SAR EVALUATION REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013
(Class II Permissive Change)

For

Multi-band Radio Module
(Tested inside of Panasonic Tablet PC FZ-Q1)

Model: WW13B
FCC ID: ACJ9TGWW13B4

Report Number: 11018665H-A-R1
Issue Date: February 16, 2016
Revised Date: February 23, 2016

Prepared for

PANASONIC CORPORATION OF NORTH AMERICA
Two Riverfront Plaza, 9th Floor Newark, NEW JERSEY, 07102-5940, USA

Prepared by

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
TEL: +81 596 24 8999
FAX: +81 596 24 8124

NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
http://www.ul.com/japan/jpn/pages/services/emc/

Revision History

Rev.	Issue Date	Revisions	Revised By
--	02/16/2016	Initial Issue	T. Hatakeda
1	02/23/2016	Section 7.8 The reference destination was changed to KDB 616217 §6.4. Section 13.7 SAR value of Edge 1 tilt was changed to 0.954 W/kg instead of 0.956 W/kg.	T. Hatakeda

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Table of Contents

1. Attestation of Test Results 8

1.1. Summary of Highest 1-g SAR Results 9

2. Test Methodology 10

3. Facilities and Accreditation 10

4. Calibration and Uncertainty 11

4.1. Measuring Instrument Calibration 11

4.2. Measurement Uncertainty 13

5. Measurement System Description and Setup 14

6. SAR Measurement Procedure 15

6.1. Normal SAR Measurement Procedure 15

6.2. Volume Scan Procedures 17

7. Device Under Test 18

7.1. Wireless Technologies 18

7.2. Hotspot (Wireless Router) Exposure Condition 18

7.3. Simultaneous Transmission 19

7.4. LTE Parameters 24

7.5. Proximity Sensor 27

7.6. Proximity Sensor Triggering distance (KDB 616217 §6.2) 28

7.7. Proximity Sensor Coverage (KDB 616217 §6.3) 31

7.8. Proximity Sensor Tilt Angle (KDB 616217 §6.4) 31

8. Exposure Conditions 32

8.1. Test Configurations for the WWAN Main Antenna, WWAN Modes 32

8.2. Additional Test Scenarios 33

8.3. Test Configurations for WLAN 33

9. RF Output Power Measurement 34

9.1. W-CDMA Band V 35

9.2. W-CDMA Band IV 39

9.3. W-CDMA Band II 43

9.4. CDMA BC0 47

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.5. CDMA BC1 48

9.6. CDMA BC10 49

9.7. LTE Band 2 50

9.8. LTE Band 4 63

9.9. LTE Band 5 76

9.10. LTE Band 13 85

9.11. LTE Band 17 89

9.12. LTE Band 25 94

10. Dielectric Property Measurements 107

10.1. Tissue Dielectric Parameter Check Results 108

11. System Performance Check 113

11.1. System Performance Check Measurement Conditions 113

11.2. Reference SAR Values for System Performance Check 114

11.3. System Performance Check Results 115

12. RF Exposure Conditions (Test Configurations) 117

12.1. Standalone SAR Test Exclusion Considerations 117

12.1.1. SAR Test Exclusion Calculations for antennas <50mm to adjacent edges 118

12.1.2. SAR Test Exclusion Calculations for antennas >50mm to adjacent edges 119

12.2. Estimated SAR for Simultaneous Transmission SAR Analysis 120

12.2.1. Estimated SAR for WWAN 121

13. Measured and Reported (Scaled) SAR Results 122

13.1. W-CDMA Band 5 122

13.2. W-CDMA Band 4 123

13.3. W-CDMA Band 2 124

13.4. CDMA Band 0 125

13.5. CDMA Band 1 127

13.6. CDMA Band 10 129

13.7. LTE Band 2 131

13.8. LTE Band 4 134

13.9. LTE Band 5 137

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.10. LTE Band 25 140

13.11. LTE Band 13 143

13.12. LTE Band 17 145

13.13. Summary of Highest SAR Values 148

13.14. SAR Measurement Variability and Uncertainty 149

13.15. Additional SAR Test Results 150

13.15.1. Wi-Fi 2.4 GHz Band 151

13.15.2. Wi-Fi 5.3 GHz Band 152

13.15.3. Wi-Fi 5.5 GHz Band 153

13.15.4. Wi-Fi 5.8 GHz Band 154

13.15.5. Bluetooth 155

14. Simultaneous Transmission SAR Analysis 156

14.1. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 2.4 GHz Band 157

14.2. Sum of the SAR for W-CDMA Band II & Wi-Fi 2.4 GHz Band 159

14.3. Sum of the SAR for CDMA BC0 & Wi-Fi 2.4 GHz Band 161

14.4. Sum of the SAR for CDMA BC1 & Wi-Fi 2.4 GHz Band 162

14.5. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 2.4 GHz Band 164

14.6. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 2.4 GHz Band 166

14.7. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 2.4 GHz Band 167

14.8. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 5.3 GHz Band 168

14.9. Sum of the SAR for W-CDMA Band II & Wi-Fi 5.3 GHz Band 170

14.10. Sum of the SAR for CDMA BC0 & Wi-Fi 5.3 GHz Band 172

14.11. Sum of the SAR for CDMA BC1 & Wi-Fi 5.3 GHz Band 174

14.12. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 5.3 GHz Band 176

14.13. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 5.3 GHz Band 178

14.14. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 5.3 GHz Band 180

14.15. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 5.5 GHz Band 182

14.16. Sum of the SAR for W-CDMA Band II & Wi-Fi 5.5 GHz Band 184

14.17. Sum of the SAR for CDMA BC0 & Wi-Fi 5.5 GHz Band 186

14.18. Sum of the SAR for CDMA BC1 & Wi-Fi 5.5 GHz Band 188

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.19. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 5.5 GHz Band 190

14.20. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 5.5 GHz Band 192

14.21. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 5.5 GHz Band 194

14.22. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 5.8 GHz Band 196

14.23. Sum of the SAR for W-CDMA Band II & Wi-Fi 5.8 GHz Band 198

14.24. Sum of the SAR for CDMA BC0 & Wi-Fi 5.8 GHz Band 200

14.25. Sum of the SAR for CDMA BC1 & Wi-Fi 5.8 GHz Band 202

14.26. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 5.8 GHz Band 204

14.27. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 5.8 GHz Band 206

14.28. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 5.8 GHz Band 208

14.29. Sum of the SAR for CDMA BC10 & Wi-Fi 2.4 GHz Bands. 210

14.30. Sum of the SAR for CDMA BC10 & Wi-Fi 5.3 GHz Bands. 211

14.31. Sum of the SAR for CDMA BC10 & Wi-Fi 5.5 GHz Bands. 213

14.32. Sum of the SAR for CDMA BC10 & Wi-Fi 5.8 GHz Bands. 215

15. Appendixes 217

15.1. System Performance Check Plots 217

15.2. SAR test plots for WCDMA Band 5 217

15.3. SAR test plots for WCDMA Band 4 217

15.4. SAR test plots for WCDMA Band 2 217

15.5. SAR test plots for CDMA Band0 217

15.6. SAR test plots for CDMA Band1 217

15.7. SAR test plots for LTE Band 2 217

15.8. SAR test plots for LTE Band 4 217

15.9. SAR test plots for LTE Band 5 217

15.10. SAR test plots for LTE Band 25 217

15.11. SAR test plots for LTE Band 13 217

15.12. SAR test plots for LTE Band 17 217

15.13. SAR Test Plots for Repeat Measurement 217

15.14. SAR Test Plots for Wi-Fi 2.4 GHz Band 218

15.15. SAR Test Plots for Wi-Fi 5.3 GHz Bands 218

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

15.16. SAR Test Plots for Wi-Fi 5.5 GHz Bands ... 218

15.17. SAR Test Plots for Wi-Fi 5.8 GHz Bands ... 218

15.18. SAR Test Plots for Bluetooth ... 218

15.19. SAR Calibration Certificate - Probe EX3DV4 SN 3917 ... 218

15.20. SAR Calibration Certificate - Probe EX3DV4 SN 3922 ... 218

15.21. SAR Calibration Certificate - Probe EX3DV4 SN3825 ... 218

15.22. SAR Calibration Certificate - Dipole D750V3 SN1058 ... 218

15.23. SAR Calibration Certificate - Dipole D835V2 SN 4d149 ... 218

15.24. SAR Calibration Certificate - Dipole D1750V2 SN1089 ... 218

15.25. SAR Calibration Certificate - Dipole D1900V2 SN5d169 ... 218

15.26. SAR Calibration Certificate for D2450V2 - SN 713 ... 218

15.27. SAR Calibration Certificate for D5GHzV2 - SN 1020 ... 218

15.28. SAR Tissue Ingredients ... 218

15.29. SAR peak separation for SPLSR ... 218

15.30. Triggering distances and power levels ... 218

15.31. SAR test plots for CDMA Band10 ... 218

16. External Photos ... 219

17. Antenna Dimensions & Separation Distances ... 222

18. Setup Photos ... 224

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

1. Attestation of Test Results

Applicant	PANASONIC CORPORATION OF NORTH AMERICA
DUT description	Multi-band Radio Module (Tested inside of Panasonic Tablet PC FZ-Q1)
Model	WW13B
Test device is	An identical prototype
Device category	Portable
Exposure category	General Population/Uncontrolled Exposure
Date tested	November 16, 2015 to January 29, 2016

Applicable Standards	Test Results
FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013	Pass

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This report is a revised version of 11018665H-A. 11018665H-A is replaced with this report.

Approved & Released For UL Japan, Inc By:

Takahiro Hatakeda
Leader
Consumer Technology Division

Tested By:

Hisayoshi Sato
Engineer
Consumer Technology Division

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

1.1. Summary of Highest 1-g SAR Results

Worst Case SAR data for each Frequency Band

RF Exposure Rule	Freq. Range	Highest Reported SAR	Limit
22 (CDMA Band 0)	824-849 MHz	Body & Tablet: 1.234 W/kg (Edge 1)	1.6 W/kg
24 (CDMA Band 1)	1850-1910 MHz	Body & Tablet: 1.399 W/kg (Edge 1 tilt)	
27 (LTE Band 13)	777 – 787 MHz	Body & Tablet: 1.245 W/kg (Edge 1 tilt)	
27 (WCDMA Band 4)	1710–1755 MHz	Body & Tablet: 1.389 W/kg (Edge 1)	
90 (CDMA Band 10)	816-823.975MHz	Body & Tablet: 1.098 W/kg (Edge 1 tilt)	
Simultaneous transmission condition		1.597 W/kg(refer to Section 14 of this report.) (highest SAR across exposure conditions)	

LEGEND:

- Bottom side = Rear of display(Tablet mode)
- Edge 1 = Top Edge(Tablet mode)
- Edge 2 = Left Edge(Tablet mode)
- Edge 3 = Bottom Edge(Tablet mode)
- Edge 4 = Right Edge(Tablet mode)
- Edge 1 tilt = Top Edge tilt(Tablet mode) *Refer to KDB672652.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

2. Test Methodology

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528- 2013, the following FCC Published RF exposure KDB procedures:

- 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- 865664 D02 SAR Reporting v01r02
- 447498 D01 General RF Exposure Guidance v06
- 941225 D01 SAR test for 3G devices v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 616217 D04 SAR for laptop and tablets v01r02

3. Facilities and Accreditation

*Shielded room for SAR testings

The test sites and measurement facilities used to collect data are located at 4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN.

UL Japan, Inc. is accredited by NVLAP, Laboratory Code 200572-0

The full scope of accreditation can be viewed at

http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

4. Calibration and Uncertainty

4.1. Measuring Instrument Calibration

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

Dielectric Property Measurements

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MNA-03	Vector Reflectometer	Copper Mountain Technologies	PLANAR R140	0030913	SAR	2015/10/30 * 12
MDPK-03	Dielectric assessment kit	Schmid&Partner Engineering AG	DAK-3.5	0008	SAR	2015/03/10 * 12
MOS-37	Digital thermometer	LKM electronic	DTM3000	-	SAR	2015/07/07 * 12
COTS-MSAR-04	Dielectric assessment software	Schmid&Partner Engineering AG	DAK		SAR	-

System check

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MDAE-02	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	1369	SAR	2015/05/22 * 12
MPB-08	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3917	SAR	2015/05/29 * 12
MPF-03	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1203	SAR	2015/05/11 * 12
MDH-04	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	–	SAR	Pre Check
MOS-35	Digital thermometer	HANNA	Checktemp 4	–	SAR	2015/07/07 * 12
COTS-MSAR-03	Dasy5	Schmid&Partner Engineering AG	DASY5	–	SAR	–
MRBT-03	SAR robot	Schmid&Partner Engineering AG	TX60 Lspeag	F13/5PP1D1/A /01	SAR	2015/06/23 * 12
MDAE-01	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	509	SAR	2015/07/07 * 12
MPB-07	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3825	SAR	2015/12/11 * 12
MPF-02	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1045	SAR	2015/05/11 * 12
MDH-01	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	–	SAR	Pre Check
MOS-26	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q29	SAR	2015/04/28 * 12
MRBT-02	SAR robot	Schmid&Partner Engineering AG	TX60 Lspeag	F10/5E3LA1/A /01	SAR	2015/05/29 * 12
MDAE-03	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	1372	SAR	2015/06/15 * 12
MPB-09	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3922	SAR	2015/06/17 * 12
MPF-04	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1207	SAR	2015/05/11 * 12

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

MDH-03	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	SAR	Pre Check
MRBT-04	SAR robot	Schmid&Partner Engineering AG	TX60 Lspeag	F13/5PP1A1/A/01	SAR	2015/06/23 * 12
MPM-11	Dual Power Meter	Agilent	E4419B	MY45102060	SAR	2015/08/04 * 12
MPSE-15	Power sensor	Agilent	E9301A	MY41498311	SAR	2015/08/04 * 12
MPSE-16	Power sensor	Agilent	E9301A	MY41498313	SAR	2015/08/04 * 12
MAT-78	Attenuator	Telegrartner	J01156A0011	0042294119	SAR	Pre Check
MPSE-25	Power sensor	Anritsu	MA24106A	1031504	SAR	2015/08/17 * 12
MAT-81	Attenuator	Weinschel Associates	WA1-20-33	100131	SAR	2015/05/04 * 12
MHDC-21	Dual Directional Coupler	Agilent	778D	MY52180243	SAR(0.1-2GHz)	Pre Check
MHDC-12	Dual Directional Coupler	Hewlett Packard	772D	2839A0016	SAR(2-18GHz)	Pre Check
MRFA-24	Pre Amplifier	R&K	R&K CGA020M602-2633R	B30550	SAR	2015/06/15 * 12
MSG-13	Signal Generator	Rohde & Schwarz	SMA 100A	103764	SAR	2015/06/15 * 12
MDA-20	Dipole Antenna	Schmid&Partner Engineering AG	D750V3	1058	SAR	2015/05/28 * 12
SSDA-04	Dipole Antenna	Schmid&Partner Engineering AG	D835V2	4d149	SAR	2013/03/05 * 36
SSDA-06	Dipole Antenna	Schmid&Partner Engineering AG	D1750V2	1089	SAR	2013/03/08 * 36
SSDA-08	Dipole Antenna	Schmid&Partner Engineering AG	D1900V2	5d169	SAR	2013/03/07 * 36
MDA-07	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	713	SAR(D2450)	2013/09/10 * 36
MDA-08	Dipole Antenna	Schmid&Partner Engineering AG	D5GHzV2	1020	SAR(D5G)	2015/01/13 * 12
COTS-MPSE	Software for MA24106A	Anritsu	Anritsu Power meter software	-	SAR	-

Other

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MURC-03	Radio Communication Analyzer	Anritsu	MT8815B	6200711471	SAR	2014/12/02 * 12 *1)
MURC-03	Radio Communication Analyzer	Anritsu	MT8815B	6200711471	SAR	2014/12/02 * 12
MRENT-128	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	124977	SAR	2015/12/14 * 12
MURC-02	Wireless Communication Test Set	Agilent	E5515C	GB47050683	SAR	2015/02/27 * 12
MCC-66	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28636/2	SAR	2015/04/02 * 12
MOS-26	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q29	SAR	2015/04/28 * 12

***1) This test equipment was used for the tests before the expiration date of the calibration.**

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards. As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

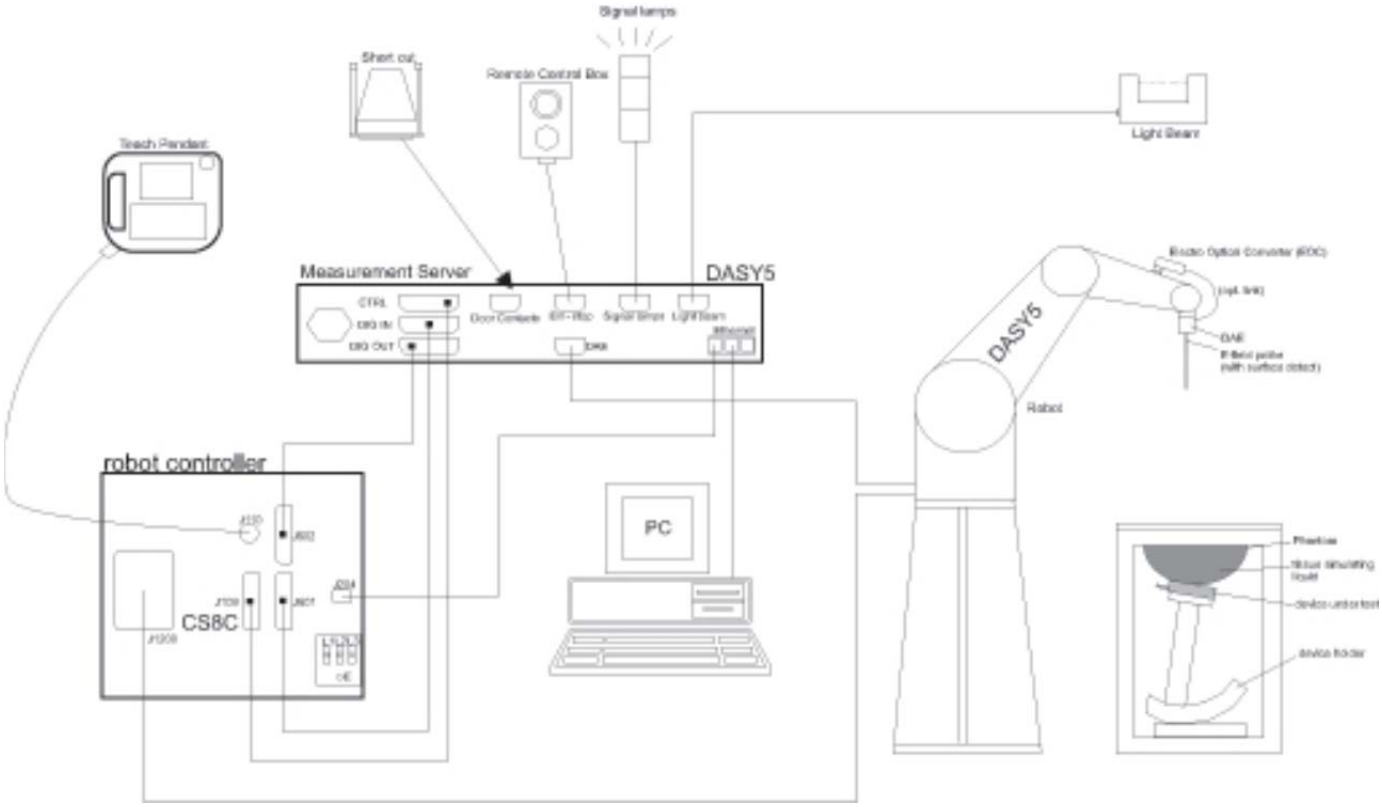
4.2. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

5. Measurement System Description and Setup

The DASY5 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.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

6. SAR Measurement Procedure

6.1. Normal SAR Measurement Procedure

Step 1: 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. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: 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 locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal 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 KDB 865664 D01 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	½·δ·ln(2) ± 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: Δx_{Area}, Δy_{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.	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g 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 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{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 1st 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 *reported* SAR from the area scan based *1-g SAR estimation* 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.				

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

6.2. Volume Scan Procedures

Step 1: Repeat Step 1-4 in Section 6.1

Step 2: Volume Scan

Volume Scans are used to assess peak SAR and averaged SAR measurements in largely extended 3-dimensional volumes within any phantom. This measurement does not need any previous area scan. The grid can be anchored to a user specific point or to the current probe location.

Step 3: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

7. Device Under Test

Multi-band Radio Module (Tested inside of Panasonic Tablet PC FZ-Q1) Model: WW13B	
Operating Configuration(s)	• Tablet mode
Exposure Condition(s)	• The device is used in close proximity to the body. Specific details of the required test positions are provided in Section 8 “Exposure Conditions”
Accessory	• None

7.1. Wireless Technologies

Wireless Mode and Frequency Bands	• W-CDMA Band V: 824 - 849 MHz • W-CDMA Band IV: 1710 - 1755 MHz • W-CDMA Band II: 1850 - 1910 MHz • CDMA BC 0: 824 - 849 MHz • CDMA BC 1: 1850 - 1910 MHz • CDMA BC 10: 816 - 823.975 MHz • LTE Band 2: 1850 - 1910 MHz • LTE Band 4: 1710 - 1755 MHz • LTE Band 5: 824 - 849 MHz • LTE Band 13: 777 - 787 MHz • LTE Band 17: 704 – 716 MHz • LTE Band 25: 1850 - 1915 MHz • Simultaneous transmission with WW13B Wireless Module(Tested inside of Panasonic Tablet PC FZ-Q1) Model: WL13A • 802.11a/b/g/n/ac: 2412 – 2462 MHz, b / g / HT20 / HT40 5150 - 5250 MHz, a / HT20 / HT40 / HT80 5250 - 5350 MHz, a / HT20 / HT40 / HT80 5500 - 5700 MHz, a / HT20 / HT40 / HT80 5725 - 5850 MHz, a / HT20 / HT40 / HT80 • Bluetooth: 2402 - 2480 MHz
Duty Cycle	• W-CDMA: 100% • CDMA: 100% • LTE: 100%

7.2. Hotspot (Wireless Router) Exposure Condition

N/A

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

7.3. Simultaneous Transmission

WWAN + Wi-Fi 2.4 GHz SISO (1 Tx)

Usage Scenario	Modes	Mode of Operation	BAND	CDMA 1xRTT	CDMA 1xEV-DO	WCDMA	HSDPA	HSUPA	HSPA+	DC-HSPA	LTE	Wi-Fi 2.4GHz Main	Wi-Fi 2.4GHz Aux	Wi-Fi 5 GHz Bands Main	Wi-Fi 5 GHz Bands Aux	BT 2.4 GHz
Body SAR	WWAN + 2.4 GHz WLAN	CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	YES	No	No	No	No
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	YES	No	No	No	No
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	YES	No	No	No	No
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	YES	No	No	No	No
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	YES	No	No	No	No
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	YES	No	No	No	No
		W-CDMA	850	No	No	YES	No	No	No	No	No	YES	No	No	No	No
		W-CDMA	1700	No	No	YES	No	No	No	No	No	YES	No	No	No	No
		W-CDMA	1900	No	No	YES	No	No	No	No	No	YES	No	No	No	No
		HSDPA	850	No	No	No	YES	No	No	No	No	YES	No	No	No	No
		HSDPA	1700	No	No	No	YES	No	No	No	No	YES	No	No	No	No
		HSDPA	1900	No	No	No	YES	No	No	No	No	YES	No	No	No	No
		HSUPA	850	No	No	No	No	YES	No	No	No	YES	No	No	No	No
		HSUPA	1700	No	No	No	No	YES	No	No	No	YES	No	No	No	No
		HSUPA	1900	No	No	No	No	YES	No	No	No	YES	No	No	No	No
		HSPA+	850	No	No	No	No	No	YES	No	No	YES	No	No	No	No
		HSPA+	1700	No	No	No	No	No	YES	No	No	YES	No	No	No	No
		HSPA+	1900	No	No	No	No	No	YES	No	No	YES	No	No	No	No
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	YES	No	No	No	No
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	YES	No	No	No	No
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	YES	No	No	No	No
		LTE	2	No	No	No	No	No	No	No	YES	YES	No	No	No	No
		LTE	4	No	No	No	No	No	No	No	YES	YES	No	No	No	No
		LTE	5	No	No	No	No	No	No	No	YES	YES	No	No	No	No
		LTE	13	No	No	No	No	No	No	No	YES	YES	No	No	No	No
		LTE	17	No	No	No	No	No	No	No	YES	YES	No	No	No	No
		LTE	25	No	No	No	No	No	No	No	YES	YES	No	No	No	No
		CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	No	YES	No	No	No
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	No	YES	No	No	No
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	No	YES	No	No	No
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	No	YES	No	No	No
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	No	YES	No	No	No
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	No	YES	No	No	No
		W-CDMA	850	No	No	YES	No	No	No	No	No	No	YES	No	No	No
		W-CDMA	1700	No	No	YES	No	No	No	No	No	No	YES	No	No	No
		W-CDMA	1900	No	No	YES	No	No	No	No	No	No	YES	No	No	No
		HSDPA	850	No	No	No	YES	No	No	No	No	No	YES	No	No	No
		HSDPA	1700	No	No	No	YES	No	No	No	No	No	YES	No	No	No
		HSDPA	1900	No	No	No	YES	No	No	No	No	No	YES	No	No	No
		HSUPA	850	No	No	No	No	YES	No	No	No	No	YES	No	No	No
		HSUPA	1700	No	No	No	No	YES	No	No	No	No	YES	No	No	No
		HSUPA	1900	No	No	No	No	YES	No	No	No	No	YES	No	No	No
		HSPA+	850	No	No	No	No	No	YES	No	No	No	YES	No	No	No
		HSPA+	1700	No	No	No	No	No	YES	No	No	No	YES	No	No	No
		HSPA+	1900	No	No	No	No	No	YES	No	No	No	YES	No	No	No
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	No	YES	No	No	No
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	No	YES	No	No	No
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	No	YES	No	No	No
		LTE	2	No	No	No	No	No	No	No	YES	No	YES	No	No	No
		LTE	4	No	No	No	No	No	No	No	YES	No	YES	No	No	No
		LTE	5	No	No	No	No	No	No	No	YES	No	YES	No	No	No
		LTE	13	No	No	No	No	No	No	No	YES	No	YES	No	No	No
		LTE	17	No	No	No	No	No	No	No	YES	No	YES	No	No	No
		LTE	25	No	No	No	No	No	No	No	YES	No	YES	No	No	No

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

WWAN + Wi-Fi 5 GHz Bands SISO (1 Tx)

Usage Scenario	Modes	Mode of Operation	BAND	CDMA 1xRTT	CDMA 1xEV-DO	WCDMA	HSDPA	HSUPA	HSPA+	DC-HSPA	LTE	Wi-Fi 2.4GHz Main	Wi-Fi 2.4GHz Aux	Wi-Fi 5 GHz Bands Main	Wi-Fi 5 GHz Bands Aux	BT 2.4 GHz
Body SAR	WWAN + 5 GHz Bands WLAN	CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	No	No	YES	No	No
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	No	No	YES	No	No
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	No	No	YES	No	No
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	No	No	YES	No	No
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	No	No	YES	No	No
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	No	No	YES	No	No
		W-CDMA	850	No	No	YES	No	No	No	No	No	No	No	YES	No	No
		W-CDMA	1700	No	No	YES	No	No	No	No	No	No	No	YES	No	No
		W-CDMA	1900	No	No	YES	No	No	No	No	No	No	No	YES	No	No
		HSDPA	850	No	No	No	YES	No	No	No	No	No	No	YES	No	No
		HSDPA	1700	No	No	No	YES	No	No	No	No	No	No	YES	No	No
		HSDPA	1900	No	No	No	YES	No	No	No	No	No	No	YES	No	No
		HSUPA	850	No	No	No	No	YES	No	No	No	No	No	YES	No	No
		HSUPA	1700	No	No	No	No	YES	No	No	No	No	No	YES	No	No
		HSUPA	1900	No	No	No	No	YES	No	No	No	No	No	YES	No	No
		HSPA+	850	No	No	No	No	No	YES	No	No	No	No	YES	No	No
		HSPA+	1700	No	No	No	No	No	YES	No	No	No	No	YES	No	No
		HSPA+	1900	No	No	No	No	No	YES	No	No	No	No	YES	No	No
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	No	No	YES	No	No
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	No	No	YES	No	No
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	No	No	YES	No	No
		LTE	2	No	No	No	No	No	No	No	YES	No	No	YES	No	No
		LTE	4	No	No	No	No	No	No	No	YES	No	No	YES	No	No
		LTE	5	No	No	No	No	No	No	No	YES	No	No	YES	No	No
		LTE	13	No	No	No	No	No	No	No	YES	No	No	YES	No	No
		LTE	17	No	No	No	No	No	No	No	YES	No	No	YES	No	No
		LTE	25	No	No	No	No	No	No	No	YES	No	No	YES	No	No
		CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	No	No	No	YES	No
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	No	No	No	YES	No
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	No	No	No	YES	No
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	No	No	No	YES	No
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	No	No	No	YES	No
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	No	No	No	YES	No
		W-CDMA	850	No	No	YES	No	No	No	No	No	No	No	No	YES	No
		W-CDMA	1700	No	No	YES	No	No	No	No	No	No	No	No	YES	No
		W-CDMA	1900	No	No	YES	No	No	No	No	No	No	No	No	YES	No
		HSDPA	850	No	No	No	YES	No	No	No	No	No	No	No	YES	No
		HSDPA	1700	No	No	No	YES	No	No	No	No	No	No	No	YES	No
		HSDPA	1900	No	No	No	YES	No	No	No	No	No	No	No	YES	No
		HSUPA	850	No	No	No	No	YES	No	No	No	No	No	No	YES	No
		HSUPA	1700	No	No	No	No	YES	No	No	No	No	No	No	YES	No
		HSUPA	1900	No	No	No	No	YES	No	No	No	No	No	No	YES	No
		HSPA+	850	No	No	No	No	No	YES	No	No	No	No	No	YES	No
		HSPA+	1700	No	No	No	No	No	YES	No	No	No	No	No	YES	No
		HSPA+	1900	No	No	No	No	No	YES	No	No	No	No	No	YES	No
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	No	No	No	YES	No
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	No	No	No	YES	No
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	No	No	No	YES	No
		LTE	2	No	No	No	No	No	No	No	YES	No	No	No	YES	No
		LTE	4	No	No	No	No	No	No	No	YES	No	No	No	YES	No
		LTE	5	No	No	No	No	No	No	No	YES	No	No	No	YES	No
		LTE	13	No	No	No	No	No	No	No	YES	No	No	No	YES	No
		LTE	17	No	No	No	No	No	No	No	YES	No	No	No	YES	No
		LTE	25	No	No	No	No	No	No	No	YES	No	No	No	YES	No

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

WWAN + Bluetooth

Usage Scenario	Modes	Mode of Operation	BAND	CDMA 1xRTT	CDMA 1xEV-DO	WCDMA	HSDPA	HSUPA	HSPA+	DC-HSPA	LTE	Wi-Fi 2.4GHz Main	Wi-Fi 2.4GHz Aux	Wi-Fi 5 GHz Bands Main	Wi-Fi 5 GHz Bands Aux	BT 2.4 GHz
Body SAR	WWAN + BT	CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	No	No	No	No	YES
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	No	No	No	No	YES
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	No	No	No	No	YES
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	No	No	No	No	YES
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	No	No	No	No	YES
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	No	No	No	No	YES
		W-CDMA	850	No	No	YES	No	No	No	No	No	No	No	No	No	YES
		W-CDMA	1700	No	No	YES	No	No	No	No	No	No	No	No	No	YES
		W-CDMA	1900	No	No	YES	No	No	No	No	No	No	No	No	No	YES
		HSDPA	850	No	No	No	YES	No	No	No	No	No	No	No	No	YES
		HSDPA	1700	No	No	No	YES	No	No	No	No	No	No	No	No	YES
		HSDPA	1900	No	No	No	YES	No	No	No	No	No	No	No	No	YES
		HSUPA	850	No	No	No	No	YES	No	No	No	No	No	No	No	YES
		HSUPA	1700	No	No	No	No	YES	No	No	No	No	No	No	No	YES
		HSUPA	1900	No	No	No	No	YES	No	No	No	No	No	No	No	YES
		HSPA+	850	No	No	No	No	No	YES	No	No	No	No	No	No	YES
		HSPA+	1700	No	No	No	No	No	YES	No	No	No	No	No	No	YES
		HSPA+	1900	No	No	No	No	No	YES	No	No	No	No	No	No	YES
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	No	No	No	No	YES
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	No	No	No	No	YES
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	No	No	No	No	YES
		LTE	2	No	No	No	No	No	No	No	YES	No	No	No	No	YES
		LTE	4	No	No	No	No	No	No	No	YES	No	No	No	No	YES
		LTE	5	No	No	No	No	No	No	No	YES	No	No	No	No	YES
		LTE	13	No	No	No	No	No	No	No	YES	No	No	No	No	YES
		LTE	17	No	No	No	No	No	No	No	YES	No	No	No	No	YES
		LTE	25	No	No	No	No	No	No	No	YES	No	No	No	No	YES

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

WWAN + Wi-Fi SISO (1 Tx) + Bluetooth

Usage Scenario	Modes	Mode of Operation	BAND	CDMA 1xRTT	CDMA 1xEV-DO	WCDMA	HSDPA	HSUPA	HSPA+	DC-HSPA	LTE	Wi-Fi 2.4GHz Main	Wi-Fi 2.4GHz Aux	Wi-Fi 5 GHz Bands Main	Wi-Fi 5 GHz Bands Aux	BT 2.4 GHz
Body SAR	WWAN + 2.4GHz WLAN + BT	CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	YES	No	No	No	YES
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	YES	No	No	No	YES
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	YES	No	No	No	YES
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	YES	No	No	No	YES
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	YES	No	No	No	YES
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	YES	No	No	No	YES
		W-CDMA	850	No	No	YES	No	No	No	No	No	YES	No	No	No	YES
		W-CDMA	1700	No	No	YES	No	No	No	No	No	YES	No	No	No	YES
		W-CDMA	1900	No	No	YES	No	No	No	No	No	YES	No	No	No	YES
		HSDPA	850	No	No	No	YES	No	No	No	No	YES	No	No	No	YES
		HSDPA	1700	No	No	No	YES	No	No	No	No	YES	No	No	No	YES
		HSDPA	1900	No	No	No	YES	No	No	No	No	YES	No	No	No	YES
		HSUPA	850	No	No	No	No	YES	No	No	No	YES	No	No	No	YES
		HSUPA	1700	No	No	No	No	YES	No	No	No	YES	No	No	No	YES
		HSUPA	1900	No	No	No	No	YES	No	No	No	YES	No	No	No	YES
		HSPA+	850	No	No	No	No	No	YES	No	No	YES	No	No	No	YES
		HSPA+	1700	No	No	No	No	No	YES	No	No	YES	No	No	No	YES
		HSPA+	1900	No	No	No	No	No	YES	No	No	YES	No	No	No	YES
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	YES	No	No	No	YES
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	YES	No	No	No	YES
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	YES	No	No	No	YES
		LTE	2	No	No	No	No	No	No	No	YES	YES	No	No	No	YES
		LTE	4	No	No	No	No	No	No	No	YES	YES	No	No	No	YES
		LTE	5	No	No	No	No	No	No	No	YES	YES	No	No	No	YES
		LTE	13	No	No	No	No	No	No	No	YES	YES	No	No	No	YES
		LTE	17	No	No	No	No	No	No	No	YES	YES	No	No	No	YES
		LTE	25	No	No	No	No	No	No	No	YES	YES	No	No	No	YES
	WWAN + 5 GHz Bands WLAN + BT	CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	No	No	YES	No	YES
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	No	No	YES	No	YES
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	No	No	YES	No	YES
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	No	No	YES	No	YES
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	No	No	YES	No	YES
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	No	No	YES	No	YES
		W-CDMA	850	No	No	YES	No	No	No	No	No	No	No	YES	No	YES
		W-CDMA	1700	No	No	YES	No	No	No	No	No	No	No	YES	No	YES
		W-CDMA	1900	No	No	YES	No	No	No	No	No	No	No	YES	No	YES
		HSDPA	850	No	No	No	YES	No	No	No	No	No	No	YES	No	YES
		HSDPA	1700	No	No	No	YES	No	No	No	No	No	No	YES	No	YES
		HSDPA	1900	No	No	No	YES	No	No	No	No	No	No	YES	No	YES
		HSUPA	850	No	No	No	No	YES	No	No	No	No	No	YES	No	YES
		HSUPA	1700	No	No	No	No	YES	No	No	No	No	No	YES	No	YES
		HSUPA	1900	No	No	No	No	YES	No	No	No	No	No	YES	No	YES
		HSPA+	850	No	No	No	No	No	YES	No	No	No	No	YES	No	YES
		HSPA+	1700	No	No	No	No	No	YES	No	No	No	No	YES	No	YES
		HSPA+	1900	No	No	No	No	No	YES	No	No	No	No	YES	No	YES
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	No	No	YES	No	YES
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	No	No	YES	No	YES
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	No	No	YES	No	YES
		LTE	2	No	No	No	No	No	No	No	YES	No	No	YES	No	YES
		LTE	4	No	No	No	No	No	No	No	YES	No	No	YES	No	YES
		LTE	5	No	No	No	No	No	No	No	YES	No	No	YES	No	YES
		LTE	13	No	No	No	No	No	No	No	YES	No	No	YES	No	YES
		LTE	17	No	No	No	No	No	No	No	YES	No	No	YES	No	YES
		LTE	25	No	No	No	No	No	No	No	YES	No	No	YES	No	YES

