07	16.10		
5	QPSK	12	0	15.94	16.23	15.94	17.5	0
5	QPSK	12	6	15.89	16.10	15.94		
5	QPSK	12	11	15.74	15.92	15.96		
5	QPSK	25	0	15.86	16.03	15.82	17.5	0
5	16QAM	1	0	16.24	16.49	16.35		
5	16QAM	1	12	16.13	16.47	16.24		
5	16QAM	1	24	15.86	16.04	16.22	17.5	0
5	16QAM	12	0	15.94	16.36	16.21		
5	16QAM	12	6	15.92	16.23	16.05		
5	16QAM	12	11	15.77	16.04	16.03	17.5	0
5	16QAM	25	0	15.85	16.14	15.89		
Channel				26055	26340	26675		
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	16.01	16.17	16.08	17.5	0
3	QPSK	1	7	15.93	16.04	15.98		
3	QPSK	1	14	15.78	16.09	16.23		
3	QPSK	8	0	15.96	16.14	15.98	17.5	0
3	QPSK	8	4	15.98	16.09	15.95		
3	QPSK	8	7	15.85	15.99	16.08		
3	QPSK	15	0	15.91	16.02	16.03	17.5	0
3	16QAM	1	0	16.24	16.35	16.33		
3	16QAM	1	7	16.20	16.36	16.18		
3	16QAM	1	14	16.01	16.20	16.25	17.5	0
3	16QAM	8	0	16.04	16.33	15.99		
3	16QAM	8	4	16.05	16.28	16.00		
3	16QAM	8	7	15.93	16.17	16.10	17.5	0
3	16QAM	15	0	15.94	16.16	16.00		
Channel				26047	26340	26683		
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	16.12	16.27	16.04	17.5	0
1.4	QPSK	1	2	16.00	16.26	16.10		
1.4	QPSK	1	5	15.84	16.13	16.21		
1.4	QPSK	3	0	16.02	16.12	15.95	17.5	0
1.4	QPSK	3	1	16.03	16.11	16.13		
1.4	QPSK	3	2	16.02	16.07	16.19		
1.4	QPSK	6	0	16.01	16.09	16.04	17.5	0
1.4	16QAM	1	0	16.23	16.47	16.29	17.5	0
1.4	16QAM	1	2	16.15	16.39	16.24		
1.4	16QAM	1	5	16.15	16.35	16.24		
1.4	16QAM	3	0	16.08	16.29	15.99	17.5	0
1.4	16QAM	3	1	16.09	16.27	16.12		
1.4	16QAM	3	2	16.07	16.22	16.17		
1.4	16QAM	6	0	16.11	16.29	16.13	17.5	0

14. Antenna Location







<SAR test exclusion table>

General Note:

- The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
- Maximum power is the source-based time-average power and represents the maximum RF output power among production units
- Per KDB 447498 D01v05r02, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
- Per KDB 447498 D01v05r02, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
- Per KDB 447498 D01v05r02, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
 - $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
 - 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
- Per KDB 447498 D01v05r02, at 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following
 - Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · (f(MHz)/150) mW, at 100 MHz to 1500 MHz
 - Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz

Exposure Position	Wireless Interface	GPRS 850 Class 10	GPRS 1900 Class 10	WCDMA Band V	WCDMA Band IV	WCDMA Band II	CDMA BC0	CDMA BC1	LTE Band 17	LTE Band 13	LTE Band 5	LTE Band 4	LTE Band 2	LTE Band 25
	Calculated Frequency	848MHz	1909MHz	846MHz	1750MHz	1907MHz	848MHz	1907MHz	713MHz	784MHz	848MHz	1754MHz	1909MHz	1914MHz
	Maximum power (dBm)	27	24.5	24.5	24.5	24.5	24.5	24.5	24	24	24	24	24	24
	Maximum rated power(mW)	501	282	282	282	282	282	282	251	251	251	251	251	251
Bottom Face	Separation distance(mm)	5												
	exclusion threshold	92	78	52	75	78	52	78	42	44	46	66	69	69
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	5												
	exclusion threshold	92	78	52	75	78	52	78	42	44	46	66	69	69
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 2	Separation distance(mm)	47.14												
	exclusion threshold	10	8	6	8	8	6	8	4	5	5	7	7	7
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 3	Separation distance(mm)	176.30												
	exclusion threshold	877	1372	875	1376	1372	877	1372	778	830	877	1376	1372	1371
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No
Edge 4	Separation distance(mm)	172.40												
	exclusion threshold	855	1333	853	1337	1333	855	1333	759	809	855	1337	1333	1332
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No
Bottom of Laptop	Separation distance(mm)	176.30												
	exclusion threshold	877	1372	875	1376	1372	877	1372	778	830	877	1376	1372	1371
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No



15. SAR Test Results

General Note:

1. Per KDB 447498 D01v05r02, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
2. Per KDB 447498 D01v05r02, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 1.2cm for bottom face, 1.2cm for edge1, 1.2cm for curved surface of edge1.
4. When the minimum distance between antenna and device edge along the curve is less than bottom face and surface edge, the curved SAR is necessary, more detail information which can be referred to setup photo.
5. For SAR testing of the curved region of the device, the device was placed directly against the phantom at the point where the distance between the antenna and device exterior is a minimum.

15.1 Body SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	189	836.4	27.54	28.00	1.112	-0.17	0.914	1.016
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	128	824.2	27.06	28.00	1.242	0.01	0.810	1.006
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	251	848.8	27.53	28.00	1.114	-0.06	0.939	1.046
	GSM850	GPRS (2 Tx slots)	Edge 1	0cm	ON	189	836.4	27.54	28.00	1.112	-0.04	0.704	0.783
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge 1	0cm	ON	189	836.4	27.54	28.00	1.112	-0.15	0.906	1.007
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge 1	0cm	ON	128	824.2	27.06	28.00	1.242	0.07	0.775	0.962
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge 1	0cm	ON	251	848.8	27.53	28.00	1.114	0.09	0.991	1.104
	GSM850	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	128	824.2	32.74	33.00	1.062	0.02	1.090	1.157
	GSM850	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	189	836.4	32.68	33.00	1.076	-0.03	1.110	1.195
01	GSM850	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	251	848.8	32.66	33.00	1.081	-0.07	1.130	1.222
	GSM850	GPRS (2 Tx slots)	Edge 1	1.2cm	OFF	128	824.2	32.74	33.00	1.062	-0.07	0.550	0.584
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge 1	1.2cm	OFF	128	824.2	32.74	33.00	1.062	0.02	0.847	0.899
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge 1	1.2cm	OFF	189	836.4	32.68	33.00	1.076	-0.02	0.863	0.929
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge 1	1.2cm	OFF	251	848.8	32.66	33.00	1.081	-0.04	0.908	0.982
	GSM850	GPRS (2 Tx slots)	Edge 2	0cm	OFF	128	824.2	32.74	33.00	1.062	-0.07	0.314	0.333
02	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	ON	810	1909.8	23.88	24.00	1.028	-0.05	1.270	1.306
	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	ON	512	1850.2	23.80	24.00	1.047	-0.06	1.140	1.194
	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	ON	661	1880	23.69	24.00	1.074	-0.02	1.170	1.257
	GSM1900	GPRS (2 Tx slots)	Edge 1	0cm	ON	810	1909.8	23.88	24.00	1.028	-0.02	0.687	0.706
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge 1	0cm	ON	810	1909.8	23.88	24.00	1.028	-0.11	0.710	0.730
	GSM1900	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	810	1909.8	29.83	30.50	1.167	-0.05	0.569	0.664
	GSM1900	GPRS (2 Tx slots)	Edge 1	1.2cm	OFF	810	1909.8	29.83	30.50	1.167	-0.03	0.863	1.007
	GSM1900	GPRS (2 Tx slots)	Edge 1	1.2cm	OFF	512	1850.2	29.38	30.50	1.294	-0.07	0.678	0.877
	GSM1900	GPRS (2 Tx slots)	Edge 1	1.2cm	OFF	661	1880	29.55	30.50	1.245	-0.03	0.707	0.880
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge 1	1.2cm	OFF	810	1909.8	29.83	30.50	1.167	-0.03	0.835	0.974
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge 1	1.2cm	OFF	512	1850.2	29.38	30.50	1.294	-0.07	0.643	0.832
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge 1	1.2cm	OFF	661	1880	29.55	30.50	1.245	-0.05	0.679	0.845
	GSM1900	GPRS (2 Tx slots)	Edge 2	0cm	OFF	810	1909.8	29.83	30.50	1.167	-0.07	0.265	0.309



