SAR TEST REPORT

Test Report No. 14789665H-R1

Customer	**Samsung Electronics Co., Ltd.**
Description of EUT	**Tablet PC**
Model Number of EUT	**SM-X516B**
FCC ID	**A3LSMX516B**
Test Regulation	**FCC47CFR 2.1093**
Test Result	**Complied**
Issue Date	**July 25, 2023**
Remarks	**The highest reported SAR** Body: 1.13 W/kg (1 g) Worst SPLSR: 0.039 Worst Volume scan: 1.21 W/kg Worst Hybrid SPLSR: 0.04 Simultaneous Transmission (Body): 1.59 W/kg (1 g)

Representative Test Engineer	**Approved By**
Takeshi Hiyaji Engineer	Takayuki Shimada Leader

CERTIFICATE 5107.02

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- The information provided from the customer for this report is identified in Section 1.
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REVISION HISTORY

Original Test Report No. 14789665H

Revision	Test report No.	Date	Page Revised Contents
- (Original)	14789665H	July 20, 2023	-
1	14789665H-R1	July 25, 2023	**Section 2.2** Corrected Model Number of EUT in Radio Specification **Section 2.5** Corrected Combination Table for Simultaneous Transmission

Reference: Abbreviations (Including words undescribed in this report)

AAN	Asymmetric Artificial Network	GPS	Global Positioning System
AC	Alternating Current	Hori.	Horizontal
AM	Amplitude Modulation	ICES	Interference-Causing Equipment Standard
AMN	Artificial Mains Network	I/O	Input/Output
Amp, AMP	Amplifier	IEC	International Electrotechnical Commission
ANSI	American National Standards Institute	IEEE	Institute of Electrical and Electronics Engineers
Ant, ANT	Antenna	IF	Intermediate Frequency
AP	Access Point	ILAC	International Laboratory Accreditation Conference
ASK	Amplitude Shift Keying	ISED	Innovation, Science and Economic Development Canada
Atten., ATT	Attenuator	ISN	Impedance Stabilization Network
AV	Average	ISO	International Organization for Standardization
BPSK	Binary Phase-Shift Keying	JAB	Japan Accreditation Board
BR	Bluetooth Basic Rate	LAN	Local Area Network
BT	Bluetooth	LCL	Longitudinal Conversion Loss
BT LE	Bluetooth Low Energy	LIMS	Laboratory Information Management System
BW	BandWidth	LISN	Line Impedance Stabilization Network
C.F	Correction Factor	MRA	Mutual Recognition Arrangement
Cal Int	Calibration Interval	N/A	Not Applicable
CAV	CISPR AV	NIST	National Institute of Standards and Technology
CCK	Complementary Code Keying	NS	No signal detect.
CDN	Coupling Decoupling Network	NSA	Normalized Site Attenuation
Ch., CH	Channel	OBW	Occupied BandWidth
CISPR	Comite International Special des Perturbations Radioelectriques	OFDM	Orthogonal Frequency Division Multiplexing
Corr.	Correction	PER	Packet Error Rate
CPE	Customer premise equipment	PK	Peak
CW	Continuous Wave	P_{LT}	long-term flicker severity
DBPSK	Differential BPSK	POHC(A)	Partial Odd Harmonic Current
DC	Direct Current	Pol., Pola.	Polarization
DET	Detector	PR-ASK	Phase Reversal ASK
D-factor	Distance factor	P_{ST}	short-term flicker severity
Dmax	maximum absolute voltage change during an observation period	QAM	Quadrature Amplitude Modulation
DQPSK	Differential QPSK	QP	Quasi-Peak
DSSS	Direct Sequence Spread Spectrum	QPSK	Quadrature Phase Shift Keying
DUT	Device Under Test	r.m.s., RMS	Root Mean Square
EDR	Enhanced Data Rate	RBW	Resolution BandWidth
e.i.r.p., EIRP	Equivalent Isotropically Radiated Power	RE	Radio Equipment
EM clamp	Electromagnetic clamp	REV	Reverse
EMC	ElectroMagnetic Compatibility	RF	Radio Frequency
EMI	ElectroMagnetic Interference	RFID	Radio Frequency Identifier
EMS	ElectroMagnetic Susceptibility	RNSS	Radio Navigation Satellite Service
EN	European Norm	RSS	Radio Standards Specifications
e.r.p., ERP	Effective Radiated Power	Rx	Receiving
ETSI	European Telecommunications Standards Institute	SINAD	Ratio of (Signal + Noise + Distortion) to (Noise + Distortion)
EU	European Union	S/N	Signal to Noise ratio
EUT	Equipment Under Test	SA, S/A	Spectrum Analyzer
Fac.	Factor	SG	Signal Generator
FCC	Federal Communications Commission	SVSWR	Site-Voltage Standing Wave Ratio
FHSS	Frequency Hopping Spread Spectrum	THC(A)	Total Harmonic Current
FM	Frequency Modulation	THD(%)	Total Harmonic Distortion
Freq.	Frequency	TR, T/R	Test Receiver
FSK	Frequency Shift Keying	Tx	Transmitting
Fund	Fundamental	VBW	Video BandWidth
FWD	Forward	Vert.	Vertical
GFSK	Gaussian Frequency-Shift Keying	WLAN	Wireless LAN
GNSS	Global Navigation Satellite System	xDSL	Generic term for all types of DSL technology (DSL: Digital Subscriber Line)

CONTENTS PAGE

SECTION 1: Customer information

Company Name	Samsung Electronics Co., Ltd.
Address	129, Samsung-ro Yeontong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Telephone Number	+82-10-9007-7696
Contact Person	KYOUNG UP KIM

The information provided from the customer is as follows;
- Customer, Description of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer Information
- SECTION 2: Equipment Under Test (EUT) other than the Receipt Date and Test Date
- SECTION 6: Tune-up tolerance information and software information
- Appendix B : Antenna Dimensions & Separation Distances
- Appendix C: Proximity Sensor Triggering

* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2, 6 and Appendix B, C.

The information provided from the UL Korea, Ltd is as follows;
-SECTION 8: Power (Conducted) data is from Suwon lab.
- Appendix D : LTE Carrier Aggregation.

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Description	Tablet PC	
Model Number	SM-X516B	
Serial Number	WWAN Samples	R32W400YEQY (For GSM850, WCDMA4,5, LTE5,26,66,NRn5,n66) R32W400Y71H (For GSM850, WCDMA4,5, LTE2(ENDC),5,NRn5,n66) R32W400YEMX (For LTE12,13) R32W400YFQX (For GSM1900, WCDMA2, LTE2,41) R32W400YFMR (For LTE2(ENDC))
	WLAN & BT Samples	R32W500GBHW (For WLAN 5.5 GHz, 5.8 GHz) R32W500GD5X (For WLAN 2.4 GHz, 5.3 GHz, BT)
Condition	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)	
Modification	No Modification by the test lab	
Receipt Date	WWAN Samples	June 2, 2023
	WLAN & BT Samples	July 4, 2023
Test Date	June 5, 2023 to July 19, 2023	

2.2 Product Description

General Specification

Rating	Typ. 10.0 V
Option battery	N/A
Body-worn accessory	N/A

Radio Specification

Model : SM-X516B (FCC ID A3LSMX516B)				
Wireless technologies	Dup.	Band		Mode
GSM	FDD	GSM850		Voice(GMSK),GPRS(GMSK),EGPRS(8PSK)
	FDD	PCS1900		GPRS Multi-Slot Class : Class 33 - 4 Up,5 Down
	Does this device support DTM (Dual Transfer Mode)? □Yes ☒No			
WCDMA	FDD	2		UMTS Rel. 99 (Data) HSDPA (Category 24)
	FDD	4		HSUPA (Category 6), HSPA+ (DL only), DC-HSDPA (Category 24)
	FDD	5		
LTE	FDD	2		QPSK, 16QAM, 64AQM, 256QAM
	FDD	4		
	FDD	5		Downlink MIMO Support: Yes(2x2, 4x4)
	FDD	12		Supported band : B2, B4, B5, B12, B13 , B17 , B26, B41 , B66
	FDD	13		
	FDD	17		Uplink MIMO Support: No
	FDD	26		Uplink transmission is limited to a single output stream.
	TDD	41		
	FDD	66		
LTE CA	Downlink			Uplink
	Maximum 4 carriers See Appendix D for supported Downlink CA combinations			Not supported.
5G NR (FR1)	FDD	15 kHz	n5	DFT-s-OFDM ■ π/2 BPSK,QPSK,16QAM,64QAM,256QAM
	FDD	15 kHz	n66	CP-OFDM
				■ QPSK,16QAM,64QAM,256QAM
				Downlink MIMO Support:No
				Uplink MIMO Support: No
				Uplink transmission is limited to a single output stream.

Wireless technologies	Dup.	Band		Mode	Modulation
WLAN	TDD	2.4GHz	2412-2472	802.11b 802.11g 802.11n-20	DSSS, OFDM
				802.11ax-20	OFDM OFDMA (26/52/106/242-tone RU)
	TDD	5GHz	5180-5240 5260-5320 5500-5720	802.11a 802.11n-20 802.11ac-20	OFDM
			5745-5825	802.11ax-20	OFDM OFDMA (26/52/106/242-tone RU)
			5190-5230 5270-5310	802.11n-40 802.11ac-40	OFDM
			5510-5710 5755-5795	802.11ax-40	OFDM OFDMA (26/52/106/242/484-tone RU)
			5210 5290	802.11n-80 802.11ac-80	OFDM
			5530-5690 5775	802.11ax-80	OFDM OFDMA (26/52/106/242/484/996-tone RU)
Bluetooth	TDD	2.4GHz	2402-2480	BR/EDR/LE	

2.3 DSI(Device State Index) Scenarios

This device supports multiple DSI Scenarios and Each DSIs operate to each RF exposure Conditions.

Please below table;

RF exposure Conditions	Technologuies Supported	Supported Power Back-off mode	Power State	DSI conditions	Description
Body	All WWAN bands ALL WLAN & BT bands	Proximity sensor -Not triggering-	Max	DSI = 0	When Device is not within certain distance of user. Proximity sensor is not triggered.
	All WWAN bands ALL WLAN & BT bands	Proximity sensor -Triggering-	Redeused	DSI = 1	When Device is within certain distance of user. Proximity sensor is triggered.

Note : This devices uses different Device State Index (DSI) to configure different time averaged power levels based on exposure scenarios for WWAN, WLAN & BT Bands.

2.4 Power Reduction by Proximity Sensing

Refer to Appendix F for details on the manufacturer's declared proximity sensing.

2.5 Combination Table for Simultaneous Transmission

Combination of Simultaneous Transmission	WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	BT Ant.1
WWAN + DTS	On	On				
WWAN + DTS MIMO	On	On	On			
WWAN + UNII	On				On	
WWAN + UNII MIMO	On			On	On	
WWAN + BT	On					On
WWAN + UNII + BT	On				On	On
WWAN + UNII MIMO + BT	On			On	On	On

SECTION 3: Test standard information

3.1 Test Specification

Title : **FCC47CFR 2.1093**
Radiofrequency radiation exposure evaluation: portable devices.

Published RF exposure KDB procedures

☑ **KDB 447498 D01(v06)**	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
☐ **KDB 447498 D02(v02r01)**	SAR Measurement Procedures for USB Dongle Transmitters
☐ **KDB 648474 D04(v01r03)**	SAR Evaluation Considerations for Wireless Handsets
☑ **KDB 941225 D01(v03r01)**	3G SAR Measurement Procedures
☑ **KDB 941225 D05(v02r05)**	SAR Evaluation Considerations for LTE Devices
☑ **KDB 941225 D06(v02r01)**	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities (Hot Spot SAR)
☐ **KDB 941225 D07(v01r02)**	SAR Evaluation Procedures for UMPC Mini-Tablet Devices
☑ **KDB 616217 D04(v01r02)**	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
☑ **KDB 865664 D01(v01r04)**	SAR Measurement Requirements for 100 MHz to 6 GHz
☑ **KDB 248227 D01(v02r02)**	SAR Guidance for 802.11(WLAN) Transmitters

Reference
[1] Schmid & Partner Engineering AG, DASY Manual, September 2019
[2] IEEE Std 1528-2013

3.2 Procedure

Test Procedure	Published RF exposure KDB procedures
Category	SAR
Note: UL Japan, Inc.'s SAR Work Procedures: Work Instructions-ULID-003598 and Work Instructions-ULID-003599	

3.3 Additions or deviations to standard

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Exposure limit

(A) Limits for Occupational/Controlled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1 g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)
0.4	8.0	20.0

(B) Limits for General population/Uncontrolled Exposure (W/kg)

Spatial Average (averaged over the whole body	Spatial Peak (averaged over any 1 g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)
0.08	1.6	4.0

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

**NOTE:GENERAL POPULATION/UNCONTROLLED EXPOSURE
SPATIAL PEAK(averaged over any 1 g of tissue) LIMIT
1.6 W/kg**

3.5 SAR

Specific Absorption Rate (SAR): The time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ), as shown in the following equation:

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

SAR is expressed in units of watts per kilogram (W/kg) or equivalently milliwatts per gram (mW/g).

SAR is related to the E-field at a point by the following equation:

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

where
σ = conductivity of the tissue (S/m)
ρ = mass density of the tissue (kg/m3)
E = rms E-field strength (V/m)

3.6 Test Location

UL Japan, Inc. Ise EMC Lab.
Shielded room for SAR testing
*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919
ISED Lab Company Number: 2973C / CAB identifier: JP0002
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81-596-24-8999

SECTION 4: Test result

4.1 Result

Complied

Highest values at each band are listed next section.

4.2 Stand-alone SAR result

For WWAN

RAT	Band	DSI	Test Position	Dist. (mm)	Mod	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm) Tune-up limit	Power (dBm) Meas.	1-g SAR (W/kg) Meas.	1-g SAR (W/kg) Scaled
GSM	850	0	Rear	19	GPRS 3 Slot	190	836.6	NA	NA	30.0	28.59	0.541	0.749
GSM	850	1	Top	0	GPRS 2 Slot	251	848.8	NA	NA	23.0	22.34	0.724	0.843
GSM	1900	0	Top	22	GPRS 4 Slot	661	1880.0	NA	NA	26.0	25.02	0.281	0.352
GSM	1900	1	Rear	0	GPRS 4 Slot	661	1880.0	NA	NA	18.0	17.81	***0.922***	0.963
WCDMA	2	0	Rear	19	Rel 99 RMC 12.2 kbps	9400	1880.0	NA	NA	24.5	23.63	0.490	0.599
WCDMA	2	1	Rear	0	Rel 99 RMC 12.2 kbps	9400	1880.0	NA	NA	13.5	13.24	0.626	0.665
WCDMA	4	0	Rear	19	Rel 99 RMC 12.2 kbps	1413	1732.6	NA	NA	25.0	23.99	0.463	0.584
WCDMA	4	1	Rear	0	Rel 99 RMC 12.2 kbps	1413	1732.6	NA	NA	13.0	12.40	0.654	0.751
WCDMA	5	0	Rear	19	Rel 99 RMC 12.2 kbps	4183	836.6	NA	NA	24.5	23.63	0.563	0.688
WCDMA	5	1	Top	0	Rel 99 RMC 12.2 kbps	4183	836.6	NA	NA	17.0	15.83	0.861	***1.127***
LTE	2	0	Top	22	QPSK	18700	1860	1	99	25.0	24.47	0.501	0.566
LTE	2	1	Top	0	QPSK	18700	1860	1	0	14.5	13.68	0.593	0.716
LTE	2(ENDC)	0	Right	0	QPSK	18700	1860	1	99	24.0	23.72	0.464	0.495
LTE	2(ENDC)	1	Rear	0	QPSK	18700	1860	50	50	11.5	10.97	0.377	0.426
LTE	5	0	Rear	19	QPSK	20525	836.5	1	0	25.0	23.99	0.565	0.713
LTE	5	1	Top	0	QPSK	20525	836.5	25	0	15.0	14.01	0.537	0.674
LTE	12	0	Rear	19	QPSK	23095	707.5	1	0	25.0	23.90	0.360	0.464
LTE	12	1	Top	0	QPSK	23095	707.5	1	0	17.0	16.23	0.508	0.607
LTE	13	0	Rear	19	QPSK	23230	782	1	0	25.0	23.79	0.462	0.610
LTE	13	1	Rear	0	QPSK	23230	782	25	0	17.0	16.62	0.650	0.709
LTE	26	0	Rear	19	QPSK	26865	831.5	1	0	25.0	23.87	0.432	0.560
LTE	26	1	Top	0	QPSK	26865	831.5	36	0	15.0	13.81	0.526	0.692
LTE	41	0	Rear	19	QPSK	40620	2593	1	0	25.0	24.63	0.176	0.192
LTE	41	1	Rear	0	QPSK	40620	2593	50	50	14.0	13.68	0.458	0.493
LTE	66	0	Top	22	QPSK	132322	1745	1	99	24.5	24.02	0.542	0.605
LTE	66	1	Rear	0	QPSK	132322	1745	50	50	14.0	13.06	0.638	0.792
NR	n5	0	Rear	19	DFT-s-OFDM QPSK	167300	836.5	50	28	25.0	23.40	0.415	0.600
NR	n5	1	Top	0	DFT-s-OFDM QPSK	167300	836.5	50	0	15.0	14.44	0.503	0.572
NR	n66	0	Rear	19	DFT-s-OFDM QPSK	349000	1745	50	28	25.0	24.04	0.482	0.601
NR	n66	1	Top	0	DFT-s-OFDM QPSK	349000	1745	1	104	14.5	14.18	0.669	0.720

For WLAN & Bluetooth

RAT	Band	Technology	DSI	Test Position	Dist. (mm)	Mod	Ch #.	Freq. (MHz)	Antenna position	Duty cycle	Power (dBm) Tune-up limit	Power (dBm) Meas.	1-g SAR (W/kg) Meas.	1-g SAR (W/kg) Scaled
BT	2.4GHz	SISO	0	Right	19	GFSK 125k	0	2402.0	Ant.1	82.47%	15.00	14.77	0.030	0.038
BT	2.4GHz	SISO	1	Right	0	GFSK BR	0	2402.0	Ant.1	76.85%	12.00	10.44	0.265	0.385
WLAN	2.4 GHz	SISO	0	Righr	19	802.11b	1	2412.0	Ant.1	98.86%	20.00	19.38	0.091	0.106
WLAN	2.4 GHz	SISO	1	Right	0	802.11b	11	2462.0	Ant.1	98.86%	12.00	11.21	0.548	0.665
WLAN	2.4 GHz	MIMO	0	Top	22	802.11b	6	2437.0	Ant.1	98.90%	20.00	19.08	0.167	0.209
WLAN	2.4 GHz	MIMO	1	Rear	0	802.11b	1	2412.0	Ant.2	98.90%	12.00	10.99	0.591	0.754
WLAN	5.3 GHz	SISO	0	Left	19	802.11a	64	5320.0	Ant.2	96.75%	15.00	14.41	0.102	0.121
WLAN	5.3 GHz	SISO	1	Left	0	802.11ac	58	5290.0	Ant.2	94.53%	6.50	5.24	0.563	0.796
WLAN	5.3 GHz	MIMO	0	Left	19	802.11a	64	5320.0	Ant.2	96.81%	15.00	14.03	0.103	0.133
WLAN	5.3 GHz	MIMO	1	Left	0	802.11ac	58	5290.0	Ant.2	90.41%	6.50	5.52	***0.771***	***1.069***
WLAN	5.5 GHz	SISO	0	Left	19	802.11a	100	5500	Ant.2	96.75%	17.00	16.19	0.063	0.078
WLAN	5.5 GHz	SISO	1	Rear	0	802.11a	140	5700	Ant.2	96.75%	10.00	9.31	0.519	0.629
WLAN	5.5 GHz	MIMO	0	Right	19	802.11a	124	5620	Ant.2	96.81%	17.00	15.65	0.110	0.155
WLAN	5.5 GHz	MIMO	1	Right	0	802.11a	140	5700	Ant.1	96.81%	10.00	9.50	0.666	0.772
WLAN	5.8 GHz	SISO	0	Rear	19	802.11a	165	5825	Ant.2	96.75%	17.00	16.14	0.130	0.164
WLAN	5.8 GHz	SISO	1	Left	0	802.11a	157	5785	Ant.2	96.75%	9.50	9.48	0.659	0.684
WLAN	5.8 GHz	MIMO	0	Right	19	802.11a	149	5745	Ant.1	96.81%	17.00	16.35	0.117	0.140
WLAN	5.8 GHz	MIMO	1	Left	0	802.11a	157	5785	Ant.2	96.81%	9.50	9.32	0.485	0.522

4.3 Simultaneous transmission SAR result

Worst SPLSR: 0.039
Worst Simultaneous: 1.588 W/kg
Worst Volume scan: 1.21 W/kg
Worst Hybrid SPLSR: 0.04
See section 13

SECTION 5: RF Exposure Conditions (Test Configurations)

5.1 General LTE/NR SAR Test and Reporting Considerations

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band		Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth[MHz]					
2		20	15	10	5	3	1.4
Low	Ch	18700	18675	18650	18625	18625	18607
	Freq[MHz]	1860	1857.5	1855	1852.5	18625	1850.7
Mid	Ch	18900	18900	18900	18900	18900	18900
	Freq[MHz]	1880	1880	1880	1880	1880	1880
High	Ch	19100	19125	19150	19175	19185	19193
	Freq[MHz]	1900	1902.5	1905	1907.5	1908.5	1909.3
Band		Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth[MHz]					
4		20 *1	15	10	5	3	1.4
Low	Ch	20050	20025	20000	19975	19965	19957
	Freq[MHz]	1720	1717.5	1715	1712.5	1711.5	1710.7
Mid	Ch	20175	20175	20175	20175	20175	20175
	Freq[MHz]	1732.5	1732.5	1732.5	1732.5	1732.5	1732.5
High	Ch	20300	20325	20350	20375	20385	20393
	Freq[MHz]	1745	1747.5	1750	1752.5	1753.5	1754.3
Band		Frequency range: 824 - 849 MHz					
		Channel Bandwidth[MHz]					
5				10 *1	5	3	1.4
Low	Ch			20450	20425	20415	20407
	Freq[MHz]			829	826.5	825.5	824.7
Mid	Ch			20525	20525	20525	20525
	Freq[MHz]			836.5	836.5	836.5	836.5
High	Ch			20600	20625	20635	20643
	Freq[MHz]			844	846.5	847.5	848.3

Band		Frequency range:		699	-	716	MHz
		Channel Bandwidth[MHz]					
12				10 *1	5	3	1.4
Low	Ch			23060	23035	23025	23017
	Freq[MHz]			704	701.5	700.5	699.7
Mid	Ch			23095	23095	23095	23095
	Freq[MHz]			707.5	707.5	707.5	707.5
High	Ch			23130	23155	23165	23173
	Freq[MHz]			711	713.5	714.5	715.3
Band		Frequency range:		777	-	787	MHz
		Channel Bandwidth[MHz]					
13				10 *1	5 *1		
Low	Ch				23205		
	Freq[MHz]				779.5		
Mid	Ch			23230	23230		
	Freq[MHz]			782	782		
High	Ch				23255		
	Freq[MHz]				784.5		

Band		Frequency range:		704	-	716	MHz
		Channel Bandwidth[MHz]					
17		20	15	10 *1	5 *1	3	1.4
Low	Ch			23780	23755		
	Freq[MHz]			709	706.5		
Mid	Ch			23790	23790		
	Freq[MHz]			710	710		
High	Ch			23800	23825		
	Freq[MHz]			711	713.5		
Band		Frequency range:		814	-	849	MHz
		Channel Bandwidth[MHz]					
26			15 *1	10	5	3	1.4
Low	Ch		26765	26740	26715	26705	26697
	Freq[MHz]		821.5	819	816.5	815.5	814.7
Mid	Ch		26865	26865	26865	26865	26865
	Freq[MHz]		831.5	831.5	831.5	831.5	831.5
High	Ch		26965	26990	27015	27025	27033
	Freq[MHz]		841.5	844	846.5	847.5	848.3
Band FCC		Frequency range:		2496	-	2690	MHz
		Channel Bandwidth[MHz]					
41		20	15	10	5		
Low	Ch	39750	39725	39700	39675		
	Freq[MHz]	2506	2503.5	2501	2498.5		
Low-Mid	Ch	40185	40173	40160	40148		
	Freq[MHz]	2549.5	2548.3	2547	2545.8		
Mid	Ch	40620	40620	40620	40620		
	Freq[MHz]	2593	2593	2593	2593		
Mid-High	Ch	41055	41068	41080	41093		
	Freq[MHz]	2636.5	2637.8	2639	2640.3		
High	Ch	41490	41515	41540	41565		
	Freq[MHz]	2680	2682.5	2685	2687.5		
Band		Frequency range:		1710	-	1780	MHz
		Channel Bandwidth[MHz]					
66		20	15	10	5	3	1.4
Low	Ch	132072	132047	132022	131997	131987	131979
	Freq[MHz]	1720	1717.5	1715	1712.5	1711.5	1710.7
Mid	Ch	132322	132322	132322	132322	132322	132322
	Freq[MHz]	1745	1745	1745	1745	1745	1745
High	Ch	132572	132597	132622	132647	132657	132665
	Freq[MHz]	1770	1772.5	1775	1777.5	1778.5	1779.3

*1 : This bandwidth does not support at least three non-overlapping channels. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 for LTE Devices.

Note : The following bands are encompassed by the larger bandwidth.
- LTE Band 4 (1710-1755 MHz) is covered by LTE Band 66 (1710-1780 MHz)
- LTE Band 17 (704-716 MHz) is covered by LTE Band 12 (699-716 MHz)

Maximum power reduction (MPR)

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{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
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

MPR Built-in by design
The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values. A-MPR (additional MPR) was disabled during SAR testing

Spectrum plots for RB configurations

A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.

5.1.1 LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

LTE TDD Bands support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink downlink configurations and Table 4.2-1 for Special subframe configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$	$7680 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$
5	$6592 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-
10	$13168 \cdot T_s$	$13152 \cdot T_s$	$12800 \cdot T_s$	-	-	-

Table 4.2-2: Uplink-downlink configurations & Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.3%
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.3%
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.3%
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.7%
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.7%
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.7%
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.3%

Calculated Duty Cycle = Extended cyclic prefix in uplink * (T_s) * # of S + # of U / period

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = {[(2+0) * 2560] * [1/(15000 * 2048)] * 2 + 6 ms} / 10 ms = 63.3%

Where
D = Downlink subframe
S = Special subframe
U = Uplink subframe
T_s = 1/(15000 x 2048) seconds
X = 0

Note(s):
This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3% (Power Class 3) and Special Subframe 7 with Extended cyclic prefix in uplink.

5.1.2 General 5G NR(FR1) SAR Test and Reporting Considerations

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band		Frequency range: 824 - 849 MHz											
		Channel Bandwidth[MHz]											
n5		100	90	80	70	60	50	40	30	25	20 *1	15 *1	10 *1	5
Low	Ch										166800	166300	165800	165300
	Freq[MHz]										834	831.5	829	826.5
Mid	Ch										167300	167300	167300	167300
	Freq[MHz]										836.5	836.5	836.5	836.5
High	Ch										167800	168300	168800	169300
	Freq[MHz]										839	841.5	844	846.5
Band		Frequency range: 1710 - 1780 MHz											
		Channel Bandwidth[MHz]											
n66		100	90	80	70	60	50	40 *1	30 *1	25 *1	20	15	10	5
Low	Ch							346000	345000	344599	344000	343500	343000	342500
	Freq[MHz]							1730	1725	1722.5	1720	1717.5	1715	1712.5
Mid	Ch							349000	349000	349000	349000	349000	349000	349000
	Freq[MHz]							1745	1745	1745	1745	1745	1745	1745
High	Ch							352000	353000	353500	354000	354500	355000	355500
	Freq[MHz]							1760	1765	1767.5	1770	1772.5	1775	1777.5

*: SAR test for NR bands and LTE anchor Bands were performed separately due to limitations in SAR probe calibration factors. And, due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.
*1: This bandwidth does not support at least three non-overlapping channels. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 for LTE Devices.