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

WWAN + Wi-Fi MIMO (2 Tx)

Usage Scenario	Modes	Mode of Operation	BAND	CDMA 1xRTT	CDMA 1xEV-DO	WCDMA	HSDPA	HSUPA	HSPA+	DC-HSPA	LTE	Wi-Fi 2.4GHz Main	Wi-Fi 2.4GHz Aux	Wi-Fi 5 GHz Bands Main	Wi-Fi 5 GHz Bands Aux	BT 2.4 GHz
Body SAR	WWAN + 2.4GHz WLAN MIMO (2 Tx on WLAN)	CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	YES	YES	No	No	No
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	YES	YES	No	No	No
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	YES	YES	No	No	No
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	YES	YES	No	No	No
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	YES	YES	No	No	No
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	YES	YES	No	No	No
		W-CDMA	850	No	No	YES	No	No	No	No	No	YES	YES	No	No	No
		W-CDMA	1700	No	No	YES	No	No	No	No	No	YES	YES	No	No	No
		W-CDMA	1900	No	No	YES	No	No	No	No	No	YES	YES	No	No	No
		HSDPA	850	No	No	No	YES	No	No	No	No	YES	YES	No	No	No
		HSDPA	1700	No	No	No	YES	No	No	No	No	YES	YES	No	No	No
		HSDPA	1900	No	No	No	YES	No	No	No	No	YES	YES	No	No	No
		HSUPA	850	No	No	No	No	YES	No	No	No	YES	YES	No	No	No
		HSUPA	1700	No	No	No	No	YES	No	No	No	YES	YES	No	No	No
		HSUPA	1900	No	No	No	No	YES	No	No	No	YES	YES	No	No	No
		HSPA+	850	No	No	No	No	No	YES	No	No	YES	YES	No	No	No
		HSPA+	1700	No	No	No	No	No	YES	No	No	YES	YES	No	No	No
		HSPA+	1900	No	No	No	No	No	YES	No	No	YES	YES	No	No	No
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	YES	YES	No	No	No
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	YES	YES	No	No	No
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	YES	YES	No	No	No
		LTE	2	No	No	No	No	No	No	No	YES	YES	YES	No	No	No
		LTE	4	No	No	No	No	No	No	No	YES	YES	YES	No	No	No
		LTE	5	No	No	No	No	No	No	No	YES	YES	YES	No	No	No
		LTE	13	No	No	No	No	No	No	No	YES	YES	YES	No	No	No
		LTE	17	No	No	No	No	No	No	No	YES	YES	YES	No	No	No
		LTE	25	No	No	No	No	No	No	No	YES	YES	YES	No	No	No
	WWAN + 5 GHz Bands WLAN MIMO (2 Tx on WLAN)	CDMA 1xRTT	BC0	YES	No	No	No	No	No	No	No	No	No	YES	YES	No
		CDMA 1xRTT	BC1	YES	No	No	No	No	No	No	No	No	No	YES	YES	No
		CDMA 1xRTT	BC10	YES	No	No	No	No	No	No	No	No	No	YES	YES	No
		CDMA 1xEVDO	BC0	No	YES	No	No	No	No	No	No	No	No	YES	YES	No
		CDMA 1xEVDO	BC1	No	YES	No	No	No	No	No	No	No	No	YES	YES	No
		CDMA 1xEVDO	BC10	No	YES	No	No	No	No	No	No	No	No	YES	YES	No
		W-CDMA	850	No	No	YES	No	No	No	No	No	No	No	YES	YES	No
		W-CDMA	1700	No	No	YES	No	No	No	No	No	No	No	YES	YES	No
		W-CDMA	1900	No	No	YES	No	No	No	No	No	No	No	YES	YES	No
		HSDPA	850	No	No	No	YES	No	No	No	No	No	No	YES	YES	No
		HSDPA	1700	No	No	No	YES	No	No	No	No	No	No	YES	YES	No
		HSDPA	1900	No	No	No	YES	No	No	No	No	No	No	YES	YES	No
		HSUPA	850	No	No	No	No	YES	No	No	No	No	No	YES	YES	No
		HSUPA	1700	No	No	No	No	YES	No	No	No	No	No	YES	YES	No
		HSUPA	1900	No	No	No	No	YES	No	No	No	No	No	YES	YES	No
		HSPA+	850	No	No	No	No	No	YES	No	No	No	No	YES	YES	No
		HSPA+	1700	No	No	No	No	No	YES	No	No	No	No	YES	YES	No
		HSPA+	1900	No	No	No	No	No	YES	No	No	No	No	YES	YES	No
		DC-HSDPA	850	No	No	No	No	No	No	YES	No	No	No	YES	YES	No
		DC-HSDPA	1700	No	No	No	No	No	No	YES	No	No	No	YES	YES	No
		DC-HSDPA	1900	No	No	No	No	No	No	YES	No	No	No	YES	YES	No
		LTE	2	No	No	No	No	No	No	No	YES	No	No	YES	YES	No
		LTE	4	No	No	No	No	No	No	No	YES	No	No	YES	YES	No
		LTE	5	No	No	No	No	No	No	No	YES	No	No	YES	YES	No
		LTE	13	No	No	No	No	No	No	No	YES	No	No	YES	YES	No
		LTE	17	No	No	No	No	No	No	No	YES	No	No	YES	YES	No
		LTE	25	No	No	No	No	No	No	No	YES	No	No	YES	YES	No

Notes:

1. Bluetooth transmits using the WLAN Aux Antenna
2. Bluetooth can transmit simultaneously with the WLAN Main Antenna, in either of the WLAN bands.
3. Bluetooth cannot transmit simultaneously with the WLAN Aux Antenna, in either of the WLAN bands; this also precludes the transmission of Bluetooth when WLAN is in MIMO mode.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

7.4. LTE Parameters

#	Description	Information	
A	List the frequency range and channel bandwidths used in each LTE band; 2.4, 5, 13, 17,25 etc.	Band 2	
		Tx: 1850 - 1910 MHz	Rx: 1930 - 1990 MHz
		Band 4	
		Tx: 1710 – 1755 MHz	Rx: 2100 – 2155 MHz
		Band 5	
		Tx: 824 - 849 MHz	Rx: 869 - 894 MHz
		Band 13	
		Tx: 777 – 787 MHz	Rx: 746 – 756 MHz
		Band 17	
		Tx: 704 – 716 MHz	Rx: 734 – 746 MHz
		Band 25	
		Tx: 1850 - 1915 MHz	Rx: 1930 - 1995 MHz
		Channel Bandwidths for bands 2, 4 and 25: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz and 20 MHz Channel Bandwidths for bands 5: 1.4 MHz, 3 MHz, 5 MHz and 10 MHz Channel Bandwidths for bands 13 and 17: 5MHz and 10MHz	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Parameters continued

#	Description	Information						
B	Identify the high, middle and low (H, M, L) channel numbers and channel frequencies for each LTE bandwidth and frequency band	Band 2	Channel Bandwidth					
			20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
		Low	18700 /1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
		Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
		High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19184/ 1908.4	19192/ 1909.2
		Band 4	Channel Bandwidth					
			20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
		Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
		Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
		High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20384/ 1753.4	20392/ 1754.2
		Band 5	Channel Bandwidth					
			20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
		Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
		Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
		High			20600/ 844	20625/ 846.5	20634/ 847.4	20642/ 848.2
		Band 13	Channel Bandwidth					
			20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
		Low				23205/ 779.5		
		Mid			23230/ 782	23230/ 782		
		High				23255/ 784.5		
		Band 17	Channel Bandwidth					
			20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
		Low			23780/ 709	23755/ 706.5		
		Mid			23790/ 710	23790/ 710		
		High			23800/ 711	23825/ 713.5		
		Band 25	Channel Bandwidth					
			20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
		Low	26140/ 1860	26115/ 1857.5	26090/ 1855	26065/ 1852.5	26055/ 1851.5	26047/ 1850.7
		Mid	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5
		High	26590/ 1905	26615/ 1907.5	26640/ 1910	26665/ 1912.5	26674/ 1913.4	26682/ 1914.2
C	Descriptions of the LTE transmitter and antenna implementation, and identify if the transmitter operates independently of the other wireless transmitters in the device; i.e., whether the LTE hardware, components and/or antenna(s) are shared with other transmitters.	A single antenna (Main) is used for LTE and other wireless modes (W-CDMA/CDMA) for both transmit and receive.						

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

<table>
<tr><th>#</th><th>Description</th><th>Information</th></tr>
<tr><td>D</td><td>Identify the voice and data transmission requirements for all LTE operating modes and exposure conditions, for standalone and simultaneous transmission, with respect to the required head and body test configurations, antenna locations, handset flip or slide cover positions, antenna diversity requirements, etc.</td><td>Data Only Device
Exposure Conditions:
▪ Proximity Sensor disabled (Full Power)
o Edge 2, Edge 3 and Edge 4 of the host device at 0 mm from the phantom, and Edge1 of the host device at 19 mm, Bottom side of the host device at 16 mm and Edge 1 tilt of the host device at 20 mm from the phantom.

• Proximity Sensor enabled (Reduced Power)
o Edge1, Bottom side and Edge 1 tilt of the DUT at 0 mm from the phantom.</td></tr>
<tr><td>E</td><td>Identify if Maximum Power Reduction (MPR) is implemented as an optional or permanent feature, i.e., built-in by design:
15.11 MPR may be considered during SAR testing only when the maximum output power is permanently limited by the MPR implemented within the device, according to the RB (resource block) configurations specified in 3GPP/LTE standards.
15.12 Regardless of network requirements, only those RB configurations allowed (see 3GPP standards) for the channel bandwidth and modulation combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR.
15.13 A-MPR (additional MPR) must be disabled during SAR testing.</td><td>As per 3GPP TS 36.101 v11.0.0 (2012-03)
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th>Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th>MPR (dB)</th></tr>
<tr><th></th><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><th></th></tr>
<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>
</table>
MPR is supported by design and is mandatory.
A-MPR is supported by design, but is disabled for SAR testing.
A-MPR is disabled, by using Network Setting value of NS_01.</td></tr>
<tr><td>F</td><td>When power reduction is required for one or more LTE modes to satisfy SAR compliance for simultaneous transmission or other equipment certification and operating requirements, maximum average conducted output power measurement results for each power reduction mode applicable to the simultaneous voice/data transmission configurations for such wireless configurations and frequency bands are required.</td><td>Yes. A proximity sensor for WWAN power reduction is implemented in the device to address RF exposure compliance when the cellular antenna is positioned close to the user's body or other objects.</td></tr>
</table>

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

7.5. Proximity Sensor

The proximity sensor is intended to reduce the WWAN output power when Edge 1, Bottom side and Edge 1 tilt are brought close to the user.

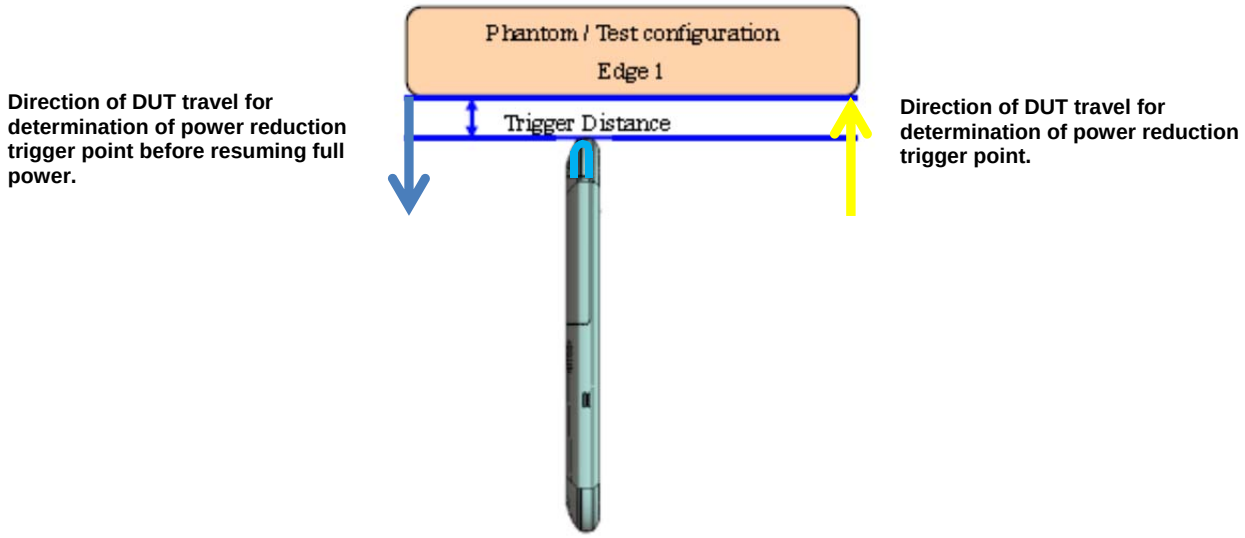
The default power level for sensor failure and malfunctioning, FZ-Q1 comes up in low power mode and remains in low power mode until the proximity sensor has toggled from a proximity detected to proximity not-detected state.

Proximity sensor triggering distances were verified for Edge 1, Bottom side and Edge 1 tilt. SAR testing of edge 2 was performed at full power.
Please refer to 17. Antenna Dimensions & Separation Distances about proximity sensor and WWAN Main antenna locations and dimensions.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

7.6. Proximity Sensor Triggering distance (KDB 616217 §6.2)

Edge 1 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.



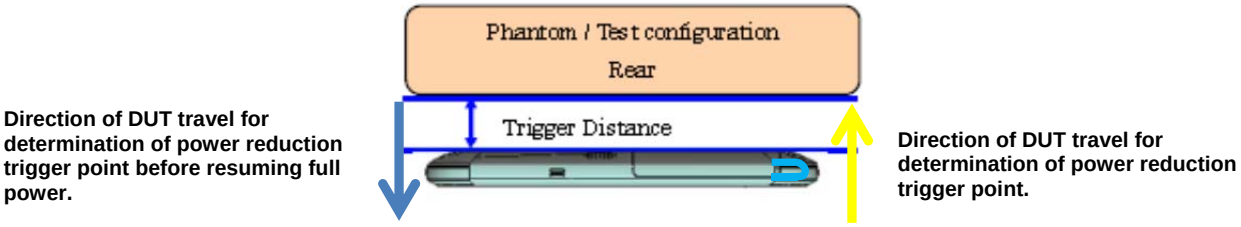
Proximity sensor trigger distance assessment (Edge 1) KDB 616217 §6.2

Summary of triggering distances

Tissue simulating liquid	Trigger distance - Edge 1	
	Moving toward phantom	Moving from phantom
750 muscle	21 mm	28 mm
850 muscle	21 mm	40 mm
1750/ 1900 muscle	20 mm	36 mm

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Bottom side of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.



Proximity sensor trigger distance assessment (Bottom side) KDB 616217 §6.2

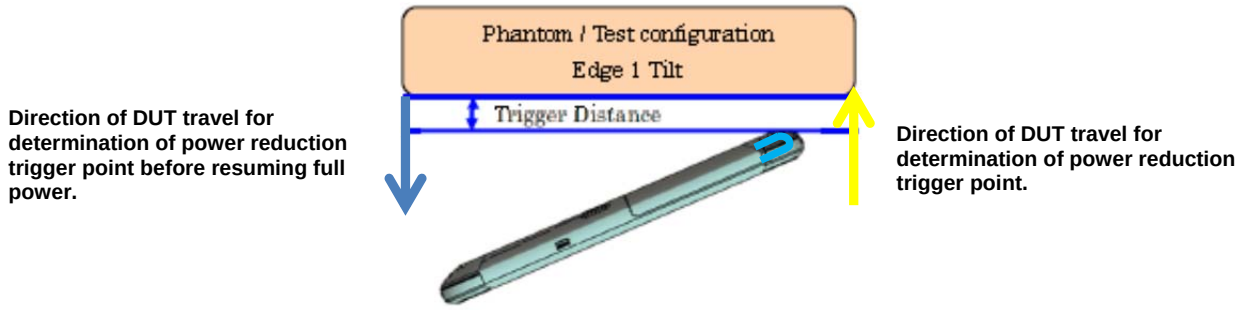
Direction of DUT travel for determination of power reduction trigger point.

Summary of trigg

Tissue simulating liquid	Trigger distance – Bottom side	
	Moving toward phantom	Moving from phantom
750 muscle	17 mm	26 mm
850 muscle	17 mm	26 mm
1750/ 1900 muscle	17 mm	25 mm

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Edge 1 tilt of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.



Proximity sensor trigger distance assessment (Edge 1 tilt) KDB 616217 §6.2

Summary of triggering distances

Tissue simulating liquid	Trigger distance - Edge 1 tilt	
	Moving toward phantom	Moving from phantom
750 muscle	21 mm	27 mm
850 muscle	21 mm	24 mm
1750/ 1900 muscle	21 mm	25 mm

Please refer to “15.31 Triggering distances and power levels” about the trigger distance for resuming full power.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

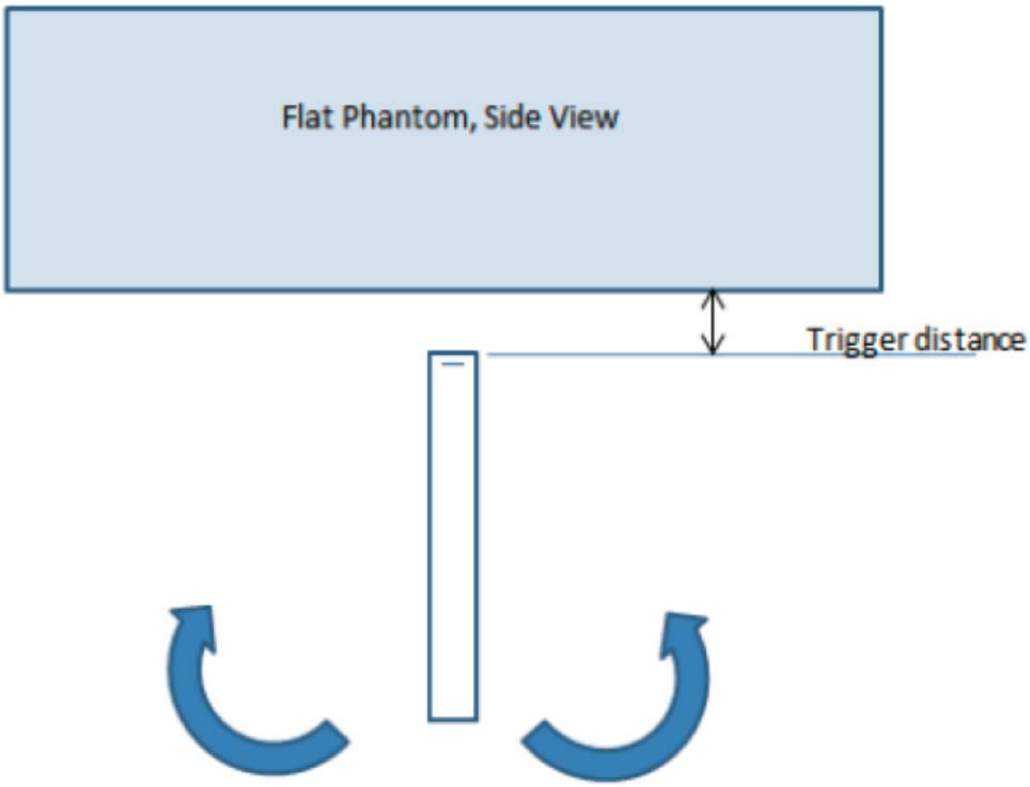
7.7. Proximity Sensor Coverage (KDB 616217 §6.3)

As there is no spatial offset between the antenna and the proximity element, except on the display side of the antenna, proximity sensor coverage did not need to be assessed.

7.8. Proximity Sensor Tilt Angle (KDB 616217 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with edge 2 parallel to the base of the flat phantom. The DUT was rotated in both directions about edge 1.

The proximity sensor remained triggered with the DUT positioned at the minimum measured trigger distance from the phantom for all angles up to 45°.



UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

8. Exposure Conditions

Refer to Section 17 “Antenna Dimensions and Separation Distances” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

8.1. Test Configurations for the WWAN Main Antenna, WWAN Modes

Tablet Mode

Test Configurations	Antenna-to-edge/surface	SAR Required	Note
Bottom side	5.5 mm	Yes	A proximity sensor is incorporated at this side that, when triggered, will reduce the transmit power of the WWAN transmitter. As such, two separate sets of evaluations are required for this test position: The test device operating at reduced power level and contact with the phantom. The test device operating at full power level and away 16 mm from the phantom. 16 mm is 1 mm less than the closest distance to which the test device can transmit at reduced power.
Front	-	No	SAR is not required as this is not a typical use scenario.
Edge 1	3.2 mm	Yes	A proximity sensor is incorporated at this side that, when triggered, will reduce the transmit power of the WWAN transmitter. As such, two separate sets of evaluations are required for this test position: The test device operating at reduced power level and contact with the phantom. The test device operating at full power level and away 19 mm from the phantom. 19 mm is 1 mm less than the closest distance to which the test device can transmit at reduced power.
Edge 2	32.3 mm	Yes	
Edge 3	203.55 mm	No	Refer to section 12.1 for SAR exclusion justification.
Edge 4	204.4 mm	No	Refer to section 12.1 for SAR exclusion justification.
Edge 1 tilt	2.82 mm	Yes	

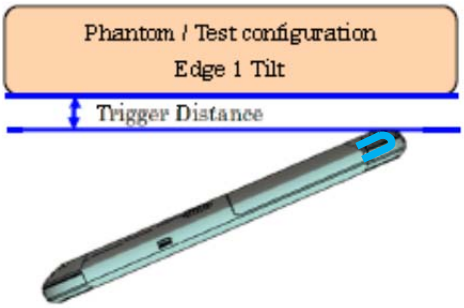
LEGEND:

- Bottom side = Rear of display(Tablet mode)
- Bottom side(Convertible mode) = Rear of display (Convertible mode)
- Edge 1 = Top Edge(Tablet mode)
- Edge 2 = Left Edge(Tablet mode)
- Edge 3 = Bottom Edge(Tablet mode)
- Edge 4 = Right Edge(Tablet mode)
- Edge 1 tilt = Top Edge tilt(Tablet mode) *Refer to KDB672652.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

8.2. Additional Test Scenarios

Due to the antenna location, a KDB enquiry was made to discuss additional test scenarios. Additional testing was performed with the DUT tilted against the flat phantom. *Refer to KDB672652.



8.3. Test Configurations for WLAN

All Wi-Fi 1-g SAR values were taken from results recorded in SAR report 11018663H-A, submitted under FCC ID ACJ9TGWL13A.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9. RF Output Power Measurement

As this device implements proximity sensor-triggered power reduction for SAR compliance, conducted output power was measured for the two different operating power levels. The following serves to clarify and establish the relation between power level and proximity sensor status:

- Full Power = Proximity Sensor Off
- Reduced Power= Proximity Sensor On

Each operating power level has its own set of target power and tune-up limit, and the scaling of SAR values is applied according to the corresponding target for the given operating power level

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.1. W-CDMA Band V

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
WCDMA	BAND5	4132	826.4	23.00	19.50	+/−1
		4182	836.4			
		4233	846.6			
UTMS 3GPP HSDPA Rel 5	BAND5	4132	826.4	22.00	19.00	
		4182	836.4			
		4233	846.6			
UTMS 3GPP HSUPA Rel 6	BAND5	4132	826.4	22.00	19.40	
		4182	836.4			
		4233	846.6			

Release 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

Release 99 RMC Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm) Full Power	Avg Pwr (dBm) Reduced Power
W-CDMA (UMTS) Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	22.83	20.31
		4183	836.6	22.82	20.42
		4233	846.6	22.71	20.26

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSDPA

The following 4 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	CM (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

HSDPA Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr	
				Full Power	Reduced Power
W-CDMA (UMTS) Band V	Subtest 1	4132	826.4	22.13	19.77
		4183	836.6	22.15	19.83
		4233	846.6	22.07	19.67
	Subtest 2	4132	826.4	22.08	19.70
		4183	836.6	22.17	19.89
		4233	846.6	22.06	19.71
	Subtest 3	4132	826.4	21.66	19.29
		4183	836.6	21.63	19.39
		4233	846.6	21.56	19.30
	Subtest 4	4132	826.4	21.65	19.17
		4183	836.6	21.76	19.41
		4233	846.6	21.53	19.18

Note(s):

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSPA (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSPA	HSPA	HSPA	HSPA	HSPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSUPA Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr	
				Full Power	Reduced Power
WCDMA (UMTS) Band V	Subtest 1	4132	826.4	21.99	19.35
		4183	836.6	22.36	19.30
		4233	846.6	22.30	19.21
	Subtest 2	4132	826.4	20.43	18.06
		4183	836.6	20.16	18.26
		4233	846.6	20.57	17.99
	Subtest 3	4132	826.4	21.15	18.75
		4183	836.6	21.20	18.41
		4233	846.6	21.24	18.30
	Subtest 4	4132	826.4	20.84	18.33
		4183	836.6	20.94	18.30
		4233	846.6	20.75	18.32
	Subtest 5	4132	826.4	22.21	19.80
		4183	836.6	22.39	19.74
		4233	846.6	22.26	19.75

Note(s):

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.2. W-CDMA Band IV

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
WCDMA	BAND4	1312	1712.4	23.00	17.00	+/−1
		1413	1732.6			
		1513	1752.6			
UTMS 3GPP HSDPA Rel 5	BAND4	4132	826.4	22.00	16.50	
		4182	836.4			
		4233	846.6			
UTMS 3GPP HSUPA Rel 6	BAND4	4132	826.4	22.50	17.00	+/−1
		4182	836.4			
		4233	846.6			

Release 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

Release 99 RMC Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm) Full Power	Avg Pwr (dBm) Reduced Power
W-CDMA (UMTS) Band IV	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	22.76	17.82
		1413	1732.6	22.96	17.96
		1513	1752.6	22.89	17.68

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSDPA

The following 4 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	CM (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

HSDPA Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr	
				Full Power	Reduced Power
W-CDMA (UMTS) Band IV	Subtest 1	1312	1712.4	22.34	17.20
		1413	1732.6	22.48	17.46
		1513	1752.6	22.31	17.20
	Subtest 2	1312	1712.4	22.32	17.25
		1413	1732.6	22.46	17.42
		1513	1752.6	22.27	17.20
	Subtest 3	1312	1712.4	21.82	16.75
		1413	1732.6	22.01	16.93
		1513	1752.6	21.76	16.74
	Subtest 4	1312	1712.4	21.83	16.74
		1413	1732.6	22.02	16.90
		1513	1752.6	21.82	16.69

Note(s):

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSPA (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSPA	HSPA	HSPA	HSPA	HSPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSUPA Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr	
				Full Power	Reduced Power
WCDMA (UMTS) Band IV	Subtest 1	1312	1712.4	22.17	16.21
		1413	1732.6	22.55	16.19
		1513	1752.6	22.33	16.81
	Subtest 2	1312	1712.4	20.16	14.96
		1413	1732.6	20.75	15.45
		1513	1752.6	20.52	15.17
	Subtest 3	1312	1712.4	21.08	15.68
		1413	1732.6	21.40	15.91
		1513	1752.6	21.32	15.51
	Subtest 4	1312	1712.4	20.65	15.92
		1413	1732.6	20.73	15.67
		1513	1752.6	20.38	15.90
	Subtest 5	1312	1712.4	22.47	16.87
		1413	1732.6	22.44	17.01
		1513	1752.6	22.38	16.67

Note(s):

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.3. W-CDMA Band II

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
WCDMA	BAND2	9262	1852.4	23.00	15.60	+/−1
		9400	1880			
		9538	1907.6			
UTMS 3GPP HSDPA Rel 5	BAND2	9262	1852.4	22.00	15.00	
		9400	1880			
		9538	1907.6			
UTMS 3GPP HSUPA Rel 6	BAND2	9262	1852.4	22.00	15.50	
		9400	1880			
		9538	1907.6			

Release 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

Release 99 RMC Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm) Full Power	Avg Pwr (dBm) Reduced Power
W-CDMA (UMTS) Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	22.98	16.47
		9400	1880.0	23.01	16.54
		9538	1907.6	23.12	16.51

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSDPA

The following 4 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	CM (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

HSDPA Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr	
				Full Power	Reduced Power
W-CDMA (UMTS) Band II	Subtest 1	9262	1852.4	22.47	15.90
		9400	1880.0	22.55	15.91
		9538	1907.6	22.60	15.98
	Subtest 2	9262	1852.4	22.43	15.89
		9400	1880.0	22.49	15.86
		9538	1907.6	22.59	15.96
	Subtest 3	9262	1852.4	21.93	15.43
		9400	1880.0	22.07	15.41
		9538	1907.6	22.02	15.43
	Subtest 4	9262	1852.4	22.03	15.44
		9400	1880.0	22.17	15.44
		9538	1907.6	22.11	15.46

Note(s):

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSPA (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSPA	HSPA	HSPA	HSPA	HSPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

HSUPA Output Power Measurement Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr	
				Full Power	Reduced Power
WCDMA (UMTS) Band II	Subtest 1	9262	1852.4	22.14	15.54
		9400	1880.0	22.05	15.30
		9538	1907.6	22.07	15.61
	Subtest 2	9262	1852.4	20.72	14.13
		9400	1880.0	20.64	14.44
		9538	1907.6	20.64	14.30
	Subtest 3	9262	1852.4	21.16	14.67
		9400	1880.0	21.13	14.57
		9538	1907.6	21.24	14.59
	Subtest 4	9262	1852.4	20.52	14.45
		9400	1880.0	20.79	14.25
		9538	1907.6	20.87	14.47
	Subtest 5	9262	1852.4	22.58	15.84
		9400	1880.0	22.54	15.84
		9538	1907.6	22.49	15.73

Note(s):

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.4. CDMA BC0

1XRTT

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
CDMA 2000 SO32,RC3	Cellular	1013	824.7	24.00	19.70	+/-1
	BC0	384	836.52			
		777	848.31			

EVDO

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
CDMA2000 EVDO Rev.0	Cellular	1013	824.7	24.00	19.70	+/-1
	BC0	384	836.52			
		777	848.31			

1xRTT Output Power Measurement Results

CDMA			Avg Pwr (dBm)					
			RC1 - SO55		RC3 - SO55		RC3 - SO32	
Band	Ch	Freq. (MHz)	(Loopback)		(Loopback)		(+F-SCH)	
			Full Power	Reduced Power	Full Power	Reduced Power	Full Power	Reduced Power
BC 0	1013	824.70	23.43	20.43	23.45	20.61	23.40	20.63
	384	836.52	23.58	20.62	23.58	20.62	23.54	20.58
	777	848.31	23.45	20.45	23.46	20.52	23.44	20.47

1xEV-DO Rel. 0 Output Power Measurement Results

Band	FTAP Rate	RTAP Rate	Channel	f (MHz)	Avg Pwr (dBm) Full Power	Avg Pwr (dBm) Reduced Power
BC 0	307.2 kbps (2 slot,	153.6 kbps	1013	824.70	23.54	20.49
			384	836.52	23.53	20.59
			777	848.31	23.39	20.55

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.5. CDMA BC1

1XRTT

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
CDMA 2000 SO32,RC3	PCS BC1	25	1851.25	24.00	15.10	+/-1
		600	1880			
		1175	1908.75			

EVDO

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
CDMA2000 EVDO Rev.0	PCS BC1	25	1851.25	24.00	14.23	+/-1
		600	1880			
		1175	1908.75			

1xRTT Output Power Measurement Results

CDMA			Avg Pwr (dBm)					
			RC1 - SO55		RC3 - SO55		RC3 - SO32	
Band	Ch	Freq. (MHz)	(Loopback)		(Loopback)		(+F-SCH)	
			Full Power	Reduced Power	Full Power	Reduced Power	Full Power	Reduced Power
BC 1	25	1851.25	23.71	15.96	23.72	15.88	23.74	15.90
	600	1880	23.76	16.03	23.78	15.91	23.77	16.03
	1175	1908.75	23.77	15.74	23.84	15.62	23.82	15.67

1xEV-DO Rel. 0 Output Power Measurement Results

Band	FTAP Rate	RTAP Rate	Channel	f (MHz)	Avg Pwr (dBm) Full Power	Avg Pwr (dBm) Reduced Power
BC 1	307.2 kbps (2 slot,	153.6 kbps	25	1851.25	23.63	15.03
			600	1880	23.73	14.74
			1175	1908.75	23.62	15.20

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.6. CDMA BC10

1XRTT

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
CDMA 2000 SO32,RC3	Secondary	450	817.25	24.00	19.40	+/-1
	800	560	820			
	BC10	670	822.75			

EVDO

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
CDMA2000 EVDO Rev.0	Secondary	450	817.25	24.00	19.40	+/-1
	800	560	820			
	BC10	670	822.75			

1xRTT Output Power Measurement Results

CDMA			Avg Pwr (dBm)					
			RC1 - SO55		RC3 - SO55		RC3 - SO32	
Band	Ch	Freq. (MHz)	(Loopback)		(Loopback)		(+F-SCH)	
			Full Power	Reduced Power	Full Power	Reduced Power	Full Power	Reduced Power
BC 10	450	817.25	23.44	20.27	23.36	20.31	23.35	20.33
	560	820	23.40	20.30	23.37	20.29	23.39	20.30
	670	822.75	23.49	20.35	23.42	20.36	23.45	20.37

1xEV-DO Rel. 0 Output Power Measurement Results

Band	FTAP Rate	RTAP Rate	Channel	f (MHz)	Avg Pwr (dBm) Full Power	Avg Pwr (dBm) Reduced Power
BC 10	307.2 kbps (2 slot,	153.6 kbps	450	817.25	23.46	20.35
			560	820.0	23.42	20.37
			670	822.75	23.44	20.37

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.7. LTE Band 2

Target Power for LTE Band 2, QPSK and 16QAM modulations in all bandwidth

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
LTE	BAND2	18700	1860	23.00	15.40	+/-1
		18900	1880			
		19100	1900			