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
03	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	ON	4132	826.4	19.56	20.00	1.107	-0.11	0.981	1.086
	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	ON	4182	836.4	19.38	20.00	1.153	-0.01	1.000	1.153
	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	ON	4233	846.6	18.95	20.00	1.274	-0.03	0.817	1.040
	WCDMA V	RMC 12.2Kbps	Edge 1	0cm	ON	4132	826.4	19.56	20.00	1.107	-0.04	0.516	0.571
	WCDMA V	RMC 12.2Kbps	Curved surface of Edge 1	0cm	ON	4132	826.4	19.56	20.00	1.107	-0.01	0.709	0.785
	WCDMA V	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	4132	826.4	24.37	24.50	1.030	0.01	0.630	0.649
	WCDMA V	RMC 12.2Kbps	Edge 1	1.2cm	OFF	4132	826.4	24.37	24.50	1.030	-0.01	0.430	0.443
	WCDMA V	RMC 12.2Kbps	Curved surface of Edge 1	1.2cm	OFF	4132	826.4	24.37	24.50	1.030	-0.15	0.574	0.591
	WCDMA V	RMC 12.2Kbps	Edge 2	0cm	OFF	4132	826.4	24.37	24.50	1.030	-0.19	0.173	0.178
	WCDMA V	RMC 12.2Kbps	Edge 2	1.2cm	OFF	4132	826.4	24.37	24.50	1.030	-0.19	0.173	0.178
04	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1312	1712.4	18.98	19.00	1.005	-0.03	1.240	1.246
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1413	1732.6	18.70	19.00	1.072	-0.01	1.350	1.447
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1513	1752.6	18.82	19.00	1.042	-0.01	1.310	1.365
	WCDMA IV	RMC 12.2Kbps	Edge 1	0cm	ON	1312	1712.4	18.98	19.00	1.005	0.01	1.290	1.296
	WCDMA IV	RMC 12.2Kbps	Edge 1	0cm	ON	1413	1732.6	18.70	19.00	1.072	-0.06	1.180	1.264
	WCDMA IV	RMC 12.2Kbps	Edge 1	0cm	ON	1513	1752.6	18.82	19.00	1.042	0.07	1.020	1.063
	WCDMA IV	RMC 12.2Kbps	Curved surface of Edge 1	0cm	ON	1312	1712.4	18.98	19.00	1.005	0.06	1.340	1.346
	WCDMA IV	RMC 12.2Kbps	Curved surface of Edge 1	0cm	ON	1413	1732.6	18.70	19.00	1.072	0.05	1.210	1.297
	WCDMA IV	RMC 12.2Kbps	Curved surface of Edge 1	0cm	ON	1513	1752.6	18.82	19.00	1.042	-0.08	1.100	1.147
	WCDMA IV	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	1312	1712.4	24.49	24.50	1.002	-0.07	0.809	0.811
	WCDMA IV	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	1413	1732.6	24.22	24.50	1.067	-0.04	0.721	0.769
	WCDMA IV	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	1513	1752.6	24.13	24.50	1.089	0.02	0.675	0.735
	WCDMA IV	RMC 12.2Kbps	Edge 1	1.2cm	OFF	1312	1712.4	24.49	24.50	1.002	-0.06	1.310	1.313
	WCDMA IV	RMC 12.2Kbps	Edge 1	1.2cm	OFF	1413	1732.6	24.22	24.50	1.067	-0.02	1.200	1.280
	WCDMA IV	RMC 12.2Kbps	Edge 1	1.2cm	OFF	1513	1752.6	24.13	24.50	1.089	-0.04	1.070	1.165
	WCDMA IV	RMC 12.2Kbps	Curved surface of Edge 1	1.2cm	OFF	1312	1712.4	24.49	24.50	1.002	-0.01	1.320	1.323
	WCDMA IV	RMC 12.2Kbps	Curved surface of Edge 1	1.2cm	OFF	1413	1732.6	24.22	24.50	1.067	-0.06	1.180	1.259
	WCDMA IV	RMC 12.2Kbps	Curved surface of Edge 1	1.2cm	OFF	1513	1752.6	24.13	24.50	1.089	-0.08	1.050	1.143
	WCDMA IV	RMC 12.2Kbps	Edge 2	0cm	OFF	1312	1712.4	24.49	24.50	1.002	0.01	0.041	0.041
	05	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	ON	9538	1907.6	17.95	18.00	1.012	-0.03	1.390
WCDMA II		RMC 12.2Kbps	Bottom Face	0cm	ON	9262	1852.4	17.70	18.00	1.072	-0.04	1.140	1.222
WCDMA II		RMC 12.2Kbps	Bottom Face	0cm	ON	9400	1880	17.74	18.00	1.062	-0.11	1.310	1.391
WCDMA II		RMC 12.2Kbps	Edge 1	0cm	ON	9538	1907.6	17.95	18.00	1.012	-0.08	0.865	0.875
WCDMA II		RMC 12.2Kbps	Edge 1	0cm	ON	9262	1852.4	17.70	18.00	1.072	-0.05	0.835	0.895
WCDMA II		RMC 12.2Kbps	Edge 1	0cm	ON	9400	1880	17.74	18.00	1.062	-0.04	0.882	0.936
WCDMA II		RMC 12.2Kbps	Curved surface of Edge 1	0cm	ON	9538	1907.6	17.95	18.00	1.012	-0.05	0.904	0.914
WCDMA II		RMC 12.2Kbps	Curved surface of Edge 1	0cm	ON	9262	1852.4	17.70	18.00	1.072	-0.03	0.824	0.883
WCDMA II		RMC 12.2Kbps	Curved surface of Edge 1	0cm	ON	9400	1880	17.74	18.00	1.062	0.01	0.847	0.899
WCDMA II		RMC 12.2Kbps	Bottom Face	1.2cm	OFF	9400	1880	23.43	24.50	1.279	0.05	0.596	0.763
WCDMA II		RMC 12.2Kbps	Edge 1	1.2cm	OFF	9400	1880	23.43	24.50	1.279	0.01	0.985	1.260
WCDMA II		RMC 12.2Kbps	Edge 1	1.2cm	OFF	9262	1852.4	23.24	24.50	1.337	-0.06	0.817	1.092
WCDMA II		RMC 12.2Kbps	Edge 1	1.2cm	OFF	9538	1907.6	23.39	24.50	1.291	0.01	0.915	1.181
WCDMA II		RMC 12.2Kbps	Curved surface of Edge 1	1.2cm	OFF	9400	1880	23.43	24.50	1.279	-0.05	0.964	1.233
WCDMA II		RMC 12.2Kbps	Curved surface of Edge 1	1.2cm	OFF	9262	1852.4	23.24	24.50	1.337	0.03	0.821	1.097
WCDMA II		RMC 12.2Kbps	Curved surface of Edge 1	1.2cm	OFF	9538	1907.6	23.39	24.50	1.291	-0.01	0.892	1.152
WCDMA II		RMC 12.2Kbps	Edge 2	0cm	OFF	9400	1880	23.43	24.50	1.279	-0.03	0.216	0.276



<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
06	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	0cm	ON	384	836.52	19.95	20.00	1.012	-0.06	0.929	0.940
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	0cm	ON	1013	824.7	19.93	20.00	1.016	0	0.911	0.926
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	0cm	ON	777	848.31	19.37	20.00	1.156	0.03	0.678	0.784
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 1	0cm	ON	384	836.52	19.95	20.00	1.012	0.03	0.479	0.485
	CDMA2000 BC0	RTAP 153.6Kbps	Curved surface of Edge 1	0cm	ON	384	836.52	19.95	20.00	1.012	0.12	0.771	0.780
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	1.2cm	OFF	384	836.52	24.28	24.50	1.052	0.02	0.787	0.828
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	1.2cm	OFF	1013	824.7	24.23	24.50	1.064	0	0.739	0.786
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	1.2cm	OFF	777	848.31	23.58	24.50	1.236	-0.01	0.562	0.695
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 1	1.2cm	OFF	384	836.52	24.28	24.50	1.052	-0.03	0.395	0.416
	CDMA2000 BC0	RTAP 153.6Kbps	Curved surface of Edge 1	1.2cm	OFF	384	836.52	24.28	24.50	1.052	0	0.558	0.587
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 2	0cm	OFF	384	836.52	24.28	24.50	1.052	-0.03	0.242	0.255
07	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Face	0cm	ON	25	1851.25	19.16	19.50	1.081	0	1.280	1.384
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Face	0cm	ON	600	1880	18.92	19.50	1.143	-0.02	1.190	1.360
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Face	0cm	ON	1175	1908.75	18.88	19.50	1.153	-0.02	1.180	1.361
	CDMA2000 BC1	RTAP 153.6Kbps	Edge 1	0cm	ON	25	1851.25	19.16	19.50	1.081	-0.03	1.240	1.341
	CDMA2000 BC1	RTAP 153.6Kbps	Edge 1	0cm	ON	600	1880	18.92	19.50	1.143	-0.07	1.090	1.246
	CDMA2000 BC1	RTAP 153.6Kbps	Edge 1	0cm	ON	1175	1908.75	18.88	19.50	1.153	-0.04	1.040	1.200
	CDMA2000 BC1	RTAP 153.6Kbps	Curved surface of Edge 1	0cm	ON	25	1851.25	19.16	19.50	1.081	0.08	1.250	1.352
	CDMA2000 BC1	RTAP 153.6Kbps	Curved surface of Edge 1	0cm	ON	600	1880	18.92	19.50	1.143	0.07	1.000	1.143
	CDMA2000 BC1	RTAP 153.6Kbps	Curved surface of Edge 1	0cm	ON	1175	1908.75	18.88	19.50	1.153	0.09	1.030	1.188
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Face	1.2cm	OFF	25	1851.25	24.29	24.50	1.050	-0.02	0.635	0.666
	CDMA2000 BC1	RTAP 153.6Kbps	Edge 1	1.2cm	OFF	25	1851.25	24.29	24.50	1.050	0.06	0.981	1.030
	CDMA2000 BC1	RTAP 153.6Kbps	Edge 1	1.2cm	OFF	600	1880	24.00	24.50	1.122	-0.04	0.914	1.026
	CDMA2000 BC1	RTAP 153.6Kbps	Edge 1	1.2cm	OFF	1175	1908.75	23.57	24.50	1.239	-0.07	0.826	1.023
	CDMA2000 BC1	RTAP 153.6Kbps	Curved surface of Edge 1	1.2cm	OFF	25	1851.25	24.29	24.50	1.050	-0.11	0.974	1.022
	CDMA2000 BC1	RTAP 153.6Kbps	Curved surface of Edge 1	1.2cm	OFF	600	1880	24.00	24.50	1.122	-0.07	0.914	1.026
	CDMA2000 BC1	RTAP 153.6Kbps	Curved surface of Edge 1	1.2cm	OFF	1175	1908.75	23.57	24.50	1.239	-0.09	0.820	1.016
	CDMA2000 BC1	RTAP 153.6Kbps	Edge 2	0cm	OFF	25	1851.25	24.29	24.50	1.050	0.14	0.143	0.150