Sub-Carrier Spacing (SCS)

n2	n5	n66	n71	n41	n77	n78
15 kHz				30 kHz		

A-MPR(Additional MPR) disabled for SAR testing

Yes

EN-DC Carrier Aggregation Possible Combinations

NR n5 + LTE B2
NR n5 + LTE B66
NR n66 + LTE B2 (ENDC)
NR n66 + LTE B5
NR n66 + LTE B12
NR n66 + LTE B13

Note : SAR test for NR bands and LTE anchor Bands were performed separately due to limitations in SAR probe calibration factors.

5.1.3 Antenna configuration

The WWAN transmitter operates independently of the WLAN/BT wireless transmitter in the device, and it only supports data transmission.

The antenna configuration is as follows.

Antennas	Tx	Rx
WWAN-Main	All bands	All bands
WWAN-Sub1	-	SISO: GSM850, WCDMA5, LTE5,12,13,17,26, NR n5 MIMO: LTE2,4,41,66, NR n66
WWAN-Sub2	LTE 2(ENDC Anchor)	SISO: GSM1900, WCDMA2,4, LTE2(ENDC Anchor),4,41,66, NR n66
WWAN-Sub4	-	MIMO: LTE2,4,41,66, NR n66
WiFi1	SISO: WLAN2.4G, BT MIMO: WLAN2,4G,5G	SISO: WLAN2.4G, BT MIMO: WLAN2,4G,5G
WiFI2	SISO: WLAN5G MIMO: WLAN2,4G,5G	SISO: WLAN5G MIMO: WLAN2,4G,5G

5.2 Summary of the distance between antenna and surface of EUT

Main Antenna

Test position	Distance
Top	< 5.0 mm
Rear	< 5.0 mm
Left	49.96 mm
Right	49.96 mm
Bottom	250.33 mm

Sub 2 Antenna

Test position	Distance
Top	250.33 mm
Rear	< 5.0 mm
Left	49.96 mm
Right	49.96 mm
Bottom	< 5.0 mm

WiFi 1 Antenna

Test position	Distance
Top	< 5.0 mm
Rear	< 5.0 mm
Left	117.86 mm
Right	< 5.0 mm
Bottom	241.63 mm

WiFi 2 Antenna

Test position	Distance
Top	< 5.0 mm
Rear	< 5.0 mm
Left	< 5.0 mm
Right	117.86 mm
Bottom	241.63 mm

Note: Antenna is located less than 5 mm.
The front is excluded per KDB616217 D04 Section 4.3.

*Details are shown in appendix B

5.3 SAR test exclusion considerations according to KDB 447498 D01

The following is based on KDB 447498 D01.
1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

1. The upper frequency of the frequency band was used in order to calculate standalone SAR test exclusion considerations.
2. Power and distance are rounded to the nearest mW and mm before calculation
3. The result is rounded to one decimal place for comparison
4. The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. When the separation of antenna to EUT's surfaces and edges are ≤ 50 mm, the separation distance used for the SAR exclusion calculations is 5 mm.
5. "N/A" displayed on below exclusion calculation means not applicable this formula since distance between antenna and surface is > 50 mm.

When the calculated threshold value by a numerical formula above-mentioned in the following table is 3.0 or less, SAR test is excluded.
The following table lists only the highest tune up limit in each frequency band.
The following table lists only the highest channel in each frequency band.

WWAN Antenna (For Max Power)

SAR exclusion calculations for antenna < 50 mm from the user

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
			dBm	mW	Front	Rear	Right	Left	Top	Bottom	Front	Rear	Right	Left	Top	Bottom
Main	GSM850	848.8	33.50	2239	NA	5.00	49.96	49.96	5.00	250.33	N/A	412.6 -MEASURE-	412.6 -MEASURE-	412.6 -MEASURE-	412.6 -MEASURE-	N/A
Main	GSM1900	1909.8	30.50	1122	NA	5.00	49.96	49.96	5.00	250.33	N/A	310.1 -MEASURE-	310.1 -MEASURE-	310.1 -MEASURE-	310.1 -MEASURE-	N/A
Main	WCDMA B2	1907.6	24.50	282	NA	5.00	49.96	49.96	5.00	250.33	N/A	77.9 -MEASURE-	77.9 -MEASURE-	77.9 -MEASURE-	77.9 -MEASURE-	N/A
Main	WCDMA B4	1752.6	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	83.7 -MEASURE-	83.7 -MEASURE-	83.7 -MEASURE-	83.7 -MEASURE-	N/A
Main	WCDMA B5	846.6	24.50	282	NA	5.00	49.96	49.96	5.00	250.33	N/A	51.9 -MEASURE-	51.9 -MEASURE-	51.9 -MEASURE-	51.9 -MEASURE-	N/A
Main	LTE B2	1909.3	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	87.3 -MEASURE-	87.3 -MEASURE-	87.3 -MEASURE-	87.3 -MEASURE-	N/A
Sub2	LTE B2(ENDC)	1909.3	24.00	251	NA	5.00	49.96	49.96	250.33	5.00	N/A	69.4 -MEASURE-	69.4 -MEASURE-	69.4 -MEASURE-	N/A	69.4 -MEASURE-
Main	LTE B4	1754.3	24.50	282	NA	5.00	49.96	49.96	5.00	250.33	N/A	74.7 -MEASURE-	74.7 -MEASURE-	74.7 -MEASURE-	74.7 -MEASURE-	N/A
Main	LTE B5	848.3	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	58.2 -MEASURE-	58.2 -MEASURE-	58.2 -MEASURE-	58.2 -MEASURE-	N/A
Main	LTE B12	715.3	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	53.5 -MEASURE-	53.5 -MEASURE-	53.5 -MEASURE-	53.5 -MEASURE-	N/A
Main	LTE B13	782	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	55.9 -MEASURE-	55.9 -MEASURE-	55.9 -MEASURE-	55.9 -MEASURE-	N/A
Main	LTE B17	710	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	53.3 -MEASURE-	53.3 -MEASURE-	53.3 -MEASURE-	53.3 -MEASURE-	N/A
Main	LTE B26	848.3	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	58.2 -MEASURE-	58.2 -MEASURE-	58.2 -MEASURE-	58.2 -MEASURE-	N/A
Main	LTE B41	2687.5	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	103.6 -MEASURE-	103.6 -MEASURE-	103.6 -MEASURE-	103.6 -MEASURE-	N/A
Main	LTE B66	1779.3	24.50	282	NA	5.00	49.96	49.96	5.00	250.33	N/A	75.2 -MEASURE-	75.2 -MEASURE-	75.2 -MEASURE-	75.2 -MEASURE-	N/A
Main	NR n5	846.5	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	58.1 -MEASURE-	58.1 -MEASURE-	58.1 -MEASURE-	58.1 -MEASURE-	N/A
Main	NR n66	1777.5	25.00	316	NA	5.00	49.96	49.96	5.00	250.33	N/A	84.3 -MEASURE-	84.3 -MEASURE-	84.3 -MEASURE-	84.3 -MEASURE-	N/A

WWAN Antenna (For Reduced Power)

SAR exclusion calculations for antenna < 50 mm from the user

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
			dBm	mW	Front	Rear	Right	Left	Top	Bottom	Front	Rear	Right	Left	Top	Bottom
Main	GSM850	848.8	26.00	398	NA	5.00	49.96	49.96	5.00	250.33	N/A	73.3 -MEASURE-	73.3 -MEASURE-	73.3 -MEASURE-	73.3 -MEASURE-	N/A
Main	GSM1900	1909.8	24.00	251	NA	5.00	49.96	49.96	5.00	250.33	N/A	69.4 -MEASURE-	69.4 -MEASURE-	69.4 -MEASURE-	69.4 -MEASURE-	N/A
Main	WCDMA B2	1907.6	13.50	22	NA	5.00	49.96	49.96	5.00	250.33	N/A	6.1 -MEASURE-	6.1 -MEASURE-	6.1 -MEASURE-	6.1 -MEASURE-	N/A
Main	WCDMA B4	1752.6	13.00	20	NA	5.00	49.96	49.96	5.00	250.33	N/A	5.3 -MEASURE-	5.3 -MEASURE-	5.3 -MEASURE-	5.3 -MEASURE-	N/A
Main	WCDMA B5	846.6	17.00	50	NA	5.00	49.96	49.96	5.00	250.33	N/A	9.2 -MEASURE-	9.2 -MEASURE-	9.2 -MEASURE-	9.2 -MEASURE-	N/A
Main	LTE B2	1909.3	14.50	28	NA	5.00	49.96	49.96	5.00	250.33	N/A	7.7 -MEASURE-	7.7 -MEASURE-	7.7 -MEASURE-	7.7 -MEASURE-	N/A
Sub2	LTE B2(ENDC)	1909.3	11.50	14	NA	5.00	49.96	49.96	250.33	5.00	N/A	3.9 -MEASURE-	3.9 -MEASURE-	3.9 -MEASURE-	N/A	3.9 -MEASURE-
Main	LTE B4	1754.3	13.00	20	NA	5.00	49.96	49.96	5.00	250.33	N/A	5.3 -MEASURE-	5.3 -MEASURE-	5.3 -MEASURE-	5.3 -MEASURE-	N/A
Main	LTE B5	848.3	15.00	32	NA	5.00	49.96	49.96	5.00	250.33	N/A	5.9 -MEASURE-	5.9 -MEASURE-	5.9 -MEASURE-	5.9 -MEASURE-	N/A
Main	LTE B12	715.3	17.00	50	NA	5.00	49.96	49.96	5.00	250.33	N/A	8.5 -MEASURE-	8.5 -MEASURE-	8.5 -MEASURE-	8.5 -MEASURE-	N/A
Main	LTE B13	782	17.00	50	NA	5.00	49.96	49.96	5.00	250.33	N/A	8.8 -MEASURE-	8.8 -MEASURE-	8.8 -MEASURE-	8.8 -MEASURE-	N/A
Main	LTE B17	710	17.00	50	NA	5.00	49.96	49.96	5.00	250.33	N/A	8.4 -MEASURE-	8.4 -MEASURE-	8.4 -MEASURE-	8.4 -MEASURE-	N/A
Main	LTE B26	848.3	15.00	32	NA	5.00	49.96	49.96	5.00	250.33	N/A	5.9 -MEASURE-	5.9 -MEASURE-	5.9 -MEASURE-	5.9 -MEASURE-	N/A
Main	LTE B41	2687.5	14.00	25	NA	5.00	49.96	49.96	5.00	250.33	N/A	8.2 -MEASURE-	8.2 -MEASURE-	8.2 -MEASURE-	8.2 -MEASURE-	N/A
Main	LTE B66	1779.3	14.00	25	NA	5.00	49.96	49.96	5.00	250.33	N/A	6.7 -MEASURE-	6.7 -MEASURE-	6.7 -MEASURE-	6.7 -MEASURE-	N/A
Main	NR n5	846.5	15.00	32	NA	5.00	49.96	49.96	5.00	250.33	N/A	5.9 -MEASURE-	5.9 -MEASURE-	5.9 -MEASURE-	5.9 -MEASURE-	N/A
Main	NR n66	1777.5	14.50	28	NA	5.00	49.96	49.96	5.00	250.33	N/A	7.5 -MEASURE-	7.5 -MEASURE-	7.5 -MEASURE-	7.5 -MEASURE-	N/A

WLAN & Bluetooth (For Max Power)

SAR exclusion calculations for antenna < 50 mm from the user

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
			dBm	mW	Front	Rear	Right	Left	Top	Bottom	Front	Rear	Right	Left	Top	Bottom
WiFi 1	Bluetooth	2480	15.00	32	NA	5.00	5.00	117.86	5.00	241.63	N/A	10.1 -MEASURE-	10.1 -MEASURE-	N/A	10.1 -MEASURE-	N/A
WiFi 1	Wi-Fi 2.4 GHz	2462	20.00	100	NA	5.00	5.00	117.86	5.00	241.63	N/A	31.4 -MEASURE-	31.4 -MEASURE-	N/A	31.4 -MEASURE-	N/A
WiFi 2	Wi-Fi 5.2 GHz	5240	15.00	32	NA	5.00	117.86	5.00	5.00	241.63	N/A	14.7 -MEASURE-	N/A	14.7 -MEASURE-	14.7 -MEASURE-	N/A
WiFi 2	Wi-Fi 5.3 GHz	5320	15.00	32	NA	5.00	117.86	5.00	5.00	241.63	N/A	14.8 -MEASURE-	N/A	14.8 -MEASURE-	14.8 -MEASURE-	N/A
WiFi 2	Wi-Fi 5.5 GHz	5720	17.00	50	NA	5.00	117.86	5.00	5.00	241.63	N/A	23.9 -MEASURE-	N/A	23.9 -MEASURE-	23.9 -MEASURE-	N/A
WiFi 2	Wi-Fi 5.8 GHz	5825	17.00	50	NA	5.00	117.86	5.00	5.00	241.63	N/A	24.1 -MEASURE-	N/A	24.1 -MEASURE-	24.1 -MEASURE-	N/A
WiFi 1+WiFi 2	Wi-Fi 2.4 GHz	2462	20.00	100	NA	5.00	5.00	5.00	5.00	241.63	N/A	31.4 -MEASURE-	31.4 -MEASURE-	31.4 -MEASURE-	31.4 -MEASURE-	N/A
WiFi 1+WiFi 2	Wi-Fi 5.2 GHz	5240	15.00	32	NA	5.00	5.00	5.00	5.00	241.63	N/A	14.7 -MEASURE-	14.7 -MEASURE-	14.7 -MEASURE-	14.7 -MEASURE-	N/A
WiFi 1+WiFi 2	Wi-Fi 5.3 GHz	5320	15.00	32	NA	5.00	5.00	5.00	5.00	241.63	N/A	14.8 -MEASURE-	14.8 -MEASURE-	14.8 -MEASURE-	14.8 -MEASURE-	N/A
WiFi 1+WiFi 2	Wi-Fi 5.5 GHz	5720	17.00	50	NA	5.00	5.00	5.00	5.00	241.63	N/A	23.9 -MEASURE-	23.9 -MEASURE-	23.9 -MEASURE-	23.9 -MEASURE-	N/A
WiFi 1+WiFi 2	Wi-Fi 5.8 GHz	5825	17.00	50	NA	5.00	5.00	5.00	5.00	241.63	N/A	24.1 -MEASURE-	24.1 -MEASURE-	24.1 -MEASURE-	24.1 -MEASURE-	N/A

WLAN & Bluetooth (For Reduce Power)

SAR exclusion calculations for antenna < 50 mm from the user

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
			dBm	mW	Front	Rear	Right	Left	Top	Bottom	Front	Rear	Right	Left	Top	Bottom
WiFi 1	Bluetooth	2480	12.00	16	NA	5.00	5.00	117.86	5.00	241.63	N/A	5 -MEASURE-	5 -MEASURE-	N/A	5 -MEASURE-	N/A
WiFi 1	WLAN2.4 GHz	2462	12.00	16	NA	5.00	5.00	117.86	5.00	241.63	N/A	5 -MEASURE-	5 -MEASURE-	N/A	5 -MEASURE-	N/A
WiFi 2	WLAN 5.2 GHz	5240	6.50	4	NA	5.00	117.86	5.00	5.00	241.63	N/A	1.8 -EXEMPT-	N/A	1.8 -EXEMPT-	1.8 -EXEMPT-	N/A
WiFi 2	WLAN 5.3 GHz	5320	6.50	4	NA	5.00	117.86	5.00	5.00	241.63	N/A	1.8 -EXEMPT-	N/A	1.8 -EXEMPT-	1.8 -EXEMPT-	N/A
WiFi 2	WLAN 5.5 GHz	5720	10.00	10	NA	5.00	117.86	5.00	5.00	241.63	N/A	4.8 -MEASURE-	N/A	4.8 -MEASURE-	4.8 -MEASURE-	N/A
WiFi 2	Wi-Fi 5.8 GHz	5825	9.50	9	NA	5.00	117.86	5.00	5.00	241.63	N/A	4.3 -MEASURE-	N/A	4.3 -MEASURE-	4.3 -MEASURE-	N/A
WiFi1 + WiFi2	Wi-Fi 2.4 GHz	2462	12.00	16	NA	5.00	5.00	5.00	5.00	241.63	N/A	5 -MEASURE-	5 -MEASURE-	5 -MEASURE-	5 -MEASURE-	N/A
WiFi1 + WiFi2	Wi-Fi 5.2 GHz	5240	6.50	4	NA	5.00	5.00	5.00	5.00	241.63	N/A	1.8 -EXEMPT-	1.8 -EXEMPT-	1.8 -EXEMPT-	1.8 -EXEMPT-	N/A
WiFi1 + WiFi2	Wi-Fi 5.3 GHz	5320	6.50	4	NA	5.00	5.00	5.00	5.00	241.63	N/A	1.8 -EXEMPT-	1.8 -EXEMPT-	1.8 -EXEMPT-	1.8 -EXEMPT-	N/A
WiFi1 + WiFi2	Wi-Fi 5.5 GHz	5720	10.00	10	NA	5.00	5.00	5.00	5.00	241.63	N/A	4.8 -MEASURE-	4.8 -MEASURE-	4.8 -MEASURE-	4.8 -MEASURE-	N/A
WiFi1 + WiFi2	Wi-Fi 5.8 GHz	5825	9.50	9	NA	5.00	5.00	5.00	5.00	241.63	N/A	4.3 -MEASURE-	4.3 -MEASURE-	4.3 -MEASURE-	4.3 -MEASURE-	N/A

5.4 Estimated SAR for Simultaneous Transmission SAR Analysis

The following is based on KDB 447498 D01.
When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg
for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.

0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm.

1. The upper frequency of the frequency band was used in order to calculate estimated SAR.
2. Power and distance are rounded to the nearest mW and mm before calculation
3. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied. For antennas ≤ 50 mm from each side the separation distance used for the estimated SAR calculations is 5 mm as conservative.

Ant WiFi1
Bottom to Ant WiFi1 > 50 mm, Estimated SAR Value: 0.4 W/kg

Ant WiFi2
Bottom to Ant WiFi2 > 50 mm, Estimated SAR Value: 0.4 W/kg

SECTION 6: Software information

Software setting
*The power value of the EUT was set for testing as follows (setting value might be different from product specification value); Power settings WWAN: Max and Reduced power setting is written in FW. WLAN 2.4 GHz (SISO) : Max power : 17.5 Reduced power : 10.0 WLAN 2.4 GHz (MIMO) : Max power : 18.0 Reduced power : 10.0 WLAN 5.3 GHz (SISO) : Max power : 17.0 Reduced power : 7.0 WLAN 5.3 GHz (MIMO) : Max power : 17.0 Reduced power : 7.0 WLAN 5.5 GHz (SISO) : Max power : 16.0 Reduced power : 9.0 WLAN 5.5 GHz (MIMO) : Max power : 15.5 Reduced power : 9.0 WLAN 5.8 GHz (SISO) : Max power : 16.5 Reduced power : 9.0 WLAN 5.8 GHz (MIMO) : Max power : 16.5 Reduced power : 9.0 Bluetooth : Max and Reduced power setting is written in FW. Software: X516BXXE0AWF8 *This setting of software is the worst case. The test was performed with condition that obtained the maximum average power (Burst) in pre-check. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.

SECTION 7: Description of the Body setup

7.1 Procedure for SAR test position determination

The tested procedure was performed according to the KDB 447498 D01 (Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies), the KDB 941225 D07 and the KDB 616217 D04.

7.2 Test position for Body setup

For Max Power

No.	Position	Test distance	WWAN	WWAN Sub2 (ENDC Only)	WLAN (DTS Band) SISO & Bluetooth	WLAN (DTS Band) MIMO	WLAN (UNII-1&2A Band) SISO	WLAN (UNII-2C&3 Band) SISO	WLAN (UNII Band) MIMO
			Tested	Tested	Tested	Tested	Tested	Tested	Tested
1	Rear	19 mm	○	○	○	○	○	○	○
2	Top	22 mm	○		○	○	○	○	○
3	Right	19 mm	○	○ *2	○	○	○ *1	○ *1	○
4	Left	19 mm	○	○ *2	○ *1	○	○	○	○
5	Bottom	19 mm		○					

For Reduced Power

No.	Position	Test distance	WWAN	WWAN Sub2 (ENDC Only)	WLAN (DTS Band) SISO & Bluetooth	WLAN (DTS Band) MIMO	WLAN (UNII-1&2A Band) SISO	WLAN (UNII-2C&3 Band) SISO	WLAN (UNII Band) MIMO
			Tested	Tested	Tested	Tested	Tested	Tested	Tested
1	Rear	0 mm	○	○	○	○	○ *1	○	○
2	Top	0 mm	○		○	○	○ *1	○	○
3	Right	0 mm	○		○	○	○ *1	○ *1	○
4	Left	0 mm	○		○ *1	○	○ *1	○	○
5	Bottom	0 mm		○					

*1: According to the KDB 447498 D01 SAR test of this position was excluded; however, considering for simultaneous transmission evaluation, it was tested.
*2: The left and right sides of the sub2 antenna test were performed at 0 mm because there are no left and right sensors on the Bottom side.

SECTION 8: Conducted Output Power Measurements

8.1 Test Location

Data in this section were measured at the UL Korea, Ltd. Suwon Laboratory.

8.1.1 Measurement environment (WWAN Part)

Engineers and Temperature/Humidity

Date	2023/05/23	2023/06/01	2023/06/02	2023/06/05	2023/06/09	2023/06/13	2023/06/14	2023/06/15	2023/06/20	2023/06/21	2023/06/26
Test place	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room	2F Tissue Room
Temperature	20.3 deg. C	20.8 deg. C	20.7 deg. C	20.6 deg. C	20.7 deg. C	20.7 deg. C	22.1 deg. C	22.3 deg. C	22.5 deg. C	22.6 deg. C	22.7 deg. C
Humidity	35.2 % RH	34.9 % RH	35.2 % RH	35.3 % RH	35.1 % RH	35.5 % RH	36.0 % RH	39.8 % RH	24.3 % RH	37.6 % RH	45.0 % RH
Test engineer	Hakchul, Lee	Heeyeon, Kim	Heeyeon, Kim	Heeyeon, Kim	Juyeon, Choi	Juyeon, Choi	Juyeon, Choi	Heeyeon, Kim	Heeyeon, Kim	Heeyeon, Kim	Heeyeon, Kim

Sample Information

Description	Label Number	S/N
SM-X516B Main Conduction LTE (2)	6085946	R32W400Y96X
SM-X516B Main Conduction LTE (6)	6094660	R32W400YFNV
SM-X516B Main conduction NR (4)	6090918	R32W400Y92D

Test Items

LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
SUW-S0111	Communications Tester	Rohde & Schwarz	CMW 500	169799	2022/8/2	12
SUW-S0110	Communications Tester	Rohde & Schwarz	CMW 500	169801	2023/1/5	12
SUW-S0218	Radio Communication Test Station	Anritsu	MT8000A	6272466165	2022/9/28	12

8.1.2 Measurement environment (WLAN & BT Part)

Engineers and Temperature/Humidity

Date	2023/06/07	2023/06/08	2023/06/02	2023/06/08	2023/06/09	2023/06/20	2023/06/27	2023/06/28	2023/06/29	2023/07/02	2023/07/04	2023/07/05	2023/07/06
Test place	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2	1F Sheild Room 2
Temperature	22.4 deg. C	22.3 deg. C	23. deg. C	23. deg. C	22.1 deg. C	22.9 deg. C	22.7 deg. C	23. deg. C	23. deg. C	22.1 deg. C	22. deg. C	22.9 deg. C	22.9 deg. C
Humidity	36.0 % RH	39.8 % RH	24.3 % RH	45.5 % RH	28.2 % RH	28.2 % RH	45.3 % RH	28.2 % RH	28.2 % RH	36.0 % RH	39.8 % RH	24.3 % RH	37.6 % RH
Test engineer	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon	Myeongjun, Kwon

Sample Information

Description	Label Number	S/N
SM-X516B WLAN Conduc_#1_(34)	6219455	74134cec50397ece
SM-X516B WLAN Conduc_#2_(35)	6219457	R32W500GF0B

Test Items

LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
SUW-E0249	Spectrum Analyzer, 44	KEYSIGHT	N9040B	MY60080268	2023/1/9	12
SUW-E0041	Average Power Sensor	Agilent / HP	U2000A	MY54270007	2022/8/3	12
SUW-E0242	Average Power Sensor	Agilent / HP	U2000A	MY54260010	2022/8/3	12
SUW-E0018	Bluetooth Tester	TESCOM	TC-3000C	3000C000546	2022/8/2	12
SUW-E0057	Attenuator	PASTERNACK	PE7087-10	A004	2022/8/3	12
SUW-E0058	Attenuator	PASTERNACK	PE7087-10	A003	2022/8/3	12
SUW-E0232	Power Splitter	MINI-CIRCUITS	WA1534	UL003	2023/1/9	12

8.2 Measurement configuration for conducted output power

WWAN average output power was measured with burst power (on time).

8.3 GSM

Per KDB 941225 D01 3G SAR Procedures:

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

When different maximum output power applies to GSM voice or GPRS/EDGE time slots, GSM voice and GPRS/EDGE time slots should be tested separately to determine compliance by summing the corresponding reported SAR.

The GMSK EDGE configurations are grouped with GPRS and considered with respect to time-averaged maximum output power to determine compliance.

Per October 2013 TCB Workshop:

When the maximum frame-averaged powers levels are within 0.25 dB of each other, test the configuration with the most number of time slots.

8.3.1 Maximum Output Power (Tune-up Limit) for GSM

SAR is not required for EDGE (8PSK) mode because the maximum output power and tune-up limit is ≤ 1/4dB higher than GPRS/EDGE (GMSK) or the adjusted SAR of the highest reported SAR of GPRS/EDGE (GMSK) is ≤ 1.2W/kg.