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 2, 20 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	18700	1860	QPSK	1	0	0	0	22.94
				1	49	0	0	23.02
				1	99	0	0	22.96
				50	0	1	1	21.96
				50	24	1	1	21.90
				50	49	1	1	21.93
				100	0	1	1	21.94
			16QAM	1	0	1	1	22.02
				1	49	1	1	22.13
				1	99	1	1	22.09
				50	0	2	2	20.85
				50	24	2	2	20.92
				50	49	2	2	20.95
				100	0	2	2	20.90
	18900	1880	QPSK	1	0	0	0	23.05
				1	49	0	0	22.97
				1	99	0	0	22.82
				50	0	1	1	21.79
				50	24	1	1	21.78
				50	49	1	1	21.75
				100	0	1	1	21.79
			16QAM	1	0	1	1	22.12
				1	49	1	1	22.02
				1	99	1	1	21.87
				50	0	2	2	20.82
				50	24	2	2	20.77
				50	49	2	2	20.69
				100	0	2	2	20.80
	19100	1900	QPSK	1	0	0	0	22.91
				1	49	0	0	22.81
				1	99	0	0	23.10
				50	0	1	1	21.74
				50	24	1	1	21.71
				50	49	1	1	21.76
				100	0	1	1	21.82
			16QAM	1	0	1	1	21.98
				1	49	1	1	21.90
				1	99	1	1	22.12
				50	0	2	2	20.72
				50	24	2	2	20.64
				50	49	2	2	20.73
				100	0	2	2	20.72

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	18700	1860	QPSK	1	0	MPR is disabled when power reduction is enabled		14.74
				1	49			15.49
				1	99			14.41
				50	0			15.74
				50	24			15.60
				50	49			15.25
				100	0			15.43
			16QAM	1	0			15.27
				1	49			16.27
				1	99			14.91
				50	0			15.44
				50	24			15.44
				50	49			14.97
				100	0			15.09
	18900	1880	QPSK	1	0			14.65
				1	49			15.59
				1	99			16.03
				50	0			15.23
				50	24			15.56
				50	49			15.78
				100	0			15.47
			16QAM	1	0			15.25
				1	49			15.86
				1	99			16.37
				50	0			14.85
				50	24			15.19
				50	49			15.41
				100	0			15.15
	19100	1900	QPSK	1	0			16.18
				1	49			14.64
				1	99			15.64
				50	0			15.44
				50	24			14.87
				50	49			14.77
				100	0			15.31
			16QAM	1	0			16.39
				1	49			14.92
				1	99			15.82
				50	0			15.54
				50	24			14.71
				50	49			14.47
				100	0			15.14

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 2, 15 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	18675	1857.5	QPSK	1	0	0	0	22.80
				1	37	0	0	22.86
				1	74	0	0	22.90
				36	0	1	1	21.73
				36	19	1	1	21.91
				36	39	1	1	21.90
				75	0	1	1	21.80
			16QAM	1	0	1	1	21.45
				1	37	1	1	21.52
				1	74	1	1	21.58
				36	0	2	2	20.75
				36	19	2	2	20.84
				36	39	2	2	20.87
				75	0	2	2	20.71
	18900	1880	QPSK	1	0	0	0	22.92
				1	37	0	0	22.87
				1	74	0	0	22.70
				36	0	1	1	21.83
				36	19	1	1	21.80
				36	39	1	1	21.85
				75	0	1	1	21.74
			16QAM	1	0	1	1	21.54
				1	37	1	1	21.57
				1	74	1	1	21.48
				36	0	2	2	20.88
				36	19	2	2	20.83
				36	39	2	2	20.82
				75	0	2	2	20.69
	19125	1902.5	QPSK	1	0	0	0	22.73
				1	37	0	0	22.78
				1	74	0	0	22.98
				36	0	1	1	21.71
				36	19	1	1	21.74
				36	39	1	1	21.81
				75	0	1	1	21.66
			16QAM	1	0	1	1	21.50
				1	37	1	1	21.53
				1	74	1	1	21.61
				36	0	2	2	20.75
				36	19	2	2	20.77
				36	39	2	2	20.83
				75	0	2	2	20.56

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	18675	1857.5	QPSK	1	0	MPR is disabled when power reduction is enabled		14.54
				1	37			15.48
				1	74			14.74
				36	0			15.37
				36	19			15.58
				36	39			15.47
				75	0			15.44
			16QAM	1	0			14.56
				1	37			15.50
				1	74			14.82
				36	0			15.26
				36	19			15.30
				36	39			15.17
				75	0			15.11
	18900	1880	QPSK	1	0			14.93
				1	37			15.72
				1	74			15.86
				36	0			15.57
				36	19			15.86
				36	39			15.98
				75	0			15.68
			16QAM	1	0			14.76
				1	37			15.51
				1	74			15.66
				36	0			15.11
				36	19			15.40
				36	39			15.59
				75	0			15.29
	19125	1902.5	QPSK	1	0			16.11
				1	37			14.94
				1	74			15.83
				36	0			15.60
				36	19			15.27
				36	39			15.35
				75	0			15.43
			16QAM	1	0			15.94
				1	37			14.69
				1	74			15.93
				36	0			15.28
				36	19			14.84
				36	39			15.01
				75	0			15.05

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 2, 10 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	18650	1855	QPSK	1	0	0	0	22.81
				1	24	0	0	22.87
				1	49	0	0	22.99
				25	0	1	1	21.92
				25	12	1	1	21.87
				25	24	1	1	22.03
				50	0	1	1	21.84
			16QAM	1	0	1	1	21.54
				1	24	1	1	21.57
				1	49	1	1	21.52
				25	0	2	2	20.98
				25	12	2	2	20.89
				25	24	2	2	21.02
				50	0	2	2	20.78
	18900	1880	QPSK	1	0	0	0	22.93
				1	24	0	0	22.89
				1	49	0	0	22.82
				25	0	1	1	21.97
				25	12	1	1	22.00
				25	24	1	1	21.96
				50	0	1	1	21.80
			16QAM	1	0	1	1	21.60
				1	24	1	1	21.54
				1	49	1	1	21.54
				25	0	2	2	21.03
				25	12	2	2	20.94
				25	24	2	2	20.93
				50	0	2	2	20.76
	19150	1905	QPSK	1	0	0	0	22.76
				1	24	0	0	22.84
				1	49	0	0	23.10
				25	0	1	1	21.87
				25	12	1	1	21.87
				25	24	1	1	21.92
				50	0	1	1	21.79
			16QAM	1	0	1	1	21.63
				1	24	1	1	21.61
				1	49	1	1	21.69
				25	0	2	2	20.89
				25	12	2	2	20.83
				25	24	2	2	20.96
				50	0	2	2	20.77

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	18650	1855	QPSK	1	0	MPR is disabled when power reduction is enabled		14.66
				1	24			15.51
				1	49			15.54
				25	0			15.50
				25	12			15.78
				25	24			15.93
				50	0			15.73
			16QAM	1	0			14.68
				1	24			15.55
				1	49			15.53
				25	0			15.22
				25	12			15.56
				25	24			15.71
				50	0			15.47
	18900	1880	QPSK	1	0			15.14
				1	24			15.60
				1	49			15.89
				25	0			15.51
				25	12			15.76
				25	24			15.89
				50	0			15.71
			16QAM	1	0			14.97
				1	24			15.44
				1	49			15.65
				25	0			15.17
				25	12			15.43
				25	24			15.59
				50	0			15.32
	19150	1905	QPSK	1	0			15.09
				1	24			14.99
				1	49			16.33
				25	0			15.41
				25	12			15.29
				25	24			15.66
				50	0			15.33
			16QAM	1	0			14.92
				1	24			15.14
				1	49			16.11
				25	0			15.04
				25	12			14.98
				25	24			15.37
				50	0			14.96

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 2, 5 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	18625	1852.5	QPSK	1	0	0	0	22.79
				1	12	0	0	22.83
				1	24	0	0	22.83
				12	0	1	1	21.87
				12	6	1	1	21.96
				12	11	1	1	21.96
				25	0	1	1	21.90
			16QAM	1	0	1	1	21.42
				1	12	1	1	21.42
				1	24	1	1	21.47
				12	0	2	2	20.85
				12	6	2	2	20.93
				12	11	2	2	20.92
				25	0	2	2	20.97
	18900	1880	QPSK	1	0	0	0	22.87
				1	12	0	0	22.84
				1	24	0	0	22.85
				12	0	1	1	21.96
				12	6	1	1	21.94
				12	11	1	1	21.96
				25	0	1	1	21.88
			16QAM	1	0	1	1	21.53
				1	12	1	1	21.48
				1	24	1	1	21.52
				12	0	2	2	20.98
				12	6	2	2	20.93
				12	11	2	2	20.93
				25	0	2	2	20.98
	19175	1907.5	QPSK	1	0	0	0	22.86
				1	12	0	0	22.89
				1	24	0	0	23.05
				12	0	1	1	21.97
				12	6	1	1	22.06
				12	11	1	1	22.04
				25	0	1	1	21.97
			16QAM	1	0	1	1	21.58
				1	12	1	1	21.56
				1	24	1	1	21.72
				12	0	2	2	20.98
				12	6	2	2	20.97
				12	11	2	2	21.01
				25	0	2	2	21.04

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	18625	1852.5	QPSK	1	0	MPR is disabled when power reduction is enabled		15.35
				1	12			16.18
				1	24			16.30
				12	0			15.80
				12	6			16.21
				12	11			16.26
				25	0			16.15
			16QAM	1	0			15.50
				1	12			16.29
				1	24			16.35
				12	0			15.83
				12	6			16.00
				12	11			16.04
				25	0			15.87
	18900	1880	QPSK	1	0			15.73
				1	12			15.95
				1	24			15.94
				12	0			15.85
				12	6			15.90
				12	11			15.94
				25	0			15.85
			16QAM	1	0			15.65
				1	12			15.92
				1	24			15.87
				12	0			15.54
				12	6			15.61
				12	11			15.66
				25	0			15.49
	19175	1907.5	QPSK	1	0			14.78
				1	12			15.45
				1	24			16.26
				12	0			15.08
				12	6			15.50
				12	11			15.73
				25	0			15.53
			16QAM	1	0			15.12
				1	12			15.69
				1	24			16.16
				12	0			15.15
				12	6			15.54
				12	11			15.46
				25	0			15.19

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 2, 3 MHz Bandwidth Output Power

Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	18615	1851.5	QPSK	1	0	0	0	22.79
				1	7	0	0	22.84
				1	14	0	0	22.90
				8	0	1	1	21.90
				8	4	1	1	21.91
				8	7	1	1	21.97
				15	0	1	1	21.86
			16QAM	1	0	1	1	21.46
				1	7	1	1	21.46
				1	14	1	1	21.48
				8	0	2	2	21.05
				8	4	2	2	20.98
				8	7	2	2	21.07
				15	0	2	2	20.98
	18900	1880	QPSK	1	0	0	0	22.89
				1	7	0	0	22.92
				1	14	0	0	22.86
				8	0	1	1	22.05
				8	4	1	1	22.00
				8	7	1	1	21.99
				15	0	1	1	21.96
			16QAM	1	0	1	1	21.60
				1	7	1	1	21.57
				1	14	1	1	21.59
				8	0	2	2	21.12
				8	4	2	2	21.12
				8	7	2	2	21.12
				15	0	2	2	21.03
	19184	1908.4	QPSK	1	0	0	0	22.91
				1	7	0	0	22.96
				1	14	0	0	23.08
				8	0	1	1	22.05
				8	4	1	1	22.05
				8	7	1	1	22.09
				15	0	1	1	22.03
			16QAM	1	0	1	1	21.67
				1	7	1	1	21.67
				1	14	1	1	21.70
				8	0	2	2	21.10
				8	4	2	2	21.18
				8	7	2	2	21.16
				15	0	2	2	21.11

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	18615	1851.5	QPSK	1	0	MPR is disabled when power reduction is enabled		15.38
				1	7			15.78
				1	14			15.93
				8	0			15.81
				8	4			16.23
				8	7			16.14
				15	0			15.92
			16QAM	1	0			15.42
				1	7			16.02
				1	14			16.12
				8	0			15.93
				8	4			16.08
				8	7			16.27
				15	0			15.93
	18900	1880	QPSK	1	0			15.65
				1	7			15.88
				1	14			15.78
				8	0			15.98
				8	4			15.96
				8	7			16.00
				15	0			15.95
			16QAM	1	0			15.50
				1	7			15.70
				1	14			15.57
				8	0			15.71
				8	4			15.68
				8	7			15.74
				15	0			15.60
	19184	1908.4	QPSK	1	0			15.27
				1	7			15.78
				1	14			16.34
				8	0			15.66
				8	4			15.97
				8	7			16.10
				15	0			15.84
			16QAM	1	0			15.08
				1	7			15.57
				1	14			16.04
				8	0			15.46
				8	4			15.76
				8	7			15.86
				15	0			15.55

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 2, 1.4 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	18607	1850.7	QPSK	1	0	0	0	22.84
				1	2	0	0	22.81
				1	5	0	0	22.88
				3	0	0	0	22.92
				3	1	0	0	22.87
				3	3	0	0	22.85
				6	0	1	1	21.92
			16QAM	1	0	1	1	21.69
				1	2	1	1	21.72
				1	5	1	1	21.75
				3	0	1	1	21.87
				3	1	1	1	21.83
				3	3	1	1	21.80
				6	0	2	2	20.97
	18900	1880	QPSK	1	0	0	0	23.01
				1	2	0	0	22.96
				1	5	0	0	22.97
				3	0	0	0	22.89
				3	1	0	0	22.94
				3	3	0	0	22.91
				6	0	1	1	21.98
			16QAM	1	0	1	1	21.80
				1	2	1	1	21.83
				1	5	1	1	21.82
				3	0	1	1	21.96
				3	1	1	1	21.94
				3	3	1	1	21.97
				6	0	2	2	21.13
	19192	1909.2	QPSK	1	0	0	0	23.09
				1	2	0	0	23.03
				1	5	0	0	23.12
				3	0	0	0	23.01
				3	1	0	0	23.07
				3	3	0	0	23.08
				6	0	1	1	22.12
			16QAM	1	0	1	1	21.90
				1	2	1	1	21.99
				1	5	1	1	21.95
				3	0	1	1	22.04
				3	1	1	1	22.02
				3	3	1	1	22.04
				6	0	2	2	21.18

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	18607	1850.7	QPSK	1	0	MPR is disabled when power reduction is enabled		15.60
				1	2			15.70
				1	5			15.78
				3	0			15.94
				3	1			15.98
				3	3			16.02
				6	0			15.91
			16QAM	1	0			15.96
				1	2			15.87
				1	5			16.15
				3	0			15.69
				3	1			15.72
				3	3			15.80
				6	0			15.78
	18900	1880	QPSK	1	0			16.02
				1	2			16.10
				1	5			16.01
				3	0			16.12
				3	1			16.25
				3	3			16.11
				6	0			16.06
			16QAM	1	0			15.93
				1	2			16.02
				1	5			15.94
				3	0			15.78
				3	1			15.91
				3	3			15.76
				6	0			15.83
	19192	1909.2	QPSK	1	0			15.50
				1	2			15.74
				1	5			15.93
				3	0			15.76
				3	1			15.85
				3	3			15.97
				6	0			15.83
			16QAM	1	0			15.82
				1	2			16.05
				1	5			16.25
				3	0			15.82
				3	1			15.91
				3	3			16.09
				6	0			16.04

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.8. LTE Band 4

Target Power for LTE Band 4, QPSK and 16QAM modulations in all bandwidth

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
LTE	BAND4	20050	1720	23.00	16.80	+/-1
		20175	1732.5			
		20300	1745			

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 4, 20 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	20050	1720	QPSK	1	0	0	0	22.82
				1	49	0	0	22.90
				1	99	0	0	22.82
				50	0	1	1	21.72
				50	24	1	1	21.75
				50	49	1	1	21.70
				100	0	1	1	21.80
			16QAM	1	0	1	1	21.85
				1	49	1	1	22.02
				1	99	1	1	21.98
				50	0	2	2	20.69
				50	24	2	2	20.72
				50	49	2	2	20.60
				100	0	2	2	20.72
	20175	1732.5	QPSK	1	0	0	0	22.90
				1	49	0	0	22.79
				1	99	0	0	22.84
				50	0	1	1	21.80
				50	24	1	1	21.68
				50	49	1	1	21.74
				100	0	1	1	21.72
			16QAM	1	0	1	1	22.00
				1	49	1	1	21.93
				1	99	1	1	21.77
				50	0	2	2	20.71
				50	24	2	2	20.60
				50	49	2	2	20.62
				100	0	2	2	20.70
	20300	1745	QPSK	1	0	0	0	22.75
				1	49	0	0	22.70
				1	99	0	0	22.80
				50	0	1	1	21.62
				50	24	1	1	21.56
				50	49	1	1	21.48
				100	0	1	1	21.60
			16QAM	1	0	1	1	21.83
				1	49	1	1	21.84
				1	99	1	1	21.65
				50	0	2	2	20.63
				50	24	2	2	20.57
				50	49	2	2	20.49
				100	0	2	2	20.58

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	20050	1720	QPSK	1	0	MPR is disabled when power reduction is enabled		16.27
				1	49			16.86
				1	99			16.70
				50	0			17.06
				50	24			17.35
				50	49			17.29
				100	0			16.80
			16QAM	1	0			16.96
				1	49			17.45
				1	99			17.48
				50	0			16.77
				50	24			16.87
				50	49			16.82
				100	0			16.76
	20175	1732.5	QPSK	1	0			16.97
				1	49			17.06
				1	99			16.16
				50	0			17.40
				50	24			17.26
				50	49			16.89
				100	0			16.77
			16QAM	1	0			17.49
				1	49			17.55
				1	99			16.84
				50	0			17.04
				50	24			16.93
				50	49			16.64
				100	0			16.66
	20300	1745	QPSK	1	0			16.64
				1	49			16.26
				1	99			16.66
				50	0			16.83
				50	24			16.59
				50	49			16.63
				100	0			16.52
			16QAM	1	0			17.33
				1	49			16.94
				1	99			17.36
				50	0			16.53
				50	24			16.43
				50	49			16.50
				100	0			16.40

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 4, 15 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	20025	1717.5	QPSK	1	0	0	0	22.69
				1	37	0	0	22.82
				1	74	0	0	22.71
				36	0	1	1	21.94
				36	19	1	1	21.91
				36	39	1	1	21.95
				75	0	1	1	21.84
			16QAM	1	0	1	1	21.45
				1	37	1	1	21.57
				1	74	1	1	21.46
				36	0	2	2	20.90
				36	19	2	2	20.89
				36	39	2	2	20.90
				75	0	2	2	20.75
	20175	1732.5	QPSK	1	0	0	0	22.89
				1	37	0	0	22.71
				1	74	0	0	22.67
				36	0	1	1	21.87
				36	19	1	1	21.78
				36	39	1	1	21.82
				75	0	1	1	21.70
			16QAM	1	0	1	1	21.49
				1	37	1	1	21.40
				1	74	1	1	21.49
				36	0	2	2	20.87
				36	19	2	2	20.78
				36	39	2	2	20.83
				75	0	2	2	20.66
	20325	1747.5	QPSK	1	0	0	0	22.80
				1	37	0	0	22.61
				1	74	0	0	22.67
				36	0	1	1	21.64
				36	19	1	1	21.63
				36	39	1	1	21.72
				75	0	1	1	21.57
			16QAM	1	0	1	1	21.36
				1	37	1	1	21.39
				1	74	1	1	21.39
				36	0	2	2	20.72
				36	19	2	2	20.66
				36	39	2	2	20.61
				75	0	2	2	20.46

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	20025	1717.5	QPSK	1	0	MPR is disabled when power reduction is enabled		16.47
				1	37			16.96
				1	74			17.05
				36	0			17.17
				36	19			17.51
				36	39			17.50
				75	0			17.40
			16QAM	1	0			16.68
				1	37			17.08
				1	74			17.15
				36	0			16.70
				36	19			16.99
				36	39			17.00
				75	0			16.92
	20175	1732.5	QPSK	1	0			17.32
				1	37			17.32
				1	74			17.12
				36	0			17.08
				36	19			16.85
				36	39			17.11
				75	0			16.80
			16QAM	1	0			16.98
				1	37			16.97
				1	74			16.88
				36	0			16.97
				36	19			16.84
				36	39			17.20
				75	0			16.76
	20325	1747.5	QPSK	1	0			16.72
				1	37			16.74
				1	74			16.78
				36	0			16.69
				36	19			16.78
				36	39			16.75
				75	0			16.91
			16QAM	1	0			16.59
				1	37			16.63
				1	74			16.69
				36	0			16.59
				36	19			16.63
				36	39			16.60
				75	0			16.72

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 4, 10 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	20000	1715	QPSK	1	0	0	0	22.79
				1	24	0	0	22.85
				1	49	0	0	22.93
				25	0	1	1	21.98
				25	12	1	1	21.92
				25	24	1	1	21.91
				50	0	1	1	21.89
			16QAM	1	0	1	1	21.48
				1	24	1	1	21.50
				1	49	1	1	21.50
				25	0	2	2	20.93
				25	12	2	2	20.90
				25	24	2	2	20.94
				50	0	2	2	20.70
	20175	1732.5	QPSK	1	0	0	0	22.87
				1	24	0	0	22.75
				1	49	0	0	22.70
				25	0	1	1	21.90
				25	12	1	1	21.79
				25	24	1	1	21.85
				50	0	1	1	21.74
			16QAM	1	0	1	1	21.61
				1	24	1	1	21.46
				1	49	1	1	21.39
				25	0	2	2	20.85
				25	12	2	2	20.72
				25	24	2	2	20.80
				50	0	2	2	20.71
	20350	1750	QPSK	1	0	0	0	22.71
				1	24	0	0	22.68
				1	49	0	0	22.72
				25	0	1	1	21.61
				25	12	1	1	21.64
				25	24	1	1	21.66
				50	0	1	1	21.52
			16QAM	1	0	1	1	21.32
				1	24	1	1	21.26
				1	49	1	1	21.41
				25	0	2	2	20.71
				25	12	2	2	20.63
				25	24	2	2	20.79
				50	0	2	2	20.55

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	20000	1715	QPSK	1	0	MPR is disabled when power reduction is enabled		16.33
				1	24			16.83
				1	49			16.81
				25	0			16.87
				25	12			17.20
				25	24			17.26
				50	0			16.89
			16QAM	1	0			16.46
				1	24			16.87
				1	49			17.01
				25	0			16.59
				25	12			16.90
				25	24			16.93
				50	0			16.74
	20175	1732.5	QPSK	1	0			16.94
				1	24			17.32
				1	49			17.11
				25	0			17.42
				25	12			17.50
				25	24			17.21
				50	0			17.15
			16QAM	1	0			16.92
				1	24			17.21
				1	49			17.07
				25	0			17.13
				25	12			17.25
				25	24			17.02
				50	0			17.07
	20350	1750	QPSK	1	0			16.48
				1	24			16.39
				1	49			16.75
				25	0			16.71
				25	12			16.81
				25	24			16.80
				50	0			16.73
			16QAM	1	0			16.67
				1	24			16.55
				1	49			16.87
				25	0			16.58
				25	12			16.70
				25	24			16.72
				50	0			16.62

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 4, 5 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	19975	1712.5	QPSK	1	0	0	0	22.76
				1	12	0	0	22.83
				1	24	0	0	22.83
				12	0	1	1	21.85
				12	6	1	1	21.95
				12	11	1	1	21.94
				25	0	1	1	21.95
			16QAM	1	0	1	1	21.40
				1	12	1	1	21.48
				1	24	1	1	21.57
				12	0	2	2	20.79
				12	6	2	2	20.83
				12	11	2	2	20.86
				25	0	2	2	20.95
	20175	1732.5	QPSK	1	0	0	0	22.81
				1	12	0	0	22.72
				1	24	0	0	22.72
				12	0	1	1	21.81
				12	6	1	1	21.80
				12	11	1	1	21.87
				25	0	1	1	21.86
			16QAM	1	0	1	1	21.46
				1	12	1	1	21.35
				1	24	1	1	21.40
				12	0	2	2	20.75
				12	6	2	2	20.75
				12	11	2	2	20.80
				25	0	2	2	20.86
	20375	1752.5	QPSK	1	0	0	0	22.63
				1	12	0	0	22.73
				1	24	0	0	22.76
				12	0	1	1	21.74
				12	6	1	1	21.79
				12	11	1	1	21.81
				25	0	1	1	21.68
			16QAM	1	0	1	1	21.28
				1	12	1	1	21.33
				1	24	1	1	21.34
				12	0	2	2	20.75
				12	6	2	2	20.74
				12	11	2	2	20.74
				25	0	2	2	20.82

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	19975	1712.5	QPSK	1	0	MPR is disabled when power reduction is enabled		16.91
				1	12			16.86
				1	24			17.01
				12	0			17.04
				12	6			17.07
				12	11			17.08
				25	0			16.90
			16QAM	1	0			17.12
				1	12			17.06
				1	24			17.21
				12	0			16.91
				12	6			16.95
				12	11			16.96
				25	0			16.71
	20175	1732.5	QPSK	1	0			17.29
				1	12			17.50
				1	24			17.21
				12	0			17.49
				12	6			17.54
				12	11			17.20
				25	0			17.25
			16QAM	1	0			17.40
				1	12			17.55
				1	24			17.33
				12	0			17.35
				12	6			17.40
				12	11			17.24
				25	0			17.21
	20375	1752.5	QPSK	1	0			16.60
				1	12			16.93
				1	24			16.91
				12	0			16.86
				12	6			16.88
				12	11			16.90
				25	0			16.80
			16QAM	1	0			16.87
				1	12			17.18
				1	24			17.17
				12	0			16.90
				12	6			16.92
				12	11			16.94
				25	0			16.77

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 4, 3 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	19965	1711.5	QPSK	1	0	0	0	22.70
				1	7	0	0	22.83
				1	14	0	0	22.83
				8	0	1	1	21.91
				8	4	1	1	21.99
				8	7	1	1	21.95
				15	0	1	1	21.94
			16QAM	1	0	1	1	21.44
				1	7	1	1	21.46
				1	14	1	1	21.48
				8	0	2	2	20.87
				8	4	2	2	20.99
				8	7	2	2	20.96
				15	0	2	2	20.91
	20175	1732.5	QPSK	1	0	0	0	22.85
				1	7	0	0	22.72
				1	14	0	0	22.75
				8	0	1	1	22.01
				8	4	1	1	21.90
				8	7	1	1	21.84
				15	0	1	1	21.90
			16QAM	1	0	1	1	21.63
				1	7	1	1	21.41
				1	14	1	1	21.42
				8	0	2	2	20.94
				8	4	2	2	20.95
				8	7	2	2	20.91
				15	0	2	2	20.86
	20384	1753.4	QPSK	1	0	0	0	22.73
				1	7	0	0	22.78
				1	14	0	0	22.82
				8	0	1	1	21.86
				8	4	1	1	21.81
				8	7	1	1	21.83
				15	0	1	1	21.77
			16QAM	1	0	1	1	21.34
				1	7	1	1	21.33
				1	14	1	1	21.36
				8	0	2	2	20.86
				8	4	2	2	20.89
				8	7	2	2	20.95
				15	0	2	2	20.87

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	19965	1711.5	QPSK	1	0	MPR is disabled when power reduction is enabled		17.07
				1	7			17.10
				1	14			17.07
				8	0			17.08
				8	4			16.94
				8	7			16.88
				15	0			16.86
			16QAM	1	0			16.99
				1	7			17.02
				1	14			17.00
				8	0			16.92
				8	4			16.88
				8	7			16.84
				15	0			16.87
	20175	1732.5	QPSK	1	0			17.53
				1	7			17.54
				1	14			17.44
				8	0			17.42
				8	4			17.27
				8	7			17.46
				15	0			17.11
			16QAM	1	0			17.61
				1	7			17.61
				1	14			17.38
				8	0			17.41
				8	4			17.30
				8	7			17.38
				15	0			17.20
	20384	1753.4	QPSK	1	0			17.06
				1	7			17.03
				1	14			16.95
				8	0			16.89
				8	4			16.90
				8	7			17.02
				15	0			16.89
			16QAM	1	0			17.07
				1	7			17.03
				1	14			16.96
				8	0			16.83
				8	4			16.74
				8	7			16.88
				15	0			16.80

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 4, 1.4 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	19957	1710.7	QPSK	1	0	0	0	22.79
				1	2	0	0	22.75
				1	5	0	0	22.80
				3	0	0	0	22.86
				3	1	0	0	22.82
				3	3	0	0	22.88
				6	0	1	1	21.89
			16QAM	1	0	1	1	21.69
				1	2	1	1	21.68
				1	5	1	1	21.64
				3	0	1	1	21.83
				3	1	1	1	21.82
				3	3	1	1	21.82
				6	0	2	2	20.91
	20175	1732.5	QPSK	1	0	0	0	22.84
				1	2	0	0	22.82
				1	5	0	0	22.80
				3	0	0	0	22.80
				3	1	0	0	22.83
				3	3	0	0	22.79
				6	0	1	1	21.88
			16QAM	1	0	1	1	21.68
				1	2	1	1	21.75
				1	5	1	1	21.71
				3	0	1	1	21.79
				3	1	1	1	21.83
				3	3	1	1	21.81
				6	0	2	2	20.91
	20392	1754.2	QPSK	1	0	0	0	22.93
				1	2	0	0	22.83
				1	5	0	0	22.82
				3	0	0	0	22.72
				3	1	0	0	22.71
				3	3	0	0	22.74
				6	0	1	1	21.83
			16QAM	1	0	1	1	21.65
				1	2	1	1	21.63
				1	5	1	1	21.69
				3	0	1	1	21.85
				3	1	1	1	21.89
				3	3	1	1	21.88
				6	0	2	2	20.96

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	19957	1710.7	QPSK	1	0	MPR is disabled when power reduction is enabled		16.71
				1	2			16.69
				1	5			16.65
				3	0			17.11
				3	1			17.04
				3	3			17.02
				6	0			16.95
			16QAM	1	0			17.00
				1	2			16.97
				1	5			16.93
				3	0			16.87
				3	1			16.80
				3	3			16.82
				6	0			16.84
	20175	1732.5	QPSK	1	0			17.48
				1	2			17.47
				1	5			17.36
				3	0			17.64
				3	1			17.63
				3	3			17.56
				6	0			17.57
			16QAM	1	0			17.51
				1	2			17.54
				1	5			17.41
				3	0			17.43
				3	1			17.41
				3	3			17.37
				6	0			17.48
	20392	1754.2	QPSK	1	0			16.89
				1	2			16.93
				1	5			16.91
				3	0			17.11
				3	1			17.12
				3	3			17.10
				6	0			17.07
			16QAM	1	0			17.17
				1	2			17.22
				1	5			17.21
				3	0			17.08
				3	1			17.08
				3	3			17.10
				6	0			17.16

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.9. LTE Band 5

Target Power for LTE Band 5, QPSK and 16QAM modulations in all bandwidth

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
LTE	BAND5	20450	829	23.00	19.90	+/-1
		20525	836			
		20600	844			

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 5, 10 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	20450	829	QPSK	1	0	0	0	22.68
				1	24	0	0	22.77
				1	49	0	0	22.76
				25	0	1	1	21.83
				25	12	1	1	21.91
				25	24	1	1	21.87
				50	0	1	1	21.71
			16QAM	1	0	1	1	21.38
				1	24	1	1	21.45
				1	49	1	1	21.46
				25	0	2	2	20.89
				25	12	2	2	20.89
				25	24	2	2	20.88
				50	0	2	2	20.78
	20525	836.5	QPSK	1	0	0	0	22.72
				1	24	0	0	22.75
				1	49	0	0	22.74
				25	0	1	1	21.89
				25	12	1	1	21.88
				25	24	1	1	21.88
				50	0	1	1	21.83
			16QAM	1	0	1	1	21.40
				1	24	1	1	21.46
				1	49	1	1	21.44
				25	0	2	2	20.94
				25	12	2	2	20.94
				25	24	2	2	20.99
				50	0	2	2	20.87
	20600	844	QPSK	1	0	0	0	22.75
				1	24	0	0	22.75
				1	49	0	0	22.63
				25	0	1	1	21.85
				25	12	1	1	21.76
				25	24	1	1	21.80
				50	0	1	1	21.74
			16QAM	1	0	1	1	21.50
				1	24	1	1	21.46
				1	49	1	1	21.32
				25	0	2	2	20.90
				25	12	2	2	20.81
				25	24	2	2	20.80
				50	0	2	2	20.79

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	20450	829	QPSK	1	0	MPR is disabled when power reduction is enabled		20.44
				1	24			20.57
				1	49			20.64
				25	0			20.46
				25	12			20.48
				25	24			20.53
				50	0			20.50
			16QAM	1	0			20.03
				1	24			20.17
				1	49			20.16
				25	0			20.51
				25	12			20.53
				25	24			20.66
				50	0			20.49
	20525	836.5	QPSK	1	0			20.49
				1	24			20.60
				1	49			20.64
				25	0			20.62
				25	12			20.60
				25	24			20.69
				50	0			20.59
			16QAM	1	0			20.12
				1	24			20.18
				1	49			20.22
				25	0			20.61
				25	12			20.60
				25	24			20.68
				50	0			20.56
	20600	844	QPSK	1	0			20.57
				1	24			20.61
				1	49			20.50
				25	0			20.56
				25	12			20.56
				25	24			20.54
				50	0			20.54
			16QAM	1	0			20.17
				1	24			20.17
				1	49			20.04
				25	0			20.63
				25	12			20.55
				25	24			20.53
				50	0			20.54

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 5, 5 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	20425	826.5	QPSK	1	0	0	0	22.57
				1	12	0	0	22.56
				1	24	0	0	22.59
				12	0	1	1	21.75
				12	6	1	1	21.66
				12	11	1	1	21.77
				25	0	1	1	21.64
			16QAM	1	0	1	1	21.23
				1	12	1	1	21.26
				1	24	1	1	21.31
				12	0	2	2	20.75
				12	6	2	2	20.69
				12	11	2	2	20.71
				25	0	2	2	20.75
	20525	836.5	QPSK	1	0	0	0	22.63
				1	12	0	0	22.69
				1	24	0	0	22.71
				12	0	1	1	21.88
				12	6	1	1	21.90
				12	11	1	1	21.85
				25	0	1	1	21.84
			16QAM	1	0	1	1	21.37
				1	12	1	1	21.34
				1	24	1	1	21.43
				12	0	2	2	20.85
				12	6	2	2	20.83
				12	11	2	2	20.86
				25	0	2	2	20.92
	20625	846.5	QPSK	1	0	0	0	22.65
				1	12	0	0	22.60
				1	24	0	0	22.49
				12	0	1	1	21.76
				12	6	1	1	21.80
				12	11	1	1	21.74
				25	0	1	1	21.76
			16QAM	1	0	1	1	21.32
				1	12	1	1	21.33
				1	24	1	1	21.21
				12	0	2	2	20.80
				12	6	2	2	20.78
				12	11	2	2	20.71
				25	0	2	2	20.84

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	20425	826.5	QPSK	1	0	MPR is disabled when power reduction is enabled		20.58
				1	12			20.59
				1	24			20.67
				12	0			20.49
				12	6			20.49
				12	11			20.53
				25	0			20.44
			16QAM	1	0			20.34
				1	12			20.32
				1	24			20.41
				12	0			20.48
				12	6			20.47
				12	11			20.54
				25	0			20.49
	20525	836.5	QPSK	1	0			20.82
				1	12			20.80
				1	24			20.87
				12	0			20.65
				12	6			20.66
				12	11			20.73
				25	0			20.64
			16QAM	1	0			20.53
				1	12			20.53
				1	24			20.59
				12	0			20.62
				12	6			20.65
				12	11			20.63
				25	0			20.64
	20625	846.5	QPSK	1	0			20.74
				1	12			20.73
				1	24			20.69
				12	0			20.60
				12	6			20.70
				12	11			20.60
				25	0			20.58
			16QAM	1	0			20.53
				1	12			20.50
				1	24			20.44
				12	0			20.67
				12	6			20.66
				12	11			20.62
				25	0			20.59