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 17	10M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	23790	710	21.69	22.00	1.074	0.1	0.888	0.954
08	LTE Band 17	10M	QPSK	25RB	0Offset	Bottom Face	0cm	ON	23790	710	21.57	22.00	1.104	-0.02	0.928	1.025
	LTE Band 17	10M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	23790	710	21.37	22.00	1.156	-0.05	0.846	0.978
	LTE Band 17	10M	QPSK	1RB	0Offset	Edge 1	0cm	ON	23790	710	21.69	22.00	1.074	0.05	0.577	0.620
	LTE Band 17	10M	QPSK	25RB	0Offset	Edge 1	0cm	ON	23790	710	21.57	22.00	1.104	0.1	0.577	0.637
	LTE Band 17	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	23790	710	21.69	22.00	1.074	-0.02	0.865	0.929
	LTE Band 17	10M	QPSK	25RB	0Offset	Curved surface of Edge 1	0cm	ON	23790	710	21.57	22.00	1.104	0	0.873	0.964
	LTE Band 17	10M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	23790	710	21.37	22.00	1.156	-0.06	0.853	0.986
	LTE Band 17	10M	QPSK	1RB	0Offset	Bottom Face	1.2cm	OFF	23790	710	22.89	24.00	1.291	0.01	0.229	0.296
	LTE Band 17	10M	QPSK	25RB	0Offset	Bottom Face	1.2cm	OFF	23790	710	21.57	23.00	1.390	0	0.194	0.270
	LTE Band 17	10M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	23790	710	22.89	24.00	1.291	0.01	0.109	0.141
	LTE Band 17	10M	QPSK	25RB	0Offset	Edge 1	1.2cm	OFF	23790	710	21.57	23.00	1.390	0.03	0.090	0.125
	LTE Band 17	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	23790	710	22.89	24.00	1.291	0.02	0.173	0.223
	LTE Band 17	10M	QPSK	25RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	23790	710	21.57	23.00	1.390	0.03	0.144	0.200
	LTE Band 17	10M	QPSK	1RB	0Offset	Edge 2	0cm	OFF	23790	710	22.89	24.00	1.291	0.06	0.066	0.085
	LTE Band 17	10M	QPSK	25RB	0Offset	Edge 2	0cm	OFF	23790	710	21.57	23.00	1.390	0.08	0.054	0.075



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
09	LTE Band 13	10M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	23230	782	19.69	20.50	1.205	0.13	0.891	1.074
	LTE Band 13	10M	QPSK	25RB	0Offset	Bottom Face	0cm	ON	23230	782	19.43	20.50	1.279	-0.03	0.892	1.141
	LTE Band 13	10M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	23230	782	19.23	20.50	1.340	0.09	0.849	1.137
	LTE Band 13	10M	QPSK	1RB	0Offset	Edge 1	0cm	ON	23230	782	19.69	20.50	1.205	-0.02	0.480	0.578
	LTE Band 13	10M	QPSK	25RB	0Offset	Edge 1	0cm	ON	23230	782	19.43	20.50	1.279	0.01	0.466	0.596
	LTE Band 13	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	23230	782	19.69	20.50	1.205	0.01	0.769	0.927
	LTE Band 13	10M	QPSK	25RB	0Offset	Curved surface of Edge 1	0cm	ON	23230	782	19.43	20.50	1.279	-0.02	0.768	0.983
	LTE Band 13	10M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	23230	782	19.23	20.50	1.340	-0.1	0.739	0.990
	LTE Band 13	10M	QPSK	1RB	0Offset	Bottom Face	1.2cm	OFF	23230	782	22.66	24.00	1.361	-0.04	0.346	0.471
	LTE Band 13	10M	QPSK	25RB	0Offset	Bottom Face	1.2cm	OFF	23230	782	21.33	23.00	1.469	-0.03	0.280	0.411
	LTE Band 13	10M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	23230	782	22.66	24.00	1.361	0.05	0.175	0.238
	LTE Band 13	10M	QPSK	25RB	0Offset	Edge 1	1.2cm	OFF	23230	782	21.33	23.00	1.469	0.02	0.137	0.201
	LTE Band 13	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	23230	782	22.66	24.00	1.361	0.04	0.303	0.413
	LTE Band 13	10M	QPSK	25RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	23230	782	21.33	23.00	1.469	0.01	0.234	0.344
	LTE Band 13	10M	QPSK	1RB	0Offset	Edge 2	0cm	OFF	23230	782	22.66	24.00	1.361	0.03	0.107	0.146
	LTE Band 13	10M	QPSK	25RB	0Offset	Edge 2	0cm	OFF	23230	782	21.33	23.00	1.469	0.03	0.087	0.128
10	LTE Band 5	10M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	20600	844	19.83	21.00	1.309	0	0.940	1.231
	LTE Band 5	10M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	20450	829	19.60	21.00	1.380	-0.05	0.887	1.224
	LTE Band 5	10M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	20525	836.5	19.56	21.00	1.393	-0.08	0.778	1.084
	LTE Band 5	10M	QPSK	25RB	0Offset	Bottom Face	0cm	ON	20600	844	19.73	21.00	1.340	0.08	0.852	1.141
	LTE Band 5	10M	QPSK	25RB	0Offset	Bottom Face	0cm	ON	20450	829	19.53	21.00	1.403	-0.04	0.781	1.096
	LTE Band 5	10M	QPSK	25RB	0Offset	Bottom Face	0cm	ON	20525	836.5	19.47	21.00	1.422	-0.06	0.757	1.077
	LTE Band 5	10M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	20600	844	19.59	21.00	1.384	-0.04	0.714	0.988
	LTE Band 5	10M	QPSK	1RB	0Offset	Edge 1	0cm	ON	20600	844	19.83	21.00	1.309	-0.04	0.430	0.563
	LTE Band 5	10M	QPSK	25RB	0Offset	Edge 1	0cm	ON	20600	844	19.73	21.00	1.340	-0.02	0.371	0.497
	LTE Band 5	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	20600	844	19.83	21.00	1.309	0.02	0.678	0.888
	LTE Band 5	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	20450	829	19.60	21.00	1.380	0.08	0.642	0.886
	LTE Band 5	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	20525	836.5	19.56	21.00	1.393	0.03	0.641	0.893
	LTE Band 5	10M	QPSK	25RB	0Offset	Curved surface of Edge 1	0cm	ON	20600	844	19.73	21.00	1.340	0.03	0.574	0.769
	LTE Band 5	10M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	20600	844	19.59	21.00	1.384	0.02	0.525	0.726
	LTE Band 5	10M	QPSK	1RB	0Offset	Bottom Face	1.2cm	OFF	20525	836.5	23.27	24.00	1.183	-0.04	0.435	0.515
	LTE Band 5	10M	QPSK	25RB	0Offset	Bottom Face	1.2cm	OFF	20525	836.5	22.28	23.00	1.180	-0.12	0.363	0.428
	LTE Band 5	10M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	20525	836.5	23.27	24.00	1.183	-0.01	0.302	0.357
	LTE Band 5	10M	QPSK	25RB	0Offset	Edge 1	1.2cm	OFF	20525	836.5	22.28	23.00	1.180	0	0.249	0.294
	LTE Band 5	10M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20525	836.5	23.27	24.00	1.183	-0.05	0.369	0.437
	LTE Band 5	10M	QPSK	25RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20525	836.5	22.28	23.00	1.180	-0.02	0.307	0.362
LTE Band 5	10M	QPSK	1RB	0Offset	Edge 2	0cm	OFF	20525	836.5	23.27	24.00	1.183	-0.04	0.169	0.200	
LTE Band 5	10M	QPSK	25RB	0Offset	Edge 2	0cm	OFF	20525	836.5	22.28	23.00	1.180	-0.17	0.142	0.168	