RF Air interface	Mode	GSM Burst Power Tune-up Limit (dBm)	
		Main1 ANT	
		Max	Reduced
GSM850	Voice/GPRS (1 slot)	33.5	26.0
	GPRS 2 slots	31.5	23.0
	GPRS 3 slots	30.0	21.0
	GPRS 4 slots	28.0	19.5
	EGPRS 1 slot	27.5	25.5
	EGPRS 2 slot	25.0	22.5
	EGPRS 3 slot	24.0	20.5
	EGPRS 4 slots	23.0	19.0
GSM1900	Voice/GPRS (1 slot)	30.5	24.0
	GPRS 2 slots	28.0	21.0
	GPRS 3 slots	27.0	19.0
	GPRS 4 slots	26.0	18.0
	EGPRS 1 slot	27.0	23.5
	EGPRS 2 slot	24.5	21.0
	EGPRS 3 slot	23.0	19.0
	EGPRS 4 slots	21.5	17.5

8.3.2 GSM 850

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	32.29	23.26	33.50	24.47	24.62	15.59	26.00	16.97
			190	836.6	32.22	23.19			24.61	15.58		
			251	848.8	32.41	23.38			24.95	15.92		
GPRS (GMSK)	CS1	1	128	824.2	32.34	23.31	33.50	24.47	24.74	15.71	26.00	16.97
			190	836.6	32.27	23.24			24.55	15.52		
			251	848.8	32.39	23.36			24.75	15.72		
		2	128	824.2	30.08	24.06	31.50	25.48	22.35	16.33	23.00	16.98
			190	836.6	29.91	23.89			22.10	16.08		
			251	848.8	30.38	24.36			22.34	16.32		
		3	128	824.2	28.81	24.55	30.00	25.74	20.05	15.79	21.00	16.74
			190	836.6	28.59	24.33			19.97	15.71		
			251	848.8	29.02	24.76			20.31	16.05		
		4	128	824.2	27.18	24.17	28.00	24.99	19.27	16.26	19.50	16.49
			190	836.6	27.06	24.05			19.01	16.00		
			251	848.8	27.35	24.34			19.39	16.38		
EGPRS (8PSK)	MCS5	1	128	824.2	25.97	16.94	27.50	18.47	23.72	14.69	25.50	16.47
			190	836.6	25.79	16.76			23.51	14.48		
			251	848.8	26.07	17.04			24.04	15.01		
		2	128	824.2	24.21	18.19	25.00	18.98	21.42	15.40	22.50	16.48
			190	836.6	23.99	17.97			21.23	15.21		
			251	848.8	24.36	18.34			21.78	15.76		
		3	128	824.2	22.64	18.38	24.00	19.74	20.38	16.12	20.50	16.24
			190	836.6	22.49	18.23			20.23	15.97		
			251	848.8	22.99	18.73			20.47	16.21		
		4	128	824.2	21.11	18.10	23.00	19.99	18.66	15.65	19.00	15.99
			190	836.6	21.00	17.99			18.68	15.67		
			251	848.8	21.32	18.31			18.94	15.93		

8.3.3 GSM 1900

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	29.33	20.30	30.50	21.47	22.61	13.58	24.00	14.97
			661	1880.0	29.22	20.19			22.53	13.50		
			810	1909.8	29.14	20.11			22.57	13.54		
GPRS (GMSK)	CS1	1	512	1850.2	29.34	20.31	30.50	21.47	22.61	13.58	24.00	14.97
			661	1880.0	29.31	20.28			22.51	13.48		
			810	1909.8	29.02	19.99			22.55	13.52		
		2	512	1850.2	27.29	21.27	28.00	21.98	19.30	13.28	21.00	14.98
			661	1880.0	27.30	21.28			19.49	13.47		
			810	1909.8	27.00	20.98			19.32	13.30		
		3	512	1850.2	26.37	22.11	27.00	22.74	18.01	13.75	19.00	14.74
			661	1880.0	26.19	21.93			18.20	13.94		
			810	1909.8	25.90	21.64			18.04	13.78		
		4	512	1850.2	25.19	22.18	26.00	22.99	17.56	14.55	18.00	14.99
			661	1880.0	25.02	22.01			17.81	14.80		
			810	1909.8	24.95	21.94			17.88	14.87		
EGPRS (8PSK)	MCS5	1	512	1850.2	25.79	16.76	27.00	17.97	22.30	13.27	23.50	14.47
			661	1880.0	25.68	16.65			22.41	13.38		
			810	1909.8	25.59	16.56			22.40	13.37		
		2	512	1850.2	23.42	17.40	24.50	18.48	20.22	14.20	21.00	14.98
			661	1880.0	23.46	17.44			20.21	14.19		
			810	1909.8	23.47	17.45			20.23	14.21		
		3	512	1850.2	21.95	17.69	23.00	18.74	18.66	14.40	19.00	14.74
			661	1880.0	22.01	17.75			18.69	14.43		
			810	1909.8	22.03	17.77			18.74	14.48		
		4	512	1850.2	20.65	17.64	21.50	18.49	16.85	13.84	17.50	14.49
			661	1880.0	20.53	17.52			16.92	13.91		
			810	1909.8	20.49	17.48			16.99	13.98		

8.4 WCDMA configuration

Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The EUT 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 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.10.2.4: β values for transmitter characteristics tests with HS-DPCCH

	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-Set 1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	11/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (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			

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

The following 5 Sub-tests were completed according to Release 6 procedures in table C,11.1.3 of 3GPP TS 34.121-1

A summary of these settings are illustrated below:

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

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	1309/225	94/75	47/15	56/75	47/15
	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	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	E-DPDCCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
	Reference E-TFCI PO	27	27	27	27	27
	Maximum Channelization Codes	2xSF2				SF4

DC-HSDPA Setup Procedures used to establish the test signals

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108.
A summary of these settings are illustrated below:
Downlink Physical Channels are set as per 3GPP TS34.121-1

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 sub clause 7.3.13
The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Proces ses	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

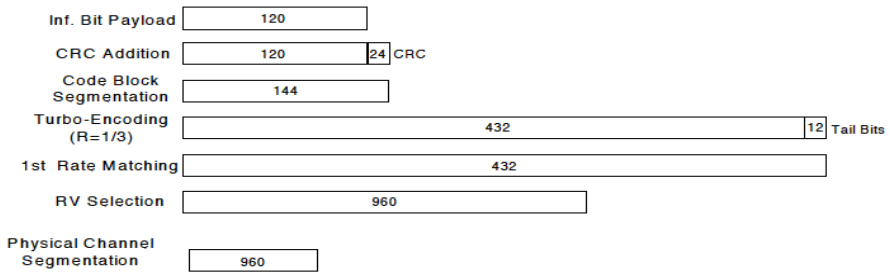

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121.
A summary of subtest settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

HSPA+

The following 1 Sub-test was completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.11.1.4: **β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM**

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed}1$: 30/15 $\beta_{ed}2$: 30/15	$\beta_{ed}3$: 24/15 $\beta_{ed}4$: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

8.4.1 Maximum Output Power (Tune-up Limit) for W-CDMA

SAR measurement is not required for the HSDPA, HSUPA. When primary mode and the adjusted SAR is ≤ 1.2 W/kg and secondary mode is ≤ ¼ dB higher than the primary mode

RF Air interface	Mode	Tune-up PowerLimit (dBm)	
		Main Antenna	
		Max	Reduced
W-CDMA Band 2	R99	24.5	13.5
	HSDPA	24.0	13.5
	HSUPA	24.0	13.5
	DC-HSDPA	24.0	13.5
W-CDMA Band 4	R99	25.0	13.0
	HSDPA	24.5	13.0
	HSUPA	24.0	13.0
	DC-HSDPA	24.5	13.0
W-CDMA Band 5	R99	24.5	17.0
	HSDPA	23.5	16.0
	HSUPA	23.5	16.0
	DC-HSDPA	23.5	16.0

8.4.2 WCDMA Band 2

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	23.81	N/A	24.5	13.17	N/A	13.5
		9400	1880.0	23.63			13.24		
		9538	1907.6	23.64			13.14		
HSDPA	Subtest 1	9262	1852.4	23.41	0	24.0	13.04	0	13.5
		9400	1880.0	23.41			12.82		
		9538	1907.6	23.21			12.96		
	Subtest 2	9262	1852.4	22.99	0	24.0	13.05	0	13.5
		9400	1880.0	22.94			12.82		
		9538	1907.6	22.78			12.93		
	Subtest 3	9262	1852.4	22.48	0.5	23.5	13.05	0.0	13.5
		9400	1880.0	22.44			12.85		
		9538	1907.6	22.25			12.93		
	Subtest 4	9262	1852.4	21.96	0.5	23.5	13.05	0.0	13.5
		9400	1880.0	21.91			12.84		
		9538	1907.6	21.73			12.94		
HSUPA	Subtest 1	9262	1852.4	22.44	0	24.0	12.12	0	13.5
		9400	1880.0	22.30			11.87		
		9538	1907.6	22.09			11.94		
	Subtest 2	9262	1852.4	19.90	2	22.0	11.92	1	12.5
		9400	1880.0	19.77			11.66		
		9538	1907.6	19.58			11.74		
	Subtest 3	9262	1852.4	22.44	1	23.0	12.10	1	12.5
		9400	1880.0	22.34			11.86		
		9538	1907.6	22.11			11.94		
	Subtest 4	9262	1852.4	20.34	2	22.0	11.90	1	12.5
		9400	1880.0	20.21			11.68		
		9538	1907.6	20.00			11.74		
	Subtest 5	9262	1852.4	23.59	0	24.0	13.16	0	13.5
		9400	1880.0	23.47			12.95		
		9538	1907.6	23.29			13.00		
DC-HSDPA	Subtest 1	9262	1852.4	23.44	0	24.0	13.00	0	13.5
		9400	1880.0	23.41			12.93		
		9538	1907.6	23.25			12.70		
	Subtest 2	9262	1852.4	23.00	0	24.0	13.08	0	13.5
		9400	1880.0	22.97			12.96		
		9538	1907.6	22.78			12.69		
	Subtest 3	9262	1852.4	22.52	0.5	23.5	13.07	0.0	13.5
		9400	1880.0	22.46			12.97		
		9538	1907.6	22.27			12.71		
	Subtest 4	9262	1852.4	21.96	0.5	23.5	13.08	0.0	13.5
		9400	1880.0	21.93			12.97		
		9538	1907.6	21.71			12.70		

8.4.3 WCDMA Band 4

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	23.94	N/A	25.0	12.47	N/A	13.0
		1413	1732.6	23.99			12.40		
		1513	1752.6	24.03			12.39		
HSDPA	Subtest 1	1312	1712.4	23.21	0	24.5	12.39	0	13.0
		1413	1732.6	23.47			12.35		
		1513	1752.6	23.47			12.37		
	Subtest 2	1312	1712.4	23.09	0	24.5	12.36	0	13.0
		1413	1732.6	22.99			12.38		
		1513	1752.6	23.20			12.37		
	Subtest 3	1312	1712.4	22.59	0.5	24.0	12.36	0.0	13.0
		1413	1732.6	22.44			12.37		
		1513	1752.6	22.66			12.36		
	Subtest 4	1312	1712.4	22.60	0.5	24.0	12.37	0.0	13.0
		1413	1732.6	22.42			12.36		
		1513	1752.6	22.64			12.35		
HSUPA	Subtest 1	1312	1712.4	22.45	0	24.0	11.27	0	13.0
		1413	1732.6	22.20			11.28		
		1513	1752.6	21.85			11.26		
	Subtest 2	1312	1712.4	19.96	2	22.0	11.27	0	13.0
		1413	1732.6	19.76			11.27		
		1513	1752.6	19.93			11.25		
	Subtest 3	1312	1712.4	22.48	1	23.0	11.27	0	13.0
		1413	1732.6	22.23			11.25		
		1513	1752.6	22.45			11.24		
	Subtest 4	1312	1712.4	20.25	2	22.0	11.26	0	13.0
		1413	1732.6	20.05			11.27		
		1513	1752.6	19.53			11.23		
	Subtest 5	1312	1712.4	23.29	0	24.0	12.45	0	13.0
		1413	1732.6	23.36			12.45		
		1513	1752.6	23.62			12.42		
DC-HSDPA	Subtest 1	1312	1712.4	23.79	0	24.5	12.32	0	13.0
		1413	1732.6	24.14			12.48		
		1513	1752.6	24.15			12.34		
	Subtest 2	1312	1712.4	23.10	0	24.5	12.37	0	13.0
		1413	1732.6	23.19			12.55		
		1513	1752.6	23.37			12.49		
	Subtest 3	1312	1712.4	22.03	0.5	24.0	12.29	0.0	13.0
		1413	1732.6	22.07			12.50		
		1513	1752.6	22.28			12.40		
	Subtest 4	1312	1712.4	22.61	0.5	24.0	12.34	0.0	13.0
		1413	1732.6	22.66			12.51		
		1513	1752.6	22.88			12.54		

8.4.4 WCDMA Band 5

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	23.58	N/A	24.5	16.13	N/A	17.0
		4183	836.6	23.63			15.83		
		4233	846.6	23.63			16.12		
HSDPA	Subtest 1	4132	826.4	23.32	0	23.5	14.82	0	16.0
		4183	836.6	23.26			14.64		
		4233	846.6	23.28			14.89		
	Subtest 2	4132	826.4	22.80	0	23.5	14.88	0	16.0
		4183	836.6	22.74			14.65		
		4233	846.6	22.77			14.90		
	Subtest 3	4132	826.4	22.27	0.5	23.0	14.83	0.0	16.0
		4183	836.6	22.21			14.67		
		4233	846.6	22.22			14.89		
	Subtest 4	4132	826.4	21.77	0.5	23.0	14.86	0.0	16.0
		4183	836.6	21.73			14.66		
		4233	846.6	21.72			14.88		
HSUPA	Subtest 1	4132	826.4	22.25	0	23.5	13.84	0	16.0
		4183	836.6	22.15			13.63		
		4233	846.6	22.15			13.86		
	Subtest 2	4132	826.4	20.31	2	21.5	13.85	0	16.0
		4183	836.6	20.22			13.62		
		4233	846.6	20.22			13.84		
	Subtest 3	4132	826.4	21.25	1	22.5	13.84	0	16.0
		4183	836.6	21.16			13.65		
		4233	846.6	21.17			13.91		
	Subtest 4	4132	826.4	20.32	2	21.5	13.85	0	16.0
		4183	836.6	20.23			13.66		
		4233	846.6	20.21			13.88		
	Subtest 5	4132	826.4	23.47	0	23.5	14.87	0	16.0
		4183	836.6	23.39			14.84		
		4233	846.6	23.36			15.00		
DC-HSDPA	Subtest 1	4132	826.4	23.31	0	23.5	14.92	0	16.0
		4183	836.6	23.19			14.79		
		4233	846.6	23.10			14.90		
	Subtest 2	4132	826.4	22.83	0	23.5	14.86	0	16.0
		4183	836.6	22.64			14.82		
		4233	846.6	22.57			14.70		
	Subtest 3	4132	826.4	21.26	0.5	23.0	14.90	0.0	16.0
		4183	836.6	21.09			14.79		
		4233	846.6	21.01			14.71		
	Subtest 4	4132	826.4	21.78	0.5	23.0	14.84	0.0	16.0
		4183	836.6	21.67			14.78		
		4233	846.6	21.56			14.72		

8.5 LTE single configuration

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 +/- 2 dBm). 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 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{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
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

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”.

Network Signalling value	Requirements (subclause)	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	N/A

8.5.1 LTE CA configuration

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

For intra-band contiguous carrier aggregation the allowed Maximum Power Reduction (MPR) for the maximum output power applicable to the EUT in table below. In case the modulation format is different on different component carriers then the MPR is determined by the rules applied to higher order of those modulations.

Modulation	CA bandwidth Class B and C / Smallest Component Carrier Transmission Bandwidth Configuration				MPR (dB)
	25 RB	50 RB	75 RB	100 RB	
QPSK	> 8 and ≤ 25	> 12 and ≤ 50	> 16 and ≤ 75	> 18 and ≤ 100	≤ 1
QPSK	> 25	> 50	> 75	> 100	≤ 2
16 QAM	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 8 and ≤ 25	> 12 and ≤ 50	> 16 and ≤ 75	> 18 and ≤ 100	≤ 2
16 QAM	> 25	> 50	> 75	> 100	≤ 3
64 QAM	≤ 8 and allocation wholly contained within a single CC	≤ 12 and allocation wholly contained within a single CC	≤ 16 and allocation wholly contained within a single CC	≤ 18 and allocation wholly contained within a single CC	≤ 2
64 QAM	> 8 or allocation extends across two CC's	> 12 or allocation extends across two CC's	> 16 or allocation extends across two CC's	> 18 or allocation extends across two CC's	≤ 3

For PUCCH and SRS transmissions, the allowed MPR is according to that specified for PUSCH WPDK modulation for the corresponding transmission bandwidth.

8.5.2 LTE CA power measurement combination

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number of component carriers (CCs) supported by the product implementation. Per April 2018 TCBC Workshop Notes, the following test reduction methodology was applied to determine the combinations required for conducted power measurements.

LTE DLCA Test Reduction Methodology:
- The supported combinations were arranged by the number of component carriers in columns.
- Any limitations on the PCC or SCC for each combination were identified alongside the combination.
- Power measurements were performed for "supersets" (LTE CA combinations with multiple components carriers) and any "subsets" (LTE CA combinations with fewer component carriers) that were not completely covered by the supersets.
- Only subsets that have the exact same components as a superset were excluded for measurement.
- When there were certain restrictions on component carriers that existed in the superset that were not applied for the subset, the subset configuration was additionally evaluated.
- Both inter-band and intra-band downlink carrier aggregation scenarios were considered.
- Downlink CA combinations for SISO and 4x4 Downlink MIMO operations were measured independently, per May 2017 TCBC Workshop notes.
- All bands required for SAR testing per FCC KDB procedures were considered.

General PCC and SCC configuration selection procedure:
- PCC uplink channel, channel bandwidth, modulation and RB configurations were selected based on section C)3)b)ii) of KDB 941225 D05 V01r02. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.
- To maximize aggregated bandwidth, highest channel bandwidth available for that CA combination was selected for SCC. For inter-band CA, the SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers.
- All selected PCC and SCC(s) remained fully within the uplink/downlink transmission band of the respective component carrier.

Downlink CA with Downlink 4x4 MIMO RF Conducted Powers:
This device supports downlink 4x4 MIMO operations for some LTE bands. Uplink transmission is limited to a single output stream. When carrier aggregation was applicable, the general test selection and setup procedures described above were applied.

Uplink CA Conducted Powers:
This device supports uplink carrier aggregation for some LTE bands with a maximum of two component carriers. For intra-band contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when noncontiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.

Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

Downlink CA with Uplink CA Enabled:
This device supports uplink carrier aggregation (ULCA) with additional Carrier Aggregation configurations active in the downlink. 4x4 DL MIMO is only operating in the downlink. Uplink transmission is limited to a single output stream for each component carrier of ULCA.
Power measurements were performed with ULCA active and additional CA configurations active in the downlink for the configuration per Fall 2017 TCB Workshop Notes.

8.5.3 Maximum Output Power (Tune-up Limit) for LTE

According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands as follows:

a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.
b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
   - LTE Band 4 (1710-1755 MHz) is covered by LTE Band 66 (1710-1780 MHz)
   - LTE Band 17 (704-716 MHz) is covered by LTE Band 12 (699-716 MHz)

LTE QPSK configuration has the highest maximum average output power per 3GPP standard.
SAR measurement is not required for the 16QAM, 64QAM, and 256QAM. When the highest maximum output power for 16QAM, 64QAM, and 256QAM is ≤ ½ dB higher than the QPSK or when the reported SAR for the QPSK configuration is ≤ 1.45 W/kg.

RF Air interface	Mode	Tune-up Power Limit (dBm)	
		Main Antenna	
		Max	Reduced
LTE Band 2	QPSK	25.0	14.5
LTE Band 2 (ENDC)	QPSK	24.0	11.5
LTE Band 4	QPSK	24.5	13.0
LTE Band 5	QPSK	25.0	15.0
LTE Band 12	QPSK	25.0	17.0
LTE Band 13	QPSK	25.0	17.0
LTE Band 17	QPSK	25.0	17.0
LTE Band 26	QPSK	25.0	15.0
LTE Band 41	QPSK	25.0	14.0
LTE Band 66	QPSK	24.5	14.0

8.5.4 LTE Band 2

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	23.81	24.16	24.22	0.0	25.0	13.68	13.29	13.50	0.0	14.5
		1	49	24.19	24.37	24.10	0.0	25.0	13.58	13.18	13.58	0.0	14.5
		1	99	24.47	24.06	23.56	0.0	25.0	13.57	13.22	13.43	0.0	14.5
		50	0	23.41	23.34	23.45	0.5	24.5	13.66	13.31	13.44	0.0	14.5
		50	24	23.47	23.31	23.43	0.5	24.5	13.64	13.29	13.42	0.0	14.5
		50	50	23.46	23.29	23.34	0.5	24.5	13.63	13.26	13.40	0.0	14.5
		100	0	23.47	23.31	23.44	0.5	24.5	13.64	13.29	13.42	0.0	14.5
	16QAM	1	0	23.26	23.31	23.68	0.5	24.5	13.94	13.61	13.93	0.0	14.5
		1	49	23.64	23.33	23.72	0.5	24.5	13.79	13.47	13.87	0.0	14.5
		1	99	23.58	23.21	23.26	0.5	24.5	13.89	13.52	13.80	0.0	14.5
		50	0	22.41	22.27	22.43	1.5	23.5	13.66	13.28	13.38	0.0	14.5
		50	24	22.39	22.24	22.41	1.5	23.5	13.65	13.29	13.35	0.0	14.5
		50	50	22.39	22.22	22.38	1.5	23.5	13.62	13.26	13.34	0.0	14.5
		100	0	22.40	22.24	22.42	1.5	23.5	13.64	13.27	13.42	0.0	14.5
	64QAM	1	0	22.56	22.29	22.31	1.5	23.5	13.86	13.57	13.83	0.0	14.5
		1	49	22.80	22.38	22.49	1.5	23.5	13.85	13.75	14.07	0.0	14.5
		1	99	22.66	22.32	22.33	1.5	23.5	13.75	13.50	13.83	0.0	14.5
		50	0	21.57	21.28	21.33	2.5	22.5	13.66	13.29	13.44	0.0	14.5
		50	24	21.57	21.26	21.31	2.5	22.5	13.64	13.29	13.42	0.0	14.5
		50	50	21.55	21.22	21.27	2.5	22.5	13.63	13.27	13.37	0.0	14.5
		100	0	21.54	21.20	21.28	2.5	22.5	13.63	13.25	13.41	0.0	14.5
	256QAM	1	0	19.83	19.34	19.56	4.5	20.5	13.76	13.40	13.80	0.0	14.5
		1	49	19.88	19.21	19.52	4.5	20.5	13.92	13.64	13.70	0.0	14.5
		1	99	19.79	19.26	19.46	4.5	20.5	13.72	13.38	13.72	0.0	14.5
		50	0	19.50	19.16	19.25	4.5	20.5	13.63	13.28	13.42	0.0	14.5
		50	24	19.48	19.13	19.22	4.5	20.5	13.61	13.28	13.39	0.0	14.5
		50	50	19.46	19.11	19.20	4.5	20.5	13.61	13.24	13.36	0.0	14.5
		100	0	19.47	19.11	19.22	4.5	20.5	13.63	13.27	13.38	0.0	14.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18675	18900	19125			18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz			1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	23.04	23.95	23.38	0.0	25.0	13.19	12.73	12.98	0.0	14.5
		1	37	23.64	24.37	23.50	0.0	25.0	13.11	12.80	13.04	0.0	14.5
		1	74	23.45	23.79	23.04	0.0	25.0	13.11	12.71	12.88	0.0	14.5
		36	0	22.86	23.62	23.04	0.5	24.5	13.20	12.76	12.96	0.0	14.5
		36	20	23.15	23.79	23.12	0.5	24.5	13.20	12.75	12.94	0.0	14.5
		36	39	23.20	23.73	23.02	0.5	24.5	13.19	12.75	12.93	0.0	14.5
		75	0	23.05	23.68	23.02	0.5	24.5	13.16	12.75	12.95	0.0	14.5
	16QAM	1	0	22.69	23.61	23.04	0.5	24.5	13.28	13.03	13.02	0.0	14.5
		1	37	23.36	24.08	23.31	0.5	24.5	13.31	13.05	13.02	0.0	14.5
		1	74	23.23	23.62	22.90	0.5	24.5	13.21	12.95	13.00	0.0	14.5
		36	0	22.37	22.96	22.53	1.5	23.5	13.17	12.73	12.97	0.0	14.5
		36	20	22.67	22.93	22.63	1.5	23.5	13.16	12.72	12.95	0.0	14.5
		36	39	22.73	22.89	22.55	1.5	23.5	13.15	12.72	12.94	0.0	14.5
		75	0	22.56	22.94	22.56	1.5	23.5	13.13	12.74	12.94	0.0	14.5
	64QAM	1	0	23.02	22.91	23.25	1.5	23.5	13.30	13.10	12.98	0.0	14.5
		1	37	22.64	22.93	23.37	1.5	23.5	13.37	13.18	12.89	0.0	14.5
		1	74	23.05	22.83	23.12	1.5	23.5	13.23	13.03	12.93	0.0	14.5
		36	0	21.98	21.83	22.27	2.5	22.5	13.28	12.81	12.95	0.0	14.5
		36	20	21.96	21.80	22.26	2.5	22.5	13.27	12.82	12.93	0.0	14.5
		36	39	21.94	21.77	22.24	2.5	22.5	13.25	12.79	12.89	0.0	14.5
		75	0	22.01	21.77	22.20	2.5	22.5	13.22	12.78	12.95	0.0	14.5
	256QAM	1	0	20.20	19.98	20.00	4.5	20.5	13.17	13.16	13.20	0.0	14.5
		1	37	20.30	20.06	20.06	4.5	20.5	13.22	13.12	13.26	0.0	14.5
		1	74	20.12	19.91	19.89	4.5	20.5	13.12	13.14	13.13	0.0	14.5
		36	0	19.94	19.77	20.14	4.5	20.5	13.18	12.81	12.94	0.0	14.5
		36	20	19.93	19.74	20.10	4.5	20.5	13.16	12.81	12.92	0.0	14.5
		36	39	19.89	19.69	20.09	4.5	20.5	13.15	12.77	12.91	0.0	14.5
		75	0	19.92	19.73	20.13	4.5	20.5	13.18	12.79	12.94	0.0	14.5