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 5, 3 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	20415	825.5	QPSK	1	0	0	0	22.66
				1	7	0	0	22.65
				1	14	0	0	22.71
				8	0	1	1	21.82
				8	4	1	1	21.76
				8	7	1	1	21.75
				15	0	1	1	21.73
			16QAM	1	0	1	1	21.86
				1	7	1	1	21.87
				1	14	1	1	21.89
				8	0	2	2	20.73
				8	4	2	2	20.78
				8	7	2	2	20.75
				15	0	2	2	20.86
	20525	836.5	QPSK	1	0	0	0	22.74
				1	7	0	0	22.73
				1	14	0	0	22.76
				8	0	1	1	21.94
				8	4	1	1	21.91
				8	7	1	1	21.89
				15	0	1	1	21.88
			16QAM	1	0	1	1	21.47
				1	7	1	1	21.44
				1	14	1	1	21.43
				8	0	2	2	20.94
				8	4	2	2	20.99
				8	7	2	2	21.04
				15	0	2	2	20.95
	20634	847.4	QPSK	1	0	0	0	22.56
				1	7	0	0	22.62
				1	14	0	0	22.57
				8	0	1	1	21.87
				8	4	1	1	21.78
				8	7	1	1	21.75
				15	0	1	1	21.77
			16QAM	1	0	1	1	21.31
				1	7	1	1	21.34
				1	14	1	1	21.30
				8	0	2	2	20.91
				8	4	2	2	20.85
				8	7	2	2	20.83
				15	0	2	2	20.87

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	20415	825.5	QPSK	1	0	MPR is disabled when power reduction is enabled		20.50
				1	7			20.49
				1	14			20.53
				8	0			20.62
				8	4			20.60
				8	7			20.60
				15	0			20.64
			16QAM	1	0			20.13
				1	7			20.11
				1	14			20.13
				8	0			20.67
				8	4			20.64
				8	7			20.64
				15	0			20.61
	20525	836.5	QPSK	1	0			20.67
				1	7			20.61
				1	14			20.69
				8	0			20.71
				8	4			20.71
				8	7			20.73
				15	0			20.69
			16QAM	1	0			20.28
				1	7			20.20
				1	14			20.28
				8	0			20.80
				8	4			20.80
				8	7			20.86
				15	0			20.77
	20634	847.4	QPSK	1	0			20.54
				1	7			20.57
				1	14			20.51
				8	0			20.66
				8	4			20.67
				8	7			20.67
				15	0			20.69
			16QAM	1	0			20.18
				1	7			20.16
				1	14			20.10
				8	0			20.61
				8	4			20.59
				8	7			20.60
				15	0			20.54

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 5, 1.4 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	20407	824.7	QPSK	1	0	0	0	22.76
				1	2	0	0	22.63
				1	5	0	0	22.69
				3	0	0	0	22.75
				3	1	0	0	22.78
				3	3	0	0	22.70
				6	0	1	1	21.86
			16QAM	1	0	1	1	21.64
				1	2	1	1	21.59
				1	5	1	1	21.59
				3	0	1	1	21.72
				3	1	1	1	21.78
				3	3	1	1	21.77
				6	0	2	2	20.98
	20525	836.5	QPSK	1	0	0	0	22.81
				1	2	0	0	22.78
				1	5	0	0	22.76
				3	0	0	0	22.78
				3	1	0	0	22.78
				3	3	0	0	22.87
				6	0	1	1	22.00
			16QAM	1	0	1	1	21.76
				1	2	1	1	21.71
				1	5	1	1	21.75
				3	0	1	1	21.90
				3	1	1	1	21.83
				3	3	1	1	21.86
				6	0	2	2	21.06
	20642	848.2	QPSK	1	0	0	0	22.67
				1	2	0	0	22.65
				1	5	0	0	22.62
				3	0	0	0	22.64
				3	1	0	0	22.67
				3	3	0	0	22.69
				6	0	1	1	21.76
			16QAM	1	0	1	1	21.64
				1	2	1	1	21.58
				1	5	1	1	21.54
				3	0	1	1	21.73
				3	1	1	1	21.71
				3	3	1	1	21.68
				6	0	2	2	20.89

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	20407	824.7	QPSK	1	0	MPR is disabled when power reduction is enabled		20.51
				1	2			20.51
				1	5			20.45
				3	0			20.51
				3	1			20.58
				3	3			20.57
				6	0			20.58
			16QAM	1	0			20.33
				1	2			20.36
				1	5			20.40
				3	0			20.57
				3	1			20.55
				3	3			20.58
				6	0			20.63
	20525	836.5	QPSK	1	0			20.73
				1	2			20.62
				1	5			20.63
				3	0			20.73
				3	1			20.81
				3	3			20.77
				6	0			20.77
			16QAM	1	0			20.47
				1	2			20.49
				1	5			20.53
				3	0			20.71
				3	1			20.70
				3	3			20.72
				6	0			20.79
	20642	848.2	QPSK	1	0			20.60
				1	2			20.53
				1	5			20.50
				3	0			20.68
				3	1			20.66
				3	3			20.58
				6	0			20.64
			16QAM	1	0			20.48
				1	2			20.43
				1	5			20.42
				3	0			20.59
				3	1			20.59
				3	3			20.56
				6	0			20.66

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.10. LTE Band 13

Target Power for LTE Band 13, QPSK and 16QAM modulations in all bandwidth

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
LTE	BAND13	23205	779.5	23.00	20.20	+/-1
		23230	782			
		23225	784.5			

Target power indicated above is the nominal value. The measured value shall fall within +/- 1dB of this value.

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 13, 10 MHz Bandwidth Output Power

Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	23230	782	QPSK	1	0	0	0	22.59
				1	24	0	0	22.86
				1	49	0	0	22.67
				25	0	1	1	21.83
				25	12	1	1	21.93
				25	24	1	1	21.87
				50	0	1	1	21.87
			16QAM	1	0	1	1	22.14
				1	24	1	1	21.61
				1	49	1	1	21.60
				25	0	2	2	20.79
				25	12	2	2	20.86
				25	24	2	2	20.87
				50	0	2	2	20.77

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	23230	782	QPSK	1	0	MPR is disabled when power reduction is enabled		20.95
				1	24			20.99
				1	49			21.05
				25	0			21.00
				25	12			20.29
				25	24			20.48
				50	0			20.42
			16QAM	1	0			20.89
				1	24			20.96
				1	49			20.95
				25	0			20.86
				25	12			20.66
				25	24			20.89
				50	0			20.80

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 13, 5 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	23205	779.5	QPSK	1	0	0	0	22.64
				1	12	0	0	22.78
				1	24	0	0	22.82
				12	0	1	1	21.85
				12	6	1	1	21.93
				12	11	1	1	21.94
				25	0	1	1	21.88
			16QAM	1	0	1	1	21.42
				1	12	1	1	21.49
				1	24	1	1	21.52
				12	0	2	2	20.78
				12	6	2	2	20.77
				12	11	2	2	20.87
				25	0	2	2	20.91
	23230	782	QPSK	1	0	0	0	22.77
				1	12	0	0	22.83
				1	24	0	0	22.85
				12	0	1	1	21.94
				12	6	1	1	21.94
				12	11	1	1	22.03
				25	0	1	1	21.92
			16QAM	1	0	1	1	21.49
				1	12	1	1	21.54
				1	24	1	1	21.57
				12	0	2	2	20.88
				12	6	2	2	20.87
				12	11	2	2	20.98
				25	0	2	2	21.00
	23255	784.5	QPSK	1	0	0	0	22.84
				1	12	0	0	22.73
				1	24	0	0	22.64
				12	0	1	1	21.95
				12	6	1	1	21.89
				12	11	1	1	21.95
				25	0	1	1	21.94
			16QAM	1	0	1	1	21.61
				1	12	1	1	21.49
				1	24	1	1	21.35
				12	0	2	2	20.97
				12	6	2	2	20.87
				12	11	2	2	20.84
				25	0	2	2	20.97

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	23205	779.5	QPSK	1	0	MPR is disabled when power reduction is enabled		20.81
				1	12			20.93
				1	24			21.05
				12	0			20.73
				12	6			20.74
				12	11			20.89
				25	0			20.79
			16QAM	1	0			20.45
				1	12			20.64
				1	24			20.78
				12	0			20.69
				12	6			20.77
				12	11			20.87
				25	0			20.86
	23230	782	QPSK	1	0			20.95
				1	12			21.06
				1	24			21.08
				12	0			20.87
				12	6			20.90
				12	11			20.96
				25	0			20.88
			16QAM	1	0			20.65
				1	12			20.78
				1	24			20.85
				12	0			20.84
				12	6			20.94
				12	11			21.02
				25	0			20.89
	23255	784.5	QPSK	1	0			21.13
				1	12			20.95
				1	24			20.80
				12	0			20.93
				12	6			20.84
				12	11			20.74
				25	0			20.89
			16QAM	1	0			20.84
				1	12			20.75
				1	24			20.57
				12	0			20.90
				12	6			20.83
				12	11			20.80
				25	0			20.81

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.11. LTE Band 17

Target Power for LTE Band 17, QPSK and 16QAM modulations in all bandwidth

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
LTE	BAND17	23780	709	23.00	21.20	+/-1
		23790	710			
		23800	711			

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 17, 10 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	23780	709	QPSK	1	0	0	0	22.70
				1	24	0	0	22.87
				1	49	0	0	22.75
				25	0	1	1	21.86
				25	12	1	1	21.98
				25	24	1	1	21.96
				50	0	1	1	21.81
			16QAM	1	0	1	1	21.45
				1	24	1	1	21.55
				1	49	1	1	21.40
				25	0	2	2	20.87
				25	12	2	2	20.92
				25	24	2	2	20.96
				50	0	2	2	20.75
	23790	710	QPSK	1	0	0	0	22.63
				1	24	0	0	22.93
				1	49	0	0	22.65
				25	0	1	1	21.86
				25	12	1	1	21.93
				25	24	1	1	21.79
				50	0	1	1	21.78
			16QAM	1	0	1	1	21.48
				1	24	1	1	21.56
				1	49	1	1	21.50
				25	0	2	2	20.88
				25	12	2	2	20.89
				25	24	2	2	20.81
				50	0	2	2	20.74
	23800	711	QPSK	1	0	0	0	22.78
				1	24	0	0	22.78
				1	49	0	0	22.40
				25	0	1	1	21.94
				25	12	1	1	21.92
				25	24	1	1	21.79
				50	0	1	1	21.79
			16QAM	1	0	1	1	21.40
				1	24	1	1	21.42
				1	49	1	1	21.38
				25	0	2	2	20.90
				25	12	2	2	20.85
				25	24	2	2	20.83
				50	0	2	2	20.77

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	23780	709	QPSK	1	0	MPR is disabled when power reduction is enabled		21.97
				1	24			22.19
				1	49			22.00
				25	0			21.78
				25	12			21.87
				25	24			21.80
				50	0			21.66
			16QAM	1	0			21.31
				1	24			21.51
				1	49			21.17
				25	0			20.77
				25	12			20.79
				25	24			20.83
				50	0			20.65
	23790	710	QPSK	1	0			22.00
				1	24			22.18
				1	49			21.94
				25	0			21.81
				25	12			21.85
				25	24			21.67
				50	0			21.71
			16QAM	1	0			21.19
				1	24			21.55
				1	49			21.12
				25	0			20.81
				25	12			20.88
				25	24			20.71
				50	0			20.68
	23800	711	QPSK	1	0			22.15
				1	24			22.19
				1	49			21.78
				25	0			21.88
				25	12			21.81
				25	24			21.70
				50	0			21.77
			16QAM	1	0			21.38
				1	24			21.44
				1	49			20.97
				25	0			20.79
				25	12			20.86
				25	24			20.63
				50	0			20.72

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 17, 5 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	23755	706.5	QPSK	1	0	0	0	22.56
				1	12	0	0	22.80
				1	24	0	0	22.83
				12	0	1	1	21.75
				12	6	1	1	21.85
				12	11	1	1	21.91
				25	0	1	1	21.81
			16QAM	1	0	1	1	21.36
				1	12	1	1	21.38
				1	24	1	1	21.51
				12	0	2	2	20.70
				12	6	2	2	20.75
				12	11	2	2	20.87
				25	0	2	2	20.89
	23790	710	QPSK	1	0	0	0	22.78
				1	12	0	0	22.83
				1	24	0	0	22.73
				12	0	1	1	21.91
				12	6	1	1	21.95
				12	11	1	1	21.85
				25	0	1	1	21.87
			16QAM	1	0	1	1	21.41
				1	12	1	1	21.44
				1	24	1	1	21.41
				12	0	2	2	20.90
				12	6	2	2	20.92
				12	11	2	2	20.83
				25	0	2	2	20.93
	23825	713.5	QPSK	1	0	0	0	22.74
				1	12	0	0	22.59
				1	24	0	0	22.31
				12	0	1	1	21.84
				12	6	1	1	21.82
				12	11	1	1	21.74
				25	0	1	1	21.77
			16QAM	1	0	1	1	21.41
				1	12	1	1	21.35
				1	24	1	1	21.25
				12	0	2	2	20.78
				12	6	2	2	20.71
				12	11	2	2	20.61
				25	0	2	2	20.77

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	23755	706.5	QPSK	1	0	MPR is disabled when power reduction is enabled		22.19
				1	12			22.20
				1	24			22.20
				12	0			21.65
				12	6			21.75
				12	11			21.86
				25	0			21.80
			16QAM	1	0			21.56
				1	12			21.70
				1	24			21.86
				12	0			20.72
				12	6			20.77
				12	11			20.91
				25	0			20.76
	23790	710	QPSK	1	0			22.20
				1	12			22.20
				1	24			22.20
				12	0			21.83
				12	6			21.93
				12	11			21.76
				25	0			21.88
			16QAM	1	0			21.77
				1	12			21.74
				1	24			21.73
				12	0			20.80
				12	6			20.85
				12	11			20.85
				25	0			20.78
	23825	713.5	QPSK	1	0			22.20
				1	12			22.20
				1	24			21.92
				12	0			21.71
				12	6			21.65
				12	11			21.60
				25	0			21.57
			16QAM	1	0			21.71
				1	12			21.51
				1	24			21.24
				12	0			20.81
				12	6			20.70
				12	11			20.54
				25	0			20.61

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

9.12. LTE Band 25

Target Power for LTE Band 25, QPSK and 16QAM modulations in all bandwidth

Tech	BAND	CH.	Freq. [MHz]	Target Power w/o Power Reduction	Target Power w/ Power Reduction	Tolerance [dB]
LTE	BAND25	26140	1860	23.00	15.10	+/-1
		26365	1882			
		26590	1905			

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 25, 20 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	26140	1860	QPSK	1	0	0	0	22.92
				1	49	0	0	22.99
				1	99	0	0	23.06
				50	0	1	1	21.83
				50	24	1	1	21.81
				50	49	1	1	21.84
				100	0	1	1	21.83
			16QAM	1	0	1	1	22.00
				1	49	1	1	22.06
				1	99	1	1	22.15
				50	0	2	2	20.73
				50	24	2	2	20.79
				50	49	2	2	20.88
				100	0	2	2	20.80
	26365	1882.5	QPSK	1	0	0	0	23.10
				1	49	0	0	22.92
				1	99	0	0	22.84
				50	0	1	1	21.84
				50	24	1	1	21.84
				50	49	1	1	21.75
				100	0	1	1	21.80
			16QAM	1	0	1	1	22.22
				1	49	1	1	22.01
				1	99	1	1	21.95
				50	0	2	2	20.80
				50	24	2	2	20.73
				50	49	2	2	20.67
				100	0	2	2	20.75
	26590	1905	QPSK	1	0	0	0	22.79
				1	49	0	0	22.87
				1	99	0	0	23.13
				50	0	1	1	21.71
				50	24	1	1	21.67
				50	49	1	1	21.85
				100	0	1	1	21.78
			16QAM	1	0	1	1	21.91
				1	49	1	1	21.99
				1	99	1	1	22.26
				50	0	2	2	20.65
				50	24	2	2	20.69
				50	49	2	2	20.82
				100	0	2	2	20.75

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	26140	1860	QPSK	1	0	MPR is disabled when power reduction is enabled		15.51
				1	49			16.04
				1	99			14.39
				50	0			15.98
				50	24			15.88
				50	49			15.29
				100	0			15.46
			16QAM	1	0			15.79
				1	49			15.91
				1	99			15.81
				50	0			15.86
				50	24			15.67
				50	49			15.08
				100	0			15.59
	26365	1882.5	QPSK	1	0			14.69
				1	49			15.31
				1	99			16.01
				50	0			15.33
				50	24			15.59
				50	49			15.70
				100	0			15.56
			16QAM	1	0			14.97
				1	49			15.60
				1	99			15.98
				50	0			14.95
				50	24			15.25
				50	49			15.75
				100	0			15.21
	26590	1905	QPSK	1	0			15.84
				1	49			14.59
				1	99			16.05
				50	0			14.90
				50	24			14.88
				50	49			16.05
				100	0			15.59
			16QAM	1	0			16.07
				1	49			14.84
				1	99			15.81
				50	0			14.57
				50	24			14.59
				50	49			15.78
				100	0			15.23

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 25, 15 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	26115	1857.5	QPSK	1	0	0	0	22.78
				1	37	0	0	22.82
				1	74	0	0	22.98
				36	0	1	1	21.82
				36	19	1	1	21.91
				36	39	1	1	21.81
				75	0	1	1	21.70
			16QAM	1	0	1	1	21.52
				1	37	1	1	21.52
				1	74	1	1	21.61
				36	0	2	2	20.78
				36	19	2	2	20.88
				36	39	2	2	20.81
				75	0	2	2	20.64
	26365	1882.5	QPSK	1	0	0	0	22.91
				1	37	0	0	22.80
				1	74	0	0	22.64
				36	0	1	1	21.78
				36	19	1	1	21.76
				36	39	1	1	21.68
				75	0	1	1	21.62
			16QAM	1	0	1	1	21.58
				1	37	1	1	21.48
				1	74	1	2	21.30
				36	0	2	2	20.83
				36	19	2	2	20.78
				36	39	2	2	20.72
				75	0	2	2	20.62
	26615	1907.5	QPSK	1	0	0	0	22.70
				1	37	0	0	22.85
				1	74	0	0	23.07
				36	0	1	1	21.70
				36	19	1	1	21.83
				36	39	1	1	22.02
				75	0	1	1	21.72
			16QAM	1	0	1	1	21.58
				1	37	1	1	21.65
				1	74	1	1	21.76
				36	0	2	2	20.75
				36	19	2	2	20.84
				36	39	2	2	20.97
				75	0	2	2	20.67

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	26115	1857.5	QPSK	1	0	MPR is disabled when power reduction is enabled		14.64
				1	37			15.32
				1	74			14.60
				36	0			15.57
				36	19			15.61
				36	39			15.40
				75	0			15.35
			16QAM	1	0			14.64
				1	37			15.57
				1	74			14.71
				36	0			15.26
				36	19			15.45
				36	39			15.26
				75	0			14.98
	26365	1882.5	QPSK	1	0			14.93
				1	37			15.30
				1	74			16.07
				36	0			15.35
				36	19			15.69
				36	39			15.96
				75	0			15.61
			16QAM	1	0			14.79
				1	37			15.12
				1	74			15.96
				36	0			14.96
				36	19			15.32
				36	39			15.99
				75	0			15.19
	26615	1907.5	QPSK	1	0			14.60
				1	37			15.11
				1	74			16.10
				36	0			14.60
				36	19			15.35
				36	39			16.10
				75	0			15.55
			16QAM	1	0			14.34
				1	37			14.86
				1	74			15.91
				36	0			14.66
				36	19			15.08
				36	39			16.09
				75	0			15.60

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 25, 10 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	26090	1855	QPSK	1	0	0	0	22.79
				1	24	0	0	22.76
				1	49	0	0	22.87
				25	0	1	1	21.87
				25	12	1	1	21.88
				25	24	1	1	22.02
				50	0	1	1	21.84
			16QAM	1	0	1	1	21.42
				1	24	1	1	21.41
				1	49	1	1	21.52
				25	0	2	2	20.80
				25	12	2	2	20.88
				25	24	2	2	21.00
				50	0	2	2	20.72
	26365	1882.5	QPSK	1	0	0	0	22.90
				1	24	0	0	22.86
				1	49	0	0	22.81
				25	0	1	1	21.92
				25	12	1	1	21.91
				25	24	1	1	21.85
				50	0	1	1	21.79
			16QAM	1	0	1	1	21.57
				1	24	1	1	21.50
				1	49	1	1	21.42
				25	0	2	2	21.00
				25	12	2	2	20.89
				25	24	2	2	20.90
				50	0	2	2	20.77
	26640	1910	QPSK	1	0	0	0	22.83
				1	24	0	0	22.90
				1	49	0	0	22.98
				25	0	1	1	22.01
				25	12	1	1	21.97
				25	24	1	1	22.01
				50	0	1	1	21.95
			16QAM	1	0	1	1	21.59
				1	24	1	1	21.53
				1	49	1	1	21.62
				25	0	2	2	20.98
				25	12	2	2	20.99
				25	24	2	2	21.04
				50	0	2	2	20.86

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	26090	1855	QPSK	1	0	MPR is disabled when power reduction is enabled		14.82
				1	24			15.73
				1	49			15.75
				25	0			15.60
				25	12			16.00
				25	24			16.02
				50	0			15.84
			16QAM	1	0			14.86
				1	24			15.75
				1	49			15.73
				25	0			15.31
				25	12			15.77
				25	24			15.79
				50	0			15.56
	26365	1882.5	QPSK	1	0			15.04
				1	24			15.34
				1	49			15.85
				25	0			15.56
				25	12			15.72
				25	24			15.97
				50	0			15.72
			16QAM	1	0			14.88
				1	24			15.16
				1	49			15.99
				25	0			15.15
				25	12			15.32
				25	24			15.58
				50	0			15.30
	26640	1910	QPSK	1	0			14.11
				1	24			15.67
				1	49			15.23
				25	0			14.60
				25	12			15.77
				25	24			16.10
				50	0			15.73
			16QAM	1	0			14.10
				1	24			15.43
				1	49			14.94
				25	0			14.85
				25	12			15.57
				25	24			15.91
				50	0			15.43

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 25, 5 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	26065	1852.5	QPSK	1	0	0	0	22.78
				1	12	0	0	22.72
				1	24	0	0	22.81
				12	0	1	1	21.91
				12	6	1	1	21.83
				12	11	1	1	21.88
				25	0	1	1	21.81
			16QAM	1	0	1	1	21.41
				1	12	1	1	21.33
				1	24	1	1	21.44
				12	0	2	2	20.84
				12	6	2	2	20.76
				12	11	2	2	20.82
				25	0	2	2	20.81
	26365	1882.5	QPSK	1	0	0	0	22.89
				1	12	0	0	22.87
				1	24	0	0	22.82
				12	0	1	1	22.00
				12	6	1	1	22.00
				12	11	1	1	21.93
				25	0	1	1	21.97
			16QAM	1	0	1	1	21.56
				1	12	1	1	21.52
				1	24	1	1	21.45
				12	0	2	2	20.92
				12	6	2	2	20.89
				12	11	2	2	20.92
				25	0	2	2	20.97
	26665	1912.5	QPSK	1	0	0	0	22.95
				1	12	0	0	22.94
				1	24	0	0	22.93
				12	0	1	1	21.99
				12	6	1	1	22.11
				12	11	1	1	22.10
				25	0	1	1	22.09
			16QAM	1	0	1	1	21.60
				1	12	1	1	21.65
				1	24	1	1	21.65
				12	0	2	2	20.95
				12	6	2	2	21.07
				12	11	2	2	21.06
				25	0	2	2	21.13

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	26065	1852.5	QPSK	1	0	MPR is disabled when power reduction is enabled		15.30
				1	12			15.85
				1	24			15.93
				12	0			15.81
				12	6			15.81
				12	11			15.86
				25	0			15.80
			16QAM	1	0			15.45
				1	12			15.91
				1	24			16.01
				12	0			15.61
				12	6			15.61
				12	11			15.67
				25	0			15.49
	26365	1882.5	QPSK	1	0			15.50
				1	12			15.57
				1	24			16.01
				12	0			15.50
				12	6			15.59
				12	11			15.64
				25	0			15.61
			16QAM	1	0			15.40
				1	12			15.48
				1	24			15.93
				12	0			15.27
				12	6			15.36
				12	11			15.41
				25	0			15.30
	26665	1912.5	QPSK	1	0			14.69
				1	12			15.30
				1	24			14.52
				12	0			15.11
				12	6			15.24
				12	11			15.30
				25	0			14.89
			16QAM	1	0			14.97
				1	12			15.91
				1	24			14.76
				12	0			15.02
				12	6			15.44
				12	11			15.16
				25	0			15.02

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 25, 3 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	26055	1851.5	QPSK	1	0	0	0	22.77
				1	7	0	0	22.78
				1	14	0	0	22.72
				8	0	1	1	21.93
				8	4	1	1	21.95
				8	7	1	1	21.92
				15	0	1	1	21.89
			16QAM	1	0	1	1	21.45
				1	7	1	1	21.38
				1	14	1	1	21.35
				8	0	2	2	20.96
				8	4	2	2	21.01
				8	7	2	2	20.99
				15	0	2	2	20.93
	26365	1882.5	QPSK	1	0	0	0	22.88
				1	7	0	0	22.84
				1	14	0	0	22.85
				8	0	1	1	22.00
				8	4	1	1	22.01
				8	7	1	1	21.96
				15	0	1	1	21.98
			16QAM	1	0	1	1	21.60
				1	7	1	1	21.51
				1	14	1	1	21.54
				8	0	2	2	21.08
				8	4	2	2	21.03
				8	7	2	2	21.03
				15	0	2	2	20.99
	26674	1913.4	QPSK	1	0	0	0	23.01
				1	7	0	0	22.99
				1	14	0	0	23.02
				8	0	1	1	22.09
				8	4	1	1	22.07
				8	7	1	1	22.11
				15	0	1	1	22.10
			16QAM	1	0	1	1	21.70
				1	7	1	1	21.70
				1	14	1	1	21.69
				8	0	2	2	21.20
				8	4	2	2	21.12
				8	7	2	2	21.19
				15	0	2	2	21.10

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	26055	1851.5	QPSK	1	0	MPR is disabled when power reduction is enabled		15.51
				1	7			15.72
				1	14			15.76
				8	0			15.82
				8	4			15.88
				8	7			15.96
				15	0			15.87
			16QAM	1	0			15.53
				1	7			15.90
				1	14			15.95
				8	0			15.70
				8	4			16.01
				8	7			16.09
				15	0			15.83
	26365	1882.5	QPSK	1	0			15.33
				1	7			15.90
				1	14			16.10
				8	0			15.96
				8	4			16.07
				8	7			16.01
				15	0			15.96
			16QAM	1	0			15.52
				1	7			15.64
				1	14			15.83
				8	0			15.72
				8	4			15.82
				8	7			15.76
				15	0			15.63
	26674	1913.4	QPSK	1	0			15.10
				1	7			15.14
				1	14			15.32
				8	0			15.43
				8	4			15.24
				8	7			15.72
				15	0			16.01
			16QAM	1	0			14.89
				1	7			14.89
				1	14			15.50
				8	0			15.26
				8	4			15.95
				8	7			15.53
				15	0			15.75

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 25, 1.4 MHz Bandwidth Output Power
Full Power (Proximity Sensor Off)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	26047	1850.7	QPSK	1	0	0	0	22.87
				1	2	0	0	22.84
				1	5	0	0	22.90
				3	0	0	0	22.89
				3	1	0	0	22.88
				3	3	0	0	22.87
				6	0	1	1	21.94
			16QAM	1	0	1	1	21.69
				1	2	1	1	21.68
				1	5	1	1	21.71
				3	0	1	1	21.81
				3	1	1	1	21.83
				3	3	1	1	21.85
				6	0	2	2	20.97
	26365	1882.5	QPSK	1	0	0	0	22.94
				1	2	0	0	22.90
				1	5	0	0	22.90
				3	0	0	0	22.89
				3	1	0	0	22.97
				3	3	0	0	22.98
				6	0	1	1	22.04
			16QAM	1	0	1	1	21.82
				1	2	1	1	21.80
				1	5	1	1	21.80
				3	0	1	1	21.94
				3	1	1	1	21.95
				3	3	1	1	21.97
				6	0	2	2	21.05
	26682	1914.2	QPSK	1	0	0	0	23.14
				1	2	0	0	23.14
				1	5	0	0	23.07
				3	0	0	0	23.08
				3	1	0	0	23.03
				3	3	0	0	22.96
				6	0	1	1	22.10
			16QAM	1	0	1	1	21.99
				1	2	1	1	21.98
				1	5	1	1	21.89
				3	0	1	1	22.10
				3	1	1	1	22.09
				3	3	1	1	21.98
				6	0	2	2	21.13

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Reduced Power (Proximity Sensor On)

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	26047	1850.7	QPSK	1	0	MPR is disabled when power reduction is enabled		15.58
				1	2			15.74
				1	5			15.70
				3	0			15.94
				3	1			15.99
				3	3			15.90
				6	0			15.94
			16QAM	1	0			15.72
				1	2			15.89
				1	5			16.05
				3	0			15.70
				3	1			15.73
				3	3			15.69
				6	0			15.82
	26365	1882.5	QPSK	1	0			15.65
				1	2			15.81
				1	5			15.86
				3	0			15.80
				3	1			15.85
				3	3			15.95
				6	0			15.85
			16QAM	1	0			15.51
				1	2			15.69
				1	5			15.75
				3	0			15.55
				3	1			15.58
				3	3			15.68
				6	0			15.68
	26682	1914.2	QPSK	1	0			15.01
				1	2			15.97
				1	5			15.51
				3	0			16.03
				3	1			15.98
				3	3			15.72
				6	0			15.92
			16QAM	1	0			15.99
				1	2			15.84
				1	5			15.44
				3	0			15.83
				3	1			15.77
				3	3			15.50
				6	0			15.81

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

10. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

10.1. Tissue Dielectric Parameter Check Results

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

750MHz Band

Date	Freq. (MHz)	Liquid Parameters	Measured	Target	Delta (%)	Limit ±(%)
2016/1/21	Body 750	Relative Permittivity (ε_r):	53.81	55.55	-3.13	5
		Conductivity (σ):	0.95	0.96	-1.22	5
	Body 775	Relative Permittivity (ε_r):	53.52	55.45	-3.48	5
		Conductivity (σ):	0.98	0.97	1.11	5
	Body 790	Relative Permittivity (ε_r):	53.35	55.39	-3.69	5
		Conductivity (σ):	0.99	0.97	2.56	5
2016/1/22	Body 750	Relative Permittivity (ε_r):	53.71	55.55	-3.31	5
		Conductivity (σ):	0.93	0.96	-3.09	5
	Body 775	Relative Permittivity (ε_r):	53.44	55.45	-3.62	5
		Conductivity (σ):	0.96	0.97	-0.81	5
	Body 790	Relative Permittivity (ε_r):	53.28	55.39	-3.81	5
		Conductivity (σ):	0.97	0.97	0.62	5
2016/1/25	Body 750	Relative Permittivity (ε_r):	54.17	55.55	-2.47	5
		Conductivity (σ):	0.94	0.96	-2.11	5
	Body 775	Relative Permittivity (ε_r):	53.87	55.45	-2.85	5
		Conductivity (σ):	0.97	0.97	0.32	5
	Body 790	Relative Permittivity (ε_r):	53.70	55.39	-3.06	5
		Conductivity (σ):	0.98	0.97	1.82	5
2016/1/26	Body 750	Relative Permittivity (ε_r):	53.93	55.55	-2.91	5
		Conductivity (σ):	0.95	0.96	-1.18	5
	Body 705	Relative Permittivity (ε_r):	54.41	55.72	-2.35	5
		Conductivity (σ):	0.91	0.96	-4.92	5
	Body 720	Relative Permittivity (ε_r):	54.24	55.66	-2.55	5
		Conductivity (σ):	0.92	0.96	-3.86	5

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

835MHz Band

Date	Freq. (MHz)	Liquid Parameters	Measured	Target	Delta (%)	Limit ±(%)
2015/12/23	Body 835	Relative Permittivity (ε_r):	54.27	55.20	-1.68	5
		Conductivity (σ):	0.96	0.97	-0.94	5
	Body 820	Relative Permittivity (ε_r):	54.44	55.28	-1.51	5
		Conductivity (σ):	0.94	0.97	-2.49	5
	Body 850	Relative Permittivity (ε_r):	54.11	55.16	-1.90	5
		Conductivity (σ):	0.98	0.99	-1.00	5
2015/12/24	Body 835	Relative Permittivity (ε_r):	53.54	55.20	-3.01	5
		Conductivity (σ):	0.95	0.97	-2.38	5
	Body 820	Relative Permittivity (ε_r):	53.69	55.28	-2.87	5
		Conductivity (σ):	0.93	0.97	-3.87	5
	Body 850	Relative Permittivity (ε_r):	53.37	55.16	-3.24	5
		Conductivity (σ):	0.96	0.99	-2.43	5
2016/1/18	Body 835	Relative Permittivity (ε_r):	55.31	55.20	0.20	5
		Conductivity (σ):	0.96	0.97	-1.45	5
	Body 820	Relative Permittivity (ε_r):	55.46	55.28	0.33	5
		Conductivity (σ):	0.94	0.97	-2.93	5
	Body 850	Relative Permittivity (ε_r):	55.17	55.16	0.02	5
		Conductivity (σ):	0.97	0.99	-1.56	5
2016/1/21	Body 835	Relative Permittivity (ε_r):	55.13	55.20	-0.13	5
		Conductivity (σ):	0.95	0.97	-1.69	5
	Body 820	Relative Permittivity (ε_r):	55.29	55.28	0.02	5
		Conductivity (σ):	0.94	0.97	-3.21	5
	Body 850	Relative Permittivity (ε_r):	54.98	55.16	-0.32	5
		Conductivity (σ):	0.97	0.99	-1.77	5
2016/1/22	Body 835	Relative Permittivity (ε_r):	54.81	55.20	-0.71	5
		Conductivity (σ):	0.96	0.97	-0.91	5
	Body 810	Relative Permittivity (ε_r):	55.04	55.32	-0.50	5
		Conductivity (σ):	0.93	0.97	-3.50	5
	Body 850	Relative Permittivity (ε_r):	54.65	55.16	-0.92	5
		Conductivity (σ):	0.98	0.99	-0.99	5
2016/1/25	Body 835	Relative Permittivity (ε_r):	54.09	55.20	-2.01	5
		Conductivity (σ):	0.96	0.97	-1.21	5
	Body 810	Relative Permittivity (ε_r):	54.34	55.32	-1.76	5
		Conductivity (σ):	0.93	0.97	-3.68	5
	Body 850	Relative Permittivity (ε_r):	53.93	55.16	-2.22	5
		Conductivity (σ):	0.97	0.99	-1.25	5
2016/1/26	Body 835	Relative Permittivity (ε_r):	53.80	55.20	-2.54	5
		Conductivity (σ):	0.95	0.97	-2.21	5
	Body 810	Relative Permittivity (ε_r):	54.06	55.32	-2.27	5
		Conductivity (σ):	0.92	0.97	-4.72	5
	Body 850	Relative Permittivity (ε_r):	53.63	55.16	-2.77	5
		Conductivity (σ):	0.96	0.99	-2.32	5
2016/1/26	Body 835	Relative Permittivity (ε_r):	56.06	55.20	1.56	5
		Conductivity (σ):	0.95	0.97	-1.65	5
	Body 810	Relative Permittivity (ε_r):	56.30	55.32	1.78	5
		Conductivity (σ):	0.93	0.97	-4.21	5
	Body 850	Relative Permittivity (ε_r):	55.90	55.16	1.35	5
		Conductivity (σ):	0.97	0.99	-1.76	5