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	20050	1720	18.86	19.00	1.033	-0.05	1.070	1.105
	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	20175	1732.5	18.58	19.00	1.102	-0.01	1.230	1.355
	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	20300	1745	18.43	19.00	1.140	-0.02	1.180	1.345
	LTE Band 4	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	20050	1720	18.59	19.00	1.099	-0.02	1.090	1.198
	LTE Band 4	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	20175	1732.5	18.42	19.00	1.143	0	1.180	1.349
	LTE Band 4	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	20300	1745	18.21	19.00	1.199	-0.09	1.080	1.295
	LTE Band 4	20M	QPSK	100RB	0Offset	Bottom Face	0cm	ON	20050	1720	18.44	19.00	1.138	-0.07	1.120	1.274
	LTE Band 4	20M	QPSK	1RB	0Offset	Edge 1	0cm	ON	20050	1720	18.86	19.00	1.033	-0.05	1.100	1.136
	LTE Band 4	20M	QPSK	1RB	0Offset	Edge 1	0cm	ON	20175	1732.5	18.58	19.00	1.102	-0.09	1.110	1.223
	LTE Band 4	20M	QPSK	1RB	0Offset	Edge 1	0cm	ON	20300	1745	18.43	19.00	1.140	-0.05	1.010	1.152
	LTE Band 4	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	20050	1720	18.59	19.00	1.099	-0.05	1.050	1.154
	LTE Band 4	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	20175	1732.5	18.42	19.00	1.143	-0.03	1.020	1.166
	LTE Band 4	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	20300	1745	18.21	19.00	1.199	-0.06	0.892	1.070
	LTE Band 4	20M	QPSK	100RB	0Offset	Edge 1	0cm	ON	20050	1720	18.44	19.00	1.138	-0.03	1.050	1.195
	LTE Band 4	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	20050	1720	18.86	19.00	1.033	-0.07	1.160	1.198
	LTE Band 4	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	20175	1732.5	18.58	19.00	1.102	-0.02	1.140	1.256
	LTE Band 4	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	20300	1745	18.43	19.00	1.140	-0.06	1.050	1.197
	LTE Band 4	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	20050	1720	18.59	19.00	1.099	-0.08	1.100	1.209
	LTE Band 4	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	20175	1732.5	18.42	19.00	1.143	-0.02	1.080	1.234
	LTE Band 4	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	20300	1745	18.21	19.00	1.199	0.03	0.952	1.142
	LTE Band 4	20M	QPSK	100RB	0Offset	Curved surface of Edge 1	0cm	ON	20050	1720	18.44	19.00	1.138	-0.02	1.100	1.251
	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom Face	1.2cm	OFF	20050	1720	23.18	24.00	1.208	-0.06	0.513	0.620
	LTE Band 4	20M	QPSK	50RB	0Offset	Bottom Face	1.2cm	OFF	20050	1720	21.92	23.00	1.282	-0.02	0.400	0.513
	LTE Band 4	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	20050	1720	23.18	24.00	1.208	-0.02	0.929	1.122
	LTE Band 4	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	20175	1732.5	22.93	24.00	1.279	0.01	1.010	1.292
	LTE Band 4	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	20300	1745	22.79	24.00	1.321	-0.06	0.877	1.159
	LTE Band 4	20M	QPSK	50RB	0Offset	Edge 1	1.2cm	OFF	20050	1720	21.92	23.00	1.282	-0.03	0.734	0.941
	LTE Band 4	20M	QPSK	50RB	0Offset	Edge 1	1.2cm	OFF	20175	1732.5	21.75	23.00	1.334	-0.09	0.755	1.007
	LTE Band 4	20M	QPSK	50RB	0Offset	Edge 1	1.2cm	OFF	20300	1745	21.48	23.00	1.419	-0.07	0.618	0.877
	LTE Band 4	20M	QPSK	100RB	0Offset	Edge 1	1.2cm	OFF	20050	1720	21.85	23.00	1.303	0	0.738	0.962
	LTE Band 4	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20050	1720	23.18	24.00	1.208	0.01	1.040	1.256
11	LTE Band 4	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20175	1732.5	22.93	24.00	1.279	0.03	1.090	1.395
	LTE Band 4	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20300	1745	22.79	24.00	1.321	-0.05	0.939	1.241
	LTE Band 4	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20050	1720	21.92	23.00	1.282	-0.05	0.809	1.037
	LTE Band 4	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20175	1732.5	21.75	23.00	1.334	0	0.822	1.096
	LTE Band 4	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20300	1745	21.48	23.00	1.419	-0.06	0.671	0.952
	LTE Band 4	20M	QPSK	100RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	20050	1720	21.85	23.00	1.303	-0.02	0.818	1.066
	LTE Band 4	20M	QPSK	1RB	0Offset	Edge 2	0cm	OFF	20050	1720	23.18	24.00	1.208	-0.09	0.021	0.025
	LTE Band 4	20M	QPSK	50RB	0Offset	Edge 2	0cm	OFF	20050	1720	21.92	23.00	1.282	-0.05	0.016	0.021



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	18900	1880	16.88	17.50	1.153	-0.05	1.080	1.246
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	18700	1860	16.68	17.50	1.208	0.15	0.921	1.112
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	19100	1900	16.40	17.50	1.288	-0.05	0.775	0.998
12	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	18900	1880	16.58	17.50	1.236	0.09	1.090	1.347
	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	18700	1860	16.43	17.50	1.279	0.04	0.817	1.045
	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	19100	1900	16.24	17.50	1.337	-0.03	0.761	1.017
	LTE Band 2	20M	QPSK	100RB	0Offset	Bottom Face	0cm	ON	18900	1880	16.39	17.50	1.291	-0.03	0.911	1.176
	LTE Band 2	20M	QPSK	1RB	0Offset	Edge 1	0cm	ON	18900	1880	16.88	17.50	1.153	-0.09	0.589	0.679
	LTE Band 2	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	18900	1880	16.58	17.50	1.236	0	0.663	0.819
	LTE Band 2	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	18700	1860	16.43	17.50	1.279	-0.05	0.493	0.631
	LTE Band 2	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	19100	1900	16.24	17.50	1.337	-0.09	0.485	0.648
	LTE Band 2	20M	QPSK	100RB	0Offset	Edge 1	0cm	ON	18900	1880	16.39	17.50	1.291	-0.03	0.588	0.759
	LTE Band 2	20M	QPSK	1Rb	0Oddset	Curved surface of Edge 1	0cm	ON	18900	1880	16.88	17.50	1.153	-0.06	0.590	0.681
	LTE Band 2	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	18900	1880	16.58	17.50	1.236	-0.03	0.645	0.797
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Face	1.2cm	OFF	18900	1880	23.04	24.00	1.247	0.01	0.365	0.455
	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Face	1.2cm	OFF	18900	1880	21.83	23.00	1.309	0.09	0.318	0.416
	LTE Band 2	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	18900	1880	23.04	24.00	1.247	-0.03	0.665	0.830
	LTE Band 2	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	18700	1860	22.78	24.00	1.324	0	0.766	1.014
	LTE Band 2	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	19100	1900	22.61	24.00	1.377	-0.04	0.596	0.821
	LTE Band 2	20M	QPSK	50RB	0Offset	Edge 1	1.2cm	OFF	18900	1880	21.83	23.00	1.309	0	0.588	0.770
	LTE Band 2	20M	QPSK	100RB	0Offset	Edge 1	1.2cm	OFF	18900	1880	21.70	23.00	1.349	0	0.578	0.780
	LTE Band 2	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	18900	1880	23.04	24.00	1.247	-0.03	0.583	0.727
	LTE Band 2	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	18900	1880	21.83	23.00	1.309	-0.03	0.513	0.672
	LTE Band 2	20M	QPSK	1RB	0Offset	Edge 2	0cm	OFF	18900	1880	23.04	24.00	1.247	0	0.111	0.138
	LTE Band 2	20M	QPSK	50RB	0Offset	Edge 2	0cm	OFF	18900	1880	21.83	23.00	1.309	-0.03	0.105	0.137
13	LTE Band 25	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	26340	1880	16.61	17.50	1.227	0	0.927	1.138
	LTE Band 25	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	26140	1860	16.49	17.50	1.262	-0.13	0.856	1.080
	LTE Band 25	20M	QPSK	1RB	0Offset	Bottom Face	0cm	ON	26590	1905	16.53	17.50	1.250	-0.06	0.717	0.896
	LTE Band 25	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	26340	1880	16.51	17.50	1.256	-0.09	0.904	1.135
	LTE Band 25	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	26140	1860	16.24	17.50	1.337	-0.04	0.578	0.773
	LTE Band 25	20M	QPSK	50RB	0Offset	Bottom Face	0cm	ON	26590	1905	16.17	17.50	1.358	-0.04	0.794	1.079
	LTE Band 25	20M	QPSK	100RB	0Offset	Bottom Face	0cm	ON	26340	1880	16.14	17.50	1.368	-0.03	0.823	1.126
	LTE Band 25	20M	QPSK	1RB	0Offset	Edge 1	0cm	ON	26340	1880	16.61	17.50	1.227	-0.04	0.597	0.733
	LTE Band 25	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	26340	1880	16.51	17.50	1.256	-0.06	0.665	0.835
	LTE Band 25	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	26140	1860	16.24	17.50	1.337	-0.06	0.494	0.660
	LTE Band 25	20M	QPSK	50RB	0Offset	Edge 1	0cm	ON	26590	1905	16.17	17.50	1.358	-0.04	0.602	0.818
	LTE Band 25	20M	QPSK	100RB	0Offset	Edge 1	0cm	ON	26340	1880	16.14	17.50	1.368	-0.03	0.599	0.819
	LTE Band 25	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	0cm	ON	26340	1880	16.61	17.50	1.227	-0.05	0.603	0.740
	LTE Band 25	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	0cm	ON	26340	1880	16.51	17.50	1.256	-0.06	0.633	0.795
	LTE Band 25	20M	QPSK	1RB	0Offset	Bottom Face	1.2cm	OFF	26340	1880	22.89	24.00	1.291	-0.08	0.401	0.518
	LTE Band 25	20M	QPSK	50RB	0Offset	Bottom Face	1.2cm	OFF	26340	1880	21.58	23.00	1.387	-0.04	0.349	0.484
	LTE Band 25	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	26340	1880	22.89	24.00	1.291	-0.05	0.634	0.819
	LTE Band 25	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	26140	1860	22.87	24.00	1.297	-0.05	0.710	0.921
	LTE Band 25	20M	QPSK	1RB	0Offset	Edge 1	1.2cm	OFF	26590	1905	22.65	24.00	1.365	-0.06	0.536	0.731
	LTE Band 25	20M	QPSK	50RB	0Offset	Edge 1	1.2cm	OFF	26340	1880	21.58	23.00	1.387	-0.06	0.540	0.749
	LTE Band 25	20M	QPSK	100RB	0Offset	Edge 1	1.2cm	OFF	26340	1880	21.42	23.00	1.439	-0.03	0.527	0.758
	LTE Band 25	20M	QPSK	1RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	26340	1880	22.89	24.00	1.291	-0.01	0.599	0.773
	LTE Band 25	20M	QPSK	50RB	0Offset	Curved surface of Edge 1	1.2cm	OFF	26340	1880	21.58	23.00	1.387	-0.02	0.519	0.720
	LTE Band 25	20M	QPSK	1RB	0Offset	Edge 2	0cm	OFF	26340	1880	22.89	24.00	1.291	-0.03	0.114	0.147
	LTE Band 25	20M	QPSK	50RB	0Offset	Edge 2	0cm	OFF	26340	1880	21.58	23.00	1.387	-0.08	0.105	0.146