LTE Band 2(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150			18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	23.70	24.75	24.06	0.0	25.0	13.21	12.75	13.03	0.0	14.5
		1	25	23.99	24.75	23.90	0.0	25.0	13.34	12.80	12.88	0.0	14.5
		1	49	24.05	24.66	23.77	0.0	25.0	13.23	12.68	13.00	0.0	14.5
		25	0	23.33	23.86	23.39	0.5	24.5	13.23	12.72	13.02	0.0	14.5
		25	12	23.54	23.82	23.44	0.5	24.5	13.25	12.72	13.01	0.0	14.5
		25	25	23.66	23.82	23.45	0.5	24.5	13.20	12.70	12.99	0.0	14.5
		50	0	23.54	23.81	23.45	0.5	24.5	13.24	12.71	13.00	0.0	14.5
	16QAM	1	0	23.36	24.11	23.89	0.5	24.5	13.43	12.92	13.16	0.0	14.5
		1	25	23.71	24.12	23.91	0.5	24.5	13.33	12.89	13.06	0.0	14.5
		1	49	23.81	24.10	23.80	0.5	24.5	13.34	12.91	13.04	0.0	14.5
		25	0	22.85	22.78	22.93	1.5	23.5	13.27	12.71	13.04	0.0	14.5
		25	12	22.94	22.75	23.00	1.5	23.5	13.26	12.72	13.02	0.0	14.5
		25	25	22.93	22.73	23.02	1.5	23.5	13.24	12.69	13.00	0.0	14.5
		50	0	22.92	22.69	23.01	1.5	23.5	13.27	12.70	12.99	0.0	14.5
	64QAM	1	0	23.00	22.96	23.19	1.5	23.5	13.22	12.92	12.93	0.0	14.5
		1	25	23.22	23.05	22.98	1.5	23.5	13.06	13.02	13.11	0.0	14.5
		1	49	22.95	22.97	23.22	1.5	23.5	13.24	12.95	12.84	0.0	14.5
		25	0	21.96	21.72	22.20	2.5	22.5	13.34	12.78	13.06	0.0	14.5
		25	12	21.92	21.69	22.18	2.5	22.5	13.34	12.77	13.06	0.0	14.5
		25	25	21.93	21.68	22.15	2.5	22.5	13.30	12.77	13.03	0.0	14.5
		50	0	21.91	21.68	22.19	2.5	22.5	13.30	12.76	13.05	0.0	14.5
	256QAM	1	0	19.99	20.05	20.21	4.5	20.5	13.33	13.21	13.06	0.0	14.5
		1	25	20.03	20.23	20.32	4.5	20.5	13.58	13.36	13.12	0.0	14.5
		1	49	19.94	19.99	20.10	4.5	20.5	13.33	13.16	13.02	0.0	14.5
		25	0	19.95	19.75	20.22	4.5	20.5	13.31	12.81	13.13	0.0	14.5
		25	12	19.92	19.70	20.18	4.5	20.5	13.32	12.77	13.11	0.0	14.5
		25	25	19.91	19.72	20.16	4.5	20.5	13.28	12.77	13.10	0.0	14.5
		50	0	19.87	19.68	20.13	4.5	20.5	13.26	12.76	13.05	0.0	14.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175			18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	23.95	24.53	23.59	0.0	25.0	13.34	12.68	13.08	0.0	14.5
		1	12	23.92	24.44	23.54	0.0	25.0	13.43	12.77	13.14	0.0	14.5
		1	24	23.90	24.35	23.43	0.0	25.0	13.33	12.67	13.07	0.0	14.5
		12	0	23.25	23.88	23.10	0.5	24.5	13.33	12.69	13.11	0.0	14.5
		12	7	23.32	23.92	23.15	0.5	24.5	13.34	12.71	13.12	0.0	14.5
		12	13	23.37	23.91	23.16	0.5	24.5	13.30	12.70	13.10	0.0	14.5
		25	0	23.32	23.91	23.16	0.5	24.5	13.32	12.68	13.10	0.0	14.5
	16QAM	1	0	23.24	24.03	23.29	0.5	24.5	13.59	12.97	13.16	0.0	14.5
		1	12	23.37	23.99	23.37	0.5	24.5	13.61	12.98	13.30	0.0	14.5
		1	24	23.45	24.01	23.29	0.5	24.5	13.54	12.90	13.17	0.0	14.5
		12	0	22.67	22.92	22.60	1.5	23.5	13.29	12.68	13.07	0.0	14.5
		12	7	22.77	22.92	22.67	1.5	23.5	13.27	12.69	13.06	0.0	14.5
		12	13	22.84	22.88	22.68	1.5	23.5	13.29	12.68	13.06	0.0	14.5
		25	0	22.77	22.82	22.68	1.5	23.5	13.31	12.67	13.13	0.0	14.5
	64QAM	1	0	22.92	23.02	23.29	1.5	23.5	13.21	12.92	13.44	0.0	14.5
		1	12	23.12	22.99	23.34	1.5	23.5	13.26	12.81	13.59	0.0	14.5
		1	24	22.98	22.97	23.18	1.5	23.5	13.27	12.86	13.45	0.0	14.5
		12	0	21.90	21.64	22.25	2.5	22.5	13.25	12.62	13.04	0.0	14.5
		12	7	21.89	21.63	22.22	2.5	22.5	13.25	12.61	13.03	0.0	14.5
		12	13	21.87	21.61	22.22	2.5	22.5	13.27	12.62	12.96	0.0	14.5
		25	0	21.87	21.66	22.21	2.5	22.5	13.23	12.65	13.06	0.0	14.5
	256QAM	1	0	19.96	19.94	20.33	4.5	20.5	13.39	12.93	12.96	0.0	14.5
		1	12	19.79	20.05	20.46	4.5	20.5	13.50	13.01	12.90	0.0	14.5
		1	24	19.92	19.88	20.25	4.5	20.5	13.39	12.93	12.95	0.0	14.5
		12	0	19.90	19.71	20.21	4.5	20.5	13.27	12.71	13.07	0.0	14.5
		12	7	19.90	19.68	20.21	4.5	20.5	13.29	12.71	13.07	0.0	14.5
		12	13	19.87	19.67	20.18	4.5	20.5	13.29	12.68	13.03	0.0	14.5
		25	0	19.89	19.62	20.19	4.5	20.5	13.26	12.61	13.08	0.0	14.5

LTE Band 2(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185			18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz			1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	23.90	24.82	24.00	0.0	25.0	13.27	12.55	13.19	0.0	14.5
		1	8	23.90	24.71	23.90	0.0	25.0	13.02	12.66	13.24	0.0	14.5
		1	14	23.90	24.65	23.79	0.0	25.0	13.29	12.52	13.21	0.0	14.5
		8	0	23.37	24.04	23.41	0.5	24.5	13.24	12.61	13.12	0.0	14.5
		8	4	23.44	24.02	23.46	0.5	24.5	13.19	12.55	13.06	0.0	14.5
		8	7	23.47	23.99	23.46	0.5	24.5	13.21	12.61	13.13	0.0	14.5
		15	0	23.48	23.93	23.48	0.5	24.5	13.20	12.62	13.05	0.0	14.5
	16QAM	1	0	23.47	24.15	23.75	0.5	24.5	13.28	12.83	13.13	0.0	14.5
		1	8	23.53	24.28	23.77	0.5	24.5	13.35	12.90	13.21	0.0	14.5
		1	14	23.56	24.20	23.69	0.5	24.5	13.20	12.84	13.03	0.0	14.5
		8	0	22.93	22.99	22.92	1.5	23.5	13.18	12.75	13.11	0.0	14.5
		8	4	22.99	22.93	22.97	1.5	23.5	13.21	12.70	13.06	0.0	14.5
		8	7	23.03	22.92	22.99	1.5	23.5	13.18	12.70	13.07	0.0	14.5
		15	0	23.03	22.84	23.00	1.5	23.5	13.16	12.62	13.08	0.0	14.5
	64QAM	1	0	23.01	22.65	23.26	1.5	23.5	13.45	13.14	12.86	0.0	14.5
		1	8	23.07	22.80	23.24	1.5	23.5	13.66	13.31	12.98	0.0	14.5
		1	14	22.97	22.73	23.11	1.5	23.5	13.52	13.18	12.79	0.0	14.5
		8	0	21.99	21.75	22.34	2.5	22.5	13.36	12.85	13.23	0.0	14.5
		8	4	21.96	21.66	22.33	2.5	22.5	13.33	12.83	13.22	0.0	14.5
		8	7	21.92	21.69	22.32	2.5	22.5	13.34	12.86	13.18	0.0	14.5
		15	0	21.89	21.61	22.30	2.5	22.5	13.40	12.72	13.18	0.0	14.5
	256QAM	1	0	20.00	19.95	20.34	4.5	20.5	13.28	13.08	13.26	0.0	14.5
		1	8	20.10	19.92	20.39	4.5	20.5	13.30	13.28	13.41	0.0	14.5
		1	14	19.99	19.82	20.32	4.5	20.5	13.24	13.09	13.22	0.0	14.5
		8	0	19.90	19.70	20.31	4.5	20.5	13.38	12.77	13.25	0.0	14.5
		8	4	19.92	19.75	20.27	4.5	20.5	13.32	12.77	13.23	0.0	14.5
		8	7	19.96	19.72	20.29	4.5	20.5	13.35	12.73	13.27	0.0	14.5
		15	0	19.98	19.67	20.29	4.5	20.5	13.37	12.74	13.24	0.0	14.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18607	18900	19193			18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz			1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	23.65	24.39	23.62	0.0	25.0	13.24	12.61	13.14	0.0	14.5
		1	3	23.58	24.28	23.48	0.0	25.0	13.34	12.33	13.16	0.0	14.5
		1	5	23.57	24.27	23.45	0.0	25.0	13.24	12.60	13.11	0.0	14.5
		3	0	23.47	24.18	23.41	0.0	25.0	13.28	12.60	13.07	0.0	14.5
		3	1	23.45	24.18	23.40	0.0	25.0	13.18	12.60	12.95	0.0	14.5
		3	3	23.44	24.18	23.38	0.0	25.0	13.16	12.44	13.03	0.0	14.5
		6	0	22.97	23.66	22.94	1.0	24.0	13.23	12.58	13.01	0.0	14.5
	16QAM	1	0	23.39	23.70	23.15	1.0	24.0	13.22	12.66	13.09	0.0	14.5
		1	3	23.42	23.70	23.14	1.0	24.0	13.31	12.72	13.21	0.0	14.5
		1	5	23.45	23.74	23.16	1.0	24.0	13.27	12.70	13.14	0.0	14.5
		3	0	23.00	23.70	23.11	1.0	24.0	13.30	12.53	13.16	0.0	14.5
		3	1	23.02	23.73	23.13	1.0	24.0	13.26	12.53	13.07	0.0	14.5
		3	3	23.03	23.73	23.13	1.0	24.0	13.27	12.50	13.04	0.0	14.5
		6	0	22.42	22.85	22.58	1.5	23.5	13.21	12.56	13.09	0.0	14.5
	64QAM	1	0	22.82	22.68	23.09	1.5	23.5	13.36	12.45	13.42	0.0	14.5
		1	3	22.93	22.37	23.24	1.5	23.5	13.16	12.69	13.21	0.0	14.5
		1	5	22.85	22.65	23.16	1.5	23.5	13.67	12.52	13.36	0.0	14.5
		3	0	22.92	22.61	23.15	1.5	23.5	13.72	12.75	13.50	0.0	14.5
		3	1	22.82	22.65	23.13	1.5	23.5	13.66	12.70	13.45	0.0	14.5
		3	3	22.83	22.56	23.11	1.5	23.5	13.63	12.71	13.45	0.0	14.5
		6	0	21.95	21.68	22.38	1.5	23.5	13.50	12.90	13.38	0.0	14.5
	256QAM	1	0	19.84	19.75	20.31	4.5	20.5	13.55	12.85	13.28	0.0	14.5
		1	3	20.05	19.82	20.25	4.5	20.5	13.21	13.02	13.54	0.0	14.5
		1	5	19.78	19.73	20.27	4.5	20.5	13.56	12.85	13.30	0.0	14.5
		3	0	19.86	19.55	20.29	4.5	20.5	13.43	12.86	13.20	0.0	14.5
		3	1	19.78	19.47	20.24	4.5	20.5	13.43	12.88	13.18	0.0	14.5
		3	3	19.71	19.42	20.19	4.5	20.5	13.40	12.81	13.19	0.0	14.5
		6	0	19.81	19.56	20.18	4.5	20.5	13.46	12.83	13.32	0.0	14.5

8.5.5 LTE Band 2 (ENDC)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	23.38	23.11	23.02	0.0	24.0	10.74	10.47	10.44	0.0	11.5
		1	49	23.30	23.26	23.20	0.0	24.0	10.73	10.51	10.51	0.0	11.5
		1	99	23.72	23.23	22.72	0.0	24.0	11.08	10.58	10.08	0.0	11.5
		50	0	22.50	22.28	22.02	1.0	23.0	10.82	10.55	10.38	0.0	11.5
		50	24	22.60	22.33	21.95	1.0	23.0	10.92	10.60	10.30	0.0	11.5
		50	50	22.70	22.33	21.83	1.0	23.0	10.97	10.60	10.19	0.0	11.5
		100	0	22.59	22.30	21.90	1.0	23.0	10.91	10.56	10.30	0.0	11.5
	16QAM	1	0	22.47	22.36	22.25	1.0	23.0	11.19	10.88	10.81	0.0	11.5
		1	49	22.64	22.41	22.31	1.0	23.0	11.18	10.90	10.55	0.0	11.5
		1	99	22.85	22.46	21.89	1.0	23.0	11.18	10.97	10.41	0.0	11.5
		50	0	21.53	21.30	21.04	2.0	22.0	10.82	10.53	10.35	0.0	11.5
		50	24	21.62	21.33	20.97	2.0	22.0	10.90	10.59	10.28	0.0	11.5
		50	50	21.70	21.35	20.87	2.0	22.0	11.00	10.58	10.15	0.0	11.5
		100	0	21.62	21.32	20.97	2.0	22.0	10.89	10.54	10.26	0.0	11.5
	64QAM	1	0	21.45	21.37	21.28	2.0	22.0	10.78	10.58	10.65	0.0	11.5
		1	49	21.68	21.65	21.31	2.0	22.0	10.97	10.92	10.73	0.0	11.5
		1	99	21.76	21.55	20.94	2.0	22.0	11.08	10.67	10.34	0.0	11.5
		50	0	20.52	20.31	20.08	3.0	21.0	10.82	10.51	10.37	0.0	11.5
		50	24	20.62	20.36	20.01	3.0	21.0	10.91	10.55	10.28	0.0	11.5
		50	50	20.69	20.38	19.91	3.0	21.0	11.00	10.56	10.19	0.0	11.5
		100	0	20.58	20.32	19.95	3.0	21.0	10.90	10.48	10.26	0.0	11.5
	256QAM	1	0	18.54	18.32	18.35	5.0	19.0	10.76	10.65	10.66	0.0	11.5
		1	49	18.92	18.46	18.51	5.0	19.0	11.10	11.04	10.51	0.0	11.5
		1	99	18.89	18.45	18.08	5.0	19.0	11.14	10.80	10.30	0.0	11.5
		50	0	18.47	18.25	18.06	5.0	19.0	10.80	10.48	10.33	0.0	11.5
		50	24	18.56	18.30	18.00	5.0	19.0	10.89	10.55	10.25	0.0	11.5
		50	50	18.64	18.32	17.90	5.0	19.0	10.97	10.56	10.15	0.0	11.5
		100	0	18.57	18.26	17.95	5.0	19.0	10.90	10.54	10.22	0.0	11.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18675	18900	19125			18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz			1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	23.55	23.17	23.03	0.0	24.0	10.77	10.46	10.21	0.0	11.5
		1	37	23.56	23.37	22.98	0.0	24.0	10.83	10.39	10.34	0.0	11.5
		1	74	23.77	23.32	22.76	0.0	24.0	11.00	10.53	10.16	0.0	11.5
		36	0	22.63	22.25	21.97	1.0	23.0	10.90	10.52	10.39	0.0	11.5
		36	20	22.69	22.28	21.91	1.0	23.0	10.96	10.55	10.32	0.0	11.5
		36	39	22.76	22.30	21.85	1.0	23.0	11.02	10.57	10.25	0.0	11.5
		75	0	22.70	22.29	21.91	1.0	23.0	10.99	10.53	10.31	0.0	11.5
	16QAM	1	0	22.71	22.48	22.05	1.0	23.0	10.97	10.65	10.80	0.0	11.5
		1	37	22.93	22.65	21.98	1.0	23.0	11.19	10.82	10.72	0.0	11.5
		1	74	22.97	22.55	21.80	1.0	23.0	11.20	10.72	10.55	0.0	11.5
		36	0	21.63	21.25	21.05	2.0	22.0	10.89	10.47	10.38	0.0	11.5
		36	20	21.70	21.29	20.96	2.0	22.0	10.93	10.51	10.32	0.0	11.5
		36	39	21.74	21.32	20.89	2.0	22.0	10.99	10.51	10.27	0.0	11.5
		75	0	21.66	21.32	20.96	2.0	22.0	10.92	10.48	10.32	0.0	11.5
	64QAM	1	0	21.36	21.64	21.04	2.0	22.0	10.92	10.68	10.52	0.0	11.5
		1	37	21.49	21.80	20.97	2.0	22.0	10.84	10.44	10.43	0.0	11.5
		1	74	21.67	21.71	20.74	2.0	22.0	11.18	10.79	10.26	0.0	11.5
		36	0	20.58	20.26	20.03	3.0	21.0	10.86	10.45	10.39	0.0	11.5
		36	20	20.65	20.30	19.99	3.0	21.0	10.93	10.52	10.32	0.0	11.5
		36	39	20.70	20.32	19.89	3.0	21.0	10.97	10.52	10.26	0.0	11.5
		75	0	20.69	20.28	19.91	3.0	21.0	10.98	10.55	10.29	0.0	11.5
	256QAM	1	0	18.72	18.62	17.98	5.0	19.0	10.91	10.60	10.62	0.0	11.5
		1	37	18.91	18.55	17.85	5.0	19.0	11.17	10.82	10.54	0.0	11.5
		1	74	18.98	18.71	17.75	5.0	19.0	11.13	10.68	10.37	0.0	11.5
		36	0	18.57	18.26	17.96	5.0	19.0	10.89	10.45	10.39	0.0	11.5
		36	20	18.62	18.31	17.89	5.0	19.0	10.95	10.52	10.33	0.0	11.5
		36	39	18.69	18.29	17.81	5.0	19.0	10.99	10.52	10.27	0.0	11.5
		75	0	18.65	18.28	17.88	5.0	19.0	10.96	10.51	10.32	0.0	11.5

LTE Band 2(ENDC) (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150			18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	23.64	23.23	22.97	0.0	24.0	10.96	10.50	10.79	0.0	11.5
		1	25	23.86	23.39	22.71	0.0	24.0	11.04	10.60	10.74	0.0	11.5
		1	49	23.84	23.29	22.85	0.0	24.0	11.15	10.58	10.51	0.0	11.5
		25	0	22.73	22.27	21.96	1.0	23.0	10.99	10.51	10.66	0.0	11.5
		25	12	22.78	22.29	21.91	1.0	23.0	11.05	10.54	10.70	0.0	11.5
		25	25	22.79	22.29	21.87	1.0	23.0	11.08	10.52	10.74	0.0	11.5
		50	0	22.79	22.30	21.94	1.0	23.0	11.05	10.51	10.71	0.0	11.5
	16QAM	1	0	22.90	22.40	22.22	1.0	23.0	11.04	10.68	10.99	0.0	11.5
		1	25	22.91	22.56	22.15	1.0	23.0	11.10	10.76	11.11	0.0	11.5
		1	49	22.73	22.48	21.96	1.0	23.0	11.16	10.68	10.98	0.0	11.5
		25	0	21.78	21.30	21.04	2.0	22.0	11.01	10.54	10.68	0.0	11.5
		25	12	21.82	21.32	20.98	2.0	22.0	11.06	10.57	10.73	0.0	11.5
		25	25	21.85	21.32	20.92	2.0	22.0	11.07	10.56	10.75	0.0	11.5
		50	0	21.82	21.33	20.97	2.0	22.0	11.05	10.53	10.72	0.0	11.5
	64QAM	1	0	21.46	21.51	21.00	2.0	22.0	11.09	10.59	10.98	0.0	11.5
		1	25	21.65	21.59	20.73	2.0	22.0	11.36	10.89	11.07	0.0	11.5
		1	49	21.56	21.64	20.85	2.0	22.0	11.19	10.61	11.36	0.0	11.5
		25	0	20.80	20.31	20.08	3.0	21.0	11.05	10.53	10.72	0.0	11.5
		25	12	20.82	20.31	20.02	3.0	21.0	11.09	10.55	10.75	0.0	11.5
		25	25	20.87	20.34	19.96	3.0	21.0	11.12	10.55	10.81	0.0	11.5
		50	0	20.80	20.33	20.00	3.0	21.0	11.07	10.51	10.78	0.0	11.5
	256QAM	1	0	18.67	18.55	17.98	5.0	19.0	11.12	10.61	10.93	0.0	11.5
		1	25	18.85	18.79	18.13	5.0	19.0	11.28	10.70	11.04	0.0	11.5
		1	49	18.82	18.58	17.81	5.0	19.0	11.30	10.68	11.13	0.0	11.5
		25	0	18.80	18.30	18.02	5.0	19.0	11.11	10.58	10.69	0.0	11.5
		25	12	18.81	18.29	17.97	5.0	19.0	11.14	10.60	10.74	0.0	11.5
		25	25	18.85	18.31	17.91	5.0	19.0	11.15	10.60	10.77	0.0	11.5
		50	0	18.76	18.30	17.96	5.0	19.0	11.07	10.52	10.74	0.0	11.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175			18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	23.68	23.16	22.85	0.0	24.0	11.13	10.43	10.52	0.0	11.5
		1	12	23.81	23.32	22.80	0.0	24.0	11.18	10.47	10.49	0.0	11.5
		1	24	23.82	23.24	22.83	0.0	24.0	11.25	10.53	10.42	0.0	11.5
		12	0	22.81	22.22	21.88	1.0	23.0	11.18	10.45	10.47	0.0	11.5
		12	7	22.83	22.26	21.89	1.0	23.0	11.21	10.48	10.46	0.0	11.5
		12	13	22.85	22.23	21.85	1.0	23.0	11.22	10.50	10.43	0.0	11.5
		25	0	22.83	22.25	21.89	1.0	23.0	11.20	10.48	10.44	0.0	11.5
	16QAM	1	0	22.90	22.25	21.99	1.0	23.0	10.74	10.70	10.90	0.0	11.5
		1	12	22.64	22.31	21.95	1.0	23.0	10.94	10.74	10.86	0.0	11.5
		1	24	22.78	22.26	21.89	1.0	23.0	10.63	10.79	10.83	0.0	11.5
		12	0	21.82	21.24	20.89	2.0	22.0	11.17	10.45	10.59	0.0	11.5
		12	7	21.82	21.24	20.89	2.0	22.0	11.21	10.47	10.56	0.0	11.5
		12	13	21.85	21.24	20.85	2.0	22.0	11.20	10.50	10.54	0.0	11.5
		25	0	21.88	21.29	20.85	2.0	22.0	11.19	10.46	10.46	0.0	11.5
	64QAM	1	0	21.73	21.47	21.33	2.0	22.0	11.37	10.50	10.32	0.0	11.5
		1	12	21.78	21.60	21.27	2.0	22.0	11.47	10.53	10.67	0.0	11.5
		1	24	21.85	21.57	21.20	2.0	22.0	11.49	10.59	10.63	0.0	11.5
		12	0	20.90	20.23	19.86	3.0	21.0	11.18	10.41	10.43	0.0	11.5
		12	7	20.91	20.25	19.85	3.0	21.0	11.19	10.41	10.40	0.0	11.5
		12	13	20.92	20.21	19.85	3.0	21.0	11.22	10.44	10.37	0.0	11.5
		25	0	20.85	20.26	19.92	3.0	21.0	11.17	10.48	10.40	0.0	11.5
	256QAM	1	0	18.81	18.40	18.02	5.0	19.0	11.21	10.69	10.65	0.0	11.5
		1	12	18.91	18.33	18.08	5.0	19.0	11.40	10.72	10.60	0.0	11.5
		1	24	18.92	18.43	17.98	5.0	19.0	11.32	10.76	10.59	0.0	11.5
		12	0	18.86	18.26	17.98	5.0	19.0	11.22	10.46	10.51	0.0	11.5
		12	7	18.89	18.28	17.97	5.0	19.0	11.27	10.49	10.49	0.0	11.5
		12	13	18.89	18.25	17.93	5.0	19.0	11.26	10.52	10.45	0.0	11.5
		25	0	18.87	18.30	17.88	5.0	19.0	11.19	10.49	10.39	0.0	11.5

LTE Band 2(ENDC) (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185			18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz			1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	23.83	23.33	22.96	0.0	24.0	11.34	10.46	10.50	0.0	11.5
		1	8	23.95	23.42	22.72	0.0	24.0	11.18	10.51	10.49	0.0	11.5
		1	14	23.86	23.37	22.97	0.0	24.0	11.16	10.51	10.45	0.0	11.5
		8	0	22.90	22.24	21.87	1.0	23.0	11.21	10.46	10.51	0.0	11.5
		8	4	22.92	22.24	21.89	1.0	23.0	11.21	10.48	10.50	0.0	11.5
		8	7	22.88	22.32	21.85	1.0	23.0	11.20	10.47	10.47	0.0	11.5
		15	0	22.92	22.26	21.89	1.0	23.0	11.18	10.49	10.50	0.0	11.5
	16QAM	1	0	22.98	22.57	21.89	1.0	23.0	11.50	10.88	10.83	0.0	11.5
		1	8	22.91	22.65	21.95	1.0	23.0	10.79	10.91	10.79	0.0	11.5
		1	14	22.95	22.50	21.79	1.0	23.0	10.75	10.92	10.75	0.0	11.5
		8	0	21.97	21.28	20.92	2.0	22.0	11.18	10.49	10.53	0.0	11.5
		8	4	21.99	21.25	20.91	2.0	22.0	11.19	10.51	10.53	0.0	11.5
		8	7	22.00	21.27	20.88	2.0	22.0	11.20	10.51	10.52	0.0	11.5
		15	0	21.92	21.35	20.83	2.0	22.0	11.16	10.54	10.53	0.0	11.5
	64QAM	1	0	21.63	21.62	20.89	2.0	22.0	11.35	10.74	10.79	0.0	11.5
		1	8	21.52	21.70	20.97	2.0	22.0	11.41	10.82	10.79	0.0	11.5
		1	14	21.60	21.71	20.90	2.0	22.0	11.43	10.81	10.75	0.0	11.5
		8	0	20.90	20.38	19.88	3.0	21.0	11.19	10.54	10.57	0.0	11.5
		8	4	20.89	20.34	19.92	3.0	21.0	11.21	10.56	10.55	0.0	11.5
		8	7	20.90	20.37	19.93	3.0	21.0	11.21	10.57	10.55	0.0	11.5
		15	0	20.87	20.25	19.98	3.0	21.0	11.17	10.46	10.51	0.0	11.5
	256QAM	1	0	18.86	18.61	17.87	5.0	19.0	11.33	10.77	10.83	0.0	11.5
		1	8	18.92	18.47	17.91	5.0	19.0	11.40	10.84	10.81	0.0	11.5
		1	14	18.90	18.60	17.83	5.0	19.0	11.39	10.84	10.78	0.0	11.5
		8	0	18.87	18.31	17.96	5.0	19.0	11.15	10.47	10.50	0.0	11.5
		8	4	18.91	18.30	17.93	5.0	19.0	11.17	10.48	10.49	0.0	11.5
		8	7	18.92	18.29	17.93	5.0	19.0	11.18	10.49	10.47	0.0	11.5
		15	0	18.98	18.30	17.99	5.0	19.0	11.16	10.48	10.46	0.0	11.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18607	18900	19193			18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz			1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	23.90	23.27	22.91	0.0	24.0	11.30	10.60	10.36	0.0	11.5
		1	3	23.91	23.26	22.59	0.0	24.0	11.39	10.57	10.31	0.0	11.5
		1	5	23.93	23.26	22.92	0.0	24.0	11.31	10.57	10.35	0.0	11.5
		3	0	23.92	23.32	22.96	0.0	24.0	11.33	10.51	10.35	0.0	11.5
		3	1	23.85	23.21	22.86	0.0	24.0	11.29	10.46	10.25	0.0	11.5
		3	3	23.85	23.20	22.80	0.0	24.0	11.22	10.52	10.19	0.0	11.5
		6	0	22.85	22.25	21.84	1.0	23.0	11.28	10.52	10.34	0.0	11.5
	16QAM	1	0	22.87	22.26	21.96	1.0	23.0	10.64	10.63	10.32	0.0	11.5
		1	3	23.00	22.40	22.05	1.0	23.0	10.60	10.73	10.57	0.0	11.5
		1	5	22.96	22.33	21.99	1.0	23.0	10.69	10.67	10.32	0.0	11.5
		3	0	22.95	22.40	21.82	1.0	23.0	11.37	10.71	10.23	0.0	11.5
		3	1	22.96	22.35	21.81	1.0	23.0	11.31	10.65	10.30	0.0	11.5
		3	3	22.93	22.34	21.76	1.0	23.0	11.28	10.67	10.36	0.0	11.5
		6	0	21.93	21.24	20.86	2.0	22.0	11.27	10.61	10.34	0.0	11.5
	64QAM	1	0	21.63	21.41	20.91	2.0	22.0	10.76	10.62	10.31	0.0	11.5
		1	3	21.91	21.39	20.68	2.0	22.0	11.50	11.02	10.29	0.0	11.5
		1	5	21.73	21.36	20.82	2.0	22.0	10.61	10.78	10.24	0.0	11.5
		3	0	21.80	21.40	21.17	2.0	22.0	11.39	10.74	10.33	0.0	11.5
		3	1	21.75	21.35	21.02	2.0	22.0	11.31	10.64	10.26	0.0	11.5
		3	3	21.69	21.30	21.04	2.0	22.0	11.22	10.65	10.17	0.0	11.5
		6	0	20.86	20.26	19.95	3.0	21.0	11.47	10.56	10.44	0.0	11.5
	256QAM	1	0	18.87	18.27	17.90	5.0	19.0	11.43	10.57	10.35	0.0	11.5
		1	3	18.98	18.52	18.08	5.0	19.0	10.49	10.84	10.56	0.0	11.5
		1	5	18.87	18.29	17.92	5.0	19.0	11.48	10.55	10.37	0.0	11.5
		3	0	18.98	18.34	17.70	5.0	19.0	11.26	10.53	10.21	0.0	11.5
		3	1	18.95	18.25	17.70	5.0	19.0	11.25	10.49	10.14	0.0	11.5
		3	3	18.83	18.15	17.64	5.0	19.0	11.21	10.45	10.16	0.0	11.5
		6	0	18.79	18.30	17.88	5.0	19.0	11.27	10.53	10.34	0.0	11.5