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

1750MHz Band

Date	Freq. (MHz)	Liquid Parameters	Measured	Target	Delta (%)	Limit ±(%)
2016/1/28	Body 1710	Relative Permittivity (ε_r):	52.08	53.54	-2.73	5
		Conductivity (σ):	1.44	1.46	-1.61	5
	Body 1750	Relative Permittivity (ε_r):	51.99	53.43	-2.70	5
		Conductivity (σ):	1.47	1.49	-1.14	5
	Body 1755	Relative Permittivity (ε_r):	51.99	53.43	-2.69	5
		Conductivity (σ):	1.48	1.49	-0.69	5
2016/1/29	Body 1710	Relative Permittivity (ε_r):	51.71	53.54	-3.42	5
		Conductivity (σ):	1.44	1.46	-1.27	5
	Body 1750	Relative Permittivity (ε_r):	51.57	53.43	-3.48	5
		Conductivity (σ):	1.48	1.49	-0.55	5
	Body 1755	Relative Permittivity (ε_r):	51.56	53.43	-3.50	5
		Conductivity (σ):	1.49	1.49	-0.15	5

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

1900MHz Band

Date	Freq. (MHz)	Liquid Parameters	Measured	Target	Delta (%)	Limit ±(%)
2016/1/5	Body 1900	Relative Permittivity (ε_r):	52.09	53.30	-2.27	5
		Conductivity (σ):	1.55	1.52	2.11	5
	Body 1850	Relative Permittivity (ε_r):	52.28	53.30	-1.91	5
		Conductivity (σ):	1.49	1.52	-1.91	5
	Body 1915	Relative Permittivity (ε_r):	52.04	53.30	-2.36	5
		Conductivity (σ):	1.57	1.52	3.16	5
2016/1/6	Body 1900	Relative Permittivity (ε_r):	51.65	53.30	-3.10	5
		Conductivity (σ):	1.56	1.52	2.89	5
	Body 1850	Relative Permittivity (ε_r):	51.83	53.30	-2.76	5
		Conductivity (σ):	1.51	1.52	-0.72	5
	Body 1915	Relative Permittivity (ε_r):	51.60	53.30	-3.19	5
		Conductivity (σ):	1.58	1.52	3.95	5
2016/1/7	Body 1900	Relative Permittivity (ε_r):	52.05	53.30	-2.35	5
		Conductivity (σ):	1.57	1.52	3.55	5
	Body 1850	Relative Permittivity (ε_r):	52.27	53.30	-1.93	5
		Conductivity (σ):	1.51	1.52	-0.53	5
	Body 1915	Relative Permittivity (ε_r):	51.99	53.30	-2.46	5
		Conductivity (σ):	1.59	1.52	4.67	5
2016/1/8	Body 1900	Relative Permittivity (ε_r):	52.11	53.30	-2.23	5
		Conductivity (σ):	1.57	1.52	3.16	5
	Body 1850	Relative Permittivity (ε_r):	52.35	53.30	-1.78	5
		Conductivity (σ):	1.51	1.52	-0.72	5
	Body 1915	Relative Permittivity (ε_r):	52.06	53.30	-2.33	5
		Conductivity (σ):	1.58	1.52	4.21	5
2016/1/9	Body 1900	Relative Permittivity (ε_r):	50.94	53.30	-4.43	5
		Conductivity (σ):	1.52	1.52	0.07	5
	Body 1850	Relative Permittivity (ε_r):	51.12	53.30	-4.09	5
		Conductivity (σ):	1.47	1.52	-3.22	5
	Body 1915	Relative Permittivity (ε_r):	50.89	53.30	-4.52	5
		Conductivity (σ):	1.53	1.52	0.86	5
2016/1/10	Body 1900	Relative Permittivity (ε_r):	51.73	53.30	-2.95	5
		Conductivity (σ):	1.52	1.52	-0.26	5
	Body 1850	Relative Permittivity (ε_r):	51.89	53.30	-2.65	5
		Conductivity (σ):	1.46	1.52	-4.21	5
	Body 1915	Relative Permittivity (ε_r):	51.69	53.30	-3.02	5
		Conductivity (σ):	1.53	1.52	0.79	5
2016/1/12	Body 1900	Relative Permittivity (ε_r):	51.26	53.30	-3.83	5
		Conductivity (σ):	1.51	1.52	-0.99	5
	Body 1850	Relative Permittivity (ε_r):	51.47	53.30	-3.44	5
		Conductivity (σ):	1.45	1.52	-4.61	5
	Body 1915	Relative Permittivity (ε_r):	51.21	53.30	-3.91	5
		Conductivity (σ):	1.52	1.52	-0.20	5
2016/1/16	Body 1900	Relative Permittivity (ε_r):	50.96	53.30	-4.39	5
		Conductivity (σ):	1.51	1.52	-0.79	5
	Body 1850	Relative Permittivity (ε_r):	51.10	53.30	-4.14	5
		Conductivity (σ):	1.45	1.52	-4.61	5
	Body 1915	Relative Permittivity (ε_r):	50.93	53.30	-4.44	5
		Conductivity (σ):	1.52	1.52	0.07	5

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

2.4GHz/ 5GHz band

Date	Freq. (MHz)	Liquid Parameters	Measured	Target	Delta (%)	Limit ±(%)
2015/11/16	Body 2450	Relative Permittivity (ε_r):	50.41	52.70	-4.35	5
		Conductivity (σ):	2.00	1.95	2.36	5
	Body 2410	Relative Permittivity (ε_r):	50.58	52.76	-4.13	5
		Conductivity (σ):	1.95	1.91	2.02	5
	Body 2475	Relative Permittivity (ε_r):	50.32	52.67	-4.46	5
		Conductivity (σ):	2.03	1.99	2.11	5
2015/12/16	Body 2450	Relative Permittivity (ε_r):	51.06	52.70	-3.11	5
		Conductivity (σ):	2.01	1.95	2.92	5
	Body 2400	Relative Permittivity (ε_r):	51.23	52.77	-2.92	5
		Conductivity (σ):	1.92	1.90	1.32	5
	Body 2480	Relative Permittivity (ε_r):	50.93	52.66	-3.29	5
		Conductivity (σ):	2.07	1.99	3.71	5
2015/11/18	Body 5180	Relative Permittivity (ε_r):	48.43	49.05	-1.26	10
		Conductivity (σ):	5.37	5.27	1.87	5
	Body 5250	Relative Permittivity (ε_r):	48.23	48.95	-1.47	10
		Conductivity (σ):	5.54	5.35	3.44	5
	Body 5825	Relative Permittivity (ε_r):	47.97	48.20	-0.48	10
		Conductivity (σ):	6.11	6.00	1.88	5
2015/11/19	Body 5180	Relative Permittivity (ε_r):	47.09	49.05	-3.98	10
		Conductivity (σ):	5.21	5.27	-1.09	5
	Body 5750	Relative Permittivity (ε_r):	46.48	48.27	-3.73	10
		Conductivity (σ):	5.95	5.94	0.24	5
	Body 5825	Relative Permittivity (ε_r):	46.61	48.20	-3.31	10
		Conductivity (σ):	5.92	6.00	-1.31	5
2015/12/3	Body 5180	Relative Permittivity (ε_r):	48.29	49.05	-1.54	10
		Conductivity (σ):	5.31	5.27	0.71	5
	Body 5600	Relative Permittivity (ε_r):	47.65	48.48	-1.71	10
		Conductivity (σ):	5.87	5.76	1.86	5
	Body 5825	Relative Permittivity (ε_r):	47.41	48.20	-1.64	10
		Conductivity (σ):	6.19	6.00	3.22	5
2015/12/9	Body 5180	Relative Permittivity (ε_r):	47.37	49.05	-3.42	10
		Conductivity (σ):	5.27	5.27	-0.08	5
	Body 5750	Relative Permittivity (ε_r):	46.45	48.27	-3.78	10
		Conductivity (σ):	6.12	5.94	3.17	5
	Body 5825	Relative Permittivity (ε_r):	46.51	48.20	-3.51	10
		Conductivity (σ):	6.07	6.00	1.20	5

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

11. System Performance Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are remeasured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

11.1. System Performance Check Measurement Conditions

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm ± 0.5 cm for SAR measurements.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 12 mm (1GHz to 3GHz) and15 mm (below 1GHz) was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was 100 mW(For 5GHz band) or 250 mW(For other band).
- The results are normalized to 1 W input power.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

11.2. Reference SAR Values for System Performance Check

The target(reference) SAR values can be obtained from the calibration certificate of system validation dipoles(Refer to section 15). The target SAR values are SAR measured value in the calibration certificate scaled to 1W.

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (mW/g)		
				1g/10g	Head	Body
D750V3	1058	05/28/2015	750	1g	8.24	8.64
				10g	5.40	5.72
D835V2	4d149	5/05/2013	835	1g	9.96	10.04
				10g	6.44	6.60
D1750V2	1089	5/08/2013	1750	1g	36.64	38.16
				10g	19.56	20.44
D1900V2	5d169	05/07/2013	1900	1g	40.00	40.80
				10g	20.92	21.44
D2450V2	713	9/3/2013	2450	1g	52.0	50.4
				10g	24.2	23.6
D5GHV2	1020	1/13/2015	5250	1g	80.4	73.8
				10g	22.9	20.7
			5600	1g	81.4	77.2
				10g	23.1	21.4
			5750	1g	78.8	73.7
				10g	22.4	20.4

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

11.3. System Performance Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %
	Type	Serial #			Zoom Scan	Normalize to 1 W		
1/21/2016	D750V3	1058	Body	1g	2.00	8.0	8.64	-7.41
				10g	1.33	5.32	5.72	-6.99
1/22/2016	D750V3	1058	Body	1g	2.01	8.0	8.64	-6.94
				10g	1.34	5.36	5.72	-6.29
1/25/2016	D750V3	1058	Body	1g	2.02	8.1	8.64	-6.48
				10g	1.34	5.36	5.72	-6.29
1/26/2016	D750V3	1058	Body	1g	2.00	8.0	8.64	-7.41
				10g	1.33	5.32	5.72	-6.99
12/23/2015	D835V2	4d149	Body	1g	2.41	9.64	10.04	-3.98
				10g	1.60	6.40	6.60	-3.03
12/24/2015	D835V2	4d149	Body	1g	2.41	9.64	10.04	-3.98
				10g	1.61	6.44	6.60	-2.42
1/18/2016	D835V2	4d149	Body	1g	2.40	9.60	10.04	-4.38
				10g	1.60	6.40	6.60	-3.03
1/21/2016	D835V2	4d149	Body	1g	2.41	9.64	10.04	-3.98
				10g	1.61	6.44	6.60	-2.42
1/22/2016	D835V2	4d149	Body	1g	2.43	9.72	10.04	-3.19
				10g	1.62	6.48	6.60	-1.82
1/25/2016	D835V2	4d149	Body	1g	2.51	10.04	10.04	0.00
				10g	1.67	6.68	6.60	1.21
1/26/2016	D835V2	4d149	Body	1g	2.49	9.96	10.04	-0.80
				10g	1.66	6.64	6.60	0.61
1/27/2016	D835V2	4d149	Body	1g	2.42	9.68	10.04	-3.59
				10g	1.61	6.44	6.60	-2.42
1/28/2016	D1750V2	1089	Body	1g	9.40	37.60	38.16	-1.47
				10g	5.05	20.20	20.44	-1.17
1/29/2016	D1750V2	1089	Body	1g	9.48	37.92	38.16	-0.63
				10g	5.08	20.32	20.44	-0.59
1/5/2016	D1900V2	5d169	Body	1g	10.00	40.00	40.8	-1.96
				10g	5.24	20.96	21.44	-2.24
1/6/2016	D1900V2	5d169	Body	1g	9.92	39.68	40.8	-2.75
				10g	5.13	20.52	21.44	-4.29
1/7/2016	D1900V2	5d169	Body	1g	10.60	42.40	40.8	3.92
				10g	5.54	22.16	21.44	3.36
1/8/2016	D1900V2	5d169	Body	1g	9.94	39.76	40.8	-2.55
				10g	5.19	20.76	21.44	-3.17
1/9/2016	D1900V2	5d169	Body	1g	9.59	38.36	40.8	-5.98
				10g	5.08	20.32	21.44	-5.22
1/10/2016	D1900V2	5d169	Body	1g	10.00	40.00	40.8	-1.96
				10g	5.28	21.12	21.44	-1.49
1/12/2016	D1900V2	5d169	Body	1g	9.91	39.64	40.8	-2.84
				10g	5.27	21.08	21.44	-1.68
1/16/2016	D1900V2	5d169	Body	1g	9.94	39.76	40.8	-2.55
				10g	5.23	20.92	21.44	-2.43

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %
	Type	Serial #			Zoom Scan	Normalize to 1 W		
11/16/2015	D2450V2	713	Body	1g	13.70	54.8	50.4	8.73
				10g	6.26	25.0	23.6	6.10
12/16/2015	D2450V2	713	Body	1g	13.00	52.0	50.4	3.17
				10g	5.94	23.8	23.6	0.68
11/18/2015	D5GHzV2 5.25 GHz	1020	Body	1g	8.00	80.0	73.8	8.40
				10g	2.26	22.6	20.7	9.18
11/19/2015	D5GHzV2 5.75 GHz	1020	Body	1g	7.44	74.4	73.7	0.95
				10g	2.07	20.7	20.4	1.47
12/3/2015	D5GHzV2 5.6 GHz	1020	Body	1g	8.10	81.0	77.2	4.92
				10g	2.26	22.6	21.4	5.61
12/9/2015	D5GHzV2 5.25 GHz	1020	Body	1g	7.43	74.3	73.8	0.68
				10g	2.11	21.1	20.7	1.93
12/9/2015	D5GHzV2 5.75 GHz	1020	Body	1g	7.14	71.4	73.7	-3.12
				10g	2.02	20.2	20.4	-0.98

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

12. RF Exposure Conditions (Test Configurations)

Refer to Section 17 “Antenna Dimensions and Separation Distances” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

12.1. Standalone SAR Test Exclusion Considerations

Standalone SAR test exclusion was based upon the following criteria:

1. According to KDB 447498D01 § 4.1 f) if the antenna is at close proximity to user then the outer surface of the DUT should be treated as the radiating surface. The test separation distance is then determined by the smallest distance between the outer surface of the device and the user. For the purposes of this report close proximity has been defined as closer than 50 mm. For antennas <50 mm from the rear or edge the separation distance used for the SAR exclusion calculations is 5 mm.
2. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
3. If the antenna to DUT adjacent edge or bottom separation distance is >50mm the actual antenna to user separation distance is used to determine SAR exclusion and estimated SAR value
4. Reduced power does not apply for edges 2, 3 and 4.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

12.1.1. SAR Test Exclusion Calculations for antennas <50mm to adjacent edges

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)							Calculated Threshold Value						
			dBm	mW	Bottom side	Edge 1	Edge 2	Edge 3	Edge 4	Edge 1tilt	Front	Bottom side	Edge 1	Edge 2	Edge 3	Edge 4	Edge 1tilt	Front
Full Power WWAN																		
WWAN	WCDMA V	846.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		14.4 -MEASURE-	12.2 -MEASURE-	46.2 -MEASURE-	> 50 mm	> 50 mm	11.5 -MEASURE-	
WWAN	WCDMA IV	1752.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		20.8 -MEASURE-	17.5 -MEASURE-	66.5 -MEASURE-	> 50 mm	> 50 mm	16.6 -MEASURE-	
WWAN	WCDMA II	1907.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		21.7 -MEASURE-	18.2 -MEASURE-	69.3 -MEASURE-	> 50 mm	> 50 mm	17.3 -MEASURE-	
WWAN	CDMA BC0	848.3	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		18.2 -MEASURE-	15.3 -MEASURE-	58.2 -MEASURE-	> 50 mm	> 50 mm	14.6 -MEASURE-	
WWAN	CDMA BC1	1908.8	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		27.3 -MEASURE-	23 -MEASURE-	87.3 -MEASURE-	> 50 mm	> 50 mm	21.8 -MEASURE-	
WWAN	CDMA BC10	822.75	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		17.9 -MEASURE-	15.1 -MEASURE-	57.3 -MEASURE-	> 50 mm	> 50 mm	14.3 -MEASURE-	
WWAN	LTE 2	1909.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		21.7 -MEASURE-	18.3 -MEASURE-	69.4 -MEASURE-	> 50 mm	> 50 mm	17.3 -MEASURE-	
WWAN	LTE 4	1754.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		20.8 -MEASURE-	17.5 -MEASURE-	66.5 -MEASURE-	> 50 mm	> 50 mm	16.6 -MEASURE-	
WWAN	LTE 5	848.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		14.4 -MEASURE-	12.2 -MEASURE-	46.2 -MEASURE-	> 50 mm	> 50 mm	11.6 -MEASURE-	
WWAN	LTE 13	784.5	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		13.9 -MEASURE-	11.7 -MEASURE-	44.5 -MEASURE-	> 50 mm	> 50 mm	11.1 -MEASURE-	
WWAN	LTE 17	713.5	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		13.3 -MEASURE-	11.2 -MEASURE-	42.4 -MEASURE-	> 50 mm	> 50 mm	10.6 -MEASURE-	
WWAN	LTE 25	1914.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		21.7 -MEASURE-	18.3 -MEASURE-	69.5 -MEASURE-	> 50 mm	> 50 mm	17.4 -MEASURE-	
Reduction Power WWAN																		
WWAN	WCDMA V	846.6	20.5	112	5.50	3.20				2.82		20.6 -MEASURE-	20.6 -MEASURE-				20.6 -MEASURE-	
WWAN	WCDMA IV	1752.6	18.0	63	5.50	3.20				2.82		16.7 -MEASURE-	16.7 -MEASURE-				16.7 -MEASURE-	
WWAN	WCDMA II	1907.6	16.6	46	5.50	3.20				2.82		12.7 -MEASURE-	12.7 -MEASURE-				12.7 -MEASURE-	
WWAN	CDMA BC0	848.3	20.7	117	5.50	3.20				2.82		21.6 -MEASURE-	21.6 -MEASURE-				21.6 -MEASURE-	
WWAN	CDMA BC1	1908.8	16.1	41	5.50	3.20				2.82		11.3 -MEASURE-	11.3 -MEASURE-				11.3 -MEASURE-	
WWAN	CDMA BC10	822.75	20.4	110	5.50	3.20				2.82		20 -MEASURE-	20 -MEASURE-				20 -MEASURE-	
WWAN	LTE 2	1909.2	16.4	44	5.50	3.20				2.82		12.2 -MEASURE-	12.2 -MEASURE-				12.2 -MEASURE-	
WWAN	LTE 4	1754.2	17.8	60	5.50	3.20				2.82		15.9 -MEASURE-	15.9 -MEASURE-				15.9 -MEASURE-	
WWAN	LTE 5	848.2	20.9	123	5.50	3.20				2.82		22.7 -MEASURE-	22.7 -MEASURE-				22.7 -MEASURE-	
WWAN	LTE 13	784.5	21.2	132	5.50	3.20				2.82		23.4 -MEASURE-	23.4 -MEASURE-				23.4 -MEASURE-	
WWAN	LTE 17	713.5	22.2	166	5.50	3.20				2.82		28 -MEASURE-	28 -MEASURE-				28 -MEASURE-	
WWAN	LTE 25	1914.2	16.1	41	5.50	3.20				2.82		11.3 -MEASURE-	11.3 -MEASURE-				11.3 -MEASURE-	

Note(s):

1. According to KDB 447498D01, if the calculated threshold value is >3 then SAR testing is required.
2. The separation distances from antennas to the bottom side or the edge were input. For antennas <50 mm from the bottom side or edge(shaded blue frame in above table) the separation distance used for the SAR exclusion calculations is 5 mm.
3. The separation distances from antennas to the bottom side or the edge were input(shaded pink frame in above table). A number in the parenthesis is "(proximity sensor trigger distance – 1)mm". The separation distance used for the SAR exclusion calculations is 16 mm(Bottom side), 19 mm(Edge 1) and 20 mm(Edge 1 tilt).

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

12.1.2. SAR Test Exclusion Calculations for antennas >50mm to adjacent edges

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)							Calculated Threshold Value						
			dBm	mW	Bottom side	Edge 1	Edge 2	Edge 3	Edge 4	Edge 1 tilt	Front	Bottom side	Edge 1	Edge 2	Edge 3	Edge 4	Edge 1 tilt	Front
Full Power WWAN																		
WWAN	WCDMA V	846.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	WCDMA IV	1752.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	WCDMA II	1907.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	CDMA BC0	848.3	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	CDMA BC1	1908.8	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	CDMA BC10	822.75	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	LTE 2	1909.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	LTE 4	1754.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	LTE 5	848.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	LTE 13	784.5	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	LTE 17	713.5	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
WWAN	LTE 25	1914.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		< 50 mm	< 50 mm	< 50 mm	20 cm <	20 cm <	< 50 mm	
Reduction Power WWAN																		
WWAN	WCDMA V	846.6	20.5	112	5.50	3.20				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	WCDMA IV	1752.6	18.0	63	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	WCDMA II	1907.6	16.6	46	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	CDMA BC0	848.3	20.7	117	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	CDMA BC1	1908.8	16.1	41	5.50	3.20				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	CDMA BC10	822.75	20.4	110	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	LTE 2	1909.2	16.4	44	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	LTE 4	1754.2	17.8	60	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	LTE 5	848.2	20.9	123	5.50	3.20				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	LTE 13	784.5	21.2	132	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	LTE 17	713.5	22.2	166	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	
WWAN	LTE 25	1914.2	16.1	41	5.50	0.00				2.82		< 50 mm	< 50 mm				< 50 mm	

Note(s):

1. According to KDB 447498D01, if the calculated Power threshold is less than the output power then SAR testing is required.
2. The separation distances from antennas to the bottom side or the edge were input. For antennas <50 mm from the bottom side or edge(shaded blue frame in above table) the separation distance used for the SAR exclusion calculations is 5 mm.
3. The separation distances from antennas to the bottom side or the edge were input(shaded pink frame in above table). A number in the parenthesis is “(proximity sensor trigger distance – 1)mm”. The separation distance used for the SAR exclusion calculations is 16 mm(Bottom side), 19 mm(Edge 1) and 20 mm(Edge 1 tilt).

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

12.2. Estimated SAR for Simultaneous Transmission SAR Analysis

Considerations for using estimated SAR values:

1. According to KDB 447498D01 § 4.1 f) if the antenna is at close proximity to user then the outer surface of the DUT should be treated as the radiating surface. The test separation distance is then determined by the smallest distance between the outer surface of the device and the user. For the purposes of this report close proximity has been defined as closer than 50 mm. For antennas <50 mm from the rear or edge the separation distance used for the estimated SAR calculations is 5 mm.
2. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
3. Output power is the maximum rated power (including tune-up or manufacturing tolerances) and includes source-based averaging.
4. If the antenna separation distance is > 50mm then the estimated SAR value is 0.4 W/Kg.
5. Formulas round separation distance to nearest mm and power to nearest mW before calculating estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

12.2.1. Estimated SAR for WWAN

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)							Estimated 1-g SAR Value (W/kg)						
			dBm	mW	Bottom side	Edge 1	Edge 2	Edge 3	Edge 4	Edge 1 tilt	Front	Bottom side	Edge 1	Edge 2	Edge 3	Edge 4	Edge 1 tilt	Front
Full Power WWAN																		
WWAN	WCDMA V	846.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	WCDMA IV	1752.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	WCDMA II	1907.6	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	CDMA BC0	848.3	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	CDMA BC1	1908.8	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	CDMA BC10	822.75	25.0	316	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	LTE 2	1909.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	LTE 4	1754.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	LTE 5	848.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	LTE 13	784.5	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	LTE 17	713.5	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
WWAN	LTE 25	1914.2	24.0	251	5.50(16.00)	3.20(19.00)	32.30	203.55	204.40	2.82(20.00)		-MEASURE-	-MEASURE-	-MEASURE-	20 cm <	20 cm <	-MEASURE-	
Reduction Power WWAN																		
WWAN	WCDMA V	846.6	20.5	112	5.50	3.20				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	WCDMA IV	1752.6	18.0	63	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	WCDMA II	1907.6	16.6	46	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	CDMA BC0	848.3	20.7	117	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	CDMA BC1	1908.8	16.1	41	5.50	3.20				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	CDMA BC10	822.75	20.4	110	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	LTE 2	1909.2	16.4	44	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	LTE 4	1754.2	17.8	60	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	LTE 5	848.2	20.9	123	5.50	3.20				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	LTE 13	784.5	21.2	132	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	LTE 17	713.5	22.2	166	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	
WWAN	LTE 25	1914.2	16.1	41	5.50	0.00				2.82		-MEASURE-	-MEASURE-				-MEASURE-	

Notes:

1. According to KDB 447498D01, if the calculated threshold value is >3 then SAR testing is required.
2. The separation distances from antennas to the bottom side or the edge were input. For antennas <50 mm from the bottom side or edge(shaded blue frame in above table) the separation distance used for the SAR exclusion calculations is 5 mm.
3. The separation distances from antennas to the bottom side or the edge were input(shaded pink frame in above table). A number in the parenthesis is “(proximity sensor trigger distance – 1)mm”. The separation distance used for the SAR exclusion calculations is 16 mm(Bottom side), 19 mm(Edge 1) and 20 mm(Edge 1 tilt).

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13. Measured and Reported (Scaled) SAR Results

13.1. W-CDMA Band 5

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	Rel 99 RMC 12.2 kbpx	4132	826.4	20.5	20.31	0.916	0.957	1	
			4183	836.6	20.5	20.42	0.965	0.983	2	
			4233	846.6	20.5	20.26	0.991	**1.047**	3	
Bottom side	0	Rel 99 RMC 12.2 kbpx	4132	826.4	20.5	20.31				
			4183	836.6	20.5	20.42	0.545	**0.555**	4	
			4233	846.6	20.5	20.26				
Edge 1 tilt	0	Rel 99 RMC 12.2 kbpx	4132	826.4	20.5	20.31	0.979	1.023	5	
			4183	836.6	20.5	20.42	1.010	1.029	6	
			4233	846.6	20.5	20.26	1.010	**1.067**	7	

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	Rel 99 RMC 12.2 kbps	4132	826.4	24.0	22.83	0.227	**0.297**	8	
			4183	836.6	24.0	22.82				
			4233	846.6	24.0	22.71				
Edge 2	0	Rel 99 RMC 12.2 kbps	4132	826.4	24.0	22.83	0.151	**0.198**	9	
			4183	836.6	24.0	22.82				
			4233	846.6	24.0	22.71				
Edge 2(with stylus pen)	0	Rel 99 RMC 12.2 kbps	4132	826.4	24.0	22.83	0.150	**0.196**	10	
			4183	836.6	24.0	22.82				
			4233	846.6	24.0	22.71				
Bottom side	16	Rel 99 RMC 12.2 kbps	4132	826.4	24.0	22.83	0.154	**0.202**	11	
			4183	836.6	24.0	22.82				
			4233	846.6	24.0	22.71				
Edge 1 tilt	20	Rel 99 RMC 12.2 kbps	4132	826.4	24.0	22.83	0.290	**0.380**	12	
			4183	836.6	24.0	22.82				
			4233	846.6	24.0	22.71				

Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v06, 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.

1. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
2. ≤ 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
3. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.2. W-CDMA Band 4

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	Rel 99 RMC 12.2 kbps	1312	1712.4	18.0	17.82	1.090	1.136	1	
			1413	1732.6	18.0	17.96	1.260	1.272	2	
			1513	1752.6	18.0	17.68	1.290	**1.389**	3	
Bottom side	0	Rel 99 RMC 12.2 kbps	1312	1712.4	18.0	17.82				
			1413	1732.6	18.0	17.96	0.527	**0.532**	4	
			1513	1752.6	18.0	17.68				
Edge 1 tilt	0	Rel 99 RMC 12.2 kbps	1312	1712.4	18.0	17.82	0.895	0.933	5	
			1413	1732.6	18.0	17.96	1.110	1.120	6	
			1513	1752.6	18.0	17.68	1.240	**1.335**	7	

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	Rel 99 RMC 12.2 kbps	1312	1712.4	24.0	22.76				
			1413	1732.6	24.0	22.96	0.473	**0.601**	8	
			1513	1752.6	24.0	22.89				
Edge 2	0	Rel 99 RMC 12.2 kbps	1312	1712.4	24.0	22.76				
			1413	1732.6	24.0	22.96	0.107	**0.136**	9	
			1513	1752.6	24.0	22.89				
Edge 2(with stylus pen)	0	Rel 99 RMC 12.2 kbps	1312	1712.4	24.0	22.76				
			1413	1732.6	24.0	22.96	0.103	**0.131**	10	
			1513	1752.6	24.0	22.89				
Bottom side	16	Rel 99 RMC 12.2 kbps	1312	1712.4	24.0	22.76				
			1413	1732.6	24.0	22.96	0.291	**0.370**	11	
			1513	1752.6	24.0	22.89				
Edge 1 tilt	20	Rel 99 RMC 12.2 kbps	1312	1712.4	24.0	22.76				
			1413	1732.6	24.0	22.96	0.436	**0.554**	12	
			1513	1752.6	24.0	22.89				

Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v06, 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.

1. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
2. ≤ 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
3. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

The maximum SAR value of WCDMA Band 4 is Repeated SAR. Please refer to Section 13.16.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.3. W-CDMA Band 2

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	Rel 99 RMC 12.2 kbpx	9262	1852.4	16.6	16.47	1.090	1.123	1	
			9400	1880.0	16.6	16.54	1.060	1.075	2	
			9538	1907.6	16.6	16.51	1.210	**1.235**	3	
Bottom side	0	Rel 99 RMC 12.2 kbpx	9262	1852.4	16.6	16.47				
			9400	1880.0	16.6	16.54	0.566	**0.574**	4	
			9538	1907.6	16.6	16.51				
Edge 1 tilt	0	Rel 99 RMC 12.2 kbpx	9262	1852.4	16.6	16.47	1.280	1.319	5	
			9400	1880.0	16.6	16.54	1.270	1.288	6	
			9538	1907.6	16.6	16.51	1.350	**1.378**	7	

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	Rel 99 RMC 12.2 kbps	9262	1852.4	24.0	22.98				
			9400	1880.0	24.0	23.01				
			9538	1907.6	24.0	23.12	0.569	**0.697**	8	
Edge 2	0	Rel 99 RMC 12.2 kbps	4132	1852.4	24.0	22.98				
			4183	1880.0	24.0	23.01				
			4233	1907.6	24.0	23.12	0.068	**0.083**	9	
Edge 2(with stylus pen)	0	Rel 99 RMC 12.2 kbps	4132	1852.4	24.0	22.98				
			4183	1880.0	24.0	23.01				
			4233	1907.6	24.0	23.12	0.061	**0.075**	10	
Bottom side	16	Rel 99 RMC 12.2 kbps	4132	1852.4	24.0	22.98				
			4183	1880.0	24.0	23.01				
			4233	1907.6	24.0	23.12	0.306	**0.375**	11	
Edge 1 tilt	20	Rel 99 RMC 12.2 kbps	4132	1852.4	24.0	22.98				
			4183	1880.0	24.0	23.01				
			4233	1907.6	24.0	23.12	0.433	**0.530**	12	

Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v06, 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.

1. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
2. ≤ 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
3. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

The maximum SAR value of WCDMA Band 2 is Repeated SAR. Please refer to Section 13.16.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.4. CDMA Band 0

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	1xRTT (RC3 SO32)	1013	824.7	20.7	20.63	1.080	1.098	1	
			384	836.5	20.7	20.58	1.080	1.110	2	
			777	848.3	20.7	20.47	1.170	**1.234**	3	
Edge 1	0	1xEVDO Rel. 0	1013	824.7	20.7	20.49	0.922	0.968	4	
			384	836.5	20.7	20.59	0.909	0.932	5	
			777	848.3	20.7	20.55	0.976	**1.010**	6	
Bottom side	0	1xRTT (RC3 SO32)	1013	824.7	20.7	20.63	0.542	**0.551**	7	
			384	836.5	20.7	20.58				
			777	848.3	20.7	20.47				
Bottom side	0	1xEVDO Rel. 0	1013	824.7	20.7	20.49				
			384	836.5	20.7	20.59	0.496	**0.509**	8	
			777	848.3	20.7	20.55				
Edge 1 tilt	0	1xRTT (RC3 SO32)	1013	824.7	20.7	20.63	1.080	1.098	9	
			384	836.5	20.7	20.58	1.100	1.131	10	
			777	848.3	20.7	20.47	1.080	**1.139**	11	
Edge 1 tilt	0	1xEVDO Rel. 0	1013	824.7	20.7	20.49	1.050	**1.102**	12	
			384	836.5	20.7	20.59	1.050	1.077	13	
			777	848.3	20.7	20.55	1.060	1.097	14	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	1xRTT (RC3 SO32)	1013	824.7	25.0	23.40				
			384	836.5	25.0	23.54	0.307	**0.430**	15	
			777	848.3	25.0	23.44				
Edge 1	19	1xEVDO Rel. 0	1013	824.7	25.0	23.54	0.285	**0.399**	16	
			384	836.5	25.0	23.53				
			777	848.3	25.0	23.39				
Edge 2	0	1xRTT (RC3 SO32)	1013	824.7	25.0	23.40				
			384	836.5	25.0	23.54	0.222	0.311	17	
			777	848.3	25.0	23.44				
Edge 2	0	1xEVDO Rel. 0	1013	824.7	25.0	23.54	0.152	0.213	18	
			384	836.5	25.0	23.53				
			777	848.3	25.0	23.39				
Edge 2(with stylus pen)	0	1xRTT (RC3 SO32)	1013	824.7	25.0	23.40				
			384	836.5	25.0	23.54	0.213	0.298	19	4
			777	848.3	25.0	23.44				
Bottom side	16	1xRTT (RC3 SO32)	1013	824.7	25.0	23.40				
			384	836.5	25.0	23.54	0.298	**0.417**	20	
			777	848.3	25.0	23.44				
Bottom side	16	1xEVDO Rel. 0	1013	824.7	25.0	23.54	0.280	**0.392**	21	
			384	836.5	25.0	23.53				
			777	848.3	25.0	23.39				
Edge 1 tilt	20	1xRTT (RC3 SO32)	1013	824.7	25.0	23.40				
			384	836.5	25.0	23.54	0.309	**0.432**	22	
			777	848.3	25.0	23.44				
Edge 1 tilt	20	1xEVDO Rel. 0	1013	824.7	25.0	23.54	0.263	**0.368**	23	
			384	836.5	25.0	23.53				
			777	848.3	25.0	23.39				

Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v06, 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.

1. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
2. ≤ 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
3. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

4. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

The maximum SAR value of CDMA Band 0 is Repeated SAR. Please refer to Section 13.16.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.5. CDMA Band 1

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	1xRTT (RC3 SO32)	25	1851.3	16.10	15.90	0.931	0.975	1	
			600	1880.0	16.10	16.03	1.080	1.098	2	
			1175	1908.8	16.10	15.67	1.070	**1.181**	3	
Edge 1	0	1xEVDO Rel. 0	25	1851.3	15.23	15.03	1.050	1.099	4	
			600	1880.0	15.23	14.74	1.080	**1.209**	5	
			1175	1908.8	15.23	15.20	1.200	1.208	6	
Bottom side	0	1xRTT (RC3 SO32)	25	1851.3	16.10	15.90				
			600	1880.0	16.10	16.03	0.516	**0.524**	7	
			1175	1908.8	16.10	15.67				
Bottom side	0	1xEVDO Rel. 0	25	1851.3	15.23	15.03				
			600	1880.0	15.23	14.74				
			1175	1908.8	15.23	15.20	0.513	**0.517**	8	
Edge 1 tilt	0	1xRTT (RC3 SO32)	25	1851.3	16.10	15.90	1.230	**1.288**	9	
			600	1880.0	16.10	16.03	1.200	1.219	10	
			1175	1908.8	16.10	15.67	1.160	1.281	11	
Edge 1 tilt	0	1xEVDO Rel. 0	25	1851.3	15.23	15.03	1.180	1.236	12	
			600	1880.0	15.23	14.74	1.250	**1.399**	13	
			1175	1908.8	15.23	15.20	1.180	1.188	14	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	1xRTT (RC3 SO32)	25	1851.3	25.0	23.74	0.682	0.912	15	
			600	1880.0	25.0	23.77	0.688	0.913	16	
			1175	1908.8	25.0	23.82	0.757	**0.993**	17	
Edge 1	19	1xEVDO Rel. 0	25	1851.3	25.0	23.63				
			600	1880.0	25.0	23.73	0.595	**0.797**	18	
			1175	1908.8	25.0	23.62				
Edge 2	0	1xRTT (RC3 SO32)	25	1851.3	25.0	23.74				
			600	1880.0	25.0	23.77				
			1175	1908.8	25.0	23.82	0.099	0.130	19	
Edge 2	0	1xEVDO Rel. 0	25	1851.3	25.0	23.63				
			600	1880.0	25.0	23.73	0.048	0.064	20	
			1175	1908.8	25.0	23.62				
Edge 2(with stylus pen)	0	1xRTT (RC3 SO32)	25	1851.3	25.0	23.74				
			600	1880.0	25.0	23.77				
			1175	1908.8	25.0	23.82	0.086	0.113	21	4
Bottom side	16	1xRTT (RC3 SO32)	25	1851.3	25.0	23.74				
			600	1880.0	25.0	23.77				
			1175	1908.8	25.0	23.82	0.413	**0.542**	22	
Bottom side	16	1xEVDO Rel. 0	25	1851.3	25.0	23.63				
			600	1880.0	25.0	23.73	0.410	**0.549**	23	
			1175	1908.8	25.0	23.62				
Edge 1 tilt	20	1xRTT (RC3 SO32)	25	1851.3	25.0	23.74				
			600	1880.0	25.0	23.77				
			1175	1908.8	25.0	23.82	0.600	**0.787**	24	
Edge 1 tilt	20	1xEVDO Rel. 0	25	1851.3	25.0	23.63				
			600	1880.0	25.0	23.73	0.525	**0.703**	25	
			1175	1908.8	25.0	23.62				

Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v06, 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.

1. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
2. ≤ 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
3. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

4. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.6. CDMA Band 10

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	1xRTT (RC3 SO32)	450	817.3	20.4	20.33	0.962	0.978	1	
			560	820.0	20.4	20.30	0.933	0.955	2	
			670	822.8	20.4	20.37	1.020	**1.027**	3	
Edge 1	0	1xEVDO Rel. 0	450	817.3	20.4	20.35	0.958	0.969	4	
			560	820.0	20.4	20.37	0.914	0.920	5	
			670	822.8	20.4	20.37	0.964	**0.971**	6	
Bottom side	0	1xRTT (RC3 SO32)	450	817.3	20.4	20.33				
			560	820.0	20.4	20.30				
			670	822.8	20.4	20.37	0.488	**0.491**	7	
Bottom side	0	1xEVDO Rel. 0	450	817.3	20.4	20.35				
			560	820.0	20.4	20.37	0.482	**0.485**	8	
			670	822.8	20.4	20.37				
Edge 1 tilt	0	1xRTT (RC3 SO32)	450	817.3	20.4	20.33	1.030	1.047	9	
			560	820.0	20.4	20.30	1.060	**1.085**	10	
			670	822.8	20.4	20.37	1.030	1.037	11	
Edge 1 tilt	0	1xEVDO Rel. 0	450	817.3	20.4	20.35	1.000	1.012	12	
			560	820.0	20.4	20.37	1.090	**1.098**	13	
			670	822.8	20.4	20.37	1.040	1.047	14	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	1xRTT (RC3 SO32)	450	817.3	24.0	23.35				
			560	820.0	24.0	23.39				
			670	822.8	24.0	23.45	0.269	**0.305**	15	
Edge 1	19	1xEVDO Rel. 0	450	817.3	24.0	23.46	0.387	**0.438**	16	
			560	820.0	24.0	23.42				
			670	822.8	24.0	23.44				
Edge 2	0	1xRTT (RC3 SO32)	450	817.3	24.0	23.35				
			560	820.0	24.0	23.39				
			670	822.8	24.0	23.45	0.149	0.169	17	
Edge 2	0	1xEVDO Rel. 0	450	817.3	24.0	23.46	0.175	0.198	18	
			560	820.0	24.0	23.42				
			670	822.8	24.0	23.44				
Edge 2(with stylus pen)	0	1xEVDO Rel. 0	450	817.3	24.0	23.46	0.189	0.214	19	4
Bottom side	16	1xRTT (RC3 SO32)	450	817.3	24.0	23.35				
			560	820.0	24.0	23.39				
			670	822.8	24.0	23.45	0.300	**0.341**	20	
Bottom side	16	1xEVDO Rel. 0	450	817.3	24.0	23.46	0.245	**0.277**	21	
			560	820.0	24.0	23.42				
			670	822.8	24.0	23.44				
Edge 1 tilt	20	1xRTT (RC3 SO32)	450	817.3	24.0	23.35				
			560	820.0	24.0	23.39				
			670	822.8	24.0	23.45	0.279	**0.317**	22	
Edge 1 tilt	20	1xEVDO Rel. 0	450	817.3	24.0	23.46	0.257	**0.291**	23	
			560	820.0	24.0	23.42				
			670	822.8	24.0	23.44				

Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v06, 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.

1. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
2. ≤ 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
3. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

4. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

The maximum SAR value of CDMA Band 10 is Repeated SAR. Please refer to Section 13.16.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.7. LTE Band 2

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	QPSK	18700	1860	1	49	16.4	15.49	0.908	1.120	1	
			18900	1880	1	99	16.4	16.03	0.942	1.026	2	
			19100	1900	1	0	16.4	16.18	1.030	1.084	3	
			18700	1860	50	0	16.4	15.74	0.911	1.061	4	
			18900	1880	50	49	16.4	15.78	0.839	0.968	5	
			19100	1900	50	0	16.4	15.44	0.982	**1.225**	6	
			18900	1880	100	0	16.4	15.47	0.833	1.032	7	
Bottom side	0	QPSK	18700	1860	1	49	16.4	15.49				
			18900	1880	1	99	16.4	16.03				
			19100	1900	1	0	16.4	16.18	0.445	**0.468**	8	
			18700	1860	50	0	16.4	15.74				
			18900	1880	50	49	16.4	15.78	0.394	0.454	9	
			19100	1900	50	0	16.4	15.44				
			18900	1880	100	0	16.4	15.47				
Edge 1 tilt	0	QPSK	18700	1860	1	49	16.4	15.49	1.080	1.332	10	
			18900	1880	1	99	16.4	16.03	1.080	1.176	11	
			19100	1900	1	0	16.4	16.18	1.060	1.115	12	
			18700	1860	50	0	16.4	15.74	1.200	**1.397**	13	
			18900	1880	50	49	16.4	15.78	1.070	1.234	14	
			19100	1900	50	0	16.4	15.44	0.954	1.190	15	
			18900	1880	100	0	16.4	15.47	0.971	1.203	16	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	QPSK	18700	1860	1	49	24.0	23.02				
			18900	1880	1	0	24.0	23.05				
			19100	1900	1	99	24.0	23.10	0.519	**0.639**	17	
			18700	1860	50	0	23.0	21.96	0.401	0.510	18	
			18900	1880	50	0	23.0	21.79				
			19100	1900	50	49	23.0	21.76				
			18700	1860	100	0	23.0	21.94				
Edge 2	0	QPSK	18700	1860	1	49	24.0	23.02				
			18900	1880	1	0	24.0	23.05				
			19100	1900	1	99	24.0	23.10	0.106	0.130	19	
			18700	1860	50	0	23.0	21.96	0.044	0.056	20	
			18900	1880	50	0	23.0	21.79				
			19100	1900	50	49	23.0	21.76				
			18700	1860	100	0	23.0	21.94				
Edge 2(with stylus pen)	0	QPSK	19100	1900	1	99	24.0	23.10	0.074	0.091	21	2
Bottom side	16	QPSK	18700	1860	1	49	24.0	23.02				
			18900	1880	1	0	24.0	23.05				
			19100	1900	1	99	24.0	23.10	0.261	**0.321**	22	
			18700	1860	50	0	23.0	21.96	0.213	0.271	23	
			18900	1880	50	0	23.0	21.79				
			19100	1900	50	49	23.0	21.76				
			18700	1860	100	0	23.0	21.94				
Edge1 tilt	20	QPSK	18700	1860	1	49	24.0	23.02				
			18900	1880	1	0	24.0	23.05				
			19100	1900	1	99	24.0	23.10	0.473	**0.582**	24	
			18700	1860	50	0	23.0	21.96	0.408	0.518	25	
			18900	1880	50	0	23.0	21.79				
			19100	1900	50	49	23.0	21.76				
			18700	1860	100	0	23.0	21.94				

Note(s):

1. Per KDB 941225 D05 SAR for LTE Devices v02r04, SAR test reduction is applied using the following criteria:
   - Beginning with QPSK modulation at the largest channel bandwidth, testing for 1 RB allocation configurations is initially performed for the channel/RB offset combination with the highest output power among 1 RB allocation configurations.
     - o When the reported SAR for the initial measurement is < 0.8 W/kg, no further assessment is required for 1 RB allocation configurations.
     - o When the reported SAR for the initial measurement is > 0.8 W/kg, the remaining channels are evaluated using the RB offset with the highest output power within the respective channels.
     - o For all reported SAR that is > 1.45 W/kg, SAR, SAR is required for the remaining RB offset configurations of the same channel.
   - The same procedures apply to QPSK 50% RB allocation configurations at the largest channel bandwidth.
   - Testing for 100% RB allocation configurations at the largest channel bandwidth is performed for the channel, across low, mid and high, with the highest output power, when the highest reported SAR for either 1 RB or 50% RB is ≥ 0.8 W/kg, or when the maximum output power among 100% RB allocation configurations is greater than the maximum output power among either 1 RB or 50% RB allocation configurations.
     - o Testing for the remaining channels in 100% RB allocation configurations is required only when reported SAR for the initial 100% RB allocation configuration is > 1.45 W/kg.
   - Testing for higher order modulations (16-QAM or 64-QAM) is required only when the highest reported SAR for QPSK is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of QPSK.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

- Testing for the other channel bandwidths is required only when the highest reported SAR for the highest channel bandwidth is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of the highest channel bandwidth.

2. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.8. LTE Band 4

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	QPSK	20050	1720	1	49	17.8	16.86	1.070	1.329	1	
			20175	1732.5	1	49	17.8	17.06	1.160	**1.375**	2	
			20300	1745	1	99	17.8	16.66	1.020	1.326	3	
			20050	1720	50	24	17.8	17.35	1.040	1.154	4	
			20175	1732.5	50	0	17.8	17.40	1.190	1.305	5	
			20300	1745	50	0	17.8	16.83	1.030	1.288	6	
			20050	1720	100	0	17.8	16.80	0.993	1.250	7	
Bottom side	0	QPSK	20050	1720	1	49	17.8	16.86				
			20175	1732.5	1	49	17.8	17.06	0.507	0.601	8	
			20300	1745	1	99	17.8	16.66				
			20050	1720	50	24	17.8	17.35				
			20175	1732.5	50	0	17.8	17.40	0.556	**0.610**	9	
			20300	1745	50	0	17.8	16.83				
			20050	1720	100	0	17.8	16.80				
Edge 1 tilt	0	QPSK	20050	1720	1	49	17.8	16.86	0.716	0.889	10	
			20175	1732.5	1	49	17.8	17.06	0.893	**1.059**	11	
			20300	1745	1	99	17.8	16.66	0.813	1.057	12	
			20050	1720	50	24	17.8	17.35	0.766	0.850	13	
			20175	1732.5	50	0	17.8	17.40	0.960	1.053	14	
			20300	1745	50	0	17.8	16.83	0.753	0.941	15	
			20050	1720	100	0	17.8	16.80	0.762	0.959	16	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	QPSK	20050	1720	1	49	24.0	22.90				
			20175	1732.5	1	0	24.0	22.90	0.429	**0.553**	17	
			20300	1745	1	99	24.0	22.80				
			20050	1720	50	24	23.0	21.75				
			20175	1732.5	50	0	23.0	21.80	0.343	0.452	18	
			20300	1745	50	0	23.0	21.62				
			20050	1720	100	0	23.0	21.80				
Edge 2	0	QPSK	20050	1720	1	49	24.0	22.90				
			20175	1732.5	1	0	24.0	22.90	0.155	0.200	19	
			20300	1745	1	99	24.0	22.80				
			20050	1720	50	24	23.0	21.75				
			20175	1732.5	50	0	23.0	21.80	0.103	0.136	20	
			20300	1745	50	0	23.0	21.62				
			20050	1720	100	0	23.0	21.80				
Edge 2(with stylus pen)	0	QPSK	20175	1732.5	1	0	24.0	22.90	0.151	0.195	21	2
Bottom side	16	QPSK	20050	1720	1	49	24.0	22.90				
			20175	1732.5	1	0	24.0	22.90	0.241	**0.310**	22	
			20300	1745	1	99	24.0	22.80				
			20050	1720	50	24	23.0	21.75				
			20175	1732.5	50	0	23.0	21.80	0.183	0.241	23	
			20300	1745	50	0	23.0	21.62				
			18700	1860	100	0	23.0	21.80				
Edge1 tilt	20	QPSK	20050	1720	1	49	24.0	22.90				
			20175	1732.5	1	0	24.0	22.90	0.223	**0.287**	24	
			20300	1745	1	99	24.0	22.80				
			20050	1720	50	24	23.0	21.75				
			20175	1732.5	50	0	23.0	21.80	0.208	0.274	25	
			20300	1745	50	0	23.0	21.62				
			18700	1860	100	0	23.0	21.80				

Note(s):

1. Per KDB 941225 D05 SAR for LTE Devices v02r04, SAR test reduction is applied using the following criteria:

- Beginning with QPSK modulation at the largest channel bandwidth, testing for 1 RB allocation configurations is initially performed for the channel/RB offset combination with the highest output power among 1 RB allocation configurations.
  - o When the reported SAR for the initial measurement is < 0.8 W/kg, no further assessment is required for 1 RB allocation configurations.
  - o When the reported SAR for the initial measurement is > 0.8 W/kg, the remaining channels are evaluated using the RB offset with the highest output power within the respective channels.
  - o For all reported SAR that is > 1.45 W/kg, SAR, SAR is required for the remaining RB offset configurations of the same channel.
- The same procedures apply to QPSK 50% RB allocation configurations at the largest channel bandwidth.
- Testing for 100% RB allocation configurations at the largest channel bandwidth is performed for the channel, across low, mid and high, with the highest output power, when the highest reported SAR for either 1 RB or 50% RB is ≥ 0.8 W/kg, or when the maximum output power among 100% RB allocation configurations is greater than the maximum output power among either 1 RB or 50% RB allocation configurations.
  - o Testing for the remaining channels in 100% RB allocation configurations is required only when reported SAR for the initial 100% RB allocation configuration is > 1.45 W/kg.
- Testing for higher order modulations (16-QAM or 64-QAM) is required only when the highest reported SAR for QPSK is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is required only when the highest reported SAR for the highest channel bandwidth is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of the highest channel bandwidth.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

2. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.9. LTE Band 5

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	QPSK	20450	829	1	49	20.9	20.64	0.897	0.952	1	
			20525	836.5	1	49	20.9	20.64	0.959	1.018	2	
			20600	844	1	24	20.9	20.61	1.000	**1.069**	3	
			20450	829	25	24	20.9	20.53	0.890	0.969	4	
			20525	836.5	25	24	20.9	20.69	0.894	0.938	5	
			20600	844	25	12	20.9	20.56	0.976	1.055	6	
			20525	836.5	50	0	20.9	20.59	0.916	0.984	7	
Bottom side	0	QPSK	20450	829	1	49	20.9	20.64				
			20525	836.5	1	49	20.9	20.64	0.566	0.601	8	
			20600	844	1	24	20.9	20.61				
			20450	829	25	24	20.9	20.53				
			20525	836.5	25	24	20.9	20.69	0.588	**0.617**	9	
			20600	844	25	12	20.9	20.56				
			20525	836.5	50	0	20.9	20.59				
Edge 1 tilt	0	QPSK	20450	829	1	49	20.9	20.64	0.995	1.056	10	
			20525	836.5	1	49	20.9	20.64	0.997	1.059	11	
			20600	844	1	24	20.9	20.61	1.000	1.069	12	
			20450	829	25	24	20.9	20.53	0.980	1.067	13	
			20525	836.5	25	24	20.9	20.69	0.972	1.020	14	
			20600	844	25	12	20.9	20.56	1.000	**1.081**	15	
			20525	836.5	50	0	20.9	20.59	0.996	1.070	16	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	QPSK	20450	829	1	24	24.0	22.77	0.248	**0.329**	17	
			20525	836.5	1	24	24.0	22.75				
			20600	844	1	0	24.0	22.75				
			20450	829	25	12	23.0	21.91	0.188	0.242	18	
			20525	836.5	25	0	23.0	21.89				
			20600	844	25	0	23.0	21.85				
			20525	836.5	50	0	23.0	21.83				
Edge 2	0	QPSK	20450	829	1	24	24.0	22.77	0.158	0.210	19	
			20525	836.5	1	24	24.0	22.75				
			20600	844	1	0	24.0	22.75				
			20450	829	25	12	23.0	21.91	0.125	0.161	20	
			20525	836.5	25	0	23.0	21.89				
			20600	844	25	0	23.0	21.85				
			20525	836.5	50	0	23.0	21.83				
Edge 2(with stylus)	0	QPSK	20450	829	1	24	24.0	22.77	0.152	0.202	21	2
Bottom side	16	QPSK	20450	829	1	24	24.0	22.77	0.251	**0.333**	22	
			20525	836.5	1	24	24.0	22.75				
			20600	844	1	0	24.0	22.75				
			20450	829	25	12	23.0	21.91	0.198	0.254	23	
			20525	836.5	25	0	23.0	21.89				
			20600	844	25	0	23.0	21.85				
			20525	836.5	50	0	23.0	21.83				
Edge 1 tilt	20	QPSK	20450	829	1	24	24.0	22.77	0.229	**0.304**	24	
			20525	836.5	1	24	24.0	22.75				
			20600	844	1	0	24.0	22.75				
			20450	829	25	12	23.0	21.91	0.182	0.234	25	
			20525	836.5	25	0	23.0	21.89				
			20600	844	25	0	23.0	21.85				
			20525	836.5	50	0	23.0	21.83				

Note(s):

1. Per KDB 941225 D05 SAR for LTE Devices v02r04, SAR test reduction is applied using the following criteria:

- Beginning with QPSK modulation at the largest channel bandwidth, testing for 1 RB allocation configurations is initially performed for the channel/RB offset combination with the highest output power among 1 RB allocation configurations.
  - o When the reported SAR for the initial measurement is < 0.8 W/kg, no further assessment is required for 1 RB allocation configurations.
  - o When the reported SAR for the initial measurement is > 0.8 W/kg, the remaining channels are evaluated using the RB offset with the highest output power within the respective channels.
  - o For all reported SAR that is > 1.45 W/kg, SAR, SAR is required for the remaining RB offset configurations of the same channel.
- The same procedures apply to QPSK 50% RB allocation configurations at the largest channel bandwidth.
- Testing for 100% RB allocation configurations at the largest channel bandwidth is performed for the channel, across low, mid and high, with the highest output power, when the highest reported SAR for either 1 RB or 50% RB is ≥ 0.8 W/kg, or when the maximum output power among 100% RB allocation configurations is greater than the maximum output power among either 1 RB or 50% RB allocation configurations.
  - o Testing for the remaining channels in 100% RB allocation configurations is required only when reported SAR for the initial 100% RB allocation configuration is > 1.45 W/kg.
- Testing for higher order modulations (16-QAM or 64-QAM) is required only when the highest reported SAR for QPSK is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is required only when the highest reported SAR for the highest channel bandwidth is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of the highest channel bandwidth.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

2. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.10. LTE Band 25

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	QPSK	26140	1860	1	49	16.1	16.04	1.000	1.014	1	
			26365	1882.5	1	99	16.1	16.01	1.040	1.062	2	
			26590	1905	1	99	16.1	16.05	1.100	1.113	3	
			26140	1860	50	0	16.1	15.98	0.927	0.953	4	
			26365	1882.5	50	49	16.1	15.70	0.954	1.046	5	
			26590	1905	50	49	16.1	16.05	1.050	1.062	6	
			26590	1905	100	0	16.1	15.59	1.140	**1.282**	7	
Bottom side	0	QPSK	26140	1860	1	49	16.1	16.04				
			26365	1882.5	1	99	16.1	16.01				
			26590	1905	1	99	16.1	16.05	0.453	**0.458**	8	
			26140	1860	50	0	16.1	15.98				
			26365	1882.5	50	49	16.1	15.70				
			26590	1905	50	49	16.1	16.05	0.367	0.371	9	
			26590	1905	100	0	16.1	15.59				
Edge 1 tilt	0	QPSK	26140	1860	1	49	16.1	16.04	1.010	1.024	10	
			26365	1882.5	1	99	16.1	16.01	1.140	1.164	11	
			26590	1905	1	99	16.1	16.05	1.210	1.224	12	
			26140	1860	50	0	16.1	15.98	1.010	1.038	13	
			26365	1882.5	50	49	16.1	15.70	1.200	**1.316**	14	
			26590	1905	50	49	16.1	16.05	0.992	1.003	15	
			26590	1905	100	0	16.1	15.59	0.904	1.017	16	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 25 Continued

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	QPSK	26140	1860	1	99	24.0	23.06				
			26365	1882.5	1	0	24.0	23.10				
			26590	1905	1	99	24.0	23.13	0.592	**0.723**	17	
			26140	1860	50	49	23.0	21.84				
			26365	1882.5	50	24	23.0	21.84				
			26590	1905	50	49	23.0	21.85	0.431	0.562	18	
			26140	1860	100	0	23.0	21.83				
Edge 2	0	QPSK	26140	1860	1	99	24.0	23.06				
			26365	1882.5	1	0	24.0	23.10				
			26590	1905	1	99	24.0	23.13	0.091	0.111	19	
			26140	1860	50	49	23.0	21.84				
			26365	1882.5	50	24	23.0	21.84				
			26590	1905	50	49	23.0	21.85	0.070	0.091	20	
			26140	1860	100	0	23.0	21.83				
Edge 2(with stylus pen)	0	QPSK	26590	1905	1	99	24.0	23.13	0.065	0.079	21	2
Bottom side	16	QPSK	26140	1860	1	99	24.0	23.06				
			26365	1882.5	1	0	24.0	23.10				
			26590	1905	1	99	24.0	23.13	0.284	**0.347**	22	
			26140	1860	50	49	23.0	21.84				
			26365	1882.5	50	24	23.0	21.84				
			26590	1905	50	49	23.0	21.85	0.214	0.279	23	
			26140	1860	100	0	23.0	21.83				
Edge 1 tilt	20	QPSK	26140	1860	1	99	24.0	23.06				
			26365	1882.5	1	0	24.0	23.10				
			26590	1905	1	99	24.0	23.13	0.429	**0.524**	24	
			26140	1860	50	49	23.0	21.84				
			26365	1882.5	50	24	23.0	21.84				
			26590	1905	50	49	23.0	21.85	0.323	0.421	25	
			26140	1860	100	0	23.0	21.83				

Note(s):

1. Per KDB 941225 D05 SAR for LTE Devices v02r04, SAR test reduction is applied using the following criteria:
- Beginning with QPSK modulation at the largest channel bandwidth, testing for 1 RB allocation configurations is initially performed for the channel/RB offset combination with the highest output power among 1 RB allocation configurations.
  - When the reported SAR for the initial measurement is < 0.8 W/kg, no further assessment is required for 1 RB allocation configurations.
  - When the reported SAR for the initial measurement is > 0.8 W/kg, the remaining channels are evaluated using the RB offset with the highest output power within the respective channels.
  - For all reported SAR that is > 1.45 W/kg, SAR, SAR is required for the remaining RB offset configurations of the same channel.
- The same procedures apply to QPSK 50% RB allocation configurations at the largest channel bandwidth.
- Testing for 100% RB allocation configurations at the largest channel bandwidth is performed for the channel, across low, mid and high, with the highest output power, when the highest reported SAR for either 1 RB or 50% RB is ≥ 0.8 W/kg, or when the maximum output power among 100% RB allocation configurations is greater than the maximum output power among either 1 RB or 50% RB allocation configurations.
  - Testing for the remaining channels in 100% RB allocation configurations is required only when reported SAR for the initial 100% RB allocation configuration is > 1.45 W/kg.
- Testing for higher order modulations (16-QAM or 64-QAM) is required only when the highest reported SAR for QPSK is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of QPSK.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

- Testing for the other channel bandwidths is required only when the highest reported SAR for the highest channel bandwidth is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of the highest channel bandwidth.

2. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.11. LTE Band 13

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	QPSK	23230	782	1	49	21.20	21.05	0.739	0.765	1	
			23230	782	25	0	21.20	21.00	0.794	0.831	2	
			23230	782	50	0	21.20	20.42	0.793	**0.949**	3	
Bottom side	0	QPSK	23230	782	1	49	21.20	21.05	0.435	0.450	4	
			23230	782	25	0	21.20	21.00	0.464	**0.486**	5	
			23230	782	50	0	21.20	20.42				
Edge 1 tilt	0	QPSK	23230	782	1	49	21.20	21.05	1.050	1.087	6	
			23230	782	25	0	21.20	21.00	1.110	1.162	7	
			23230	782	50	0	21.20	20.42	1.040	**1.245**	8	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	QPSK	23230	782	1	24	24.0	22.86	0.199	**0.259**	9	
			23230	782	25	12	23.0	21.93	0.162	0.207	10	
			23230	782	50	0	23.0	21.87				
Edge 2	0	QPSK	23230	782	1	24	24.0	22.86	0.160	0.208	11	
			23230	782	25	12	23.0	21.93	0.119	0.152	12	
			23230	782	50	0	23.0	21.87				
Edge2 (with stylus pen)	0	QPSK	23230	782	1	24	24.0	22.86	0.156	0.203	13	2
Bottom side	16	QPSK	23230	782	1	24	24.0	22.86	0.224	**0.291**	14	
			23230	782	25	12	23.0	21.93	0.180	0.230	15	
			23230	782	50	0	23.0	21.87				
Edge 1 tilt	20	QPSK	23230	782	1	24	24.0	22.86	0.295	**0.384**	16	
			23230	782	25	12	23.0	21.93	0.239	0.306	17	
			23230	782	50	0	23.0	21.87				

Note(s):

1. Per KDB 941225 D05 SAR for LTE Devices v02r04, SAR test reduction is applied using the following criteria:
   - Beginning with QPSK modulation at the largest channel bandwidth, testing for 1 RB allocation configurations is initially performed for the channel/RB offset combination with the highest output power among 1 RB allocation configurations.
     - o When the reported SAR for the initial measurement is < 0.8 W/kg, no further assessment is required for 1 RB allocation configurations.
     - o When the reported SAR for the initial measurement is > 0.8 W/kg, the remaining channels are evaluated using the RB offset with the highest output power within the respective channels.
     - o For all reported SAR that is > 1.45 W/kg, SAR, SAR is required for the remaining RB offset configurations of the same channel.
   - The same procedures apply to QPSK 50% RB allocation configurations at the largest channel bandwidth.
   - Testing for 100% RB allocation configurations at the largest channel bandwidth is performed for the channel, across low, mid and high, with the highest output power, when the highest reported SAR for either 1 RB or 50% RB is ≥ 0.8 W/kg, or when the maximum output power among 100% RB allocation configurations is greater than the maximum output power among either 1 RB or 50% RB allocation configurations.
     - o Testing for the remaining channels in 100% RB allocation configurations is required only when reported SAR for the initial 100% RB allocation configuration is > 1.45 W/kg.
   - Testing for higher order modulations (16-QAM or 64-QAM) is required only when the highest reported SAR for QPSK is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of QPSK.
   - Testing for the other channel bandwidths is required only when the highest reported SAR for the highest channel bandwidth is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of the highest channel bandwidth.

2. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

The maximum SAR value of LTE Band 13 is Repeated SAR. Please refer to Section 13.16.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.12. LTE Band 17

Usage Scenario: Proximity Sensor Activated, Reduced Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	0	QPSK	23780	709	1	24	22.2	22.19				
			23790	710	1	24	22.2	22.18				
			23800	711	1	24	22.2	22.19	0.616	**0.617**	1	
			23780	709	25	12	22.2	21.87				
			23790	710	25	12	22.2	21.85				
			23800	711	25	0	22.2	21.88	0.554	0.596	2	
			23800	711	50	0	22.2	21.77				
Bottom side	0	QPSK	23780	709	1	24	22.2	22.19				
			23790	710	1	24	22.2	22.18				
			23800	711	1	24	22.2	22.19	0.532	**0.533**	3	
			23780	709	25	12	22.2	21.87				
			23790	710	25	12	22.2	21.85				
			23800	711	25	0	22.2	21.88	0.479	0.516	4	
			23800	711	50	0	22.2	21.77				
Edge 1 tilt	0	QPSK	23780	709	1	24	22.2	22.19	0.867	0.869	5	
			23790	710	1	24	22.2	22.18	0.892	**0.896**	6	
			23800	711	1	24	22.2	22.19	0.878	0.880	7	
			23780	709	25	12	22.2	21.87	0.788	0.850	8	
			23790	710	25	12	22.2	21.85	0.797	0.864	9	
			23800	711	25	0	22.2	21.88	0.810	0.872	10	
			23800	711	50	0	22.2	21.77	0.781	0.862	11	

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

LTE Band 17 Continued

Usage Scenario: Proximity Sensor Deactivated, Full Power Operation

Test Position	Dist. (mm)	Mode	UL Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	19	QPSK	23780	709	1	24	24.0	22.87				
			23790	710	1	24	24.0	22.93	0.108	**0.138**	12	
			23800	711	1	24	24.0	22.78				
			23780	709	25	12	23.0	21.98	0.083	0.104	13	
			23790	710	25	12	23.0	21.93				
			23800	711	25	0	23.0	21.94				
			23780	709	50	0	23.0	21.81				
Edge 2	0	QPSK	23780	709	1	24	24.0	22.87				
			23790	710	1	24	24.0	22.93	0.130	0.166	14	
			23800	711	1	24	24.0	22.78				
			23780	709	25	12	23.0	21.98	0.099	0.125	15	
			23790	710	25	12	23.0	21.93				
			23800	711	25	0	23.0	21.94				
			23780	709	50	0	23.0	21.81				
Edge 2(with stylus pen)	0	QPSK	23790	710	1	24	24.0	22.93	0.126	0.161	16	2
Bottom side	16	QPSK	23780	709	1	24	24.0	22.87				
			23790	710	1	24	24.0	22.93	0.182	**0.233**	17	
			23800	711	1	24	24.0	22.78				
			23780	709	25	12	23.0	21.98	0.139	0.176	18	
			23790	710	25	12	23.0	21.93				
			23800	711	25	0	23.0	21.94				
			23780	709	50	0	23.0	21.81				
Edge 1 tilt	20	QPSK	23780	709	1	24	24.0	22.87				
			23790	710	1	24	24.0	22.93	0.141	**0.180**	19	
			23800	711	1	24	24.0	22.78				
			23780	709	25	12	23.0	21.98	0.117	0.148	20	
			23790	710	25	12	23.0	21.93				
			23800	711	25	0	23.0	21.94				
			23780	709	50	0	23.0	21.81				

Note(s):

1. Per KDB 941225 D05 SAR for LTE Devices v02r04, SAR test reduction is applied using the following criteria:
- Beginning with QPSK modulation at the largest channel bandwidth, testing for 1 RB allocation configurations is initially performed for the channel/RB offset combination with the highest output power among 1 RB allocation configurations.
  - o When the reported SAR for the initial measurement is < 0.8 W/kg, no further assessment is required for 1 RB allocation configurations.
  - o When the reported SAR for the initial measurement is > 0.8 W/kg, the remaining channels are evaluated using the RB offset with the highest output power within the respective channels.
  - o For all reported SAR that is > 1.45 W/kg, SAR, SAR is required for the remaining RB offset configurations of the same channel.
- The same procedures apply to QPSK 50% RB allocation configurations at the largest channel bandwidth.
- Testing for 100% RB allocation configurations at the largest channel bandwidth is performed for the channel, across low, mid and high, with the highest output power, when the highest reported SAR for either 1 RB or 50% RB is ≥ 0.8 W/kg, or when the maximum output power among 100% RB allocation configurations is greater than the maximum output power among either 1 RB or 50% RB allocation configurations.
  - o Testing for the remaining channels in 100% RB allocation configurations is required only when reported SAR for the initial 100% RB allocation configuration is > 1.45 W/kg.
- Testing for higher order modulations (16-QAM or 64-QAM) is required only when the highest reported SAR for QPSK is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of QPSK.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

- Testing for the other channel bandwidths is required only when the highest reported SAR for the highest channel bandwidth is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of the highest channel bandwidth.

2. A presence of Stylus pen influences radiation from a WWAN antenna in Edge 2 position direction. A presence of Stylus pen was compared in a SAR test of Edge 2 position. Edge 2(with stylus pen) position was tested with the worst configuration of SAR test of the Edge 2.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.13. Summary of Highest SAR Values

Results for the highest scaled SAR values in each frequency band and mode

Technology Band	Test Configuration		Mode	Dist. (mm)	Freq. (MHz)	dBm	1g/SAR (w/kg)
	Exposure	Position					
W-CDMA Band 5	Body	Edge 1 tilt (Prox on)	Rel 99 RMC 12.2kbps	0	846.6	20.26	1.067
W-CDMA Band 4	Body	Edge 1 (Prox on)	Rel 99 RMC 12.2kbps	0	1752.6	17.68	1.389
W-CDMA Band 2	Body	Edge 1 tilt (Prox on)	Rel 99 RMC 12.2kbps	0	1907.6	16.51	1.378
CDMA BC0	Body	Edge 1 (Prox on)	1xRTT (RC3 SO32)	0	848.3	20.47	1.234
CDMA BC1	Body	Edge 1 tilt (Prox on)	1xEVDO Rel.0	0	1880.0	14.74	1.399
CDMA BC 10	Body	Edge 1 tilt (Prox on)	1xEVDO Rel.0	0	820.0	20.37	1.098
LTE Band 2	Body	Edge 1 tilt (Prox on)	20 MHz(QPSK) RB 50/0	0	1860	15.74	1.397
LTE Band 4	Body	Edge 1 (Prox on)	20 MHz(QPSK) RB 1/49	0	1732.5	17.06	1.375
LTE Band 5	Body	Edge 1 tilt (Prox on)	10 MHz (QPSK) RB 25/12	0	844	20.56	1.081
LTE Band 25	Body	Edge 1 tilt (Prox on)	20 MHz(QPSK) RB 50/49	0	1882.5	15.70	1.316
LTE Band 13	Body	Edge 1 tilt (Prox on)	10 MHZ (QPSK) RB 50/0	0	782	20.42	1.245
LTE Band 17	Body	Edge 1 tilt (Prox on)	10 MHz (QPSK) RB 1/24	0	710	22.18	0.896

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.14. SAR Measurement Variability and Uncertainty

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

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

Wireless Technologies	Test Configuration		Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio	Plot No.
	Exposure	Position					Original	Repeated		
LTE band 13	Body	Edge 1 tilt Prox. On	10 MHz (QPSK) 25/12	0	23230	782	1.110	1.100	1.01	1
CDMA BC0	Body	Edge 1 Prox. On	1xRTT (RC3 SO32)	0	777	848.3	1.170	1.060	1.10	2
W-CDMA Band 4	Body	Edge 1 Prox. On	Rel 99 RMC 12.2kbps	0	1513	1752.6	1.290	1.260	1.02	3
W-CDMA Band 2	Body	Edge 1 tilt Prox. On	Rel 99 RMC 12.2kbps	0	9538	1908	1.350	1.180	1.14	4

Note(s):

- Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.15. Additional SAR Test Results

The SAR result of WLAN/Bluetooth in the former report(SAR report No.: 11018663H-A, FCC ID ACJ9TGWL13A) was used for simultaneous transmission SAR analysis of WWAN+WLAN. Please refer to section 14 for simultaneous transmission SAR analysis of WWAN+WLAN/Bluetooth.