15.2 Repeated SAR Measurement

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	GSM850	-	-	-	-	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	251	848.8	32.66	33.00	1.081	-0.07	1.130	-	1.222
2nd	GSM850	-	-	-	-	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	251	848.8	32.66	33.00	1.081	-0.08	1.080	1.05	1.168
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Face	0cm	ON	1413	1732.6	18.70	19.00	1.072	-0.01	1.350	-	1.447
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Face	0cm	ON	1413	1732.6	18.70	19.00	1.072	0.04	1.260	1.07	1.350
1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Face	0cm	ON	9538	1907.6	17.95	18.00	1.012	-0.03	1.390	-	1.406
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Face	0cm	ON	9538	1907.6	17.95	18.00	1.012	-0.04	1.380	1.01	1.396
1st	LTE Band 17	10M	QPSK	25RB	0Offset	-	Bottom Face	0cm	ON	23790	710	21.57	22.00	1.104	-0.02	0.928	-	1.025
2nd	LTE Band 17	10M	QPSK	25RB	0Offset	-	Bottom Face	0cm	ON	23790	710	21.57	22.00	1.104	-0.05	0.919	1.01	1.015

General Note:

1. Per KDB 865664 D01v01r03, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg
2. Per KDB 865664 D01v01r03, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR < 1.45 W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured* SAR.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Tablet	Note
		Body	
1.	GPRS/EDGE(Data) + WLAN2.4GHz(data)	Yes	Hotspot / WiFi Direct
2.	WCDMA(Data) + WLAN2.4GHz(data)	Yes	Hotspot / WiFi Direct
3.	CDMA(Data) + WLAN2.4GHz(data)	Yes	Hotspot / WiFi Direct
4.	LTE(Data) + WLAN2.4GHz(data)	Yes	Hotspot / WiFi Direct
5.	GPRS/EDGE(Data) + Bluetooth(data)	Yes	
6.	WCDMA(Data) + Bluetooth(data)	Yes	
7.	CDMA(Data) + Bluetooth(data)	Yes	
8.	LTE(Data) + Bluetooth(data)	Yes	
9.	GPRS/EDGE(data) + WLAN5GHz(data)	No	
10.	WCDMA(data) + WLAN5GHz(data)	No	
11.	CDMA(data) + WLAN5 GHz(data)	No	
12.	LTE(data) + WLAN5GHz(data)	No	

General Note:

1. The below table WLAN module is also integrated into this host and the 2.4GHz WLAN and Bluetooth SAR testing results are also used perform transmission simultaneous analysis.
2. The worst case 2.4 GHz WLAN and Bluetooth SAR for each configuration in below each WLAN report was used for SAR summation; therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN and Bluetooth.
3. The worst case WLAN and Bluetooth reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN and Bluetooth.
4. For simultaneous transmission analysis for exposure position of edge1 1.2cm, Curved surface of Edge1 1.2cm and bottom face 1.2cm, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v05r02, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation < 1.6W/kg.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
 - v) The SPLSR calculated results please refer to section 16.2.

Module Information		
Integrated Module	Brand Name	Intel
	Model Name	Intel® Dual Band Wireless-AC 7265 (Model 7265NGW, 7265NGW AN, 7265NGW BN, 7265NGW NB)
	FCC ID	PD97265NG
	Report No	SAR.20141005
	Mode	• 802.11 a/b/g/n/ac • Bluetooth

16.1 Body Exposure Conditions

WWAN Band		Exposure Position	1	2	1+2 Summed SAR (W/kg)	SPLSR Result	Case No
			WWAN SAR (W/kg)	2.4GHz WLAN Antenna A SAR (W/kg)			
GSM	GSM850	Bottom Face at 0cm	1.046	1.310	2.36	0.03	Case 1
		Edge1 at 0cm	0.783	0.410	1.19		
		Curved surface of Edge 1 at 0cm	1.104	0.410	1.51		
		Bottom Face at 1.2 cm	1.222	1.310	2.53	0.03	Case 2
		Edge1 at 1.2 cm	0.584	0.410	0.99		
		Curved surface of Edge 1 at 1.2 cm	0.982	0.410	1.39		
		Edge 2 at 0cm	0.333		0.33		
	GSM1900	Bottom Face at 0cm	1.306	1.310	2.62	0.03	Case 3
		Edge1 at 0cm	0.706	0.410	1.12		
		Curved surface of Edge 1 at 0cm	0.730	0.410	1.14		
		Bottom Face at 1.2 cm	0.664	1.310	1.97	0.02	Case 4
		Edge1 at 1.2 cm	1.007	0.410	1.42		
		Curved surface of Edge 1 at 1.2 cm	0.974	0.410	1.38		
		Edge 2 at 0cm	0.309		0.31		
WCDMA	Band V	Bottom Face at 0cm	1.153	1.310	2.46	0.03	Case 5
		Edge1 at 0cm	0.571	0.410	0.98		
		Curved surface of Edge 1 at 0cm	0.785	0.410	1.20		
		Bottom Face at 1.2 cm	0.649	1.310	1.96	0.02	Case 6
		Edge1 at 1.2 cm	0.443	0.410	0.85		
		Curved surface of Edge 1 at 1.2 cm	0.591	0.410	1.00		
		Edge 2 at 0cm	0.178		0.18		
	Band IV	Bottom Face at 0cm	1.447	1.310	2.76	0.03	Case 7
		Edge1 at 0cm	1.296	0.410	1.71	0.02	Case 8
		Curved surface of Edge 1 at 0cm	1.346	0.410	1.76	0.02	Case 9
		Bottom Face at 1.2 cm	0.811	1.310	2.12	0.02	Case 10
		Edge1 at 1.2 cm	1.313	0.410	1.72	0.02	Case 11
		Curved surface of Edge 1 at 1.2 cm	1.323	0.410	1.73	0.02	Case 12
		Edge 2 at 0cm	0.041		0.04		
	Band II	Bottom Face at 0cm	1.406	1.310	2.72	0.03	Case 13
		Edge1 at 0cm	0.936	0.410	1.35		
		Curved surface of Edge 1 at 0cm	0.914	0.410	1.32		
		Bottom Face at 1.2 cm	0.763	1.310	2.07	0.02	Case 14
Edge1 at 1.2 cm		1.260	0.410	1.67	0.02	Case 15	
Curved surface of Edge 1 at 1.2 cm		1.233	0.410	1.64	0.02	Case 16	
	Edge 2 at 0cm	0.276		0.28			



WWAN Band		Exposure Position	1	2	1+2 Summed SAR (W/kg)	SPLSR Result	Case No
			WWAN SAR (W/kg)	2.4GHz WLAN Antenna A SAR (W/kg)			
CDMA	BC0	Bottom Face at 0cm	0.940	1.310	2.25	0.02	Case 17
		Edge1 at 0cm	0.485	0.410	0.90		
		Curved surface of Edge 1 at 0cm	0.780	0.410	1.19		
		Bottom Face at 1.2 cm	0.828	1.310	2.14	0.02	Case 18
		Edge1 at 1.2 cm	0.416	0.410	0.83		
		Curved surface of Edge 1 at 1.2 cm	0.587	0.410	1.00		
		Edge 2 at 0cm	0.255		0.26		
	BC1	Bottom Face at 0cm	1.384	1.310	2.69	0.03	Case 19
		Edge1 at 0cm	1.341	0.410	1.75	0.02	Case 20
		Curved surface of Edge 1 at 0cm	1.352	0.410	1.76	0.02	Case 21
		Bottom Face at 1.2 cm	0.666	1.310	1.98	0.02	Case 22
		Edge1 at 1.2 cm	1.030	0.410	1.44		
		Curved surface of Edge 1 at 1.2 cm	1.026	0.410	1.44		
		Edge 2 at 0cm	0.150		0.15		
LTE	Band 17	Bottom Face at 0cm	1.025	1.310	2.34	0.03	Case 23
		Edge1 at 0cm	0.637	0.410	1.05		
		Curved surface of Edge 1 at 0cm	0.986	0.410	1.40		
		Bottom Face at 1.2 cm	0.296	1.310	1.61	0.01	Case 24
		Edge1 at 1.2 cm	0.141	0.410	0.55		
		Curved surface of Edge 1 at 1.2 cm	0.223	0.410	0.63		
		Edge 2 at 0cm	0.085		0.09		
	Band 13	Bottom Face at 0cm	1.141	1.310	2.45	0.03	Case 25
		Edge1 at 0cm	0.596	0.410	1.01		
		Curved surface of Edge 1 at 0cm	0.990	0.410	1.40		
		Bottom Face at 1.2 cm	0.471	1.310	1.78	0.02	Case 26
		Edge1 at 1.2 cm	0.238	0.410	0.65		
		Curved surface of Edge 1 at 1.2 cm	0.413	0.410	0.82		
	Band 5	Bottom Face at 0cm	1.231	1.310	2.54	0.03	Case 27
		Edge1 at 0cm	0.563	0.410	0.97		
		Curved surface of Edge 1 at 0cm	0.893	0.410	1.30		
		Bottom Face at 1.2 cm	0.515	1.310	1.83	0.02	Case 28
		Edge1 at 1.2 cm	0.357	0.410	0.77		
		Curved surface of Edge 1 at 1.2 cm	0.437	0.410	0.85		
		Edge 2 at 0cm	0.200		0.20		
	Band 4	Bottom Face at 0cm	1.355	1.310	2.67	0.03	Case 29
		Edge1 at 0cm	1.223	0.410	1.63	0.02	Case 30
		Curved surface of Edge 1 at 0cm	1.256	0.410	1.67	0.02	Case 31
		Bottom Face at 1.2 cm	0.620	1.310	1.93	0.02	Case 32
		Edge1 at 1.2 cm	1.292	0.410	1.70	0.02	Case 33
		Curved surface of Edge 1 at 1.2 cm	1.395	0.410	1.81	0.02	Case 34
		Edge 2 at 0cm	0.025		0.03		