8.5.6 LTE Band 5

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
				20525			20525		
				836.5 MHz			836.5 MHz		
10 MHz	QPSK	1	0	23.99	0.0	25.0	13.92	0.0	15.0
		1	25	23.84	0.0	25.0	13.90	0.0	15.0
		1	49	23.93	0.0	25.0	13.85	0.0	15.0
		25	0	23.01	1.0	24.0	14.01	0.0	15.0
		25	12	22.99	1.0	24.0	13.89	0.0	15.0
		25	25	22.97	1.0	24.0	13.86	0.0	15.0
		50	0	23.00	1.0	24.0	13.90	0.0	15.0
	16QAM	1	0	23.10	1.0	24.0	14.17	0.0	15.0
		1	25	22.90	1.0	24.0	14.21	0.0	15.0
		1	49	23.02	1.0	24.0	14.04	0.0	15.0
		25	0	22.02	2.0	23.0	13.93	0.0	15.0
		25	12	22.01	2.0	23.0	13.93	0.0	15.0
		25	25	21.99	2.0	23.0	13.91	0.0	15.0
		50	0	21.98	2.0	23.0	13.93	0.0	15.0
	64QAM	1	0	22.22	2.0	23.0	14.01	0.0	15.0
		1	25	22.22	2.0	23.0	14.03	0.0	15.0
		1	49	22.24	2.0	23.0	13.90	0.0	15.0
		25	0	20.99	3.0	22.0	13.94	0.0	15.0
		25	12	20.97	3.0	22.0	13.92	0.0	15.0
		25	25	20.96	3.0	22.0	13.90	0.0	15.0
		50	0	20.95	3.0	22.0	13.90	0.0	15.0
	256QAM	1	0	19.31	5.0	20.0	14.20	0.0	15.0
		1	25	19.34	5.0	20.0	14.20	0.0	15.0
		1	49	19.24	5.0	20.0	14.11	0.0	15.0
		25	0	18.98	5.0	20.0	13.98	0.0	15.0
		25	12	18.98	5.0	20.0	13.96	0.0	15.0
		25	25	18.97	5.0	20.0	13.93	0.0	15.0
		50	0	18.92	5.0	20.0	13.86	0.0	15.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20425	20525	20625			20425	20525	20625		
				826.5 MHz	836.5 MHz	846.5 MHz			826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.78	23.79	23.94	0.0	25.0	13.71	13.82	13.89	0.0	15.0
		1	12	23.76	23.59	23.95	0.0	25.0	13.76	13.85	13.92	0.0	15.0
		1	24	23.77	23.80	23.96	0.0	25.0	13.71	13.81	13.87	0.0	15.0
		12	0	22.83	22.84	23.00	1.0	24.0	13.76	13.89	13.95	0.0	15.0
		12	7	22.81	22.84	22.99	1.0	24.0	13.77	13.89	13.96	0.0	15.0
		12	13	22.79	22.82	22.97	1.0	24.0	13.75	13.87	13.96	0.0	15.0
		25	0	22.83	22.83	22.99	1.0	24.0	13.75	13.86	13.98	0.0	15.0
	16QAM	1	0	23.03	23.10	23.10	1.0	24.0	13.99	14.16	14.41	0.0	15.0
		1	12	22.97	22.99	22.99	1.0	24.0	14.06	14.25	14.51	0.0	15.0
		1	24	22.99	23.05	23.05	1.0	24.0	13.98	14.16	14.44	0.0	15.0
		12	0	21.81	21.85	21.99	2.0	23.0	13.84	13.96	14.05	0.0	15.0
		12	7	21.79	21.83	21.98	2.0	23.0	13.83	13.95	14.04	0.0	15.0
		12	13	21.75	21.82	21.98	2.0	23.0	13.79	13.92	14.03	0.0	15.0
		25	0	21.84	21.82	22.02	2.0	23.0	13.77	13.87	13.99	0.0	15.0
	64QAM	1	0	21.80	22.07	22.15	2.0	23.0	13.80	14.03	14.19	0.0	15.0
		1	12	21.75	22.12	22.17	2.0	23.0	13.82	14.10	14.15	0.0	15.0
		1	24	21.79	22.12	22.21	2.0	23.0	13.78	14.02	14.22	0.0	15.0
		12	0	20.94	20.85	21.00	3.0	22.0	13.80	13.88	14.02	0.0	15.0
		12	7	20.90	20.84	20.98	3.0	22.0	13.80	13.88	14.02	0.0	15.0
		12	13	20.90	20.81	20.96	3.0	22.0	13.77	13.85	14.02	0.0	15.0
		25	0	20.81	20.83	20.98	3.0	22.0	13.79	13.89	14.00	0.0	15.0
	256QAM	1	0	18.75	18.74	18.96	5.0	20.0	13.75	13.89	14.07	0.0	15.0
		1	12	18.70	18.52	18.67	5.0	20.0	13.55	13.75	14.11	0.0	15.0
		1	24	18.73	18.70	18.92	5.0	20.0	13.65	13.84	14.04	0.0	15.0
		12	0	18.81	18.80	18.94	5.0	20.0	13.78	13.86	14.03	0.0	15.0
		12	7	18.78	18.79	18.93	5.0	20.0	13.77	13.86	14.02	0.0	15.0
		12	13	18.78	18.77	18.92	5.0	20.0	13.74	13.84	14.03	0.0	15.0
		25	0	18.77	18.83	18.96	5.0	20.0	13.75	13.91	14.00	0.0	15.0

LTE Band 5(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20415	20525	20635			20415	20525	20635		
				825.5 MHz	836.5 MHz	847.5 MHz			825.5 MHz	836.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.76	23.86	23.97	0.0	25.0	13.63	13.93	13.99	0.0	15.0
		1	8	23.62	23.82	23.71	0.0	25.0	13.66	13.95	14.03	0.0	15.0
		1	14	23.70	23.88	24.04	0.0	25.0	13.58	13.94	13.99	0.0	15.0
		8	0	22.81	22.86	22.99	1.0	24.0	13.69	13.94	13.94	0.0	15.0
		8	4	22.86	22.86	22.99	1.0	24.0	13.68	13.94	13.96	0.0	15.0
		8	7	22.82	22.84	22.95	1.0	24.0	13.68	13.93	13.96	0.0	15.0
		15	0	22.86	22.85	23.00	1.0	24.0	13.71	13.95	14.01	0.0	15.0
	16QAM	1	0	23.05	22.99	23.11	1.0	24.0	14.05	14.08	14.38	0.0	15.0
		1	8	22.83	22.93	23.01	1.0	24.0	14.05	14.07	14.39	0.0	15.0
		1	14	23.05	22.89	23.05	1.0	24.0	14.04	14.05	14.37	0.0	15.0
		8	0	21.93	21.79	22.08	2.0	23.0	13.75	13.98	13.95	0.0	15.0
		8	4	21.88	21.78	22.07	2.0	23.0	13.76	13.99	13.97	0.0	15.0
		8	7	21.92	21.76	22.06	2.0	23.0	13.76	13.99	13.97	0.0	15.0
		15	0	21.84	21.92	22.03	2.0	23.0	13.74	13.98	14.08	0.0	15.0
	64QAM	1	0	22.29	22.40	22.42	2.0	23.0	13.69	14.15	14.24	0.0	15.0
		1	8	22.22	22.28	22.33	2.0	23.0	14.21	14.18	14.28	0.0	15.0
		1	14	22.31	22.47	22.49	2.0	23.0	14.20	14.16	14.22	0.0	15.0
		8	0	20.83	20.89	21.01	3.0	22.0	13.88	14.01	14.10	0.0	15.0
		8	4	20.77	20.85	20.93	3.0	22.0	13.87	14.05	14.11	0.0	15.0
		8	7	20.85	20.86	21.00	3.0	22.0	13.88	14.03	14.13	0.0	15.0
		15	0	20.80	20.79	20.96	3.0	22.0	13.84	13.96	14.03	0.0	15.0
	256QAM	1	0	18.98	19.23	19.41	5.0	20.0	14.21	14.23	14.33	0.0	15.0
		1	8	18.90	19.12	19.31	5.0	20.0	14.22	14.22	14.32	0.0	15.0
		1	14	18.94	19.13	19.40	5.0	20.0	14.20	14.21	14.33	0.0	15.0
		8	0	18.90	18.87	19.06	5.0	20.0	13.81	13.96	14.05	0.0	15.0
		8	4	18.86	18.83	19.03	5.0	20.0	13.81	13.96	14.06	0.0	15.0
		8	7	18.90	18.87	19.05	5.0	20.0	13.80	13.96	14.05	0.0	15.0
		15	0	18.81	18.82	19.00	5.0	20.0	13.84	13.97	13.96	0.0	15.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20407	20525	20643			20407	20525	20643		
				824.7 MHz	836.5 MHz	848.3 MHz			824.7 MHz	836.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.81	23.87	23.97	0.0	25.0	13.91	13.83	13.87	0.0	15.0
		1	3	23.83	23.75	23.89	0.0	25.0	13.97	13.87	13.92	0.0	15.0
		1	5	23.81	23.88	23.99	0.0	25.0	13.88	13.85	13.89	0.0	15.0
		3	0	23.81	23.88	24.03	0.0	25.0	13.87	13.89	13.88	0.0	15.0
		3	1	23.80	23.85	23.95	0.0	25.0	13.83	13.84	13.89	0.0	15.0
		3	3	23.76	23.86	23.97	0.0	25.0	13.78	13.85	13.89	0.0	15.0
		6	0	22.76	22.82	22.93	1.0	24.0	13.81	13.86	13.86	0.0	15.0
	16QAM	1	0	22.85	23.02	22.99	1.0	24.0	13.83	14.17	14.24	0.0	15.0
		1	3	23.01	23.06	23.01	1.0	24.0	13.88	14.12	14.21	0.0	15.0
		1	5	22.89	23.08	23.03	1.0	24.0	13.86	14.14	14.23	0.0	15.0
		3	0	22.78	23.00	23.14	1.0	24.0	13.98	14.02	14.07	0.0	15.0
		3	1	22.78	22.97	23.06	1.0	24.0	13.87	14.02	14.05	0.0	15.0
		3	3	22.79	22.92	22.97	1.0	24.0	13.96	14.03	14.04	0.0	15.0
		6	0	21.89	21.86	21.99	2.0	23.0	13.92	13.94	13.86	0.0	15.0
	64QAM	1	0	21.49	22.16	22.05	2.0	23.0	13.85	13.93	13.86	0.0	15.0
		1	3	21.61	22.00	21.81	2.0	23.0	13.80	13.90	13.80	0.0	15.0
		1	5	21.60	22.12	21.98	2.0	23.0	13.81	13.92	13.82	0.0	15.0
		3	0	21.70	21.96	22.26	2.0	23.0	13.92	13.92	13.89	0.0	15.0
		3	1	21.70	21.85	22.15	2.0	23.0	13.91	13.90	13.88	0.0	15.0
		3	3	21.58	21.87	22.18	2.0	23.0	13.90	13.91	13.88	0.0	15.0
		6	0	20.72	20.87	20.96	3.0	22.0	13.92	13.86	13.87	0.0	15.0
	256QAM	1	0	18.92	19.00	19.25	5.0	20.0	14.00	13.89	13.75	0.0	15.0
		1	3	18.97	19.15	19.17	5.0	20.0	13.96	13.90	13.76	0.0	15.0
		1	5	18.86	18.95	19.26	5.0	20.0	13.95	13.89	13.77	0.0	15.0
		3	0	18.94	18.90	18.91	5.0	20.0	13.94	13.93	13.89	0.0	15.0
		3	1	18.87	18.86	18.90	5.0	20.0	13.88	13.93	13.90	0.0	15.0
		3	3	18.77	18.80	18.81	5.0	20.0	13.88	13.92	13.92	0.0	15.0
		6	0	18.76	18.78	19.01	5.0	20.0	13.87	13.91	13.84	0.0	15.0

8.5.7 LTE Band 12

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
				23095			23095		
				707.5 MHz			707.5 MHz		
10 MHz	QPSK	1	0	23.90	0.0	25.0	16.23	0.0	17.0
		1	25	23.88	0.0	25.0	16.21	0.0	17.0
		1	49	23.74	0.0	25.0	16.03	0.0	17.0
		25	0	22.82	1.0	24.0	16.25	0.0	17.0
		25	12	22.79	1.0	24.0	16.14	0.0	17.0
		25	25	22.75	1.0	24.0	16.08	0.0	17.0
		50	0	22.79	1.0	24.0	16.12	0.0	17.0
	16QAM	1	0	23.15	1.0	24.0	16.46	0.0	17.0
		1	25	23.04	1.0	24.0	16.51	0.0	17.0
		1	49	23.02	1.0	24.0	16.33	0.0	17.0
		25	0	21.84	2.0	23.0	16.29	0.0	17.0
		25	12	21.78	2.0	23.0	16.25	0.0	17.0
		25	25	21.74	2.0	23.0	16.20	0.0	17.0
		50	0	21.78	2.0	23.0	16.18	0.0	17.0
	64QAM	1	0	21.86	2.0	23.0	16.17	0.0	17.0
		1	25	21.56	2.0	23.0	16.22	0.0	17.0
		1	49	21.78	2.0	23.0	16.01	0.0	17.0
		25	0	20.86	3.0	22.0	16.19	0.0	17.0
		25	12	20.83	3.0	22.0	16.15	0.0	17.0
		25	25	20.76	3.0	22.0	16.11	0.0	17.0
		50	0	20.79	3.0	22.0	16.13	0.0	17.0
	256QAM	1	0	18.86	5.0	20.0	16.50	0.0	17.0
		1	25	18.77	5.0	20.0	16.47	0.0	17.0
		1	49	18.67	5.0	20.0	16.33	0.0	17.0
		25	0	18.84	5.0	20.0	16.19	0.0	17.0
		25	12	18.79	5.0	20.0	16.15	0.0	17.0
		25	25	18.74	5.0	20.0	16.09	0.0	17.0
		50	0	18.76	5.0	20.0	16.07	0.0	17.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				23035	23095	23155			23035	23095	23155		
				701.5 MHz	707.5 MHz	713.5 MHz			701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	23.77	23.75	24.07	0.0	25.0	16.10	15.94	16.13	0.0	17.0
		1	12	23.81	23.74	23.89	0.0	25.0	16.12	16.00	16.14	0.0	17.0
		1	24	23.79	23.73	24.07	0.0	25.0	16.06	15.93	16.09	0.0	17.0
		12	0	22.78	22.79	23.13	1.0	24.0	16.19	16.03	16.22	0.0	17.0
		12	7	22.77	22.78	23.12	1.0	24.0	16.18	16.04	16.21	0.0	17.0
		12	13	22.74	22.76	23.10	1.0	24.0	16.16	16.03	16.18	0.0	17.0
		25	0	22.77	22.76	23.10	1.0	24.0	16.18	16.03	16.20	0.0	17.0
	16QAM	1	0	22.95	22.88	23.37	1.0	24.0	16.41	16.34	16.51	0.0	17.0
		1	12	22.87	22.80	23.21	1.0	24.0	16.46	16.37	16.55	0.0	17.0
		1	24	22.89	22.84	23.28	1.0	24.0	16.41	16.28	16.47	0.0	17.0
		12	0	21.77	21.78	22.11	2.0	23.0	16.26	16.13	16.29	0.0	17.0
		12	7	21.73	21.75	22.09	2.0	23.0	16.25	16.11	16.28	0.0	17.0
		12	13	21.73	21.74	22.07	2.0	23.0	16.22	16.07	16.25	0.0	17.0
		25	0	21.72	21.78	22.05	2.0	23.0	16.20	16.06	16.23	0.0	17.0
	64QAM	1	0	21.96	21.83	22.31	2.0	23.0	16.23	16.11	16.47	0.0	17.0
		1	12	21.86	21.80	22.28	2.0	23.0	16.25	16.16	16.50	0.0	17.0
		1	24	21.89	21.81	22.35	2.0	23.0	16.24	16.07	16.45	0.0	17.0
		12	0	20.75	20.82	21.06	3.0	22.0	16.09	16.04	16.24	0.0	17.0
		12	7	20.74	20.79	21.04	3.0	22.0	16.09	16.05	16.25	0.0	17.0
		12	13	20.73	20.77	21.00	3.0	22.0	16.05	16.02	16.22	0.0	17.0
		25	0	20.78	20.75	21.05	3.0	22.0	16.10	16.06	16.26	0.0	17.0
	256QAM	1	0	19.16	18.86	19.00	5.0	20.0	16.08	16.19	16.35	0.0	17.0
		1	12	19.04	18.77	18.72	5.0	20.0	15.81	15.96	16.14	0.0	17.0
		1	24	19.09	18.78	18.90	5.0	20.0	16.02	16.10	16.28	0.0	17.0
		12	0	18.81	18.79	19.05	5.0	20.0	16.09	16.02	16.25	0.0	17.0
		12	7	18.81	18.76	19.04	5.0	20.0	16.10	16.01	16.23	0.0	17.0
		12	13	18.77	18.74	18.99	5.0	20.0	16.07	15.99	16.19	0.0	17.0
		25	0	18.73	18.77	19.05	5.0	20.0	16.10	16.07	16.25	0.0	17.0

LTE Band 12(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				23025	23095	23165			23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz			700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	23.81	23.75	24.23	0.0	25.0	16.17	16.09	16.30	0.0	17.0
		1	8	23.77	23.71	23.96	0.0	25.0	16.28	16.09	16.34	0.0	17.0
		1	14	23.84	23.69	24.26	0.0	25.0	16.24	16.09	16.31	0.0	17.0
		8	0	22.80	22.78	23.21	1.0	24.0	16.28	16.11	16.32	0.0	17.0
		8	4	22.79	22.76	23.15	1.0	24.0	16.27	16.10	16.32	0.0	17.0
		8	7	22.79	22.75	23.16	1.0	24.0	16.27	16.12	16.32	0.0	17.0
		15	0	22.75	22.77	23.14	1.0	24.0	16.31	16.13	16.34	0.0	17.0
	16QAM	1	0	22.99	23.10	23.34	1.0	24.0	16.66	16.69	16.69	0.0	17.0
		1	8	22.94	22.99	23.28	1.0	24.0	16.68	16.67	16.67	0.0	17.0
		1	14	22.90	23.07	23.27	1.0	24.0	16.69	16.66	16.74	0.0	17.0
		8	0	21.76	21.90	22.20	2.0	23.0	16.28	16.19	16.36	0.0	17.0
		8	4	21.70	21.91	22.18	2.0	23.0	16.32	16.19	16.37	0.0	17.0
		8	7	21.70	21.91	22.13	2.0	23.0	16.32	16.19	16.36	0.0	17.0
		15	0	21.73	21.77	22.12	2.0	23.0	16.33	16.18	16.39	0.0	17.0
	64QAM	1	0	21.45	22.14	22.11	2.0	23.0	16.40	16.30	16.64	0.0	17.0
		1	8	21.34	21.99	22.10	2.0	23.0	16.47	16.33	16.62	0.0	17.0
		1	14	21.38	22.03	22.18	2.0	23.0	16.46	16.33	16.57	0.0	17.0
		8	0	20.71	20.79	21.08	3.0	22.0	16.35	16.24	16.52	0.0	17.0
		8	4	20.69	20.77	21.10	3.0	22.0	16.37	16.27	16.53	0.0	17.0
		8	7	20.72	20.80	21.12	3.0	22.0	16.37	16.26	16.50	0.0	17.0
		15	0	20.67	20.70	21.16	3.0	22.0	16.31	16.23	16.48	0.0	17.0
	256QAM	1	0	18.66	18.96	19.08	5.0	20.0	16.58	16.61	16.48	0.0	17.0
		1	8	18.66	18.77	19.05	5.0	20.0	16.61	16.61	16.51	0.0	17.0
		1	14	18.66	18.87	19.05	5.0	20.0	16.59	16.60	16.46	0.0	17.0
		8	0	18.78	18.82	19.17	5.0	20.0	16.30	16.22	16.44	0.0	17.0
		8	4	18.75	18.79	19.12	5.0	20.0	16.32	16.24	16.45	0.0	17.0
		8	7	18.71	18.77	19.16	5.0	20.0	16.32	16.22	16.44	0.0	17.0
		15	0	18.70	18.74	19.15	5.0	20.0	16.29	16.21	16.42	0.0	17.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				23017	23095	23173			23017	23095	23173		
				699.7 MHz	707.5 MHz	715.3 MHz			699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	23.72	23.71	24.10	0.0	25.0	16.07	16.07	16.21	0.0	17.0
		1	3	23.54	23.53	24.12	0.0	25.0	15.83	15.82	15.99	0.0	17.0
		1	5	23.71	23.70	24.07	0.0	25.0	16.08	16.06	16.22	0.0	17.0
		3	0	23.68	23.72	24.09	0.0	25.0	16.04	16.08	16.26	0.0	17.0
		3	1	23.61	23.74	24.11	0.0	25.0	16.06	16.11	16.29	0.0	17.0
		3	3	23.64	23.61	24.08	0.0	25.0	15.93	16.02	16.21	0.0	17.0
		6	0	22.63	22.73	23.13	1.0	24.0	16.03	16.09	16.22	0.0	17.0
	16QAM	1	0	22.67	22.86	23.11	1.0	24.0	16.39	16.39	16.50	0.0	17.0
		1	3	22.78	23.01	23.30	1.0	24.0	16.57	16.43	16.55	0.0	17.0
		1	5	22.73	22.89	23.16	1.0	24.0	16.44	16.43	16.55	0.0	17.0
		3	0	22.80	22.62	23.17	1.0	24.0	16.13	16.14	16.36	0.0	17.0
		3	1	22.74	22.71	23.07	1.0	24.0	16.13	16.16	16.40	0.0	17.0
		3	3	22.69	22.61	23.12	1.0	24.0	16.06	16.05	16.22	0.0	17.0
		6	0	21.56	21.71	22.08	2.0	23.0	16.05	16.11	16.23	0.0	17.0
	64QAM	1	0	21.69	21.42	22.41	2.0	23.0	16.10	16.28	16.51	0.0	17.0
		1	3	21.44	21.50	22.26	2.0	23.0	16.28	16.54	16.43	0.0	17.0
		1	5	21.64	21.48	22.36	2.0	23.0	16.16	16.33	16.45	0.0	17.0
		3	0	21.82	21.67	22.20	2.0	23.0	16.14	16.17	16.42	0.0	17.0
		3	1	21.71	21.59	22.13	2.0	23.0	16.17	16.19	16.39	0.0	17.0
		3	3	21.78	21.56	22.15	2.0	23.0	16.15	16.10	16.33	0.0	17.0
		6	0	20.78	20.69	21.07	3.0	22.0	15.99	16.11	16.33	0.0	17.0
	256QAM	1	0	18.69	18.83	19.01	5.0	20.0	16.13	16.15	16.44	0.0	17.0
		1	3	18.57	18.86	19.14	5.0	20.0	16.12	16.09	16.53	0.0	17.0
		1	5	18.68	18.76	18.93	5.0	20.0	16.11	16.14	16.40	0.0	17.0
		3	0	18.68	18.85	19.13	5.0	20.0	16.12	16.23	16.19	0.0	17.0
		3	1	18.67	18.79	19.00	5.0	20.0	16.11	16.23	16.20	0.0	17.0
		3	3	18.62	18.66	19.00	5.0	20.0	16.01	16.11	16.15	0.0	17.0
		6	0	18.66	18.66	19.09	5.0	20.0	16.03	16.04	16.31	0.0	17.0

8.5.8 LTE Band 13

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
				23230			23230		
				782 MHz			782 MHz		
10 MHz	QPSK	1	0	23.79	0.0	25.0	16.65	0.0	17.0
		1	25	23.76	0.0	25.0	16.59	0.0	17.0
		1	49	23.74	0.0	25.0	16.43	0.0	17.0
		25	0	22.81	1.0	24.0	16.62	0.0	17.0
		25	12	22.78	1.0	24.0	16.49	0.0	17.0
		25	25	22.73	1.0	24.0	16.45	0.0	17.0
		50	0	22.78	1.0	24.0	16.49	0.0	17.0
	16QAM	1	0	22.92	1.0	24.0	16.95	0.0	17.0
		1	25	22.95	1.0	24.0	16.98	0.0	17.0
		1	49	22.74	1.0	24.0	16.86	0.0	17.0
		25	0	21.80	2.0	23.0	16.57	0.0	17.0
		25	12	21.78	2.0	23.0	16.53	0.0	17.0
		25	25	21.74	2.0	23.0	16.50	0.0	17.0
		50	0	21.77	2.0	23.0	16.51	0.0	17.0
	64QAM	1	0	21.86	2.0	23.0	16.51	0.0	17.0
		1	25	21.83	2.0	23.0	16.53	0.0	17.0
		1	49	21.68	2.0	23.0	16.39	0.0	17.0
		25	0	20.84	3.0	22.0	16.56	0.0	17.0
		25	12	20.80	3.0	22.0	16.52	0.0	17.0
		25	25	20.78	3.0	22.0	16.51	0.0	17.0
		50	0	20.78	3.0	22.0	16.51	0.0	17.0
	256QAM	1	0	18.86	5.0	20.0	16.53	0.0	17.0
		1	25	18.87	5.0	20.0	16.52	0.0	17.0
		1	49	18.73	5.0	20.0	16.48	0.0	17.0
		25	0	18.88	5.0	20.0	16.59	0.0	17.0
		25	12	18.86	5.0	20.0	16.55	0.0	17.0
		25	25	18.81	5.0	20.0	16.53	0.0	17.0
		50	0	18.78	5.0	20.0	16.49	0.0	17.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
				23230			23230		
				782 MHz			782 MHz		
5 MHz	QPSK	1	0	23.76	0.0	25.0	16.41	0.0	17.0
		1	12	23.78	0.0	25.0	16.28	0.0	17.0
		1	24	23.76	0.0	25.0	16.38	0.0	17.0
		12	0	22.77	1.0	24.0	16.43	0.0	17.0
		12	7	22.75	1.0	24.0	16.42	0.0	17.0
		12	13	22.72	1.0	24.0	16.39	0.0	17.0
		25	0	22.77	1.0	24.0	16.43	0.0	17.0
	16QAM	1	0	23.02	1.0	24.0	16.90	0.0	17.0
		1	12	22.97	1.0	24.0	16.83	0.0	17.0
		1	24	22.96	1.0	24.0	16.80	0.0	17.0
		12	0	21.81	2.0	23.0	16.60	0.0	17.0
		12	7	21.79	2.0	23.0	16.61	0.0	17.0
		12	13	21.79	2.0	23.0	16.58	0.0	17.0
		25	0	21.74	2.0	23.0	16.51	0.0	17.0
	64QAM	1	0	21.82	2.0	23.0	16.67	0.0	17.0
		1	12	21.78	2.0	23.0	16.65	0.0	17.0
		1	24	21.84	2.0	23.0	16.69	0.0	17.0
		12	0	20.76	3.0	22.0	16.58	0.0	17.0
		12	7	20.76	3.0	22.0	16.55	0.0	17.0
		12	13	20.74	3.0	22.0	16.52	0.0	17.0
		25	0	20.76	3.0	22.0	16.46	0.0	17.0
	256QAM	1	0	18.84	5.0	20.0	16.47	0.0	17.0
		1	12	18.72	5.0	20.0	16.39	0.0	17.0
		1	24	18.76	5.0	20.0	16.41	0.0	17.0
		12	0	18.76	5.0	20.0	16.58	0.0	17.0
		12	7	18.75	5.0	20.0	16.56	0.0	17.0
		12	13	18.71	5.0	20.0	16.56	0.0	17.0
		25	0	18.79	5.0	20.0	16.51	0.0	17.0