When considering exclusion of simultaneous transmitting SAR test, estimated SAR of WLAN/Bluetooth is too large(for example 0.4W/kg). When the sum of SAR value exceeded 1.6W/kg, estimated SAR was not used. Therefore some test position of WLAN/Bluetooth was measured standalone SAR for simultaneous transmitting evaluation in this report.

About the substitution of test setup position

- SAR values of Bottom side “0mm” with Bluetooth: SAR values of Bottom side with Bluetooth were measured as additional test this time.
- SAR values of Bottom side “16 mm” with WLAN Main/ WLAN Aux/ Bluetooth: We substituted SAR values of Bottom side “0mm” with WLAN Main/ WLAN Aux/ Bluetooth conservatively.
- SAR values of Edge 1 “0mm” with WLAN Main/ Bluetooth: SAR values of Edge1 with WLAN Main/ Bluetooth were measured as additional test this time.
- SAR values of Edge 1 “19mm” with WLAN Main/ WLAN Aux/ Bluetooth: We substituted SAR values of Edge 1 “0mm” with WLAN Main/ WLAN Aux/ Bluetooth conservatively.
- SAR values of Edge 1 tilt of WLAN Main/ WLAN Aux/ Bluetooth: SAR values of Edge1 tilt with WLAN Main/ WLAN Aux/ Bluetooth were measured as additional test this time.
- SAR values of Edge 1 tilt “20mm” with WLAN Main/ WLAN Aux/ Bluetooth: We substituted SAR values of Edge 1 tilt “0mm” with WLAN Main/ WLAN Aux/ Bluetooth conservatively.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.15.1. Wi-Fi 2.4 GHz Band

Main Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	802.11b	0	2	2417	14.50	14.13				
			6	2437	14.50	14.26	0.005	0.005	1	
			10	2457	14.50	14.18				
Edge 1 tilt	802.11b	0	2	2417	14.50	14.13				
			6	2437	14.50	14.26	0.045	0.048	2	
			10	2457	14.50	14.18				

Auxiliary Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1 tilt	802.11b	0	2	2417	14.50	14.04				
			6	2437	14.50	14.07				
			10	2457	14.50	14.12	0.210	0.229	3	

Note(s):

1. Highest *reported* SAR is ≤ 0.4 W/kg. Therefore, further SAR measurements within this exposure condition are not required.
2. Highest *reported* SAR is > 0.4 W/kg. Due to the highest *reported* SAR for this test position, other test positions in standalone exposure condition were evaluated until a SAR ≤ 0.8 W/kg was *reported*.
3. For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.15.2. Wi-Fi 5.3 GHz Band

Main Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	802.11n40	0	54	5270	13.50	13.33				
			62	5310	13.50	13.44	0.000	0.000	1	
Edge 1 tilt	802.11n40	0	54	5270	13.50	13.33				
			62	5310	13.50	13.44	0.181	0.184	2	

Auxiliary Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1 tilt	802.11 n 40	0	54	5270	14.00	13.92				
			62	5310	14.00	13.95	0.417	0.422	3	

Note(s):

1. Highest *reported* SAR is ≤ 0.4 W/kg. Therefore, further SAR measurements within this exposure condition are not required.
2. Highest *reported* SAR is > 0.4 W/kg. Due to the highest *reported* SAR for this test position, other test positions in standalone exposure condition were evaluated until a SAR ≤ 0.8 W/kg was *reported*.
3. For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.15.3. Wi-Fi 5.5 GHz Band

Main Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	802.11ac80	0	106	5530	9.00	12.09				
			122	5610	13.50	13.28				
			138	5690	14.00	13.98	0.000	0.000	1	
Edge 1 tilt	802.11ac80	0	106	5530	9.00	8.41				
			122	5610	13.50	13.28				
			138	5690	14.00	13.98	0.211	0.212	2	

Auxiliary Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1 tilt	802.11ac80	0	106	5530	12.50	12.21				
			122	5610	13.50	13.30				
			138	5690	14.50	14.45	0.473	0.478	3	

Note(s):

1. Highest *reported* SAR is ≤ 0.4 W/kg. Therefore, further SAR measurements within this exposure condition are not required.
2. Highest *reported* SAR is > 0.4 W/kg. Due to the highest *reported* SAR for this test position, other test positions in standalone exposure condition were evaluated until a SAR ≤ 0.8 W/kg was *reported*.
3. For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.15.4. Wi-Fi 5.8 GHz Band

Main Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	802.11ac80	0	155	5775	14.00	13.66	0.001	0.001	1	
Edge 1 tilt	802.11ac80	0	155	5775	14.00	13.66	0.205	0.222	2	

Auxiliary Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1 tilt	802.11n40	0	151	5755	14.50	14.25	0.513	0.543	3	
			159	5795	14.50	14.16				

Note(s):

1. Highest *reported* SAR is ≤ 0.4 W/kg. Therefore, further SAR measurements within this exposure condition are not required.
2. Highest *reported* SAR is > 0.4 W/kg. Due to the highest *reported* SAR for this test position, other test positions in standalone exposure condition were evaluated until a SAR ≤ 0.8 W/kg was *reported*.
3. For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

13.15.5. Bluetooth

Auxiliary Antenna

Test Position	Mode	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
					Tune-up limit	Meas.	Meas.	Scaled		
Edge 1	BDR DH5	0	0	2402	4.50	2.79				
			39	2441	4.50	3.42	0.00193	0.002	1	
			78	2480	4.50	3.11				
Bottom side	BDR DH5	0	0	2402	4.50	2.79				
			39	2441	4.50	3.42	0.00886	0.011	2	
			78	2480	4.50	3.11				
Edge 1 tilt	BDR DH5	0	0	2402	4.50	2.79				
			39	2441	4.50	3.42	0.031	0.040	3	
			78	2480	4.50	3.11				

Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v05, 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

1. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
2. ≤ 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
3. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14. Simultaneous Transmission SAR Analysis

All Wi-Fi 1-g SAR values were taken from results recorded in SAR report 11018663H-A, submitted under FCC ID ACJ9TGWL13A.
All Simultaneous Transmission SAR analysis applies scaling in accordance with the scaled values documented in this report (for the WWAN radios) and the aforementioned SAR report (11018663H-A) with scaling applied (for the WLAN radios).

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.1. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 2.4 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	WCDMA V	WCDMA IV	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.047		0.005		0.002	1.055
		1.389	0.005		0.002	1.397
	1.047			0.137		1.184
		1.389		0.137		1.526
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.047		0.005	0.137		1.189
		1.389	0.005	0.137		1.531
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.297		0.005		0.002	0.305
		0.601	0.005		0.002	0.609
	0.297			0.137		0.434
		0.601		0.137		0.738
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.297		0.005	0.137		0.439
		0.601	0.005	0.137		0.743
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.555		0.434		0.011	1.001
		0.532	0.434		0.011	0.978
	0.555			0.304		0.859
		0.532		0.304		0.836
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.555		0.434	0.304		1.293
		0.532	0.434	0.304		1.270
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.202		0.434		0.011	0.648
		0.370	0.434		0.011	0.816
	0.202			0.304		0.506
		0.370		0.304		0.674
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.202		0.434	0.304		0.940
		0.370	0.434	0.304		1.108
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.067		0.048		0.040	1.155
		1.335	0.048		0.040	1.423
	1.067			0.229		1.296
		1.335		0.229		1.564
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.067		0.048	0.229		1.344
		1.335	0.048	0.229		1.612
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.380		0.048		0.040	0.468
		0.554	0.048		0.040	0.642
	0.380			0.229		0.609
		0.554		0.229		0.783
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.380		0.048	0.229		0.657
		0.554	0.048	0.229		0.831

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 1-1

Test Position	①WCDMA Band 5	②WiFi 2.4GHz (Main Ant)	③WiFi 2.4GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.335	0.048	0.229		① + ② + ③	1.612				
	1.335	0.048			① + ②	1.383	110.2	0.015	No	1-1
	1.335		0.229		① + ③	1.564	247.2	0.008	No	1-1

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.2. Sum of the SAR for W-CDMA Band II & Wi-Fi 2.4 GHz Band

Test Position	Data				∑ 1-g SAR (mW/g)
	WCDMA II	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.235	0.005		0.002	1.243
	1.235		0.137		1.372
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.235	0.005	0.137		1.377
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.697	0.005		0.002	0.705
	0.697		0.137		0.834
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.697	0.005	0.137		0.839
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.574	0.434		0.011	1.020
	0.574		0.304		0.878
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.574	0.434	0.304		1.312
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.375	0.434		0.011	0.821
	0.375		0.304		0.679
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.375	0.434	0.304		1.113
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.378	0.048		0.040	1.466
	1.378		0.229		1.607
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.378	0.048	0.229		1.655
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.530	0.048		0.040	0.618
	0.530		0.229		0.759
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.530	0.048	0.229		0.807

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 2-1

Test Position	①WCDMA Band 2	②WiFi 2.4GHz (Main Ant)	③WiFi 2.4GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.378	0.048	0.229		① + ② + ③	1.655				
	1.378	0.048			① + ②	1.426	114.2	0.015	No	2-1
	1.378		0.229		① + ③	1.607	250.0	0.008	No	2-1

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.3. Sum of the SAR for CDMA BC0 & Wi-Fi 2.4 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC0 1xRTT	CDMA BC0 EVDO	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.234		0.005		0.002	1.242
		1.010	0.005		0.002	1.018
	1.234			0.137		1.371
		1.010		0.137		1.147
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.234		0.005	0.137		1.376
		1.010	0.005	0.137		1.152
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.430		0.005		0.002	0.438
		0.399	0.005		0.002	0.407
	0.430			0.137		0.567
		0.399		0.137		0.536
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.430		0.005	0.137		0.572
		0.399	0.005	0.137		0.541
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.551		0.434		0.011	0.997
		0.509	0.434		0.011	0.955
	0.551			0.304		0.855
		0.509		0.304		0.813
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.551		0.434	0.304		1.289
		0.509	0.434	0.304		1.247
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.417		0.434		0.011	0.863
		0.392	0.434		0.011	0.838
	0.417			0.304		0.721
		0.392		0.304		0.696
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.417		0.434	0.304		1.155
		0.392	0.434	0.304		1.130
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.139		0.048		0.040	1.227
		1.102	0.048		0.040	1.190
	1.139			0.229		1.368
		1.102		0.229		1.331
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.139		0.048	0.229		1.416
		1.102	0.048	0.229		1.379
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.432		0.048		0.040	0.520
		0.368	0.048		0.040	0.456
	0.432			0.229		0.661
		0.368		0.229		0.597
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.432		0.048	0.229		0.709
		0.368	0.048	0.229		0.645

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.4. Sum of the SAR for CDMA BC1 & Wi-Fi 2.4 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC1 1xRTT	CDMA BC1 EVDO	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.181		0.005		0.002	1.189
		1.209	0.005		0.002	1.217
	1.181			0.137		1.318
		1.209		0.137		1.346
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.181		0.005	0.137		1.323
		1.209	0.005	0.137		1.351
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.993		0.005		0.002	1.001
		0.797	0.005		0.002	0.805
	0.993			0.137		1.130
		0.797		0.137		0.934
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.993		0.005	0.137		1.135
		0.797	0.005	0.137		0.939
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.524		0.434		0.011	0.970
		0.517	0.434		0.011	0.963
	0.524			0.304		0.828
		0.517		0.304		0.821
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.524		0.434	0.304		1.262
		0.517	0.434	0.304		1.255
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.542		0.434		0.011	0.988
		0.549	0.434		0.011	0.995
	0.542			0.304		0.846
		0.549		0.304		0.853
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.542		0.434	0.304		1.280
		0.549	0.434	0.304		1.287
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.288		0.048		0.040	1.376
		1.399	0.048		0.040	1.487
	1.288			0.229		1.517
		1.399		0.229		1.628
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.288		0.048	0.229		1.565
		1.399	0.048	0.229		1.676
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.787		0.048		0.040	0.875
		0.703	0.048		0.040	0.791
	0.787			0.229		1.016
		0.703		0.229		0.932
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.787		0.048	0.229		1.064
		0.703	0.048	0.229		0.980

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 4-1

Test Position	①CDMA BC1 EVDO	②WiFi 2.4GHz (Main Ant)	③WiFi 2.4GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.399	0.048	0.229		① + ② + ③	1.676				
	1.399	0.048			① + ②	1.447	114.0	0.015	No	4-1
	1.399		0.229		① + ③	1.628	249.5	0.008	No	4-1

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.5. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 2.4 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 2	LTE Band 4	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.225		0.005		0.002	1.233
		1.375	0.005		0.002	1.383
	1.225			0.137		1.362
		1.375		0.137		1.512
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.225		0.005	0.137		1.367
		1.375	0.005	0.137		1.517
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.639		0.005		0.002	0.647
		0.553	0.005		0.002	0.561
	0.639			0.137		0.776
		0.553		0.137		0.690
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.639		0.005	0.137		0.781
		0.553	0.005	0.137		0.695
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.468		0.434		0.011	0.914
		0.610	0.434		0.011	1.056
	0.468			0.304		0.772
		0.610		0.304		0.914
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.468		0.434	0.304		1.206
		0.610	0.434	0.304		1.348
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.321		0.434		0.011	0.767
		0.310	0.434		0.011	0.756
	0.321			0.304		0.625
		0.310		0.304		0.614
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.321		0.434	0.304		1.059
		0.310	0.434	0.304		1.048
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.397		0.048		0.040	1.485
		1.059	0.048		0.040	1.147
	1.397			0.229		1.626
		1.059		0.229		1.288
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.397		0.048	0.229		1.674
		1.059	0.048	0.229		1.336
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.582		0.048		0.040	0.670
		0.287	0.048		0.040	0.375
	0.582			0.229		0.811
		0.287		0.229		0.516
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.582		0.048	0.229		0.859
		0.287	0.048	0.229		0.564

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 5-1

Test Position	①LTE Band 2	②WiFi 2.4GHz (Main Ant)	③WiFi 2.4GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.397	0.048	0.229		① + ② + ③	1.674				
	1.397	0.048			① + ②	1.445	101.5	0.017	No	5-1
	1.397		0.229		① + ③	1.626	236.0	0.009	No	5-1

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.6. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 2.4 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 5	LTE Band 25	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.069		0.005		0.002	1.077
		1.282	0.005		0.002	1.290
	1.069			0.137		1.206
		1.282		0.137		1.419
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.069		0.005	0.137		1.211
		1.282	0.005	0.137		1.424
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.329		0.005		0.002	0.337
		0.723	0.005		0.002	0.731
	0.329			0.137		0.466
		0.723		0.137		0.860
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.329		0.005	0.137		0.471
		0.723	0.005	0.137		0.865
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.617		0.434		0.011	1.063
		0.458	0.434		0.011	0.904
	0.617			0.304		0.921
		0.458		0.304		0.762
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.617		0.434	0.304		1.355
		0.458	0.434	0.304		1.196
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.333		0.434		0.011	0.779
		0.347	0.434		0.011	0.793
	0.333			0.304		0.637
		0.347		0.304		0.651
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.333		0.434	0.304		1.071
		0.347	0.434	0.304		1.085
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.081		0.048		0.040	1.169
		1.316	0.048		0.040	1.404
	1.081			0.229		1.310
		1.316		0.229		1.545
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.081		0.048	0.229		1.358
		1.316	0.048	0.229		1.593
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.304		0.048		0.040	0.392
		0.524	0.048		0.040	0.612
	0.304			0.229		0.533
		0.524		0.229		0.753
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.304		0.048	0.229		0.581
		0.524	0.048	0.229		0.801

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.7. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 2.4 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 13	LTE Band 17	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.949		0.005		0.002	0.957
		0.617	0.005		0.002	0.625
	0.949			0.137		1.086
		0.617		0.137		0.754
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.949		0.005	0.137		1.091
		0.617	0.005	0.137		0.759
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.259		0.005		0.002	0.267
		0.138	0.005		0.002	0.146
	0.259			0.137		0.396
		0.138		0.137		0.275
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.259		0.005	0.137		0.401
		0.138	0.005	0.137		0.280
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.486		0.434		0.011	0.932
		0.533	0.434		0.011	0.979
	0.486			0.304		0.790
		0.533		0.304		0.837
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.486		0.434	0.304		1.224
		0.533	0.434	0.304		1.271
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.291		0.434		0.011	0.737
		0.233	0.434		0.011	0.679
	0.291			0.304		0.595
		0.233		0.304		0.537
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.291		0.434	0.304		1.029
		0.233	0.434	0.304		0.971
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.245		0.048		0.040	1.332
		0.896	0.048		0.040	0.984
	1.245			0.229		1.474
		0.896		0.229		1.125
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.245		0.048	0.229		1.522
		0.896	0.048	0.229		1.173
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.384		0.048		0.040	0.472
		0.180	0.048		0.040	0.268
	0.384			0.229		0.613
		0.180		0.229		0.409
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.384		0.048	0.229		0.661
		0.180	0.048	0.229		0.457

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.8. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 5.3 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	WCDMA V	WCDMA IV	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.047		0.000		0.002	1.049
		1.389	0.000		0.002	1.391
	1.047			0.245		1.292
		1.389		0.245		1.634
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.047		0.000	0.245		1.292
		1.389	0.000	0.245		1.634
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.297		0.000		0.002	0.299
		0.601	0.000		0.002	0.603
	0.297			0.245		0.542
		0.601		0.245		0.846
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.297		0.000	0.245		0.542
		0.601	0.000	0.245		0.846
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.555		0.332		0.011	0.898
		0.532	0.332		0.011	0.875
	0.555			0.199		0.754
		0.532		0.199		0.731
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.555		0.332	0.199		1.086
		0.532	0.332	0.199		1.063
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.202		0.332		0.011	0.545
		0.370	0.332		0.011	0.713
	0.202			0.199		0.401
		0.370		0.199		0.569
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.202		0.332	0.199		0.733
		0.370	0.332	0.199		0.901
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.067		0.184		0.040	1.291
		1.335	0.184		0.040	1.559
	1.067			0.422		1.489
		1.335		0.422		1.757
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.067		0.184	0.422		1.672
		1.335	0.184	0.422		1.940
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.380		0.184		0.040	0.604
		0.554	0.184		0.040	0.778
	0.380			0.422		0.802
		0.554		0.422		0.976
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.380		0.184	0.422		0.985
		0.554	0.184	0.422		1.159

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 8-1

Test Position	①WCDMA Band 4	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.389	0.000	0.245		① + ② + ③	1.634				
	1.389	0.000			① + ②	1.389	217.0	0.008	No	8-1
	1.389		0.245		① + ③	1.634	260.1	0.008	No	8-1

Table 8-2

Test Position	①WCDMA Band 4	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.335	0.184	0.422		① + ② + ③	1.940				
	1.335	0.184			① + ②	1.519	103.6	0.018	No	8-2
	1.335		0.422		① + ③	1.757	237.1	0.010	No	8-2

Table 8-3

Test Position	①WCDMA Band 5	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.067	0.184	0.422		① + ② + ③	1.672				
	1.067	0.184			① + ②	1.251	113.3	0.012	No	8-3
	1.067		0.422		① + ③	1.489	246.0	0.007	No	8-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.9. Sum of the SAR for W-CDMA Band II & Wi-Fi 5.3 GHz Band

Test Position	Data				∑ 1-g SAR (mW/g)
	WCDMA II	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.235	0.000		0.002	1.237
	1.235		0.245		1.480
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.235	0.000	0.245		1.480
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.697	0.000		0.002	0.699
	0.697		0.245		0.942
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.697	0.000	0.245		0.942
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.574	0.332		0.011	0.917
	0.574		0.199		0.773
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.574	0.332	0.199		1.105
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.375	0.332		0.011	0.718
	0.375		0.199		0.574
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.375	0.332	0.199		0.906
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.378	0.184		0.040	1.602
	1.378		0.422		1.800
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.378	0.184	0.422		1.983
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.530	0.184		0.040	0.754
	0.530		0.422		0.952
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.530	0.184	0.422		1.135

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 9-1

Test Position	①WCDMA Band 2	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.378	0.184	0.422		① + ② + ③	1.983				
	1.378	0.184			① + ②	1.562	107.4	0.018	No	9-1
	1.378		0.422		① + ③	1.800	240.0	0.010	No	9-1

Table 9-2

Test Position	①WCDMA Band 2	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 1 Tx	1.378	0.184		0.040	① + ② + ④	1.602				
	1.378	0.184			① + ②	1.562	107.4	0.018	No	9-2
	1.378			0.040	① + ④	1.418	116.5	0.014	No	9-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.10. Sum of the SAR for CDMA BC0 & Wi-Fi 5.3 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC0 1xRTT	CDMA BC0 EVDO	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.234		0.000		0.002	1.236
		1.010	0.000		0.002	1.012
	1.234			0.245		1.479
		1.010		0.245		1.255
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.234		0.000	0.245		1.479
		1.010	0.000	0.245		1.255
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.430		0.000		0.002	0.432
		0.399	0.000		0.002	0.401
	0.430			0.245		0.675
		0.399		0.245		0.644
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.430		0.000	0.245		0.675
		0.399	0.000	0.245		0.644
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.551		0.332		0.011	0.894
		0.509	0.332		0.011	0.852
	0.551			0.199		0.750
		0.509		0.199		0.708
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.551		0.332	0.199		1.082
		0.509	0.332	0.199		1.040
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.417		0.332		0.011	0.760
		0.392	0.332		0.011	0.735
	0.417			0.199		0.616
		0.392		0.199		0.591
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.417		0.332	0.199		0.948
		0.392	0.332	0.199		0.923
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.139		0.184		0.040	1.363
		1.102	0.184		0.040	1.326
	1.139			0.422		1.561
		1.102		0.422		1.524
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.139		0.184	0.422		1.744
		1.102	0.184	0.422		1.707
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.432		0.184		0.040	0.656
		0.368	0.184		0.040	0.592
	0.432			0.422		0.854
		0.368		0.422		0.790
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.432		0.184	0.422		1.037
		0.368	0.184	0.422		0.973

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 10-1

Test Position	①CDMA BC 0 1xRTT	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.139	0.184	0.422		① + ② + ③	1.744				
	1.139	0.184			① + ②	1.323	116.2	0.013	No	10-1
	1.139		0.422		① + ③	1.561	249.0	0.008	No	10-1

Table 10-2

Test Position	①CDMA BC 0 EVDO	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.102	0.184	0.422		① + ② + ③	1.707				
	1.102	0.184			① + ②	1.286	110.8	0.013	No	10-2
	1.102		0.422		① + ③	1.524	243.1	0.008	No	10-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.11. Sum of the SAR for CDMA BC1 & Wi-Fi 5.3 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC1 1xRTT	CDMA BC1 EVDO	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.181		0.000		0.002	1.183
		1.209	0.000		0.002	1.211
	1.181			0.245		1.426
		1.209		0.245		1.454
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.181		0.000	0.245		1.426
		1.209	0.000	0.245		1.454
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.993		0.000		0.002	0.995
		0.797	0.000		0.002	0.799
	0.993			0.245		1.238
		0.797		0.245		1.042
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.993		0.000	0.245		1.238
		0.797	0.000	0.245		1.042
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.524		0.332		0.011	0.867
		0.517	0.332		0.011	0.860
	0.524			0.199		0.723
		0.517		0.199		0.716
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.524		0.332	0.199		1.055
		0.517	0.332	0.199		1.048
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.542		0.332		0.011	0.885
		0.549	0.332		0.011	0.892
	0.542			0.199		0.741
		0.549		0.199		0.748
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.542		0.332	0.199		1.073
		0.549	0.332	0.199		1.080
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.288		0.184		0.040	1.512
		1.399	0.184		0.040	1.623
	1.288			0.422		1.710
		1.399		0.422		1.821
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.288		0.184	0.422		1.893
		1.399	0.184	0.422		2.004
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.787		0.184		0.040	1.011
		0.703	0.184		0.040	0.927
	0.787			0.422		1.209
		0.703		0.422		1.125
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.787		0.184	0.422		1.392
		0.703	0.184	0.422		1.308

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 11-1

Test Position	①CDMA BC1 1xRTT	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.288	0.184	0.422		① + ② + ③	1.893				
	1.288	0.184			① + ②	1.472	99.9	0.018	No	11-1
	1.288		0.422		① + ③	1.710	232.1	0.010	No	11-1

Table 11-2

Test Position	①CDMA BC1 EVDO	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 1 Tx	1.399	0.184		0.040	① + ② + ④	1.623				
	1.399	0.184			① + ②	1.583	107.0	0.019	No	11-2
	1.399			0.040	① + ④	1.439	116.0	0.015	No	11-2

Table 11-3

Test Position	①CDMA BC1 EVDO	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.399	0.184	0.422		① + ② + ③	2.004				
	1.399	0.184			① + ②	1.583	107.0	0.019	No	11-3
	1.399		0.422		① + ③	1.821	239.5	0.010	No	11-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.12. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 5.3 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 2	LTE Band 4	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.225		0.000		0.002	1.227
		1.375	0.000		0.002	1.377
	1.225			0.245		1.470
		1.375		0.245		1.620
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.225		0.000	0.245		1.470
		1.375	0.000	0.245		1.620
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.639		0.000		0.002	0.641
		0.553	0.000		0.002	0.555
	0.639			0.245		0.884
		0.553		0.245		0.798
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.639		0.000	0.245		0.884
		0.553	0.000	0.245		0.798
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.468		0.332		0.011	0.811
		0.610	0.332		0.011	0.953
	0.468			0.199		0.667
		0.610		0.199		0.809
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.468		0.332	0.199		0.999
		0.610	0.332	0.199		1.141
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.321		0.332		0.011	0.664
		0.310	0.332		0.011	0.653
	0.321			0.199		0.520
		0.310		0.199		0.509
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.321		0.332	0.199		0.852
		0.310	0.332	0.199		0.841
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.397		0.184		0.040	1.621
		1.059	0.184		0.040	1.283
	1.397			0.422		1.819
		1.059		0.422		1.481
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.397		0.184	0.422		2.002
		1.059	0.184	0.422		1.664
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.582		0.184		0.040	0.806
		0.287	0.184		0.040	0.511
	0.582			0.422		1.004
		0.287		0.422		0.709
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.582		0.184	0.422		1.187
		0.287	0.184	0.422		0.892

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 12-1

Test Position	①LTE Band 4	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.375	0.000	0.245		① + ② + ③	1.620				
	1.375	0.000			① + ②	1.375	225.0	0.007	No	12-1
	1.375		0.245		① + ③	1.620	267.3	0.008	No	12-1

Table 12-2

Test Position	①LTE Band 2	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.397	0.184	0.422		① + ② + ③	2.002				
	1.397	0.184			① + ②	1.581	94.4	0.021	No	12-2
	1.397		0.422		① + ③	1.819	226.1	0.011	No	12-2

Table 12-3

Test Position	①LTE Band 2	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 1 Tx	1.397	0.184		0.040	① + ② + ④	1.621				
	1.397	0.184			① + ②	1.581	94.4	0.021	No	12-3
	1.397			0.040	① + ④	1.437	102.8	0.017	No	12-3

Table 12-4

Test Position	①LTE Band 4	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.059	0.184	0.422		① + ② + ③	1.664				
	1.059	0.184			① + ②	1.243	106.2	0.013	No	12-4
	1.059		0.422		① + ③	1.481	240.3	0.007	No	12-4

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.13. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 5.3 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 5	LTE Band 25	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.069		0.000		0.002	1.071
		1.282	0.000		0.002	1.284
	1.069			0.245		1.314
		1.282		0.245		1.527
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.069		0.000	0.245		1.314
		1.282	0.000	0.245		1.527
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.329		0.000		0.002	0.331
		0.723	0.000		0.002	0.725
	0.329			0.245		0.574
		0.723		0.245		0.968
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.329		0.000	0.245		0.574
		0.723	0.000	0.245		0.968
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.617		0.332		0.011	0.960
		0.458	0.332		0.011	0.801
	0.617			0.199		0.816
		0.458		0.199		0.657
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.617		0.332	0.199		1.148
		0.458	0.332	0.199		0.989
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.333		0.332		0.011	0.676
		0.347	0.332		0.011	0.690
	0.333			0.199		0.532
		0.347		0.199		0.546
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.333		0.332	0.199		0.864
		0.347	0.332	0.199		0.878
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.081		0.184		0.040	1.305
		1.316	0.184		0.040	1.540
	1.081			0.422		1.503
		1.316		0.422		1.738
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.081		0.184	0.422		1.686
		1.316	0.184	0.422		1.921
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.304		0.184		0.040	0.528
		0.524	0.184		0.040	0.748
	0.304			0.422		0.726
		0.524		0.422		0.946
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.304		0.184	0.422		0.909
		0.524	0.184	0.422		1.129

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 13-1

Test Position	①LTE Band 25	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.316	0.184	0.422		① + ② + ③	1.921				
	1.316	0.184			① + ②	1.500	108.7	0.017	No	13-1
	1.316		0.422		① + ③	1.738	241.1	0.010	No	13-1

Table 13-2

Test Position	①LTE Band 5	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.081	0.184	0.422		① + ② + ③	1.686				
	1.081	0.184			① + ②	1.265	116.3	0.012	No	13-2
	1.081		0.422		① + ③	1.503	248.1	0.007	No	13-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.14. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 5.3 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 13	LTE Band 17	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.949		0.000		0.002	0.952
		0.617	0.000		0.002	0.619
	0.949			0.245		1.194
		0.617		0.245		0.862
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.949		0.000	0.245		1.194
		0.617	0.000	0.245		0.862
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.259		0.000		0.002	0.261
		0.138	0.000		0.002	0.140
	0.259			0.245		0.504
		0.138		0.245		0.383
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.259		0.000	0.245		0.504
		0.138	0.000	0.245		0.383
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.486		0.332		0.011	0.829
		0.533	0.332		0.011	0.876
	0.486			0.199		0.685
		0.533		0.199		0.732
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.486		0.332	0.199		1.017
		0.533	0.332	0.199		1.064
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.291		0.332		0.011	0.634
		0.233	0.332		0.011	0.576
	0.291			0.199		0.490
		0.233		0.199		0.432
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.291		0.332	0.199		0.822
		0.233	0.332	0.199		0.764
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.245		0.184		0.040	1.468
		0.896	0.184		0.040	1.120
	1.245			0.422		1.666
		0.896		0.422		1.318
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.245		0.184	0.422		1.850
		0.896	0.184	0.422		1.501
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.384		0.184		0.040	0.608
		0.180	0.184		0.040	0.404
	0.384			0.422		0.806
		0.180		0.422		0.602
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.384		0.184	0.422		0.989
		0.180	0.184	0.422		0.785

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 14-1

Test Position	①LTE Band 13	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.245	0.184	0.422		① + ② + ③	1.850				
	1.245	0.184			① + ②	1.428	121.8	0.014	No	14-1
	1.245		0.422		① + ③	1.666	255.0	0.008	No	14-1

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.15. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 5.5 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	WCDMA V	WCDMA IV	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.047		0.000		0.002	1.049
		1.389	0.000		0.002	1.391
	1.047			0.249		1.296
		1.389		0.249		1.638
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.047		0.000	0.249		1.296
		1.389	0.000	0.249		1.638
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.297		0.000		0.002	0.299
		0.601	0.000		0.002	0.603
	0.297			0.249		0.546
		0.601		0.249		0.850
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.297		0.000	0.249		0.546
		0.601	0.000	0.249		0.850
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.555		0.197		0.011	0.763
		0.532	0.197		0.011	0.740
	0.555			0.251		0.806
		0.532		0.251		0.783
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.555		0.197	0.251		1.003
		0.532	0.197	0.251		0.980
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.202		0.197		0.011	0.410
		0.370	0.197		0.011	0.578
	0.202			0.251		0.453
		0.370		0.251		0.621
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.202		0.197	0.251		0.650
		0.370	0.197	0.251		0.818
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.067		0.212		0.040	1.319
		1.335	0.212		0.040	1.587
	1.067			0.478		1.545
		1.335		0.478		1.813
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.067		0.212	0.478		1.757
		1.335	0.212	0.478		2.025
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.380		0.212		0.040	0.632
		0.554	0.212		0.040	0.806
	0.380			0.478		0.858
		0.554		0.478		1.032
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.380		0.212	0.478		1.070
		0.554	0.212	0.478		1.244

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 15-1

Test Position	①WCDMA Band 4	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.389	0.000	0.249		① + ② + ③	1.638				
	1.389	0.000			① + ②	1.389	No peaks	-	-	15-1
	1.389		0.249		① + ③	1.638	262.0	0.008	No	15-1

Table 15-2

Test Position	①WCDMA Band 4	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.335	0.212	0.478		① + ② + ③	2.025				
	1.335	0.212			① + ②	1.547	113.6	0.017	No	15-2
	1.335		0.478		① + ③	1.813	248.2	0.010	No	15-2

Table 15-3

Test Position	①WCDMA Band 5	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.067	0.212	0.478		① + ② + ③	1.757				
	1.067	0.212			① + ②	1.279	123.5	0.012	No	15-3
	1.067		0.478		① + ③	1.545	257.0	0.007	No	15-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.16. Sum of the SAR for W-CDMA Band II & Wi-Fi 5.5 GHz Band

Test Position	Data				∑ 1-g SAR (mW/g)
	WCDMA II	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.235	0.000		0.002	1.237
	1.235		0.249		1.484
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.235	0.000	0.249		1.484
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.697	0.000		0.002	0.699
	0.697		0.249		0.946
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.697	0.000	0.249		0.946
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.574	0.197		0.011	0.782
	0.574		0.251		0.825
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.574	0.197	0.251		1.022
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.375	0.197		0.011	0.583
	0.375		0.251		0.626
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.375	0.197	0.251		0.823
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.378	0.212		0.040	1.630
	1.378		0.478		1.856
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.378	0.212	0.478		2.068
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.530	0.212		0.040	0.782
	0.530		0.478		1.008
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.530	0.212	0.478		1.220

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 16-1

Test Position	①WCDMA Band 2	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.378	0.212	0.478		① + ② + ③	2.068				
	1.378	0.212			① + ②	1.590	117.6	0.017	No	16-1
	1.378		0.478		① + ③	1.856	251.0	0.010	No	16-1

Table 16-2

Test Position	①WCDMA Band 2	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 1 Tx	1.378	0.212		0.040	① + ② + ④	1.630				
	1.378	0.212			① + ②	1.590	117.6	0.017	No	16-2
	1.378			0.040	① + ④	1.418	116.5	0.014	No	16-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.17. Sum of the SAR for CDMA BC0 & Wi-Fi 5.5 GHz Band

Test Position	CDMA BC0 1xRTT	CDMA BC0 EVDO	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	∑ 1-g SAR (mW/g)
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.234		0.000		0.002	1.236
		1.010	0.000		0.002	1.012
	1.234			0.249		1.483
		1.010		0.249		1.259
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.234		0.000	0.249		1.483
		1.010	0.000	0.249		1.259
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.430		0.000		0.002	0.432
		0.399	0.000		0.002	0.401
	0.430			0.249		0.679
		0.399		0.249		0.648
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.430		0.000	0.249		0.679
		0.399	0.000	0.249		0.648
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.551		0.197		0.011	0.759
		0.509	0.197		0.011	0.717
	0.551			0.251		0.802
		0.509		0.251		0.760
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.551		0.197	0.251		0.999
		0.509	0.197	0.251		0.957
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.417		0.197		0.011	0.625
		0.392	0.197		0.011	0.600
	0.417			0.251		0.668
		0.392		0.251		0.643
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.417		0.197	0.251		0.865
		0.392	0.197	0.251		0.840
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.139		0.212		0.040	1.391
		1.102	0.212		0.040	1.354
	1.139			0.478		1.617
		1.102		0.478		1.580
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.139		0.212	0.478		1.829
		1.102	0.212	0.478		1.792
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.432		0.212		0.040	0.684
		0.368	0.212		0.040	0.620
	0.432			0.478		0.910
		0.368		0.478		0.846
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.432		0.212	0.478		1.122
		0.368	0.212	0.478		1.058