WWAN Band		Exposure Position	1	2	1+2 Summed SAR (W/kg)	SPLSR Result	Case No
			WWAN SAR (W/kg)	2.4GHz WLAN Antenna A SAR (W/kg)			
Band 2	Bottom Face at 0cm	1.347	1.310	2.66	0.03	Case 35	
	Edge1 at 0cm	0.819	0.410	1.23			
	Curved surface of Edge 1 at 0cm	0.797	0.410	1.21			
	Bottom Face at 1.2 cm	0.455	1.310	1.77	0.02	Case 36	
	Edge1 at 1.2 cm	1.014	0.410	1.42			
	Curved surface of Edge 1 at 1.2 cm	0.727	0.410	1.14			
	Edge 2 at 0cm	0.138		0.14			
Band 25	Bottom Face at 0cm	1.138	1.310	2.45	0.03	Case 37	
	Edge1 at 0cm	0.835	0.410	1.25			
	Curved surface of Edge 1 at 0cm	0.795	0.410	1.21			
	Bottom Face at 1.2 cm	0.518	1.310	1.83	0.02	Case 38	
	Edge1 at 1.2 cm	0.921	0.410	1.33			
	Curved surface of Edge 1 at 1.2 cm	0.773	0.410	1.18			
	Edge 2 at 0cm	0.147		0.15			



WWAN Band		Exposure Position	1	3	1+3 Summed SAR (W/kg)	SPLSR Result	Case No
			WWAN SAR (W/kg)	2.4GHz WLAN Antenna B SAR (W/kg)			
GSM	GSM850	Bottom Face at 0cm	1.046	0.750	1.80	0.02	Case 39
		Edge1 at 0cm	0.783	0.140	0.92		
		Curved surface of Edge 1 at 0cm	1.104	0.140	1.24		
		Bottom Face at 1.2 cm	1.222	0.750	1.97	0.02	Case 40
		Edge1 at 1.2 cm	0.584	0.140	0.72		
		Curved surface of Edge 1 at 1.2 cm	0.982	0.140	1.12		
		Edge 2 at 0cm	0.333		0.33		
	GSM1900	Bottom Face at 0cm	1.306	0.750	2.06	0.02	Case 41
		Edge1 at 0cm	0.706	0.140	0.85		
		Curved surface of Edge 1 at 0cm	0.730	0.140	0.87		
		Bottom Face at 1.2 cm	0.664	0.750	1.41		
		Edge1 at 1.2 cm	1.007	0.140	1.15		
		Curved surface of Edge 1 at 1.2 cm	0.974	0.140	1.11		
		Edge 2 at 0cm	0.309		0.31		
WCDMA	Band V	Bottom Face at 0cm	1.153	0.750	1.90	0.02	Case 42
		Edge1 at 0cm	0.571	0.140	0.71		
		Curved surface of Edge 1 at 0cm	0.785	0.140	0.93		
		Bottom Face at 1.2 cm	0.649	0.750	1.40		
		Edge1 at 1.2 cm	0.443	0.140	0.58		
		Curved surface of Edge 1 at 1.2 cm	0.591	0.140	0.73		
		Edge 2 at 0cm	0.178		0.18		
	Band IV	Bottom Face at 0cm	1.447	0.750	2.20	0.03	Case 43
		Edge1 at 0cm	1.296	0.140	1.44		
		Curved surface of Edge 1 at 0cm	1.346	0.140	1.49		
		Bottom Face at 1.2 cm	0.811	0.750	1.56		
		Edge1 at 1.2 cm	1.313	0.140	1.45		
		Curved surface of Edge 1 at 1.2 cm	1.323	0.140	1.46		
		Edge 2 at 0cm	0.041		0.04		
	Band II	Bottom Face at 0cm	1.406	0.750	2.16	0.03	Case 44
		Edge1 at 0cm	0.936	0.140	1.08		
		Curved surface of Edge 1 at 0cm	0.914	0.140	1.05		
		Bottom Face at 1.2 cm	0.763	0.750	1.51		
		Edge1 at 1.2 cm	1.260	0.140	1.40		
		Curved surface of Edge 1 at 1.2 cm	1.233	0.140	1.37		
		Edge 2 at 0cm	0.276		0.28		
CDMA	BC0	Bottom Face at 0cm	0.940	0.750	1.69	0.02	Case 45
		Edge1 at 0cm	0.485	0.140	0.63		
		Curved surface of Edge 1 at 0cm	0.780	0.140	0.92		
		Bottom Face at 1.2 cm	0.828	0.750	1.58		
		Edge1 at 1.2 cm	0.416	0.140	0.56		
		Curved surface of Edge 1 at 1.2 cm	0.587	0.140	0.73		
		Edge 2 at 0cm	0.255		0.26		
	BC1	Bottom Face at 0cm	1.384	0.750	2.13	0.03	Case 46
		Edge1 at 0cm	1.341	0.140	1.48		
		Curved surface of Edge 1 at 0cm	1.352	0.140	1.49		
		Bottom Face at 1.2 cm	0.666	0.750	1.42		
		Edge1 at 1.2 cm	1.030	0.140	1.17		
		Curved surface of Edge 1 at 1.2 cm	1.026	0.140	1.17		
		Edge 2 at 0cm	0.150		0.15		



WWAN Band	Exposure Position	1	3	1+3 Summed SAR (W/kg)	SPLSR Result	Case No	
		WWAN	2.4GHz WLAN Antenna B				
		SAR (W/kg)	SAR (W/kg)				
LTE	Band 17	Bottom Face at 0cm	1.025	0.750	1.78	0.02	Case 47
		Edge1 at 0cm	0.637	0.140	0.78		
		Curved surface of Edge 1 at 0cm	0.986	0.140	1.13		
		Bottom Face at 1.2 cm	0.296	0.750	1.05		
		Edge1 at 1.2 cm	0.141	0.140	0.28		
		Curved surface of Edge 1 at 1.2 cm	0.223	0.140	0.36		
		Edge 2 at 0cm	0.085		0.09		
	Band 13	Bottom Face at 0cm	1.141	0.750	1.89	0.02	Case 48
		Edge1 at 0cm	0.596	0.140	0.74		
		Curved surface of Edge 1 at 0cm	0.990	0.140	1.13		
		Bottom Face at 1.2 cm	0.471	0.750	1.22		
		Edge1 at 1.2 cm	0.238	0.140	0.38		
		Curved surface of Edge 1 at 1.2 cm	0.413	0.140	0.55		
		Edge 2 at 0cm	0.146		0.15		
	Band 5	Bottom Face at 0cm	1.231	0.750	1.98	0.02	Case 49
		Edge1 at 0cm	0.563	0.140	0.70		
		Curved surface of Edge 1 at 0cm	0.893	0.140	1.03		
		Bottom Face at 1.2 cm	0.515	0.750	1.27		
		Edge1 at 1.2 cm	0.357	0.140	0.50		
		Curved surface of Edge 1 at 1.2 cm	0.437	0.140	0.58		
		Edge 2 at 0cm	0.200		0.20		
	Band 4	Bottom Face at 0cm	1.355	0.750	2.11	0.03	Case 50
		Edge1 at 0cm	1.223	0.140	1.36		
		Curved surface of Edge 1 at 0cm	1.256	0.140	1.40		
		Bottom Face at 1.2 cm	0.620	0.750	1.37		
		Edge1 at 1.2 cm	1.292	0.140	1.43		
		Curved surface of Edge 1 at 1.2 cm	1.395	0.140	1.54		
		Edge 2 at 0cm	0.025		0.03		
	Band 2	Bottom Face at 0cm	1.347	0.750	2.10	0.02	Case 51
		Edge1 at 0cm	0.819	0.140	0.96		
		Curved surface of Edge 1 at 0cm	0.797	0.140	0.94		
		Bottom Face at 1.2 cm	0.455	0.750	1.21		
		Edge1 at 1.2 cm	1.014	0.140	1.15		
		Curved surface of Edge 1 at 1.2 cm	0.727	0.140	0.87		
		Edge 2 at 0cm	0.138		0.14		
	Band 25	Bottom Face at 0cm	1.138	0.750	1.89	0.02	Case 52
		Edge1 at 0cm	0.835	0.140	0.98		
		Curved surface of Edge 1 at 0cm	0.795	0.140	0.94		
		Bottom Face at 1.2 cm	0.518	0.750	1.27		
		Edge1 at 1.2 cm	0.921	0.140	1.06		
		Curved surface of Edge 1 at 1.2 cm	0.773	0.140	0.91		
		Edge 2 at 0cm	0.147		0.15		