8.5.9 LTE Band 26

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off			
				Measured Pwr (dBm)		MPR	Tune-up Limit	Measured Pwr (dBm)		MPR	Tune-up Limit
				26865				26865			
				831.5 MHz				831.5 MHz			
15 MHz	QPSK	1	0	23.87		0.0	25.0	13.81		0.0	15.0
		1	37	23.64		0.0	25.0	13.54		0.0	15.0
		1	74	23.72		0.0	25.0	13.65		0.0	15.0
		36	0	22.93		1.0	24.0	13.81		0.0	15.0
		36	20	22.89		1.0	24.0	13.80		0.0	15.0
		36	39	22.85		1.0	24.0	13.76		0.0	15.0
		75	0	22.90		1.0	24.0	13.78		0.0	15.0
	16QAM	1	0	23.01		1.0	24.0	14.15		0.0	15.0
		1	37	22.86		1.0	24.0	13.98		0.0	15.0
		1	74	22.88		1.0	24.0	13.99		0.0	15.0
		36	0	21.84		2.0	23.0	13.80		0.0	15.0
		36	20	21.81		2.0	23.0	13.77		0.0	15.0
		36	39	21.77		2.0	23.0	13.74		0.0	15.0
		75	0	21.79		2.0	23.0	13.80		0.0	15.0
	64QAM	1	0	21.80		2.0	23.0	14.03		0.0	15.0
		1	37	21.64		2.0	23.0	13.92		0.0	15.0
		1	74	21.72		2.0	23.0	13.95		0.0	15.0
		36	0	20.80		3.0	22.0	13.75		0.0	15.0
		36	20	20.76		3.0	22.0	13.72		0.0	15.0
		36	39	20.74		3.0	22.0	13.71		0.0	15.0
		75	0	20.80		3.0	22.0	13.77		0.0	15.0
	256QAM	1	0	18.97		5.0	20.0	13.87		0.0	15.0
		1	37	18.79		5.0	20.0	13.76		0.0	15.0
		1	74	18.86		5.0	20.0	13.73		0.0	15.0
		36	0	18.81		5.0	20.0	13.79		0.0	15.0
		36	20	18.75		5.0	20.0	13.75		0.0	15.0
		36	39	18.74		5.0	20.0	13.72		0.0	15.0
		75	0	18.76		5.0	20.0	13.76		0.0	15.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26740	26865	26990			26740	26865	26990		
				819 MHz	831.5 MHz	844 MHz			819 MHz	831.5 MHz	844 MHz		
10 MHz	QPSK	1	0	23.68	23.73	23.67	0.0	25.0	13.48	13.68	13.64	0.0	15.0
		1	25	23.62	23.77	23.49	0.0	25.0	13.39	13.70	13.74	0.0	15.0
		1	49	23.65	23.63	23.63	0.0	25.0	13.40	13.83	13.71	0.0	15.0
		25	0	22.68	22.70	22.69	1.0	24.0	13.49	13.68	13.69	0.0	15.0
		25	12	22.64	22.67	22.67	1.0	24.0	13.46	13.66	13.67	0.0	15.0
		25	25	22.61	22.66	22.65	1.0	24.0	13.41	13.66	13.65	0.0	15.0
		50	0	22.65	22.69	22.69	1.0	24.0	13.45	13.66	13.67	0.0	15.0
	16QAM	1	0	22.96	22.89	22.91	1.0	24.0	13.65	14.17	14.09	0.0	15.0
		1	25	22.84	22.87	22.81	1.0	24.0	13.71	14.15	14.07	0.0	15.0
		1	49	22.86	22.85	22.78	1.0	24.0	13.50	14.04	14.14	0.0	15.0
		25	0	21.67	21.71	21.73	2.0	23.0	13.50	13.65	13.69	0.0	15.0
		25	12	21.64	21.66	21.68	2.0	23.0	13.49	13.64	13.69	0.0	15.0
		25	25	21.64	21.65	21.67	2.0	23.0	13.47	13.60	13.67	0.0	15.0
		50	0	21.64	21.66	21.65	2.0	23.0	13.47	13.67	13.66	0.0	15.0
	64QAM	1	0	21.78	22.04	21.62	2.0	23.0	13.47	13.96	13.87	0.0	15.0
		1	25	21.62	21.97	21.54	2.0	23.0	13.78	13.93	13.92	0.0	15.0
		1	49	21.79	22.03	21.50	2.0	23.0	13.81	13.93	13.88	0.0	15.0
		25	0	20.74	20.73	20.75	3.0	22.0	13.60	13.72	13.73	0.0	15.0
		25	12	20.73	20.71	20.71	3.0	22.0	13.57	13.67	13.73	0.0	15.0
		25	25	20.70	20.70	20.70	3.0	22.0	13.56	13.66	13.74	0.0	15.0
		50	0	20.69	20.70	20.70	3.0	22.0	13.58	13.71	13.65	0.0	15.0
	256QAM	1	0	18.57	19.20	18.83	5.0	20.0	13.96	14.00	13.97	0.0	15.0
		1	25	18.44	19.18	18.78	5.0	20.0	13.99	14.00	13.99	0.0	15.0
		1	49	18.49	19.09	18.76	5.0	20.0	14.05	14.04	13.96	0.0	15.0
		25	0	18.72	18.76	18.77	5.0	20.0	13.57	13.70	13.63	0.0	15.0
		25	12	18.69	18.73	18.74	5.0	20.0	13.54	13.67	13.66	0.0	15.0
		25	25	18.67	18.71	18.71	5.0	20.0	13.53	13.65	13.66	0.0	15.0
		50	0	18.65	18.71	18.69	5.0	20.0	13.55	13.67	13.68	0.0	15.0

LTE Band 26(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26715	26865	27015			26715	26865	27015		
				816.5 MHz	831.5 MHz	846.5 MHz			816.5 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.55	23.66	23.62	0.0	25.0	13.40	13.51	13.56	0.0	15.0
		1	12	23.51	23.64	23.45	0.0	25.0	13.42	13.51	13.58	0.0	15.0
		1	24	23.56	23.65	23.63	0.0	25.0	13.40	13.50	13.57	0.0	15.0
		12	0	22.63	22.68	22.68	1.0	24.0	13.45	13.57	13.61	0.0	15.0
		12	7	22.61	22.68	22.67	1.0	24.0	13.44	13.56	13.62	0.0	15.0
		12	13	22.60	22.65	22.68	1.0	24.0	13.43	13.54	13.57	0.0	15.0
		25	0	22.61	22.66	22.69	1.0	24.0	13.44	13.54	13.58	0.0	15.0
	16QAM	1	0	22.68	22.77	22.97	1.0	24.0	13.85	13.92	13.92	0.0	15.0
		1	12	22.60	22.60	22.81	1.0	24.0	13.83	13.92	13.91	0.0	15.0
		1	24	22.68	22.70	22.91	1.0	24.0	13.84	13.91	13.93	0.0	15.0
		12	0	21.59	21.62	21.67	2.0	23.0	13.48	13.63	13.64	0.0	15.0
		12	7	21.56	21.59	21.65	2.0	23.0	13.48	13.61	13.64	0.0	15.0
		12	13	21.56	21.60	21.66	2.0	23.0	13.46	13.59	13.61	0.0	15.0
		25	0	21.61	21.63	21.64	2.0	23.0	13.46	13.54	13.62	0.0	15.0
	64QAM	1	0	21.69	22.00	21.91	2.0	23.0	13.61	13.78	13.76	0.0	15.0
		1	12	21.67	21.88	21.91	2.0	23.0	13.60	13.81	13.78	0.0	15.0
		1	24	21.72	21.94	21.98	2.0	23.0	13.60	13.80	13.79	0.0	15.0
		12	0	20.69	20.72	20.72	3.0	22.0	13.43	13.58	13.60	0.0	15.0
		12	7	20.66	20.70	20.69	3.0	22.0	13.44	13.59	13.59	0.0	15.0
		12	13	20.68	20.69	20.67	3.0	22.0	13.41	13.55	13.57	0.0	15.0
		25	0	20.65	20.73	20.75	3.0	22.0	13.45	13.57	13.58	0.0	15.0
	256QAM	1	0	18.72	19.05	18.69	5.0	20.0	13.46	13.63	13.60	0.0	15.0
		1	12	18.66	18.97	18.44	5.0	20.0	13.24	13.53	13.38	0.0	15.0
		1	24	18.68	19.02	18.67	5.0	20.0	13.41	13.56	13.56	0.0	15.0
		12	0	18.67	18.75	18.74	5.0	20.0	13.44	13.59	13.64	0.0	15.0
		12	7	18.66	18.75	18.74	5.0	20.0	13.43	13.57	13.61	0.0	15.0
		12	13	18.66	18.71	18.69	5.0	20.0	13.39	13.53	13.63	0.0	15.0
		25	0	18.67	18.67	18.74	5.0	20.0	13.48	13.59	13.63	0.0	15.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26705	26865	27025			26705	26865	27025		
				815.5 MHz	831.5 MHz	847.5 MHz			815.5 MHz	831.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.72	23.62	23.72	0.0	25.0	13.44	13.61	13.57	0.0	15.0
		1	8	23.46	23.55	23.67	0.0	25.0	13.54	13.65	13.60	0.0	15.0
		1	14	23.73	23.57	23.75	0.0	25.0	13.52	13.62	13.58	0.0	15.0
		8	0	22.64	22.66	22.69	1.0	24.0	13.45	13.60	13.60	0.0	15.0
		8	4	22.62	22.72	22.69	1.0	24.0	13.52	13.63	13.59	0.0	15.0
		8	7	22.61	22.67	22.69	1.0	24.0	13.52	13.61	13.60	0.0	15.0
		15	0	22.63	22.69	22.63	1.0	24.0	13.54	13.64	13.63	0.0	15.0
	16QAM	1	0	22.84	22.88	22.73	1.0	24.0	13.51	14.03	13.96	0.0	15.0
		1	8	22.78	22.80	22.65	1.0	24.0	13.81	14.01	13.93	0.0	15.0
		1	14	22.73	22.90	22.66	1.0	24.0	13.75	13.98	13.92	0.0	15.0
		8	0	21.61	21.79	21.68	2.0	23.0	13.56	13.65	13.67	0.0	15.0
		8	4	21.60	21.77	21.65	2.0	23.0	13.52	13.65	13.67	0.0	15.0
		8	7	21.57	21.77	21.62	2.0	23.0	13.52	13.64	13.69	0.0	15.0
		15	0	21.59	21.67	21.68	2.0	23.0	13.54	13.67	13.65	0.0	15.0
	64QAM	1	0	22.12	21.57	21.83	2.0	23.0	13.56	13.82	14.00	0.0	15.0
		1	8	21.97	21.51	21.75	2.0	23.0	13.73	13.85	14.03	0.0	15.0
		1	14	22.14	21.49	21.90	2.0	23.0	13.70	13.82	13.84	0.0	15.0
		8	0	20.71	20.74	20.73	3.0	22.0	13.57	13.74	13.72	0.0	15.0
		8	4	20.68	20.71	20.71	3.0	22.0	13.59	13.73	13.64	0.0	15.0
		8	7	20.72	20.75	20.76	3.0	22.0	13.62	13.72	13.64	0.0	15.0
		15	0	20.62	20.74	20.76	3.0	22.0	13.50	13.67	13.66	0.0	15.0
	256QAM	1	0	18.95	18.73	18.76	5.0	20.0	13.69	14.14	13.87	0.0	15.0
		1	8	18.79	18.69	18.71	5.0	20.0	13.79	14.16	13.86	0.0	15.0
		1	14	18.92	18.67	18.71	5.0	20.0	13.77	14.11	13.77	0.0	15.0
		8	0	18.79	18.77	18.79	5.0	20.0	13.52	13.64	13.76	0.0	15.0
		8	4	18.75	18.79	18.74	5.0	20.0	13.52	13.64	13.71	0.0	15.0
		8	7	18.75	18.72	18.77	5.0	20.0	13.50	13.65	13.69	0.0	15.0
		15	0	18.68	18.81	18.79	5.0	20.0	13.45	13.63	13.66	0.0	15.0

LTE Band 26(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26697	26865	27033			26697	26865	27033		
				814.7 MHz	831.5 MHz	848.3 MHz			814.7 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.63	23.68	23.66	0.0	25.0	13.47	13.63	13.63	0.0	15.0
		1	3	23.55	23.64	23.42	0.0	25.0	13.54	13.54	13.48	0.0	15.0
		1	5	23.64	23.70	23.67	0.0	25.0	13.45	13.64	13.62	0.0	15.0
		3	0	23.66	23.74	23.73	0.0	25.0	13.51	13.63	13.60	0.0	15.0
		3	1	23.58	23.73	23.73	0.0	25.0	13.48	13.63	13.54	0.0	15.0
		3	3	23.59	23.69	23.57	0.0	25.0	13.44	13.51	13.55	0.0	15.0
		6	0	22.59	22.71	22.70	1.0	24.0	13.46	13.62	13.54	0.0	15.0
	16QAM	1	0	22.63	22.55	22.71	1.0	24.0	13.53	13.91	13.66	0.0	15.0
		1	3	22.65	22.64	22.82	1.0	24.0	13.38	13.90	13.90	0.0	15.0
		1	5	22.65	22.57	22.78	1.0	24.0	13.54	13.96	13.72	0.0	15.0
		3	0	22.75	22.78	22.55	1.0	24.0	13.59	13.65	13.89	0.0	15.0
		3	1	22.69	22.71	22.67	1.0	24.0	13.42	13.69	13.79	0.0	15.0
		3	3	22.64	22.74	22.65	1.0	24.0	13.54	13.56	13.75	0.0	15.0
		6	0	21.55	21.62	21.65	2.0	23.0	13.58	13.67	13.59	0.0	15.0
	64QAM	1	0	21.87	21.50	21.86	2.0	23.0	13.73	13.72	13.88	0.0	15.0
		1	3	21.77	21.56	21.68	2.0	23.0	13.70	13.69	13.91	0.0	15.0
		1	5	21.80	21.56	21.82	2.0	23.0	13.67	13.67	13.83	0.0	15.0
		3	0	21.68	21.50	21.68	2.0	23.0	13.62	13.67	13.84	0.0	15.0
		3	1	21.57	21.44	21.59	2.0	23.0	13.52	13.59	13.75	0.0	15.0
		3	3	21.56	21.47	21.62	2.0	23.0	13.46	13.58	13.78	0.0	15.0
		6	0	20.66	20.60	20.67	3.0	22.0	13.58	13.64	13.65	0.0	15.0
	256QAM	1	0	18.62	18.56	18.87	5.0	20.0	13.49	13.64	13.60	0.0	15.0
		1	3	18.74	18.64	19.01	5.0	20.0	13.60	13.72	13.87	0.0	15.0
		1	5	18.59	18.57	18.81	5.0	20.0	13.52	13.63	13.57	0.0	15.0
		3	0	18.51	18.76	18.66	5.0	20.0	13.45	13.49	13.69	0.0	15.0
		3	1	18.43	18.73	18.54	5.0	20.0	13.40	13.46	13.57	0.0	15.0
		3	3	18.40	18.68	18.46	5.0	20.0	13.31	13.42	13.47	0.0	15.0
		6	0	18.59	18.69	18.61	5.0	20.0	13.52	13.54	13.58	0.0	15.0

8.5.10 LTE Band 41

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)							Reduced Average Power (dBm) Proximity sensor back-off						
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	23.47	23.46	24.63	23.97	23.72	0.0	25.0	12.73	12.65	13.78	13.12	12.84	0.0	14.0
		1	49	23.78	23.51	24.58	23.96	23.63	0.0	25.0	12.92	12.73	13.59	13.11	12.86	0.0	14.0
		1	99	23.80	23.51	24.60	24.03	23.91	0.0	25.0	12.86	12.63	13.61	13.16	12.90	0.0	14.0
		50	0	22.63	22.54	23.59	23.02	22.79	1.0	24.0	12.78	12.70	13.63	13.12	12.85	0.0	14.0
		50	24	22.68	22.54	23.60	23.00	22.81	1.0	24.0	12.84	12.71	13.67	13.11	12.87	0.0	14.0
		50	50	22.69	22.53	23.62	23.01	22.81	1.0	24.0	12.86	12.67	13.68	13.10	12.87	0.0	14.0
		100	0	22.68	22.52	23.65	23.00	22.80	1.0	24.0	12.84	12.69	13.66	13.10	12.86	0.0	14.0
	16QAM	1	0	22.60	22.47	23.49	23.04	22.62	1.0	24.0	13.07	12.83	13.84	13.47	13.00	0.0	14.0
		1	49	22.43	22.45	23.69	22.94	22.47	1.0	24.0	12.92	12.73	13.61	13.55	12.82	0.0	14.0
		1	99	22.35	22.36	23.99	22.96	22.70	1.0	24.0	13.08	12.46	13.81	13.42	13.08	0.0	14.0
		50	0	21.64	21.56	22.59	21.97	21.80	2.0	23.0	12.76	12.70	13.69	13.10	12.82	0.0	14.0
		50	24	21.66	21.50	22.54	21.96	21.81	2.0	23.0	12.79	12.68	13.67	13.08	12.88	0.0	14.0
		50	50	21.67	21.54	22.55	21.96	21.81	2.0	23.0	12.81	12.66	13.62	13.06	12.86	0.0	14.0
		100	0	21.65	21.51	22.54	21.96	21.76	2.0	23.0	12.81	12.70	13.64	13.11	12.86	0.0	14.0
	64QAM	1	0	21.53	21.94	22.28	22.28	21.93	2.0	23.0	12.64	13.03	13.81	13.10	12.85	0.0	14.0
		1	49	21.78	21.62	22.37	22.18	21.56	2.0	23.0	12.78	12.77	13.53	13.17	13.19	0.0	14.0
		1	99	21.82	21.21	22.08	21.92	22.06	2.0	23.0	12.77	12.69	13.75	12.76	13.01	0.0	14.0
		50	0	20.61	20.55	21.54	20.98	20.72	3.0	22.0	12.82	12.70	13.73	13.11	12.81	0.0	14.0
		50	24	20.64	20.55	21.51	21.00	20.74	3.0	22.0	12.88	12.70	13.72	13.11	12.82	0.0	14.0
		50	50	20.67	20.52	21.50	20.96	20.75	3.0	22.0	12.90	12.65	13.69	13.09	12.83	0.0	14.0
		100	0	20.63	20.51	21.53	20.92	20.75	3.0	22.0	12.87	12.69	13.72	13.10	12.82	0.0	14.0
	256QAM	1	0	18.33	18.84	19.70	18.77	18.92	5.0	20.0	13.05	12.72	13.79	13.20	12.63	0.0	14.0
		1	49	18.48	18.95	19.42	18.84	18.98	5.0	20.0	13.06	12.62	13.97	13.35	12.65	0.0	14.0
		1	99	18.63	18.59	19.29	18.86	18.86	5.0	20.0	12.79	12.62	13.88	13.06	12.78	0.0	14.0
		50	0	18.61	18.51	19.55	18.95	18.71	5.0	20.0	12.85	12.67	13.68	13.13	12.82	0.0	14.0
		50	24	18.62	18.48	19.51	18.95	18.70	5.0	20.0	12.93	12.67	13.67	13.13	12.83	0.0	14.0
		50	50	18.67	18.49	19.49	18.92	18.73	5.0	20.0	12.89	12.67	13.67	13.12	12.84	0.0	14.0
		100	0	18.61	18.50	19.51	18.95	18.72	5.0	20.0	12.89	12.68	13.69	13.13	12.84	0.0	14.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	23.77	23.61	24.69	24.06	23.84	0.0	25.0	12.35	12.35	13.32	12.68	12.40	0.0	14.0
		1	37	23.96	23.78	24.74	24.14	23.91	0.0	25.0	12.67	12.54	13.48	12.94	12.67	0.0	14.0
		1	74	23.88	23.69	24.73	24.14	23.92	0.0	25.0	12.42	12.27	13.26	12.67	12.44	0.0	14.0
		36	0	22.83	22.64	23.75	23.15	22.92	1.0	24.0	12.41	12.28	13.32	12.73	12.44	0.0	14.0
		36	20	22.84	22.65	23.73	23.14	22.90	1.0	24.0	12.41	12.28	13.31	12.71	12.45	0.0	14.0
		36	39	22.86	22.62	23.74	23.15	22.92	1.0	24.0	12.45	12.25	13.29	12.73	12.47	0.0	14.0
		75	0	22.83	22.63	23.73	23.13	22.91	1.0	24.0	12.42	12.27	13.31	12.70	12.47	0.0	14.0
	16QAM	1	0	22.74	22.45	23.83	22.69	22.74	1.0	24.0	12.36	12.22	13.01	12.81	12.32	0.0	14.0
		1	37	22.65	22.34	23.35	22.80	22.82	1.0	24.0	12.56	12.22	13.30	12.82	12.41	0.0	14.0
		1	74	22.75	22.37	23.85	23.20	23.42	1.0	24.0	12.58	12.29	13.08	12.74	12.38	0.0	14.0
		36	0	21.77	21.57	22.68	22.14	21.89	2.0	23.0	12.45	12.23	13.25	12.75	12.38	0.0	14.0
		36	20	21.81	21.55	22.66	22.13	21.90	2.0	23.0	12.50	12.23	13.28	12.76	12.46	0.0	14.0
		36	39	21.85	21.55	22.61	22.15	21.90	2.0	23.0	12.51	12.26	13.22	12.72	12.40	0.0	14.0
		75	0	21.74	21.63	22.68	22.09	21.88	2.0	23.0	12.40	12.24	13.28	12.71	12.42	0.0	14.0
	64QAM	1	0	21.66	21.33	22.47	21.88	21.59	2.0	23.0	12.22	12.16	13.46	12.60	12.26	0.0	14.0
		1	37	22.03	21.46	22.57	22.24	21.67	2.0	23.0	12.54	12.34	13.58	12.63	12.58	0.0	14.0
		1	74	21.82	21.29	22.70	21.92	21.62	2.0	23.0	12.39	12.09	13.40	12.75	12.26	0.0	14.0
		36	0	20.67	20.61	21.61	21.09	20.81	3.0	22.0	12.44	12.34	13.33	12.74	12.43	0.0	14.0
		36	20	20.67	20.60	21.61	21.06	20.82	3.0	22.0	12.42	12.30	13.31	12.74	12.44	0.0	14.0
		36	39	20.71	20.55	21.58	21.04	20.80	3.0	22.0	12.45	12.27	13.30	12.75	12.44	0.0	14.0
		75	0	20.64	20.59	21.63	21.02	20.82	3.0	22.0	12.42	12.30	13.31	12.70	12.47	0.0	14.0
	256QAM	1	0	18.44	18.77	19.50	18.65	18.95	5.0	20.0	12.58	12.50	13.37	12.65	12.63	0.0	14.0
		1	37	18.65	18.39	19.41	19.59	18.57	5.0	20.0	12.69	12.38	12.99	12.53	12.78	0.0	14.0
		1	74	18.57	18.43	19.43	18.66	18.62	5.0	20.0	12.53	12.36	13.44	12.58	12.65	0.0	14.0
		36	0	18.63	18.53	19.59	19.04	18.71	5.0	20.0	12.43	12.30	13.33	12.76	12.45	0.0	14.0
		36	20	18.67	18.52	19.55	19.04	18.79	5.0	20.0	12.47	12.30	13.28	12.81	12.44	0.0	14.0
		36	39	18.65	18.52	19.51	19.00	18.76	5.0	20.0	12.48	12.27	13.28	12.75	12.49	0.0	14.0
		75	0	18.60	18.55	19.54	19.00	18.76	5.0	20.0	12.44	12.30	13.29	12.74	12.45	0.0	14.0