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 17-1

Test Position	①CDMA BC0 1xRTT	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.139	0.212	0.478		① + ② + ③	1.829				
	1.139	0.212			① + ②	1.351	126.3	0.012	No	17-1
	1.139		0.478		① + ③	1.617	260.0	0.008	No	17-1

Table 17-2

Test Position	①CDMA BC0 EVDO	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.102	0.212	0.478		① + ② + ③	1.792				
	1.102	0.212			① + ②	1.314	121.1	0.012	No	17-2
	1.102		0.478		① + ③	1.580	254.0	0.008	No	17-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.18. Sum of the SAR for CDMA BC1 & Wi-Fi 5.5 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC1 1xRTT	CDMA BC1 EVDO	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.181		0.000		0.002	1.183
		1.209	0.000		0.002	1.211
	1.181			0.249		1.430
		1.209		0.249		1.458
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.181		0.000	0.249		1.430
		1.209	0.000	0.249		1.458
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.993		0.000		0.002	0.995
		0.797	0.000		0.002	0.799
	0.993			0.249		1.242
		0.797		0.249		1.046
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.993		0.000	0.249		1.242
		0.797	0.000	0.249		1.046
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.524		0.197		0.011	0.732
		0.517	0.197		0.011	0.725
	0.524			0.251		0.775
		0.517		0.251		0.768
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.524		0.197	0.251		0.972
		0.517	0.197	0.251		0.965
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.542		0.197		0.011	0.750
		0.549	0.197		0.011	0.757
	0.542			0.251		0.793
		0.549		0.251		0.800
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.542		0.197	0.251		0.990
		0.549	0.197	0.251		0.997
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.288		0.212		0.040	1.540
		1.399	0.212		0.040	1.651
	1.288			0.478		1.766
		1.399		0.478		1.877
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.288		0.212	0.478		1.978
		1.399	0.212	0.478		2.089
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.787		0.212		0.040	1.039
		0.703	0.212		0.040	0.955
	0.787			0.478		1.265
		0.703		0.478		1.181
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.787		0.212	0.478		1.477
		0.703	0.212	0.478		1.393

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 18-1

Test Position	①CDMA BC1 1xRTT	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.288	0.212	0.478		① + ② + ③	1.978				
	1.288	0.212			① + ②	1.500	110.4	0.017	No	18-1
	1.288		0.478		① + ③	1.766	243.1	0.010	No	18-1

Table 18-2

Test Position	①CDMA BC1 EVDO	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.399	0.212	0.478		① + ② + ③	2.089				
	1.399	0.212			① + ②	1.611	117.3	0.017	No	18-2
	1.399		0.478		① + ③	1.877	250.5	0.010	No	18-2

Table 18-3

Test Position	①CDMA BC1 EVDO	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.399	0.212		0.040	① + ② + ④	1.651				
	1.399	0.212			① + ②	1.611	117.3	0.017	No	18-3
	1.399			0.040	① + ④	1.439	116.0	0.015	No	18-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.19. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 5.5 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 2	LTE Band 4	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.225		0.000		0.002	1.227
		1.375	0.000		0.002	1.377
	1.225			0.249		1.474
		1.375		0.249		1.624
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.225		0.000	0.249		1.474
		1.375	0.000	0.249		1.624
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.639		0.000		0.002	0.641
		0.553	0.000		0.002	0.555
	0.639			0.249		0.888
		0.553		0.249		0.802
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.639		0.000	0.249		0.888
		0.553	0.000	0.249		0.802
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.468		0.197		0.011	0.676
		0.610	0.197		0.011	0.818
	0.468			0.251		0.719
		0.610		0.251		0.861
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.468		0.197	0.251		0.916
		0.610	0.197	0.251		1.058
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.321		0.197		0.011	0.529
		0.310	0.197		0.011	0.518
	0.321			0.251		0.572
		0.310		0.251		0.561
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.321		0.197	0.251		0.769
		0.310	0.197	0.251		0.758
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.397		0.212		0.040	1.649
		1.059	0.212		0.040	1.311
	1.397			0.478		1.875
		1.059		0.478		1.537
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.397		0.212	0.478		2.087
		1.059	0.212	0.478		1.749
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.582		0.212		0.040	0.834
		0.287	0.212		0.040	0.539
	0.582			0.478		1.060
		0.287		0.478		0.765
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.582		0.212	0.478		1.272
		0.287	0.212	0.478		0.977

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 19-1

Test Position	①LTE Band 2	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.397	0.212	0.478		① + ② + ③	2.087				
	1.397	0.212			① + ②	1.609	105.0	0.019	No	19-1
	1.397		0.478		① + ③	1.875	237.1	0.011	No	19-1

Table 19-2

Test Position	①LTE Band 4	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.059	0.212	0.478		① + ② + ③	1.749				
	1.059	0.212			① + ②	1.271	115.7	0.012	No	19-2
	1.059		0.478		① + ③	1.537	251.5	0.008	No	19-2

Table 19-3

Test Position	①LTE Band 4	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.375	0.000	0.249		① + ② + ③	1.624				
	1.375	0.000			① + ②	1.375	No peaks	-	-	19-3
	1.375		0.249		① + ③	1.624	269.3	0.008	No	19-3

Table 19-4

Test Position	①LTE Band 2	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 1 Tx	1.397	0.212		0.040	① + ② + ④	1.649				
	1.397	0.212			① + ②	1.609	105.0	0.019	No	19-4
	1.397			0.040	① + ④	1.437	102.8	0.017	No	19-4

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.20. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 5.5 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 5	LTE Band 25	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.069		0.000		0.002	1.071
		1.282	0.000		0.002	1.284
	1.069			0.249		1.318
		1.282		0.249		1.531
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.069		0.000	0.249		1.318
		1.282	0.000	0.249		1.531
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.329		0.000		0.002	0.331
		0.723	0.000		0.002	0.725
	0.329			0.249		0.578
		0.723		0.249		0.972
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.329		0.000	0.249		0.578
		0.723	0.000	0.249		0.972
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.617		0.197		0.011	0.825
		0.458	0.197		0.011	0.666
	0.617			0.251		0.868
		0.458		0.251		0.709
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.617		0.197	0.251		1.065
		0.458	0.197	0.251		0.906
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.333		0.197		0.011	0.541
		0.347	0.197		0.011	0.555
	0.333			0.251		0.584
		0.347		0.251		0.598
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.333		0.197	0.251		0.781
		0.347	0.197	0.251		0.795
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.081		0.212		0.040	1.333
		1.316	0.212		0.040	1.568
	1.081			0.478		1.559
		1.316		0.478		1.794
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.081		0.212	0.478		1.771
		1.316	0.212	0.478		2.006
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.304		0.212		0.040	0.556
		0.524	0.212		0.040	0.776
	0.304			0.478		0.782
		0.524		0.478		1.002
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.304		0.212	0.478		0.994
		0.524	0.212	0.478		1.214

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 20-1

Test Position	①LTE Band 5	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.081	0.212	0.478		① + ② + ③	1.771				
	1.081	0.212			① + ②	1.293	126.8	0.012	No	20-1
	1.081		0.478		① + ③	1.559	259.1	0.008	No	20-1

Table 20-2

Test Position	①LTE Band 25	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.316	0.212	0.478		① + ② + ③	2.006				
	1.316	0.212			① + ②	1.528	113.7	0.017	No	20-2
	1.316		0.478		① + ③	1.794	246.0	0.010	No	20-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.21. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 5.5 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 13	LTE Band 17	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.949		0.000		0.002	0.951
		0.617	0.000		0.002	0.619
	0.949			0.249		1.198
		0.617		0.249		0.866
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.949		0.000	0.249		1.198
		0.617	0.000	0.249		0.866
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.259		0.000		0.002	0.261
		0.138	0.000		0.002	0.140
	0.259			0.249		0.508
		0.138		0.249		0.387
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.259		0.000	0.249		0.508
		0.138	0.000	0.249		0.387
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.486		0.197		0.011	0.694
		0.533	0.197		0.011	0.741
	0.486			0.251		0.737
		0.533		0.251		0.784
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.486		0.197	0.251		0.933
		0.533	0.197	0.251		0.981
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.291		0.197		0.011	0.499
		0.233	0.197		0.011	0.441
	0.291			0.251		0.542
		0.233		0.251		0.484
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.291		0.197	0.251		0.739
		0.233	0.197	0.251		0.681
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.245		0.212		0.040	1.496
		0.896	0.212		0.040	1.148
	1.245			0.478		1.723
		0.896		0.478		1.374
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.245		0.212	0.478		1.935
		0.896	0.212	0.478		1.586
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.384		0.212		0.040	0.636
		0.180	0.212		0.040	0.432
	0.384			0.478		0.862
		0.180		0.478		0.658
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.384		0.212	0.478		1.074
		0.180	0.212	0.478		0.870

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 21-1

Test Position	①LTE Band 13	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.245	0.212	0.478		① + ② + ③	1.935				
	1.245	0.212			① + ②	1.456	131.8	0.013	No	21-1
	1.245		0.478		① + ③	1.723	266.1	0.008	No	21-1

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.22. Sum of the SAR for W-CDMA Band V, IV & Wi-Fi 5.8 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	WCDMA V	WCDMA IV	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.047		0.001		0.002	1.051
		1.389	0.001		0.002	1.393
	1.047			0.395		1.442
		1.389		0.395		1.784
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.047		0.001	0.395		1.443
		1.389	0.001	0.395		1.785
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.297		0.001		0.002	0.301
		0.601	0.001		0.002	0.605
	0.297			0.395		0.692
		0.601		0.395		0.996
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.297		0.001	0.395		0.693
		0.601	0.001	0.395		0.997
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.555		0.454		0.011	1.021
		0.532	0.454		0.011	0.998
	0.555			0.254		0.809
		0.532		0.254		0.786
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.555		0.454	0.254		1.263
		0.532	0.454	0.254		1.240
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.202		0.454		0.011	0.668
		0.370	0.454		0.011	0.836
	0.202			0.254		0.456
		0.370		0.254		0.624
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.202		0.454	0.254		0.910
		0.370	0.454	0.254		1.078
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.067		0.222		0.040	1.329
		1.335	0.222		0.040	1.597
	1.067			0.543		1.610
		1.335		0.543		1.878
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.067		0.222	0.543		1.832
		1.335	0.222	0.543		2.100
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.380		0.222		0.040	0.642
		0.554	0.222		0.040	0.816
	0.380			0.543		0.923
		0.554		0.543		1.097
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.380		0.222	0.543		1.145
		0.554	0.222	0.543		1.319

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 22-1

Test Position	①WCDMA Band 4	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.389	0.001	0.395		① + ② + ③	1.785				
	1.389	0.001			① + ②	1.390	285.4	0.006	No	22-1
	1.389		0.395		① + ③	1.784	264.1	0.009	No	22-1

Table 22-2

Test Position	①WCDMA Band 5	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.067	0.222	0.543		① + ② + ③	1.832				
	1.067	0.222			① + ②	1.289	102.3	0.014	No	22-2
	1.067		0.543		① + ③	1.610	250.0	0.008	No	22-2

Table 22-3

Test Position	①WCDMA Band 4	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.335	0.222	0.543		① + ② + ③	2.100				
	1.335	0.222			① + ②	1.557	92.4	0.021	No	22-3
	1.335		0.543		① + ③	1.878	241.2	0.011	No	22-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.23. Sum of the SAR for W-CDMA Band II & Wi-Fi 5.8 GHz Band

Test Position	Data				∑ 1-g SAR (mW/g)
	WCDMA II	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.235	0.001		0.002	1.239
	1.235		0.395		1.630
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.235	0.001	0.395		1.631
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.697	0.001		0.002	0.701
	0.697		0.395		1.092
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.697	0.001	0.395		1.093
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.574	0.454		0.011	1.040
	0.574		0.254		0.828
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.574	0.454	0.254		1.282
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.375	0.454		0.011	0.841
	0.375		0.254		0.629
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.375	0.454	0.254		1.083
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.378	0.222		0.040	1.640
	1.378		0.543		1.921
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.378	0.222	0.543		2.143
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.530	0.222		0.040	0.792
	0.530		0.543		1.073
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.530	0.222	0.543		1.295

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 23-1

Test Position	①WCDMA Band 2	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.235	0.001	0.395		① + ② + ③	1.631				
	1.235	0.001			① + ②	1.236	260.9	0.005	No	23-1
	1.235		0.395		① + ③	1.630	239.6	0.009	No	23-1

Table 23-2

Test Position	①WCDMA Band 2	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.378	0.222		0.040	① + ② + ④	1.640				
	1.378	0.222			① + ②	1.600	96.5	0.021	No	23-2
	1.378			0.040	① + ④	1.418	116.5	0.014	No	23-2

Table 23-3

Test Position	①WCDMA Band 2	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.378	0.222	0.543		① + ② + ③	2.143				
	1.378	0.222			① + ②	1.600	96.5	0.021	No	23-3
	1.378		0.543		① + ③	1.921	244.0	0.011	No	23-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.24. Sum of the SAR for CDMA BC0 & Wi-Fi 5.8 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC0 1xRTT	CDMA BC0 EVDO	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.234		0.001		0.002	1.238
		1.010	0.001		0.002	1.014
	1.234		0.001	0.395		1.630
		1.010	0.001	0.395		1.406
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.234		0.001	0.395		1.630
		1.010	0.001	0.395		1.406
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.430		0.001		0.002	0.434
		0.399	0.001		0.002	0.403
	0.430		0.001	0.395		0.826
		0.399	0.001	0.395		0.795
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.430		0.001	0.395		0.826
		0.399	0.001	0.395		0.795
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.551		0.454		0.011	1.017
		0.509	0.454		0.011	0.975
	0.551			0.254		0.805
		0.509		0.254		0.763
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.551		0.454	0.254		1.259
		0.509	0.454	0.254		1.217
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.417		0.454		0.011	0.883
		0.392	0.454		0.011	0.858
	0.417			0.254		0.671
		0.392		0.254		0.646
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.417		0.454	0.254		1.125
		0.392	0.454	0.254		1.100
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.139		0.222		0.040	1.401
		1.102	0.222		0.040	1.364
	1.139			0.543		1.682
		1.102		0.543		1.645
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.139		0.222	0.543		1.904
		1.102	0.222	0.543		1.867
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.432		0.222		0.040	0.694
		0.368	0.222		0.040	0.630
	0.432			0.543		0.975
		0.368		0.543		0.911
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.432		0.222	0.543		1.197
		0.368	0.222	0.543		1.133

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 24-1

Test Position	①CDMA BC0 1xRTT	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.234	0.001	0.395		① + ② + ③	1.630				
	1.234	0.001			① + ②	1.235	276.4	0.005	No	24-1
	1.234		0.395		① + ③	1.629	255.1	0.008	No	24-1

Table 24-2

Test Position	①CDMA BC0 1xRTT	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.139	0.222	0.543		① + ② + ③	1.904				
	1.139	0.222			① + ②	1.361	105.2	0.015	No	24-2
	1.139		0.543		① + ③	1.682	253.0	0.009	No	24-2

Table 24-3

Test Position	①CDMA BC0 EVDO	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.102	0.222	0.543		① + ② + ③	1.867				
	1.102	0.222			① + ②	1.324	100.0	0.015	No	24-3
	1.102		0.543		① + ③	1.645	247.1	0.009	No	24-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.25. Sum of the SAR for CDMA BC1 & Wi-Fi 5.8 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC1 1xRTT	CDMA BC1 EVDO	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.181		0.001		0.002	1.185
		1.209	0.001		0.002	1.213
	1.181			0.395		1.576
		1.209		0.395		1.604
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.181		0.001	0.395		1.577
		1.209	0.001	0.395		1.605
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.993		0.001		0.002	0.997
		0.797	0.001		0.002	0.801
	0.993			0.395		1.388
		0.797		0.395		1.192
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.993		0.001	0.395		1.389
		0.797	0.001	0.395		1.193
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.524		0.454		0.011	0.990
		0.517	0.454		0.011	0.983
	0.524			0.254		0.778
		0.517		0.254		0.771
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.524		0.454	0.254		1.232
		0.517	0.454	0.254		1.225
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.542		0.454		0.011	1.008
		0.549	0.454		0.011	1.015
	0.542			0.254		0.796
		0.549		0.254		0.803
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.542		0.454	0.254		1.250
		0.549	0.454	0.254		1.257
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.288		0.222		0.040	1.550
		1.399	0.222		0.040	1.661
	1.288			0.543		1.831
		1.399		0.543		1.942
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.288		0.222	0.543		2.053
		1.399	0.222	0.543		2.164
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.787		0.222		0.040	1.049
		0.703	0.222		0.040	0.965
	0.787			0.543		1.330
		0.703		0.543		1.246
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.787		0.222	0.543		1.552
		0.703	0.222	0.543		1.468

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 25-1

Test Position	①CDMA BC1 EVDO	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.209	0.001	0.395		① + ② + ③	1.605				
	1.209	0.001			① + ②	1.210	262.4	0.005	No	25-1
	1.209		0.395		① + ③	1.604	241.1	0.008	No	25-1

Table 25-2

Test Position	①CDMA BC1 1xRTT	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.288	0.222	0.543		① + ② + ③	2.053				
	1.288	0.222			① + ②	1.510	89.4	0.021	No	25-2
	1.288		0.543		① + ③	1.831	236.1	0.010	No	25-2

Table 25-3

Test Position	①CDMA BC1 EVDO	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.399	0.222	0.543		① + ② + ③	2.164				
	1.399	0.222			① + ②	1.621	96.2	0.021	No	25-3
	1.399		0.543		① + ③	1.942	243.5	0.011	No	25-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.26. Sum of the SAR for LTE Bands 2 and 4 & Wi-Fi 5.8 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 2	LTE Band 4	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.225		0.001		0.002	1.229
		1.375	0.001		0.002	1.379
	1.225			0.395		1.620
		1.375		0.395		1.770
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.225		0.001	0.395		1.621
		1.375	0.001	0.395		1.771
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.639		0.001		0.002	0.643
		0.553	0.001		0.002	0.557
	0.639			0.395		1.034
		0.553		0.395		0.948
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.639		0.001	0.395		1.035
		0.553	0.001	0.395		0.949
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.468		0.454		0.011	0.934
		0.610	0.454		0.011	1.076
	0.468			0.254		0.722
		0.610		0.254		0.864
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.468		0.454	0.254		1.176
		0.610	0.454	0.254		1.318
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.321		0.454		0.011	0.787
		0.310	0.454		0.011	0.776
	0.321			0.254		0.575
		0.310		0.254		0.564
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.321		0.454	0.254		1.029
		0.310	0.454	0.254		1.018
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.397		0.222		0.040	1.659
		1.059	0.222		0.040	1.321
	1.397			0.543		1.940
		1.059		0.543		1.602
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.397		0.222	0.543		2.162
		1.059	0.222	0.543		1.824
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.582		0.222		0.040	0.844
		0.287	0.222		0.040	0.549
	0.582			0.543		1.125
		0.287		0.543		0.830
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.582		0.222	0.543		1.347
		0.287	0.222	0.543		1.052

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 26-1

Test Position	①LTE Band 2	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.225	0.001	0.395		① + ② + ③	1.621				
	1.225	0.001			① + ②	1.226	262.4	0.005	No	26-1
	1.225		0.395		① + ③	1.620	241.1	0.009	No	26-1

Table 26-2

Test Position	①LTE Band 2	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.397	0.222	0.543		① + ② + ③	2.162				
	1.397	0.222			① + ②	1.619	84.1	0.024	No	26-2
	1.397		0.543		① + ③	1.940	230.1	0.012	No	26-2

Table 26-3

Test Position	①LTE Band 4	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.059	0.222	0.543		① + ② + ③	1.824				
	1.059	0.222			① + ②	1.281	94.5	0.015	No	26-3
	1.059		0.543		① + ③	1.602	244.5	0.008	No	26-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.27. Sum of the SAR for LTE Bands 5 and 25 & Wi-Fi 5.8 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 5	LTE Band 25	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.069		0.001		0.002	1.073
		1.282	0.001		0.002	1.286
	1.069			0.395		1.464
		1.282		0.395		1.677
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.069		0.001	0.395		1.465
		1.282	0.001	0.395		1.678
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.329		0.001		0.002	0.333
		0.723	0.001		0.002	0.727
	0.329			0.395		0.724
		0.723		0.395		1.118
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.329		0.001	0.395		0.725
		0.723	0.001	0.395		1.119
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.617		0.454		0.011	1.083
		0.458	0.454		0.011	0.924
	0.617			0.254		0.871
		0.458		0.254		0.712
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.617		0.454	0.254		1.325
		0.458	0.454	0.254		1.166
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.333		0.454		0.011	0.799
		0.347	0.454		0.011	0.813
	0.333			0.254		0.587
		0.347		0.254		0.601
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.333		0.454	0.254		1.041
		0.347	0.454	0.254		1.055
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.081		0.222		0.040	1.343
		1.316	0.222		0.040	1.578
	1.081			0.543		1.624
		1.316		0.543		1.859
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.081		0.222	0.543		1.846
		1.316	0.222	0.543		2.081
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.304		0.222		0.040	0.566
		0.524	0.222		0.040	0.786
	0.304			0.543		0.847
		0.524		0.543		1.067
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.304		0.222	0.543		1.069
		0.524	0.222	0.543		1.289

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 27-1

Test Position	①LTE Band 25	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 Wi-Fi 2 Tx	1.282	0.001	0.395		① + ② + ③	1.678				
	1.282	0.001			① + ②	1.283	264.0	0.006	No	27-1
	1.282		0.395		① + ③	1.677	242.6	0.009	No	27-1

Table 27-2

Test Position	①LTE Band 5	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.081	0.222	0.543		① + ② + ③	1.846				
	1.081	0.222			① + ②	1.303	105.7	0.014	No	27-2
	1.081		0.543		① + ③	1.624	252.1	0.008	No	27-2

Table 27-3

Test Position	①LTE Band 25	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.316	0.222	0.543		① + ② + ③	2.081				
	1.316	0.222			① + ②	1.538	92.6	0.021	No	27-3
	1.316		0.543		① + ③	1.859	239.0	0.011	No	27-3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.28. Sum of the SAR for LTE Bands 13 and 17 & Wi-Fi 5.8 GHz Band

Test Position	Data					∑ 1-g SAR (mW/g)
	LTE Band 13	LTE Band 17	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.949		0.001		0.002	0.953
		0.617	0.001		0.002	0.621
	0.949			0.395		1.344
		0.617		0.395		1.012
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.949		0.001	0.395		1.345
		0.617	0.001	0.395		1.013
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.259		0.001		0.002	0.263
		0.138	0.001		0.002	0.142
	0.259			0.395		0.654
		0.138		0.395		0.533
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.259		0.001	0.395		0.655
		0.138	0.001	0.395		0.534
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.486		0.454		0.011	0.951
		0.533	0.454		0.011	0.999
	0.486			0.254		0.740
		0.533		0.254		0.787
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.486		0.454	0.254		1.194
		0.533	0.454	0.254		1.241
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.291		0.454		0.011	0.757
		0.233	0.454		0.011	0.699
	0.291			0.254		0.545
		0.233		0.254		0.487
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.291		0.454	0.254		0.999
		0.233	0.454	0.254		0.941
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.245		0.222		0.040	1.506
		0.896	0.222		0.040	1.158
	1.245			0.543		1.788
		0.896		0.543		1.439
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.245		0.222	0.543		2.010
		0.896	0.222	0.543		1.661
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.384		0.222		0.040	0.646
		0.180	0.222		0.040	0.442
	0.384			0.543		0.927
		0.180		0.543		0.723
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.384		0.222	0.543		1.149
		0.180	0.222	0.543		0.945

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 28-1

Test Position	①LTE Band 13	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.245	0.222	0.543		① + ② + ③	2.010				
	1.245	0.222			① + ②	1.466	110.6	0.016	No	28-1
	1.245		0.543		① + ③	1.788	259.1	0.009	No	28-1

Table 28-2

Test Position	①LTE Band 17	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	0.896	0.222	0.543		① + ② + ③	1.661				
	0.896	0.222			① + ②	1.118	98.2	0.012	No	28-2
	0.896		0.543		① + ③	1.439	247.1	0.007	No	28-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.29. Sum of the SAR for CDMA BC10 & Wi-Fi 2.4 GHz Bands.

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC10 1xRTT	CDMA BC10 EVDO	WiFi 2.4 GHz Main	WiFi 2.4 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.027		0.005		0.002	1.035
		0.971	0.005		0.002	0.979
	1.027			0.137		1.164
		0.971		0.137		1.108
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.027		0.005	0.137		1.169
		0.971	0.005	0.137		1.113
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.305		0.005		0.002	0.313
		0.438	0.005		0.002	0.446
	0.305			0.137		0.442
		0.438		0.137		0.575
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.305		0.005	0.137		0.447
		0.438	0.005	0.137		0.580
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.491		0.434		0.011	0.937
		0.485	0.434		0.011	0.931
	0.491			0.304		0.795
		0.485		0.304		0.789
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.491		0.434	0.304		1.229
		0.485	0.434	0.304		1.223
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.341		0.434		0.011	0.787
		0.277	0.434		0.011	0.723
	0.341			0.304		0.645
		0.277		0.304		0.581
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.341		0.434	0.304		1.079
		0.277	0.434	0.304		1.015
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.085		0.048		0.040	1.173
		1.098	0.048		0.040	1.186
	1.085			0.229		1.314
		1.098		0.229		1.327
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.085		0.048	0.229		1.362
		1.098	0.048	0.229		1.375
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.317		0.048		0.040	0.405
		0.291	0.048		0.040	0.379
	0.317			0.229		0.546
		0.291		0.229		0.520
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.317		0.048	0.229		0.594
		0.291	0.048	0.229		0.568

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.30. Sum of the SAR for CDMA BC10 & Wi-Fi 5.3 GHz Bands.

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC10 1xRTT	CDMA BC10 EVDO	WiFi 5.3 GHz Main	WiFi 5.3 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.027		0.000		0.002	1.029
		0.971	0.000		0.002	0.973
	1.027			0.245		1.272
		0.971		0.245		1.216
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.027		0.000	0.245		1.272
		0.971	0.000	0.245		1.216
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.305		0.000		0.002	0.307
		0.438	0.000		0.002	0.440
	0.305			0.245		0.550
		0.438		0.245		0.683
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.305		0.000	0.245		0.550
		0.438	0.000	0.245		0.683
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.491		0.332		0.011	0.834
		0.485	0.332		0.011	0.828
	0.491			0.199		0.690
		0.485		0.199		0.684
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.491		0.332	0.199		1.022
		0.485	0.332	0.199		1.016
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.341		0.332		0.011	0.684
		0.277	0.332		0.011	0.620
	0.341			0.199		0.540
		0.277		0.199		0.476
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.341		0.332	0.199		0.872
		0.277	0.332	0.199		0.808
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.085		0.184		0.040	1.309
		1.098	0.184		0.040	1.322
	1.085			0.422		1.507
		1.098		0.422		1.520
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.085		0.184	0.422		1.690
		1.098	0.184	0.422		1.703
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.317		0.184		0.040	0.541
		0.291	0.184		0.040	0.515
	0.317			0.422		0.739
		0.291		0.422		0.713
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.317		0.184	0.422		0.922
		0.291	0.184	0.422		0.896

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 30-1

Test Position	①CDMA BC10 1xRTT	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.085	0.184	0.422		① + ② + ③	1.690				
	1.085	0.184			① + ②	1.269	118.8	0.012	No	30-1
	1.085		0.422		① + ③	1.507	252.0	0.007	No	30-1

Table 30-2

Test Position	①CDMA BC10 EVDO	②WiFi 5.3GHz (Main Ant)	③WiFi 5.3GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.098	0.184	0.422		① + ② + ③	1.703				
	1.098	0.184			① + ②	1.282	114.7	0.013	No	30-2
	1.098		0.422		① + ③	1.520	248.1	0.008	No	30-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.31. Sum of the SAR for CDMA BC10 & Wi-Fi 5.5 GHz Bands.

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC10 1xRTT	CDMA BC10 EVDO	WiFi 5.5 GHz Main	WiFi 5.5 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.027		0.000		0.002	1.029
		0.971	0.000		0.002	0.973
	1.027			0.249		1.276
		0.971		0.249		1.220
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.027		0.000	0.249		1.276
		0.971	0.000	0.249		1.220
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.305		0.000		0.002	0.307
		0.438	0.000		0.002	0.440
	0.305			0.249		0.554
		0.438		0.249		0.687
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.305		0.000	0.249		0.554
		0.438	0.000	0.249		0.687
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.491		0.197		0.011	0.699
		0.485	0.197		0.011	0.693
	0.491			0.251		0.742
		0.485		0.251		0.736
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.491		0.197	0.251		0.939
		0.485	0.197	0.251		0.933
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.341		0.197		0.011	0.549
		0.277	0.197		0.011	0.485
	0.341			0.251		0.592
		0.277		0.251		0.528
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.341		0.197	0.251		0.789
		0.277	0.197	0.251		0.725
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.085		0.212		0.040	1.337
		1.098	0.212		0.040	1.350
	1.085			0.478		1.563
		1.098		0.478		1.576
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.085		0.212	0.478		1.775
		1.098	0.212	0.478		1.788
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.317		0.212		0.040	0.569
		0.291	0.212		0.040	0.543
	0.317			0.478		0.795
		0.291		0.478		0.769
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.317		0.212	0.478		1.007
		0.291	0.212	0.478		0.981

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 31-1

Test Position	①CDMA BC10 1xRTT	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.085	0.212	0.478		① + ② + ③	1.775				
	1.085	0.212			① + ②	1.297	128.8	0.011	No	31-1
	1.085		0.478		① + ③	1.563	263.1	0.007	No	31-1

Table 30-2

Test Position	①CDMA BC10 EVDO	②WiFi 5.5GHz (Main Ant)	③WiFi 5.5GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.098	0.212	0.478		① + ② + ③	1.788				
	1.098	0.212			① + ②	1.310	124.7	0.012	No	31-2
	1.098		0.478		① + ③	1.576	259.1	0.008	No	31-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

14.32. Sum of the SAR for CDMA BC10 & Wi-Fi 5.8 GHz Bands.

Test Position	Data					∑ 1-g SAR (mW/g)
	CDMA BC10 1xRTT	CDMA BC10 EVDO	WiFi 5.8 GHz Main	WiFi 5.8 GHz Aux	Bluetooth	
Edge 1, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.027		0.001		0.002	1.031
		0.971	0.001		0.002	0.975
	1.027			0.395		1.422
		0.971		0.395		1.366
Edge 1 , Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.027		0.001	0.395		1.423
		0.971	0.001	0.395		1.367
Edge 1, Wi-Fi 1 Tx 19mm → w/WWAN Full power	0.305		0.001		0.002	0.309
		0.438	0.001		0.002	0.442
	0.305			0.395		0.700
		0.438		0.395		0.833
Edge 1, Wi-Fi 2 Tx 19mm → w/WWAN Full power	0.305		0.001	0.395		0.701
		0.438	0.001	0.395		0.834
Bottom side, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	0.491		0.454		0.011	0.957
		0.485	0.454		0.011	0.951
	0.491			0.254		0.745
		0.485		0.254		0.739
Bottom side, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	0.491		0.454	0.254		1.199
		0.485	0.454	0.254		1.193
Bottom side, Wi-Fi 1 Tx 16mm → w/WWAN Full power	0.341		0.454		0.011	0.807
		0.277	0.454		0.011	0.743
	0.341			0.254		0.595
		0.277		0.254		0.531
Bottom side, Wi-Fi 2 Tx 16mm → w/WWAN Full power	0.341		0.454	0.254		1.049
		0.277	0.454	0.254		0.985
Edge 1 tilt, Wi-Fi 1 Tx 0mm → w/WWAN Power reduction	1.085		0.222		0.040	1.347
		1.098	0.222		0.040	1.360
	1.085			0.543		1.628
		1.098		0.543		1.641
Edge 1 tilt, Wi-Fi 2 Tx 0mm → w/WWAN Power reduction	1.085		0.222	0.543		1.850
		1.098	0.222	0.543		1.863
Edge 1 tilt, Wi-Fi 1 Tx 20mm → w/WWAN Full power	0.317		0.222		0.040	0.579
		0.291	0.222		0.040	0.553
	0.317			0.543		0.860
		0.291		0.543		0.834
Edge 1 tilt, Wi-Fi 2 Tx 20mm → w/WWAN Full power	0.317		0.222	0.543		1.082
		0.291	0.222	0.543		1.056

Note(s):

1. Bluetooth and Wi-Fi Aux cannot simultaneously transmit
2. Values shaded green are estimated SAR

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

SAR to Peak Location Separation Ratio (SPLSR)

Table 32-1

Test Position	①CDMA BC10 1xRTT	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.085	0.222	0.543		① + ② + ③	1.850				
	1.085	0.222			① + ②	1.307	107.6	0.014	No	32-1
	1.085		0.543		① + ③	1.628	256.1	0.008	No	32-1

Table 32-2

Test Position	①CDMA BC10 EVDO	②WiFi 5.8GHz (Main Ant)	③WiFi 5.8GHz (Aux Ant)	④BT (Aux Ant)	∑ 1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge1 tilt Wi-Fi 2 Tx	1.098	0.222	0.543		① + ② + ③	1.863				
	1.098	0.222			① + ②	1.320	103.5	0.015	No	32-2
	1.098		0.543		① + ③	1.641	252.1	0.008	No	32-2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

15. Appendixes

Refer to separated files for the following appendixes.

15.1. System Performance Check Plots

15.2. SAR test plots for WCDMA Band 5

15.3. SAR test plots for WCDMA Band 4

15.4. SAR test plots for WCDMA Band 2

15.5. SAR test plots for CDMA Band0

15.6. SAR test plots for CDMA Band1

15.7. SAR test plots for LTE Band 2

15.8. SAR test plots for LTE Band 4

15.9. SAR test plots for LTE Band 5

15.10. SAR test plots for LTE Band 25

15.11. SAR test plots for LTE Band 13

15.12. SAR test plots for LTE Band 17

15.13. SAR Test Plots for Repeat Measurement

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.

15.14. SAR Test Plots for Wi-Fi 2.4 GHz Band

15.15. SAR Test Plots for Wi-Fi 5.3 GHz Bands

15.16. SAR Test Plots for Wi-Fi 5.5 GHz Bands

15.17. SAR Test Plots for Wi-Fi 5.8 GHz Bands

15.18. SAR Test Plots for Bluetooth

15.19. SAR Calibration Certificate - Probe EX3DV4 SN 3917

15.20. SAR Calibration Certificate - Probe EX3DV4 SN 3922

15.21. SAR Calibration Certificate - Probe EX3DV4 SN3825

15.22. SAR Calibration Certificate - Dipole D750V3 SN1058

15.23. SAR Calibration Certificate - Dipole D835V2 SN 4d149

15.24. SAR Calibration Certificate - Dipole D1750V2 SN1089

15.25. SAR Calibration Certificate - Dipole D1900V2 SN5d169

15.26. SAR Calibration Certificate for D2450V2 - SN 713

15.27. SAR Calibration Certificate for D5GHzV2 - SN 1020

15.28. SAR Tissue Ingredients

15.29. SAR peak separation for SPLSR

15.30. Triggering distances and power levels

15.31. SAR test plots for CDMA Band10

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN TEL: +81 596 24 8999 FAX: +81 596 24 8124
This report shall not be reproduced except in full, without the written approval of UL Japan, Inc.