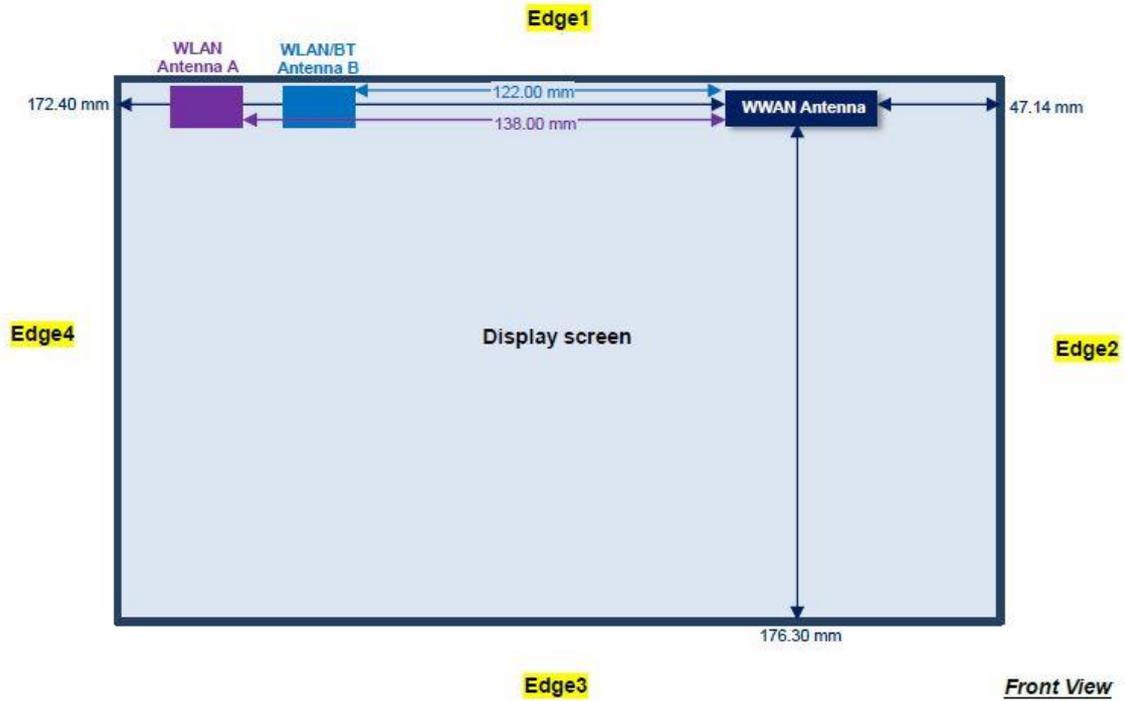


WWAN Band		Exposure Position	1	4	1+4 Summed SAR (W/kg)	SPLSR Result	Case No
			WWAN SAR (W/kg)	2.4GHz Bluetooth SAR (W/kg)			
GSM	GSM850	Bottom Face at 0cm	1.046	0.010	1.06		
		Edge1 at 0cm	0.783	0.010	0.79		
		Curved surface of Edge 1 at 0cm	1.104	0.010	1.11		
		Bottom Face at 1.2 cm	1.222	0.010	1.23		
		Edge1 at 1.2 cm	0.584	0.010	0.59		
		Curved surface of Edge 1 at 1.2 cm	0.982	0.010	0.99		
		Edge 2 at 0cm	0.333		0.33		
	GSM1900	Bottom Face at 0cm	1.306	0.010	1.32		
		Edge1 at 0cm	0.706	0.010	0.72		
		Curved surface of Edge 1 at 0cm	0.730	0.010	0.74		
		Bottom Face at 1.2 cm	0.664	0.010	0.67		
		Edge1 at 1.2 cm	1.007	0.010	1.02		
		Curved surface of Edge 1 at 1.2 cm	0.974	0.010	0.98		
		Edge 2 at 0cm	0.309		0.31		
WCDMA	Band V	Bottom Face at 0cm	1.153	0.010	1.16		
		Edge1 at 0cm	0.571	0.010	0.58		
		Curved surface of Edge 1 at 0cm	0.785	0.010	0.80		
		Bottom Face at 1.2 cm	0.649	0.010	0.66		
		Edge1 at 1.2 cm	0.443	0.010	0.45		
		Curved surface of Edge 1 at 1.2 cm	0.591	0.010	0.60		
		Edge 2 at 0cm	0.178		0.18		
	Band IV	Bottom Face at 0cm	1.447	0.010	1.46		
		Edge1 at 0cm	1.296	0.010	1.31		
		Curved surface of Edge 1 at 0cm	1.346	0.010	1.36		
		Bottom Face at 1.2 cm	0.811	0.010	0.82		
		Edge1 at 1.2 cm	1.313	0.010	1.32		
		Curved surface of Edge 1 at 1.2 cm	1.323	0.010	1.33		
		Edge 2 at 0cm	0.041		0.04		
	Band II	Bottom Face at 0cm	1.406	0.010	1.42		
		Edge1 at 0cm	0.936	0.010	0.95		
		Curved surface of Edge 1 at 0cm	0.914	0.010	0.92		
		Bottom Face at 1.2 cm	0.763	0.010	0.77		
		Edge1 at 1.2 cm	1.260	0.010	1.27		
		Curved surface of Edge 1 at 1.2 cm	1.233	0.010	1.24		
		Edge 2 at 0cm	0.276		0.28		
CDMA	BC0	Bottom Face at 0cm	0.940	0.010	0.95		
		Edge1 at 0cm	0.485	0.010	0.50		
		Curved surface of Edge 1 at 0cm	0.780	0.010	0.79		
		Bottom Face at 1.2 cm	0.828	0.010	0.84		
		Edge1 at 1.2 cm	0.416	0.010	0.43		
		Curved surface of Edge 1 at 1.2 cm	0.587	0.010	0.60		
		Edge 2 at 0cm	0.255		0.26		
	BC1	Bottom Face at 0cm	1.384	0.010	1.39		
		Edge1 at 0cm	1.341	0.010	1.35		
		Curved surface of Edge 1 at 0cm	1.352	0.010	1.36		
		Bottom Face at 1.2 cm	0.666	0.010	0.68		
		Edge1 at 1.2 cm	1.030	0.010	1.04		
		Curved surface of Edge 1 at 1.2 cm	1.026	0.010	1.04		
		Edge 2 at 0cm	0.150		0.15		



WWAN Band	Exposure Position	1	4	1+4 Summed SAR (W/kg)	SPLSR Result	Case No	
		WWAN	2.4GHz Bluetooth				
		SAR (W/kg)	SAR (W/kg)				
LTE	Band 17	Bottom Face at 0cm	1.025	0.010	1.04		
		Edge1 at 0cm	0.637	0.010	0.65		
		Curved surface of Edge 1 at 0cm	0.986	0.010	1.00		
		Bottom Face at 1.2 cm	0.296	0.010	0.31		
		Edge1 at 1.2 cm	0.141	0.010	0.15		
		Curved surface of Edge 1 at 1.2 cm	0.223	0.010	0.23		
	Band 13	Edge 2 at 0cm	0.085		0.09		
		Bottom Face at 0cm	1.141	0.010	1.15		
		Edge1 at 0cm	0.596	0.010	0.61		
		Curved surface of Edge 1 at 0cm	0.990	0.010	1.00		
		Bottom Face at 1.2 cm	0.471	0.010	0.48		
		Edge1 at 1.2 cm	0.238	0.010	0.25		
	Band 5	Curved surface of Edge 1 at 1.2 cm	0.413	0.010	0.42		
		Edge 2 at 0cm	0.146		0.15		
		Bottom Face at 0cm	1.231	0.010	1.24		
		Edge1 at 0cm	0.563	0.010	0.57		
		Curved surface of Edge 1 at 0cm	0.893	0.010	0.90		
		Bottom Face at 1.2 cm	0.515	0.010	0.53		
	Band 4	Edge1 at 1.2 cm	0.357	0.010	0.37		
		Curved surface of Edge 1 at 1.2 cm	0.437	0.010	0.45		
		Edge 2 at 0cm	0.200		0.20		
		Bottom Face at 0cm	1.355	0.010	1.37		
		Edge1 at 0cm	1.223	0.010	1.23		
		Curved surface of Edge 1 at 0cm	1.256	0.010	1.27		
	Band 2	Bottom Face at 1.2 cm	0.620	0.010	0.63		
		Edge1 at 1.2 cm	1.292	0.010	1.30		
		Curved surface of Edge 1 at 1.2 cm	1.395	0.010	1.41		
		Edge 2 at 0cm	0.025		0.03		
		Bottom Face at 0cm	1.347	0.010	1.36		
		Edge1 at 0cm	0.819	0.010	0.83		
	Band 25	Curved surface of Edge 1 at 0cm	0.797	0.010	0.81		
		Bottom Face at 1.2 cm	0.455	0.010	0.47		
		Edge1 at 1.2 cm	1.014	0.010	1.02		
		Curved surface of Edge 1 at 1.2 cm	0.727	0.010	0.74		
		Edge 2 at 0cm	0.138		0.14		
		Bottom Face at 0cm	1.138	0.010	1.15		
Band 25	Edge1 at 0cm	0.835	0.010	0.85			
	Curved surface of Edge 1 at 0cm	0.795	0.010	0.81			
	Bottom Face at 1.2 cm	0.518	0.010	0.53			
	Edge1 at 1.2 cm	0.921	0.010	0.93			
	Curved surface of Edge 1 at 1.2 cm	0.773	0.010	0.78			
	Edge 2 at 0cm	0.147		0.15			