LTE Band 41(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	23.81	23.63	24.70	24.05	23.87	0.0	25.0	12.39	12.35	13.31	12.70	12.49	0.0	14.0
		1	25	23.81	23.48	24.70	24.06	23.85	0.0	25.0	12.03	12.32	13.42	12.39	12.47	0.0	14.0
		1	49	23.88	23.66	24.67	24.04	23.88	0.0	25.0	12.48	12.29	13.23	12.71	12.47	0.0	14.0
		25	0	22.76	22.62	23.63	23.02	22.84	1.0	24.0	12.42	12.29	13.29	12.70	12.45	0.0	14.0
		25	12	22.77	22.59	23.60	23.02	22.85	1.0	24.0	12.44	12.30	13.29	12.69	12.47	0.0	14.0
		25	25	22.79	22.59	23.60	23.02	22.83	1.0	24.0	12.43	12.27	13.25	12.67	12.45	0.0	14.0
		50	0	22.77	22.59	23.60	23.01	22.83	1.0	24.0	12.43	12.27	13.27	12.69	12.45	0.0	14.0
	16QAM	1	0	22.68	22.61	23.49	22.97	22.84	1.0	24.0	12.46	12.13	13.18	12.68	12.35	0.0	14.0
		1	25	22.90	22.78	23.59	23.17	23.06	1.0	24.0	12.61	12.07	13.34	12.81	12.38	0.0	14.0
		1	49	22.78	22.54	23.48	22.99	22.88	1.0	24.0	12.50	12.17	13.18	12.65	12.41	0.0	14.0
		25	0	21.75	21.60	22.53	22.01	21.80	2.0	23.0	12.42	12.29	13.29	12.69	12.42	0.0	14.0
		25	12	21.75	21.57	22.49	21.98	21.81	2.0	23.0	12.45	12.29	13.28	12.71	12.43	0.0	14.0
		25	25	21.77	21.56	22.48	21.99	21.80	2.0	23.0	12.43	12.24	13.26	12.66	12.41	0.0	14.0
		50	0	21.75	21.55	22.54	22.01	21.82	2.0	23.0	12.41	12.27	13.30	12.65	12.42	0.0	14.0
	64QAM	1	0	21.52	21.49	22.46	22.14	21.74	2.0	23.0	12.38	12.58	13.36	12.27	12.26	0.0	14.0
		1	25	21.62	21.75	22.69	22.13	21.81	2.0	23.0	12.61	12.86	13.49	12.45	12.66	0.0	14.0
		1	49	21.60	21.54	22.48	22.12	21.76	2.0	23.0	12.46	12.70	13.37	12.31	12.57	0.0	14.0
		25	0	20.73	20.58	21.55	20.95	20.80	3.0	22.0	12.40	12.66	13.26	12.28	12.41	0.0	14.0
		25	12	20.73	20.56	21.54	20.95	20.79	3.0	22.0	12.41	12.65	13.25	12.27	12.42	0.0	14.0
		25	25	20.75	20.55	21.52	20.93	20.80	3.0	22.0	12.39	12.65	13.23	12.26	12.44	0.0	14.0
		50	0	20.71	20.58	21.56	20.98	20.79	3.0	22.0	12.41	12.67	13.27	12.28	12.45	0.0	14.0
	256QAM	1	0	18.75	18.61	19.49	18.85	18.69	5.0	20.0	12.29	12.58	13.25	12.27	12.25	0.0	14.0
		1	25	18.85	18.70	19.47	18.88	18.90	5.0	20.0	12.25	12.54	13.21	12.27	12.27	0.0	14.0
		1	49	18.81	18.56	19.42	18.80	18.71	5.0	20.0	12.30	12.57	13.20	12.22	12.32	0.0	14.0
		25	0	18.70	18.60	19.57	19.01	18.79	5.0	20.0	12.42	12.71	13.30	12.32	12.44	0.0	14.0
		25	12	18.71	18.57	19.54	19.02	18.79	5.0	20.0	12.43	12.69	13.28	12.30	12.43	0.0	14.0
		25	25	18.73	18.55	19.52	18.99	18.79	5.0	20.0	12.41	12.68	13.25	12.29	12.44	0.0	14.0
		50	0	18.72	18.56	19.54	18.94	18.79	5.0	20.0	12.41	12.66	13.26	12.28	12.44	0.0	14.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	23.75	23.66	24.63	24.08	23.89	0.0	25.0	12.41	12.32	13.31	12.72	12.51	0.0	14.0
		1	12	23.96	23.91	24.76	24.28	24.12	0.0	25.0	12.61	12.57	13.51	12.95	12.78	0.0	14.0
		1	24	23.82	23.62	24.63	24.07	23.88	0.0	25.0	12.42	12.26	13.27	12.67	12.47	0.0	14.0
		12	0	22.75	22.62	23.63	23.03	22.86	1.0	24.0	12.39	12.28	13.28	12.67	12.46	0.0	14.0
		12	7	22.77	22.61	23.64	23.03	22.87	1.0	24.0	12.40	12.27	13.28	12.67	12.46	0.0	14.0
		12	13	22.78	22.59	23.61	23.03	22.85	1.0	24.0	12.41	12.27	13.27	12.65	12.45	0.0	14.0
		25	0	22.77	22.61	23.61	23.04	22.86	1.0	24.0	12.40	12.28	13.26	12.67	12.45	0.0	14.0
	16QAM	1	0	22.71	22.58	23.62	22.95	22.82	1.0	24.0	12.40	12.22	13.23	12.71	12.41	0.0	14.0
		1	12	22.77	22.67	23.65	22.99	22.94	1.0	24.0	12.53	12.31	13.37	12.86	12.55	0.0	14.0
		1	24	22.79	22.61	23.56	23.00	22.87	1.0	24.0	12.48	12.23	13.17	12.78	12.45	0.0	14.0
		12	0	21.71	21.56	22.59	21.96	21.80	2.0	23.0	12.39	12.28	13.31	12.67	12.43	0.0	14.0
		12	7	21.73	21.56	22.57	21.94	21.79	2.0	23.0	12.40	12.29	13.27	12.68	12.44	0.0	14.0
		12	13	21.72	21.55	22.58	21.94	21.78	2.0	23.0	12.40	12.28	13.29	12.68	12.43	0.0	14.0
		25	0	21.69	21.59	22.55	21.95	21.83	2.0	23.0	12.38	12.26	13.29	12.64	12.45	0.0	14.0
	64QAM	1	0	21.68	21.79	22.58	21.87	21.92	2.0	23.0	12.55	12.64	13.34	12.58	12.35	0.0	14.0
		1	12	21.86	21.88	22.53	22.10	22.02	2.0	23.0	12.61	12.82	13.38	12.60	12.58	0.0	14.0
		1	24	21.68	21.74	22.65	21.85	21.91	2.0	23.0	12.53	12.58	13.38	12.51	12.32	0.0	14.0
		12	0	20.77	20.61	21.59	21.03	20.81	3.0	22.0	12.44	12.73	13.31	12.33	12.48	0.0	14.0
		12	7	20.79	20.60	21.57	21.04	20.81	3.0	22.0	12.44	12.75	13.27	12.31	12.51	0.0	14.0
		12	13	20.77	20.61	21.61	21.01	20.81	3.0	22.0	12.45	12.71	13.29	12.31	12.49	0.0	14.0
		25	0	20.74	20.51	21.57	21.02	20.72	3.0	22.0	12.35	12.69	13.30	12.22	12.45	0.0	14.0
	256QAM	1	0	18.73	18.68	19.59	19.04	18.86	5.0	20.0	12.48	12.80	13.14	12.34	12.57	0.0	14.0
		1	12	18.96	18.85	19.81	19.23	19.08	5.0	20.0	12.70	13.06	13.37	12.58	12.87	0.0	14.0
		1	24	18.74	18.65	19.57	19.04	18.86	5.0	20.0	12.46	12.82	13.12	12.31	12.61	0.0	14.0
		12	0	18.70	18.56	19.55	18.98	18.72	5.0	20.0	12.40	12.67	13.27	12.27	12.43	0.0	14.0
		12	7	18.71	18.57	19.52	18.99	18.73	5.0	20.0	12.41	12.68	13.25	12.27	12.45	0.0	14.0
		12	13	18.70	18.54	19.50	18.98	18.70	5.0	20.0	12.39	12.68	13.26	12.25	12.45	0.0	14.0
		25	0	18.69	18.48	19.49	18.95	18.69	5.0	20.0	12.35	12.65	12.80	12.23	12.42	0.0	14.0

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BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	23.11	23.71	23.73	0.0	24.5	12.95	12.84	12.83	0.0	14.0
		1	49	23.19	23.79	23.99	0.0	24.5	13.01	13.01	12.96	0.0	14.0
		1	99	23.41	24.02	23.74	0.0	24.5	12.87	13.02	12.80	0.0	14.0
		50	0	22.43	22.78	22.75	1.0	23.5	12.83	12.90	12.81	0.0	14.0
		50	24	22.43	22.79	22.75	1.0	23.5	12.91	12.87	12.80	0.0	14.0
		50	50	22.40	22.81	22.73	1.0	23.5	12.88	13.06	12.76	0.0	14.0
		100	0	22.43	22.82	22.73	1.0	23.5	12.89	12.88	12.78	0.0	14.0
	16QAM	1	0	22.38	23.14	23.01	1.0	23.5	12.88	12.79	12.95	0.0	14.0
		1	49	22.54	23.21	23.23	1.0	23.5	12.68	12.42	13.08	0.0	14.0
		1	99	22.61	23.07	22.88	1.0	23.5	13.10	13.09	13.10	0.0	14.0
		50	0	21.40	21.81	21.69	2.0	22.5	12.91	12.90	12.82	0.0	14.0
		50	24	21.42	21.80	21.67	2.0	22.5	12.91	12.88	12.80	0.0	14.0
		50	50	21.37	21.79	21.66	2.0	22.5	12.88	12.85	12.79	0.0	14.0
		100	0	21.36	21.81	21.69	2.0	22.5	12.91	12.90	12.80	0.0	14.0
	64QAM	1	0	21.54	21.50	21.67	2.0	22.5	12.90	12.55	12.80	0.0	14.0
		1	49	21.65	21.64	21.59	2.0	22.5	12.90	12.56	12.92	0.0	14.0
		1	99	21.56	21.61	21.52	2.0	22.5	12.89	12.60	12.83	0.0	14.0
		50	0	20.40	20.40	20.36	3.0	21.5	12.96	12.56	12.53	0.0	14.0
		50	24	20.46	20.44	20.46	3.0	21.5	12.95	12.56	12.55	0.0	14.0
		50	50	20.39	20.41	20.41	3.0	21.5	12.93	12.57	12.53	0.0	14.0
		100	0	20.39	20.37	20.38	3.0	21.5	12.92	12.54	12.52	0.0	14.0
	256QAM	1	0	18.64	18.65	18.42	5.0	19.5	13.09	12.69	12.75	0.0	14.0
		1	49	18.77	18.79	18.64	5.0	19.5	13.07	12.83	12.60	0.0	14.0
		1	99	18.53	18.62	18.37	5.0	19.5	13.00	12.70	12.75	0.0	14.0
		50	0	18.24	18.22	18.28	5.0	19.5	12.91	12.52	12.50	0.0	14.0
		50	24	18.28	18.29	18.30	5.0	19.5	12.90	12.52	12.50	0.0	14.0
		50	50	18.20	18.25	18.28	5.0	19.5	12.89	12.51	12.50	0.0	14.0
		100	0	18.20	18.30	18.27	5.0	19.5	12.88	12.50	12.49	0.0	14.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597			132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	22.24	23.72	23.79	0.0	24.5	12.80	12.61	12.85	0.0	14.0
		1	37	23.34	23.84	23.83	0.0	24.5	12.53	12.68	12.89	0.0	14.0
		1	74	23.79	23.80	23.74	0.0	24.5	12.69	12.60	12.78	0.0	14.0
		36	0	22.14	22.86	22.83	1.0	23.5	12.78	12.62	12.84	0.0	14.0
		36	20	22.69	22.83	22.80	1.0	23.5	12.78	12.62	12.83	0.0	14.0
		36	39	22.96	22.82	22.81	1.0	23.5	12.77	12.62	12.84	0.0	14.0
		75	0	22.64	22.86	22.82	1.0	23.5	12.77	12.62	12.84	0.0	14.0
	16QAM	1	0	21.69	23.01	22.86	1.0	23.5	13.05	12.94	13.02	0.0	14.0
		1	37	22.85	23.04	22.93	1.0	23.5	13.04	12.96	13.08	0.0	14.0
		1	74	22.96	22.96	22.83	1.0	23.5	12.96	12.88	13.01	0.0	14.0
		36	0	21.40	21.78	21.82	2.0	22.5	12.76	12.62	12.92	0.0	14.0
		36	20	21.92	21.75	21.80	2.0	22.5	12.75	12.61	12.89	0.0	14.0
		36	39	21.90	21.75	21.77	2.0	22.5	12.74	12.61	12.87	0.0	14.0
		75	0	21.87	21.79	21.77	2.0	22.5	12.71	12.64	12.85	0.0	14.0
	64QAM	1	0	21.76	21.57	21.51	2.0	22.5	12.96	12.96	12.89	0.0	14.0
		1	37	21.34	21.53	21.55	2.0	22.5	12.88	13.00	12.87	0.0	14.0
		1	74	21.36	21.60	21.50	2.0	22.5	12.85	12.91	12.87	0.0	14.0
		36	0	20.42	20.41	20.49	3.0	21.5	12.85	12.69	12.84	0.0	14.0
		36	20	20.41	20.39	20.48	3.0	21.5	12.84	12.70	12.84	0.0	14.0
		36	39	20.39	20.39	20.47	3.0	21.5	12.82	12.68	12.82	0.0	14.0
		75	0	20.44	20.36	20.43	3.0	21.5	12.81	12.65	12.88	0.0	14.0
	256QAM	1	0	18.56	18.52	18.49	5.0	19.5	12.83	12.89	13.09	0.0	14.0
		1	37	18.55	18.37	18.52	5.0	19.5	12.78	12.85	13.09	0.0	14.0
		1	74	18.51	18.51	18.43	5.0	19.5	12.80	12.83	13.05	0.0	14.0
		36	0	18.35	18.34	18.32	5.0	19.5	12.81	12.70	12.85	0.0	14.0
		36	20	18.33	18.32	18.31	5.0	19.5	12.78	12.70	12.87	0.0	14.0
		36	39	18.32	18.29	18.31	5.0	19.5	12.77	12.67	12.81	0.0	14.0
		75	0	18.34	18.30	18.30	5.0	19.5	12.79	12.67	12.83	0.0	14.0

LTE Band 66(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622			132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	22.10	23.45	23.50	0.0	24.5	12.81	12.65	12.83	0.0	14.0
		1	25	22.66	23.59	23.44	0.0	24.5	12.87	12.74	12.70	0.0	14.0
		1	49	23.13	23.46	23.55	0.0	24.5	12.81	12.61	12.82	0.0	14.0
		25	0	21.67	22.47	22.53	1.0	23.5	12.84	12.64	12.80	0.0	14.0
		25	12	22.01	22.47	22.53	1.0	23.5	12.84	12.63	12.79	0.0	14.0
		25	25	22.31	22.45	22.50	1.0	23.5	12.79	12.61	12.80	0.0	14.0
		50	0	22.03	22.48	22.51	1.0	23.5	12.82	12.63	12.80	0.0	14.0
	16QAM	1	0	21.57	22.71	22.72	1.0	23.5	13.05	12.92	13.08	0.0	14.0
		1	25	22.17	22.76	22.59	1.0	23.5	13.07	12.98	12.95	0.0	14.0
		1	49	22.66	22.75	22.62	1.0	23.5	12.97	12.91	12.97	0.0	14.0
		25	0	20.94	21.46	21.55	2.0	22.5	12.85	12.65	12.88	0.0	14.0
		25	12	21.31	21.45	21.53	2.0	22.5	12.85	12.63	12.85	0.0	14.0
		25	25	21.58	21.44	21.51	2.0	22.5	12.83	12.61	12.85	0.0	14.0
		50	0	21.36	21.43	21.48	2.0	22.5	12.84	12.63	12.81	0.0	14.0
	64QAM	1	0	20.97	21.62	21.47	2.0	22.5	12.64	12.61	12.53	0.0	14.0
		1	25	21.50	21.63	21.31	2.0	22.5	12.62	12.77	12.76	0.0	14.0
		1	49	21.37	21.71	21.53	2.0	22.5	12.65	12.65	12.46	0.0	14.0
		25	0	20.55	20.39	20.49	3.0	21.5	12.52	12.34	12.67	0.0	14.0
		25	12	20.55	20.39	20.50	3.0	21.5	12.51	12.35	12.67	0.0	14.0
		25	25	20.53	20.39	20.46	3.0	21.5	12.50	12.36	12.65	0.0	14.0
		50	0	20.51	20.39	20.46	3.0	21.5	12.48	12.34	12.60	0.0	14.0
	256QAM	1	0	18.62	18.70	18.46	5.0	19.5	12.47	12.61	12.66	0.0	14.0
		1	25	18.64	18.78	18.44	5.0	19.5	12.62	12.76	12.67	0.0	14.0
		1	49	18.56	18.67	18.37	5.0	19.5	12.42	12.60	12.66	0.0	14.0
		25	0	18.53	18.34	18.41	5.0	19.5	12.47	12.38	12.69	0.0	14.0
		25	12	18.52	18.32	18.40	5.0	19.5	12.48	12.38	12.70	0.0	14.0
		25	25	18.49	18.31	18.37	5.0	19.5	12.44	12.38	12.67	0.0	14.0
		50	0	18.43	18.31	18.35	5.0	19.5	12.42	12.34	12.61	0.0	14.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647			131997	132322	132647		
				1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	QPSK	1	0	23.57	23.37	23.37	0.0	24.5	12.88	12.57	12.69	0.0	14.0
		1	12	23.62	23.36	23.50	0.0	24.5	13.00	12.55	12.73	0.0	14.0
		1	24	23.61	23.44	23.43	0.0	24.5	12.89	12.59	12.70	0.0	14.0
		12	0	22.62	22.42	22.50	1.0	23.5	12.88	12.63	12.74	0.0	14.0
		12	7	22.62	22.43	22.50	1.0	23.5	12.89	12.63	12.74	0.0	14.0
		12	13	22.61	22.42	22.48	1.0	23.5	12.78	12.61	12.75	0.0	14.0
		25	0	22.63	22.43	22.48	1.0	23.5	12.77	12.63	12.74	0.0	14.0
	16QAM	1	0	22.86	22.61	22.48	1.0	23.5	12.77	12.93	12.84	0.0	14.0
		1	12	22.80	22.56	22.51	1.0	23.5	13.05	12.93	12.94	0.0	14.0
		1	24	22.82	22.59	22.50	1.0	23.5	12.83	12.88	12.87	0.0	14.0
		12	0	21.61	21.39	21.47	2.0	22.5	12.84	12.64	12.74	0.0	14.0
		12	7	21.58	21.38	21.46	2.0	22.5	12.84	12.63	12.75	0.0	14.0
		12	13	21.56	21.34	21.44	2.0	22.5	12.84	12.64	12.72	0.0	14.0
		25	0	21.60	21.38	21.47	2.0	22.5	12.95	12.62	12.75	0.0	14.0
	64QAM	1	0	21.71	21.62	21.36	2.0	22.5	12.80	12.86	12.70	0.0	14.0
		1	12	21.77	21.55	21.40	2.0	22.5	12.75	13.00	12.64	0.0	14.0
		1	24	21.81	21.65	21.43	2.0	22.5	12.71	12.91	12.72	0.0	14.0
		12	0	20.50	20.34	20.44	3.0	21.5	12.75	12.59	12.80	0.0	14.0
		12	7	20.51	20.34	20.43	3.0	21.5	12.92	12.59	12.81	0.0	14.0
		12	13	20.47	20.33	20.42	3.0	21.5	12.93	12.57	12.82	0.0	14.0
		25	0	20.52	20.35	20.38	3.0	21.5	12.78	12.63	12.76	0.0	14.0
	256QAM	1	0	18.52	18.55	18.53	5.0	19.5	12.77	12.65	12.74	0.0	14.0
		1	12	18.40	18.47	18.46	5.0	19.5	12.77	12.59	12.74	0.0	14.0
		1	24	18.46	18.51	18.47	5.0	19.5	13.05	12.62	12.75	0.0	14.0
		12	0	18.45	18.33	18.38	5.0	19.5	13.00	12.64	12.81	0.0	14.0
		12	7	18.45	18.33	18.36	5.0	19.5	12.98	12.64	12.80	0.0	14.0
		12	13	18.42	18.31	18.36	5.0	19.5	12.97	12.61	12.82	0.0	14.0
		25	0	18.48	18.26	18.32	5.0	19.5	12.91	12.68	12.77	0.0	14.0

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BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657			131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz			1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	22.61	23.77	23.80	0.0	24.5	12.95	12.57	12.81	0.0	14.0
		1	8	22.72	23.87	23.87	0.0	24.5	12.76	12.63	12.84	0.0	14.0
		1	14	22.76	23.78	23.85	0.0	24.5	12.98	12.53	12.81	0.0	14.0
		8	0	21.96	22.83	22.75	1.0	23.5	12.93	12.63	12.75	0.0	14.0
		8	4	22.04	22.83	22.76	1.0	23.5	12.90	12.62	12.74	0.0	14.0
		8	7	22.08	22.82	22.78	1.0	23.5	12.87	12.59	12.77	0.0	14.0
		15	0	22.06	22.81	22.72	1.0	23.5	12.89	12.60	12.69	0.0	14.0
	16QAM	1	0	21.96	23.05	22.77	1.0	23.5	13.04	12.98	12.88	0.0	14.0
		1	8	22.11	23.05	22.80	1.0	23.5	13.05	13.03	12.95	0.0	14.0
		1	14	22.17	23.10	22.69	1.0	23.5	12.96	12.98	12.80	0.0	14.0
		8	0	21.25	21.92	21.79	2.0	22.5	12.97	12.73	12.75	0.0	14.0
		8	4	21.37	21.87	21.73	2.0	22.5	12.96	12.67	12.71	0.0	14.0
		8	7	21.42	21.90	21.75	2.0	22.5	12.99	12.75	12.75	0.0	14.0
		15	0	21.34	21.78	21.71	2.0	22.5	12.78	12.61	12.78	0.0	14.0
	64QAM	1	0	22.31	21.71	21.49	2.0	22.5	12.77	12.47	12.91	0.0	14.0
		1	8	22.27	21.74	21.34	2.0	22.5	12.77	12.29	12.97	0.0	14.0
		1	14	22.37	21.81	21.45	2.0	22.5	13.05	12.38	12.99	0.0	14.0
		8	0	21.14	20.75	20.65	3.0	21.5	13.04	12.68	12.74	0.0	14.0
		8	4	21.07	20.77	20.61	3.0	21.5	12.97	12.68	12.76	0.0	14.0
		8	7	21.12	20.80	20.63	3.0	21.5	13.01	12.67	12.81	0.0	14.0
		15	0	21.03	20.78	20.61	3.0	21.5	12.95	12.59	12.83	0.0	14.0
	256QAM	1	0	19.27	18.78	18.77	5.0	19.5	12.80	12.76	12.81	0.0	14.0
		1	8	19.13	18.73	18.68	5.0	19.5	12.75	12.78	12.77	0.0	14.0
		1	14	19.21	18.68	18.70	5.0	19.5	12.71	12.77	12.82	0.0	14.0
		8	0	19.07	18.68	18.61	5.0	19.5	12.75	12.68	12.77	0.0	14.0
		8	4	19.04	18.65	18.60	5.0	19.5	12.96	12.67	12.76	0.0	14.0
		8	7	19.03	18.67	18.57	5.0	19.5	12.96	12.67	12.76	0.0	14.0
		15	0	19.03	18.68	18.61	5.0	19.5	12.95	12.67	12.82	0.0	14.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665			131979	132322	132665		
				1710.7 MHz	1745 MHz	1779.3 MHz			1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	24.07	23.84	23.78	0.0	24.5	12.80	12.57	12.80	0.0	14.0
		1	3	23.97	23.93	23.65	0.0	24.5	12.87	12.28	12.73	0.0	14.0
		1	5	24.09	23.85	23.80	0.0	24.5	12.80	12.57	12.79	0.0	14.0
		3	0	24.09	23.88	23.77	0.0	24.5	12.74	12.53	12.72	0.0	14.0
		3	1	24.04	23.83	23.74	0.0	24.5	12.67	12.53	12.65	0.0	14.0
		3	3	24.06	23.77	23.67	0.0	24.5	12.69	12.40	12.70	0.0	14.0
		6	0	23.08	22.80	22.77	1.0	23.5	12.75	12.52	12.67	0.0	14.0
	16QAM	1	0	23.20	22.90	22.81	1.0	23.5	12.85	12.74	12.90	0.0	14.0
		1	3	23.23	22.96	22.87	1.0	23.5	12.93	12.69	13.07	0.0	14.0
		1	5	23.26	22.93	22.86	1.0	23.5	12.89	12.82	12.95	0.0	14.0
		3	0	23.28	22.83	22.66	1.0	23.5	12.83	12.43	12.85	0.0	14.0
		3	1	23.20	22.81	22.67	1.0	23.5	12.74	12.46	12.82	0.0	14.0
		3	3	23.16	22.83	22.60	1.0	23.5	12.79	12.40	12.80	0.0	14.0
		6	0	22.08	21.78	21.71	2.0	22.5	12.74	12.48	12.71	0.0	14.0
	64QAM	1	0	22.44	21.87	21.33	2.0	22.5	12.62	12.78	13.08	0.0	14.0
		1	3	22.46	21.77	21.59	2.0	22.5	12.92	12.66	13.00	0.0	14.0
		1	5	22.39	21.86	21.44	2.0	22.5	12.68	12.72	13.03	0.0	14.0
		3	0	22.17	22.00	21.52	2.0	22.5	12.72	12.72	12.84	0.0	14.0
		3	1	22.07	21.86	21.48	2.0	22.5	12.68	12.63	12.78	0.0	14.0
		3	3	22.07	21.94	21.41	2.0	22.5	12.56	12.69	12.69	0.0	14.0
		6	0	21.05	20.78	20.59	3.0	21.5	12.81	12.58	12.73	0.0	14.0
	256QAM	1	0	19.04	18.77	18.59	5.0	19.5	12.85	12.44	12.79	0.0	14.0
		1	3	19.27	18.71	18.60	5.0	19.5	12.80	12.52	13.00	0.0	14.0
		1	5	19.01	18.72	18.52	5.0	19.5	12.81	12.46	12.76	0.0	14.0
		3	0	19.02	18.52	18.64	5.0	19.5	12.82	12.48	12.83	0.0	14.0
		3	1	18.96	18.55	18.62	5.0	19.5	12.79	12.45	12.76	0.0	14.0
		3	3	18.86	18.50	18.50	5.0	19.5	12.67	12.34	12.69	0.0	14.0
		6	0	19.01	18.67	18.49	5.0	19.5	12.76	12.53	12.70	0.0	14.0

8.6 New Radio (NR) configuration

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 +/- 2 dBm). 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 6.2.2-1 of the 3GPP TS36.101.

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5[1]	≤ 1.2[1]	≤ 0.2[1]
		≤ 0.5[2]	≤ 0.5[2]	0[2]
	Pi/2 BPSK w Pi/2 BPSK DMRS	≤ 0.5[2]	≤ 0[2]	0[2]
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

The allowed A-MPR values specified below in Table 6.2.3.1-1 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”.