16.2 SPLSR Evaluation and Analysis



General Note:

1. The WLAN/Bluetooth module of FCC ID: PD97265NG would be integrated into this host, and the identical WLAN antenna is used for the WLAN/BT module integration.
2. According the antenna location, for SPLSR analysis of colocation with PD97265NG, the minimum distances between each antenna pair was used for conservative SPLSR calculation.
3. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary

Case	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
Case 1	GSM850	Bottom Face at 0cm	1.046	0	138.0	2.36	0.03	Not required
	2.4GHz Ant A		1.310	0				
Case 2	GSM850	Bottom Face at 1.2 cm	1.222	1.2	138.0	2.53	0.03	Not required
	2.4GHz Ant A		1.310	0				
Case 3	GSM1900	Bottom Face at 0cm	1.306	0	138.0	2.62	0.03	Not required
	2.4GHz Ant A		1.310	0				



Case	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
Case 4	GSM1900	Bottom Face at 1.2 cm	0.664	1.2	138.0	1.97	0.02	Not required
	2.4GHz Ant A		1.310	0				
Case 5	WCDMA V	Bottom Face at 0cm	1.153	0	138.0	2.46	0.03	Not required
	2.4GHz Ant A		1.310	0				
Case 6	WCDMA V	Bottom Face at 1.2 cm	0.649	1.2	138.0	1.96	0.02	Not required
	2.4GHz Ant A		1.310	0				
Case 7	WCDMA IV	Bottom Face at 0cm	1.447	0	138.0	2.76	0.03	Not required
	2.4GHz Ant A		1.310	0				
Case 8	WCDMA IV	Edge1 at 0cm	1.296	0	138.0	1.71	0.02	Not required
	2.4GHz Ant A		0.410	0				
Case 9	WCDMA IV	Curved surface of Edge 1 at 0cm	1.346	0	138.0	1.76	0.02	Not required
	2.4GHz Ant A		0.410	0				
Case 10	WCDMA IV	Bottom Face at 1.2 cm	0.811	1.2	138.0	2.12	0.02	Not required
	2.4GHz Ant A		1.310	0				
Case 11	WCDMA IV	Edge1 at 1.2 cm	1.313	1.2	138.0	1.72	0.02	Not required
	2.4GHz Ant A		0.410	0				
Case 12	WCDMA IV	Curved surface of Edge 1 at 1.2 cm	1.323	1.2	138.0	1.73	0.02	Not required
	2.4GHz Ant A		0.410	0				
Case 13	WCDMA II	Bottom Face at 0cm	1.406	0	138.0	2.72	0.03	Not required
	2.4GHz Ant A		1.310	0				



Case	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
Case 14	WCDMA II	Bottom Face at 1.2 cm	0.763	1.2	138.0	2.07	0.02	Not required
	2.4GHz Ant A		1.310	0				
Case 15	WCDMA II	Edge1 at 1.2 cm	1.260	1.2	138.0	1.67	0.02	Not required
	2.4GHz Ant A	Edge1 at 1.2 cm	0.410	0				
Case 16	WCDMA II	Curved surface of Edge 1 at 1.2 cm	1.233	1.2	138.0	1.64	0.02	Not required
	2.4GHz Ant A		0.410	0				
Case 17	CDMA BC0	Bottom Face at 0cm	0.940	0	138.0	2.25	0.02	Not required
	2.4GHz Ant A		1.310	0				
Case 18	CDMA BC0	Bottom Face at 1.2 cm	0.828	1.2	138.0	2.14	0.02	Not required
	2.4GHz Ant A		1.310	0				
Case 19	CDMA BC1	Bottom Face at 0cm	1.384	0	138.0	2.69	0.03	Not required
	2.4GHz Ant A		1.310	0				
Case 20	CDMA BC1	Edge1 at 0cm	1.341	0	138.0	1.75	0.02	Not required
	2.4GHz Ant A		0.410	0				
Case 21	CDMA BC1	Curved surface of Edge 1 at 0cm	1.352	0	138.0	1.76	0.02	Not required
	2.4GHz Ant A		0.410	0				



Case 22	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC1 2.4GHz Ant A	Bottom Face at t 1.2 cm	0.666	1.2				
	1.310		0					

Case 23	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B17 2.4GHz Ant A	Bottom Face at 0cm	1.025	0				
	1.310		0					

Case 24	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B17 2.4GHz Ant A	Bottom Face at 1.2 cm	0.296	1.2				
	1.310		0					

Case 25	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B13 2.4GHz Ant A	Bottom Face at 0cm	1.141	0				
	1.310		0					

Case 26	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B13 2.4GHz Ant A	Bottom Face at 1.2 cm	0.471	1.2				
	1.310		0					

Case 27	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B5 2.4GHz Ant A	Bottom Face at 0cm	1.231	0				
	1.310		0					

Case 28	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B5 2.4GHz Ant A	Bottom Face at 1.2 cm	0.515	1.2				
	1.310		0					

Case 29	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B4 2.4GHz Ant A	Bottom Face at 0cm	1.355	0				
	1.310		0					

Case 30	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B4 2.4GHz Ant A	Edge1 at 0cm	1.223	0				
	0.410		0					



Case 31	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B4	Curved surface of Edge 1 at 0cm	1.256	0	138.0	1.67	0.02	Not required
	2.4GHz Ant A		0.410	0				

Case 32	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B4	Bottom Face at 1.2 cm	0.620	1.2	138.0	1.93	0.02	Not required
	2.4GHz Ant A		1.310	0				

Case 33	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B4	Edge1 at 1.2 cm	1.292	1.2	138.0	1.70	0.02	Not required
	2.4GHz Ant A		0.410	0				

Case 34	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B4	Curved surface of Edge 1 at 1.2 cm	1.395	1.2	138.0	1.81	0.02	Not required
	2.4GHz Ant A		0.410	0				

Case 35	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B2	Bottom Face at 0cm	1.347	0	138.0	2.66	0.03	Not required
	2.4GHz Ant A		1.310	0				

Case 36	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B2	Bottom Face at 1.2 cm	0.455	1.2	138.0	1.77	0.02	Not required
	2.4GHz Ant A		1.310	0				

Case 37	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B25	Bottom Face at 0cm	1.138	0	138.0	2.45	0.03	Not required
	2.4GHz Ant A		1.310	0				

Case 38	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	2.4GHz Ant A			(cm)				
	LTE B25	Bottom Face at 1.2 cm	0.518	1.2	138.0	1.83	0.02	Not required
	2.4GHz Ant A		1.310	0				



Case 39	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Bottom Face at 0cm	1.046	0				
2.4GHz Ant B	0.750		0					

Case 40	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Bottom Face at 1.2 cm	1.222	1.2				
2.4GHz Ant B	0.750		0					

Case 41	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Bottom Face at 0cm	1.306	0				
2.4GHz Ant B	0.750		0					

Case 42	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Bottom Face at 0cm	1.153	0				
2.4GHz Ant B	0.750		0					

Case 43	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Bottom Face at 0cm	1.447	0				
2.4GHz Ant B	0.750		0					

Case 44	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Bottom Face at 0cm	1.406	0				
2.4GHz Ant B	0.750		0					

Case 45	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC0	Bottom Face at 0cm	0.940	0				
2.4GHz Ant B	0.750		0					

Case 46	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC10	Bottom Face at 0cm	1.384	0				
2.4GHz Ant B	0.750		0					

Case 47	Band	Position	SAR (W/kg)	Gap (cm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B17	Bottom Face at 0cm	1.025	0				
2.4GHz Ant B	0.750		0					

Case 48	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	LTE B13	Bottom Face at 0cm	1.141	0	122.0	1.89	0.02	Not required
	2.4GHz Ant B		0.750	0				

Case 49	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	LTE B5	Bottom Face at 0cm	1.231	0	122.0	1.98	0.02	Not required
	2.4GHz Ant B		0.750	0				

Case 50	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	LTE B4	Bottom Face at 0cm	1.355	0	122.0	2.11	0.03	Not required
	2.4GHz Ant B		0.750	0				

Case 51	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	LTE B2	Bottom Face at 0cm	1.347	0	122.0	2.10	0.02	Not required
	2.4GHz Ant B		0.750	0				

Case 52	Band	Position	SAR (W/kg)	Gap	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	LTE B25	Bottom Face at 0cm	1.138	0	122.0	1.89	0.02	Not required
	2.4GHz Ant B		0.750	0				

Test Engineer : Vic Yang, Mood Huang, Frank Wu and Domo Hsiao

17. Uncertainty Assessment

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture’s specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor ^(a)	1/k ^(b)	1/√3	1/√6	1/√2

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Table 17.1. Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual “root-sum-squares” (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.



Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 11.0 %	± 10.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						± 22.0 %	± 21.5 %

Table 17.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

18. References

- [1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”
- [2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992
- [3] IEEE Std. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 447498 D01 v05r02, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Feb 2014
- [6] FCC KDB 941225 D01 v03, “3G SAR MEAUREMENT PROCEDURES”, Oct 2014
- [7] FCC KDB 941225 D05 v02r03, “SAR Evaluation Considerations for LTE Devices”, Dec 2013
- [8] FCC KDB 616217 D04 v01r01, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, May 2013
- [9] FCC KDB 865664 D01 v01r03, "SAR Measurement Requirements for 100 MHz to 6 GHz", Feb 2014.
- [10] FCC KDB 865664 D02 v01r01, “RF Exposure Compliance Reporting and Documentation Considerations” May 2013.