Network signalling label	Requirements (clause)	NR Band	Channel bandwidth (MHz)	Resources blocks (N_{RB})	A-MPR (dB)
NS_01		Table 5.2-1	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	Table 5.3.2-1	N/A

8.6.1 Maximum Output Power (Tune-up Limit) for New Radio (NR)

RF Air interface	Mode	Tune-up Power Limit (dBm)	
		Main Antenna	
		Max	Reduced
n5	DFT-s OFDM QPSK	25.0	15.0
n66	DFT-s OFDM QPSK	25.0	14.5

8.6.2 NR Band n5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
					Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
					167300			167300		
					836.5 MHz			836.5 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.48	0.0	25.0	14.44	0.0	15.0
			1	53	23.37	0.0	25.0	14.41	0.0	15.0
			1	104	23.07	0.0	25.0	14.17	0.0	15.0
			50	0	22.47	0.5	24.5	14.44	0.0	15.0
			50	28	23.36	0.0	25.0	14.35	0.0	15.0
			50	56	22.21	0.5	24.5	14.21	0.0	15.0
			100	0	22.39	0.5	24.5	14.37	0.0	15.0
		QPSK	1	1	23.52	0.0	25.0	14.52	0.0	15.0
			1	53	23.43	0.0	25.0	14.49	0.0	15.0
			1	104	23.14	0.0	25.0	14.12	0.0	15.0
			50	0	22.53	1.0	24.0	14.44	0.0	15.0
			50	28	23.40	0.0	25.0	14.36	0.0	15.0
			50	56	22.26	1.0	24.0	14.23	0.0	15.0
			100	0	22.44	1.0	24.0	14.38	0.0	15.0
		16QAM	1	1	22.56	1.0	24.0	14.40	0.0	15.0
			1	53	22.55	1.0	24.0	14.30	0.0	15.0
			1	104	22.20	1.0	24.0	14.06	0.0	15.0
		64QAM	1	1	21.01	2.5	22.5	14.43	0.0	15.0
		256QAM	1	1	18.93	4.5	20.5	14.42	0.0	15.0
	CP-OFDM	QPSK	1	1	22.03	1.5	23.5	14.50	0.0	15.0

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
					167300			167300.00		
					836.5 MHz			836.5 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.58	0.0	25.0	14.25	0.0	15.0
			1	40	23.36	0.0	25.0	14.08	0.0	15.0
			1	77	23.28	0.0	25.0	14.02	0.0	15.0
			36	0	23.09	0.5	24.5	14.25	0.0	15.0
			36	22	23.49	0.0	25.0	14.19	0.0	15.0
			36	43	22.85	0.5	24.5	14.09	0.0	15.0
			75	0	23.01	0.5	24.5	14.20	0.0	15.0
		QPSK	1	1	23.62	0.0	25.0	14.27	0.0	15.0
			1	40	23.40	0.0	25.0	14.08	0.0	15.0
			1	77	23.29	0.0	25.0	14.02	0.0	15.0
			36	0	22.62	1.0	24.0	14.28	0.0	15.0
			36	22	23.51	0.0	25.0	14.19	0.0	15.0
			36	43	22.40	1.0	24.0	14.08	0.0	15.0
			75	0	22.53	1.0	24.0	14.21	0.0	15.0
		16QAM	1	1	22.72	1.0	24.0	14.26	0.0	15.0
		64QAM	1	1	21.16	2.5	22.5	14.39	0.0	15.0
		256QAM	1	1	19.08	4.5	20.5	14.28	0.0	15.0
	CP-OFDM	QPSK	1	1	22.09	1.5	23.5	14.34	0.0	15.0

NR Band n5(Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
						167300					167300			
						836.5 MHz					836.5 MHz			
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1		23.51		0.0	25.0		14.25		0.0	15.0
			1	26		23.51		0.0	25.0		14.27		0.0	15.0
			1	50		23.27		0.0	25.0		14.07		0.0	15.0
			25	0		23.02		0.5	24.5		14.27		0.0	15.0
			25	14		23.45		0.0	25.0		14.17		0.0	15.0
			25	27		22.87		0.5	24.5		14.13		0.0	15.0
			50	0		22.96		0.5	24.5		14.20		0.0	15.0
		QPSK	1	1		23.59		0.0	25.0		14.32		0.0	15.0
			1	26		23.55		0.0	25.0		14.23		0.0	15.0
			1	50		23.31		0.0	25.0		14.09		0.0	15.0
			25	0		22.55		1.0	24.0		14.28		0.0	15.0
			25	14		23.48		0.0	25.0		14.20		0.0	15.0
			25	27		22.38		1.0	24.0		14.14		0.0	15.0
			50	0		22.50		1.0	24.0		14.21		0.0	15.0
		16QAM	1	1		22.54		1.0	24.0		14.29		0.0	15.0
		64QAM	1	1		21.11		2.5	22.5		14.25		0.0	15.0
		256QAM	1	1		18.99		4.5	20.5		14.29		0.0	15.0
	CP-OFDM	QPSK	1	1		22.07		1.5	23.5		14.36		0.0	15.0

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					165300	167300	169300			165300	167300	169300		
					826.5 MHz	836.5 MHz	846.5 MHz			826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.07	23.86	23.57	0.0	25.0	14.35	14.17	14.03	0.0	15.0
			1	13	23.99	23.72	23.5	0.0	25.0	14.27	14.05	13.92	0.0	15.0
			1	23	24.05	23.76	23.57	0.0	25.0	14.33	14.08	14.01	0.0	15.0
			12	0	23.07	22.90	22.61	0.5	24.5	14.35	14.20	14.04	0.0	15.0
			12	7	24.06	23.84	23.6	0.0	25.0	14.35	14.16	14.05	0.0	15.0
			12	13	23.07	22.81	22.6	0.5	24.5	14.34	14.14	14.03	0.0	15.0
			25	0	23.08	22.87	22.61	0.5	24.5	14.35	14.18	14.04	0.0	15.0
		QPSK	1	1	24.08	23.93	23.64	0.0	25.0	14.39	14.24	14.05	0.0	15.0
			1	13	23.99	23.78	23.54	0.0	25.0	14.30	14.09	13.95	0.0	15.0
			1	23	24.08	23.78	23.61	0.0	25.0	14.34	14.11	14.04	0.0	15.0
			12	0	23.09	22.92	22.65	1.0	24.0	14.37	14.23	14.04	0.0	15.0
			12	7	24.06	23.87	23.63	0.0	25.0	14.36	14.20	14.02	0.0	15.0
			12	13	23.07	22.85	22.64	1.0	24.0	14.34	14.15	14.03	0.0	15.0
			25	0	23.06	22.87	22.64	1.0	24.0	14.37	14.19	14.04	0.0	15.0
		16QAM	1	1	23.07	23.01	22.65	1.0	24.0	14.32	14.40	14.07	0.0	15.0
		64QAM	1	1	21.42	21.47	21.11	2.5	22.5	14.26	14.28	14.03	0.0	15.0
		256QAM	1	1	19.44	19.47	19.1	4.5	20.5	14.23	14.15	13.98	0.0	15.0
	CP-OFDM	QPSK	1	1	22.55	22.37	22.13	1.5	23.5	14.38	14.29	14.12	0.0	15.0

8.6.3 NR Band n66

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
					Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000			344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.03	23.66	24.01	0.0	25.0	13.77	13.78	13.79	0.0	14.5
			1	53	23.72	23.88	24.10	0.0	25.0	13.81	13.76	13.86	0.0	14.5
			1	104	23.66	24.12	24.10	0.0	25.0	13.82	14.08	13.86	0.0	14.5
			50	0	22.67	22.86	23.15	0.5	24.5	13.79	13.76	13.85	0.0	14.5
			50	28	23.79	24.04	23.88	0.0	25.0	13.87	14.10	13.92	0.0	14.5
			50	56	22.75	23.12	23.25	0.5	24.5	13.81	14.20	13.95	0.0	14.5
			100	0	22.81	22.98	23.20	0.5	24.5	13.92	13.89	13.89	0.0	14.5
		QPSK	1	1	22.60	23.80	23.90	0.0	25.0	13.87	13.86	13.88	0.0	14.5
			1	53	23.60	24.00	24.00	0.0	25.0	14.15	14.07	14.00	0.0	14.5
			1	104	23.80	24.22	24.00	0.0	25.0	13.94	14.18	13.93	0.0	14.5
			50	0	22.50	22.90	23.20	1.0	24.0	14.03	14.00	13.91	0.0	14.5
			50	28	23.70	24.04	24.02	0.0	25.0	14.08	14.13	13.93	0.0	14.5
			50	56	22.80	23.20	23.30	1.0	24.0	13.98	14.20	13.96	0.0	14.5
			100	0	22.90	23.00	23.30	1.0	24.0	14.07	14.09	13.94	0.0	14.5
		16QAM	1	1	22.11	23.71	23.27	1.0	24.0	13.81	14.08	13.81	0.0	14.5
		64QAM	1	1	20.77	21.31	21.79	2.5	22.5	13.96	13.94	13.88	0.0	14.5
		256QAM	1	1	19.12	19.31	19.63	4.5	20.5	13.56	13.63	13.81	0.0	14.5
	CP-OFDM	QPSK	1	1	21.51	22.40	22.60	1.5	23.5	13.65	14.10	13.96	0.0	14.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					343500	349000	354500			343500	349000	354500		
					1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.45	23.57	23.93	0.0	25.0	13.54	13.52	13.65	0.0	14.5
			1	40	23.74	23.71	23.96	0.0	25.0	13.57	13.55	13.65	0.0	14.5
			1	77	23.82	23.99	24.02	0.0	25.0	13.60	13.79	13.70	0.0	14.5
			36	0	22.98	22.78	23.08	0.5	24.5	13.73	13.63	13.72	0.0	14.5
			36	22	24.05	23.86	24.12	0.0	25.0	13.79	13.72	13.76	0.0	14.5
			36	43	23.05	23.01	23.16	0.5	24.5	13.81	13.82	13.78	0.0	14.5
			75	0	23.07	22.89	23.14	0.5	24.5	13.88	13.76	13.77	0.0	14.5
		QPSK	1	1	23.24	23.79	23.90	0.0	25.0	13.85	13.74	13.71	0.0	14.5
			1	40	24.02	23.88	24.13	0.0	25.0	13.86	13.81	13.69	0.0	14.5
			1	77	24.01	24.14	24.17	0.0	25.0	13.88	14.05	13.75	0.0	14.5
			36	0	23.08	22.86	23.15	1.0	24.0	13.90	13.87	13.75	0.0	14.5
			36	22	24.10	23.95	24.17	0.0	25.0	13.93	13.94	13.77	0.0	14.5
			36	43	23.12	23.09	23.22	1.0	24.0	13.92	14.02	13.79	0.0	14.5
			75	0	23.14	22.96	23.20	1.0	24.0	13.93	13.93	13.78	0.0	14.5
		16QAM	1	1	22.44	22.86	23.18	1.0	24.0	13.85	13.79	13.79	0.0	14.5
		64QAM	1	1	21.35	21.23	21.63	2.5	22.5	13.87	13.87	13.78	0.0	14.5
		256QAM	1	1	19.15	19.25	19.57	4.5	20.5	13.47	13.52	13.65	0.0	14.5
	CP-OFDM	QPSK	1	1	21.62	22.27	22.60	1.5	23.5	13.56	13.61	13.74	0.0	14.5

NR Band n66(Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					343000	349000	355000			343000	349000	355000		
					1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.51	23.68	23.94	0.0	25.0	13.39	13.52	13.65	0.0	14.5
			1	26	23.71	23.84	24.06	0.0	25.0	13.55	13.61	13.75	0.0	14.5
			1	50	23.70	23.96	24.00	0.0	25.0	13.52	13.70	13.68	0.0	14.5
			25	0	22.68	22.82	23.10	0.5	24.5	13.48	13.58	13.77	0.0	14.5
			25	14	23.73	23.87	24.09	0.0	25.0	13.51	13.64	13.79	0.0	14.5
			25	27	22.77	22.99	23.12	0.5	24.5	13.54	13.72	13.77	0.0	14.5
			50	0	22.75	22.92	23.15	0.5	24.5	13.53	13.65	13.84	0.0	14.5
		QPSK	1	1	23.44	23.85	24.15	0.0	25.0	13.47	13.59	13.87	0.0	14.5
			1	26	23.84	23.98	24.22	0.0	25.0	13.61	13.72	13.99	0.0	14.5
			1	50	23.81	24.12	24.16	0.0	25.0	13.60	13.79	13.92	0.0	14.5
			25	0	22.78	22.92	23.20	1.0	24.0	13.50	13.60	14.02	0.0	14.5
			25	14	23.79	23.95	24.20	0.0	25.0	13.55	13.67	14.04	0.0	14.5
			25	27	22.85	23.06	23.19	1.0	24.0	13.56	13.73	14.01	0.0	14.5
			50	0	22.82	22.99	23.22	1.0	24.0	13.54	13.66	14.05	0.0	14.5
		16QAM	1	1	22.69	23.01	23.27	1.0	24.0	13.38	13.71	14.06	0.0	14.5
		64QAM	1	1	21.22	21.41	21.80	2.5	22.5	13.40	13.76	13.98	0.0	14.5
		256QAM	1	1	19.16	19.26	19.62	4.5	20.5	13.39	13.51	13.74	0.0	14.5
	CP-OFDM	QPSK	1	1	22.18	22.33	22.73	1.5	23.5	13.51	13.64	13.95	0.0	14.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					342500	349000	355500			342500	349000	355500		
					1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.49	23.73	24.02	0.0	25.0	13.35	13.52	13.64	0.0	14.5
			1	13	23.71	23.75	23.95	0.0	25.0	13.32	13.49	13.63	0.0	14.5
			1	23	23.73	23.90	24.05	0.0	25.0	13.41	13.63	13.64	0.0	14.5
			12	0	22.72	22.85	23.12	0.5	24.5	13.39	13.57	13.59	0.0	14.5
			12	7	23.68	23.89	24.09	0.0	25.0	13.41	13.61	13.73	0.0	14.5
			12	13	22.76	22.97	23.12	0.5	24.5	13.45	13.64	13.61	0.0	14.5
			25	0	22.72	22.94	23.12	0.5	24.5	13.44	13.63	13.62	0.0	14.5
		QPSK	1	1	23.47	23.90	24.19	0.0	25.0	13.43	13.64	13.66	0.0	14.5
			1	13	23.85	23.90	24.10	0.0	25.0	13.38	13.59	13.65	0.0	14.5
			1	23	23.77	24.01	24.18	0.0	25.0	13.51	13.73	13.39	0.0	14.5
			12	0	22.79	22.95	23.22	1.0	24.0	13.42	13.61	13.41	0.0	14.5
			12	7	23.83	23.98	24.18	0.0	25.0	13.44	13.62	13.45	0.0	14.5
			12	13	22.82	23.02	23.19	1.0	24.0	13.46	13.66	13.44	0.0	14.5
			25	0	22.85	22.98	23.20	1.0	24.0	13.44	13.65	13.60	0.0	14.5
		16QAM	1	1	22.73	22.93	23.30	1.0	24.0	13.38	13.56	13.62	0.0	14.5
		64QAM	1	1	21.25	21.50	21.71	2.5	22.5	13.49	13.72	13.66	0.0	14.5
		256QAM	1	1	19.24	19.37	19.58	4.5	20.5	13.39	13.53	13.65	0.0	14.5
	CP-OFDM	QPSK	1	1	22.16	22.37	22.74	1.5	23.5	13.59	13.60	13.39	0.0	14.5

8.7 WLAN 2.4 GHz (DTS Band)

8.7.1 Maximum Output Power (Tune-up Limit) for WLAN 2.4 GHz

The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures.
For “Not required”, SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11b/g/n mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
SAR testing is not required for OFDM mode(s) when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Mode	Tune-up PowerLimit (dBm)			
	BT/WIFI1 Antenna		BT/WIFI2 Antenna	
	Max	Reduced	Max	Reduced
802.11b DSSS (1 ~ 11 ch)	20.0	12.0	20.0	12.0
802.11b DSSS (12 ch)	6.0	6.0	6.0	6.0
802.11b DSSS (13 ch)	2.0	2.0	2.0	2.0
802.11g OFDM (1 ~ 11 ch)	18.0	12.0	18.0	12.0
802.11g OFDM (12 ch)	6.0	6.0	6.0	6.0
802.11g OFDM (13 ch)	2.0	2.0	2.0	2.0
802.11n OFDM (1 ~ 11 ch)	17.0	12.0	17.0	12.0
802.11n OFDM (12 ch)	6.0	6.0	6.0	6.0
802.11n OFDM (13 ch)	2.0	2.0	2.0	2.0
802.11ax OFDM (1 ~ 11 ch)	16.0	12.0	16.0	12.0
802.11ax OFDM (12 ch)	5.0	5.0	5.0	5.0
802.11ax OFDM (13 ch)	1.0	1.0	1.0	1.0
802.11ax OFDMA (1 ~ 11 ch)	11.0	11.0	11.0	11.0
802.11ax OFDM (12 ch)	5.0	5.0	5.0	5.0
802.11ax OFDM (13 ch)	1.0	1.0	1.0	1.0

Note(s):
The Tune-up Power value is defined as each antennas of SISO/MIMO configuration.

8.7.2 WLAN 2.4GHz Max Power SISO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	19.38	20.0	Yes			
		6	2437	19.17	20.0				
		11	2462	19.08	20.0				
		12	2467	5.23	6.0				
		13	2472	1.15	2.0				

Note(s):
SAR is not required for channel 12 and 13 because the tune-up limit and the measured output power for these two channels are not greater than those for the default test channels. Refer to KDB 248227 D01 section 3.1

8.7.3 WLAN 2.4GHz Reduced Power SISO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	11.13	12.0	Yes			
		6	2437	10.94	12.0				
		11	2462	11.21	12.0				
		12	2467	5.23	6.0				
		13	2472	1.15	2.0				

Note(s):
SAR is not required for channel 12 and 13 because the tune-up limit and the measured output power for these two channels are not greater than those for the default test channels. Refer to KDB 248227 D01 section 3.1

8.7.4 WLAN 2.4GHz Max Power MIMO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	19.03	20.0	Yes	18.96	20.0	Yes
		6	2437	19.08	20.0		18.88	20.0	
		11	2462	18.91	20.0		18.65	20.0	
		12	2467	5.07	6.0		5.24	6.0	
		13	2472	1.11	2.0		1.39	2.0	

Note(s):
SAR is not required for channel 12 and 13 because the tune-up limit and the measured output power for these two channels are not greater than those for the default test channels. Refer to KDB 248227 D01 section 3.1

8.7.5 WLAN 2.4GHz Reduced Power MIMO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	11.36	12.0	Yes	10.99	12.0	Yes
		6	2437	11.34	12.0		10.83	12.0	
		11	2462	11.08	12.0		10.97	12.0	
		12	2467	5.07	6.0		5.24	6.0	
		13	2472	1.11	2.0		1.39	2.0	

Note(s):
SAR is not required for channel 12 and 13 because the tune-up limit and the measured output power for these two channels are not greater than those for the default test channels. Refer to KDB 248227 D01 section 3.1

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11b SISO	1 Mbps	8.607	8.706	98.86%	1.01
802.11b MIMO	1 Mbps	8.602	8.698	98.90%	1.01

Note(s):
Duty Cycle = (T on / period) * 100%

WLAN 2.4GHz Duty Cycle

802.11b SISO

802.11b MIMO

8.8 WLAN 5 GHz (U-NII Band)

8.8.1 Maximum Output Power (Tune-up Limit) for WLAN 5 GHz

When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac/ax modes, the channel in the lower order/sequence 802.11 transmission mode is selected.
The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures.
For “Not required”, SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.

Mode	Tune-up PowerLimit (dBm)			
	BT/WIFI1 Antenna		BT/WIFI2 Antenna	
	Max	Reduced	Max	Reduced
802.11a UNII-1	15.0	6.5	15.0	6.5
802.11a UNII-2A	15.0	6.5	15.0	6.5
802.11a UNII-2C	17.0	8.5	17.0	8.5
802.11a UNII-2C (140 ch)	17.0	10.0	17.0	10.0
802.11a UNII-3	17.0	8.5	17.0	8.5
802.11a UNII-3 (157 ch)	17.0	9.5	17.0	9.5
802.11n,ac,ax UNII-1 (20 MHz BW)	14.0	6.5	14.0	6.5
802.11n,ac,ax UNII-2A (20 MHz BW)	14.0	6.5	14.0	6.5
802.11n,ac,ax UNII-2C (20 MHz BW)	16.0	8.5	16.0	8.5
802.11n,ac,ax UNII-2C (20 MHz BW) (140 ch)	16.0	10.0	16.0	10.0
802.11n,ac,ax UNII-3 (20 MHz BW)	16.0	8.5	16.0	8.5
802.11n,ac,ax UNII-3 (20 MHz BW) (157 ch)	16.0	9.5	16.0	9.5
802.11n,ac,ax UNII-1 (40 MHz BW)	12.0	6.5	12.0	6.5
802.11n,ac,ax UNII-2A (40 MHz BW)	12.0	6.5	12.0	6.5
802.11n,ac,ax UNII-2C (40 MHz BW)	14.0	8.5	14.0	8.5
802.11n,ac,ax UNII-3 (40 MHz BW)	14.0	8.5	14.0	8.5
802.11ac,ax UNII-1 (80 MHz BW)	8.0	6.5	8.0	6.5
802.11ac,ax UNII-2A (80 MHz BW)	8.0	6.5	8.0	6.5
802.11ac,ax UNII-2C (80 MHz BW)	13.0	8.5	13.0	8.5
802.11ac,ax UNII-3 (80 MHz BW)	13.0	8.5	13.0	8.5
802.11ax OFDMA (20,40,80 MHz BW) (36 ~ 64 ch)	9.5	6.5	9.5	6.5
802.11ax OFDMA (20,40,80 MHz BW) (100 ~ 165 ch)	11.5	8.5	11.5	8.5
802.11ax OFDMA (20 MHz BW) (140 ch)	11.5	10.0	11.5	10.0
802.11ax OFDMA (20 MHz BW) (157 ch)	11.5	9.5	11.5	9.5

Tone	11ax HE20		11ax HE40		11ax HE80	
	Lower RU	Upper RU	Lower RU	Upper RU	Lower RU	Upper RU
26T	-5 dB		-3 dB		-6 dB	-2 dB
52T	-3 dB		-2 dB		-3 dB	

Note(s):
The Tune-up Power value is defined as each antennas of SISO/MIMO configuration.
At 11ax RU, the power of the tone located on both sides is lower than of the center tone.

8.8.2 WLAN 5 GHz Max Power SISO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2A 5.3 GHz	802.11a 6Mbps	52	5260				14.16	15.0	Yes
		56	5280				13.88	15.0	
		60	5300				13.80	15.0	
		64	5320				14.41	15.0	
Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2C 5.5 GHz	802.11a 6Mbps	100	5500				16.19	17.0	Yes
		120	5600				15.90	17.0	
		124	5620				16.11	17.0	
		144	5720				16.09	17.0	
Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-3 5.8 GHz	802.11a 6Mbps	149	5745				16.02	17.0	Yes
		157	5785				16.04	17.0	
		165	5825				16.14	17.0	

8.8.3 WLAN 5 GHz Reduced Power SISO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2A 5.3 GHz	802.11ac (VHT80) MCS0	58	5290				5.24	6.5	Yes
Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2C 5.5 GHz	802.11a 6 Mbps	140	5700				9.31	10.0	Yes
Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-3 5.8 GHz	802.11a 6 Mbps	157	5785				9.48	9.5	Yes

8.8.4 WLAN 5 GHz Max Power MIMO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2A 5.3 GHz	802.11a 6Mbps	52	5260	14.31	15.0	Yes	13.62	15.0	Yes
		56	5280	14.02	15.0		13.94	15.0	
		60	5300	13.95	15.0		13.97	15.0	
		64	5320	14.45	15.0		14.03	15.0	
UNII-2C 5.5 GHz	802.11a 6Mbps	100	5500	15.60	17.0	Yes	16.07	17.0	Yes
		120	5600	16.39	17.0		15.20	17.0	
		124	5620	16.44	17.0		15.65	17.0	
		144	5720	16.13	17.0		15.96	17.0	
UNII-3 5.8 GHz	802.11a 6Mbps	149	5745	16.35	17.0	Yes	15.79	17.0	Yes
		157	5785	16.12	17.0		15.75	17.0	
		165	5825	15.93	17.0		16.01	17.0	

8.8.5 WLAN 5 GHz Reduced Power MIMO Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2A 5.3 GHz	802.11ac (VHT80) MCS0	58	5290	5.38	6.5	Yes	5.52	6.5	Yes
UNII-2C 5.5 GHz	802.11a 6 Mbps	140	5700	9.50	10.0	Yes	8.98	10.0	Yes
UNII-3 5.8 GHz	802.11a 6 Mbps	157	5785	9.46	9.5	Yes	9.32	9.5	Yes

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11a SISO	6 Mbps	3.124	3.229	96.75%	1.03
802.11a MIMO	6 Mbps	3.127	3.230	96.81%	1.03
802.11ac VHT80 SISO	MCS0	2.212	2.340	94.53%	1.06
802.11ac VHT80 MIMO	MCS0	1.131	1.251	90.41%	1.11

Note(s):
Duty Cycle = (T on / period) * 100%

WLAN 5GHz Duty Cycle

802.11a SISO

802.11a MIMO

802.11ac VHT80 SISO

802.11ac VHT80 MIMO

8.9 Bluetooth

8.9.1 Maximum Output Power (Tune-up Limit) for Bluetooth

From October 2016 TCB workshop, Power and SAR were measured with the device connected to a call box with hopping disabled using DH5 modulation. The duty cycle value from the device is taken from the Duty Cycle plot below.

Max Power SAR measurements were performed at the highest output power of all modes.
Reduced power SAR measurements were performed at highest Duty Cycle mode.
Maximum Duty Cycle is mentioned in Operational description. Detail of BT Duty Cycle refer to Operational description.

Band	Mode	Tune-up Power Limit (dBm)	
		Ant.1 Antenna	
		Max	Reduced
2.4 GHz	BR (0 ~78 ch)	15.0	12.0
	EDR (0 ~78 ch)	12.0	12.0
	BLE (0 ~38 ch)	15.0	11.0
	BLE (39 ch)	12.0	7.0

8.9.2 Bluetooth Max Power Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
2.4 GHz	LE GFSK 125 k coded (37 pkt)	0	2402	14.77	15.0	Yes			
		19	2440	14.41	15.0				
		39	2480	10.78	12.0				

8.9.3 Bluetooth Reduced Power Measured Results

Band	Mode	Ch #	Freq. (MHz)	Ant.1 Average Power (dBm)			Ant.2 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
2.4 GHz	BR	0	2402	10.44	12.0	Yes			
		39	2441	10.25	12.0				
		78	2480	10.26	12.0				

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
BR	DH5	2.882	3.750	76.85%	1.30
BLE	125 k (37 pkt)	3.086	3.742	82.47%	1.21

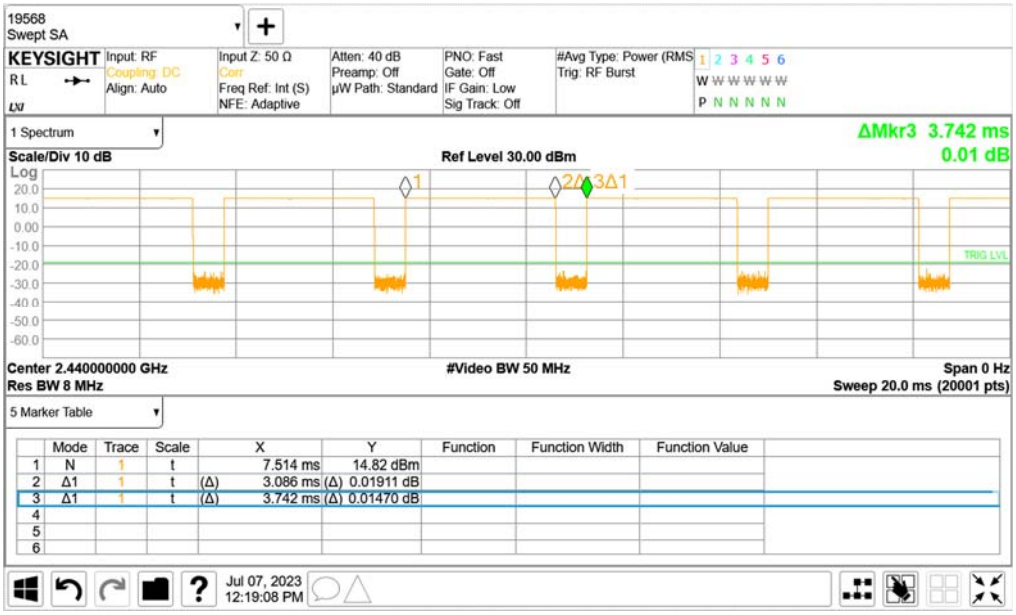
Note(s):

Duty Cycle = (T on / period) * 100%

Bluetooth Duty Cycle

BR DH5

BLE 125k



SECTION 9: Test surrounding

9.1 Measurement uncertainty

<Body>
300 MHz to 6 GHz
This measurement uncertainty budget is suggested by IEEE Std 1528(2013) and determined by Schmid & Partner Engineering AG (DASY5/6 Uncertainty Budget). Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz Section 2.8.1., when the highest measured SAR(1 g) 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.

Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1 g	(ci) 10 g	Std. Unc. (1 g)	Std.Unc. (10 g)
Measurement System							
Probe Calibration	± 6.55 %	N	1	1	1	± 6.55 %	± 6.55 %
Axial Isotropy	± 4.7 %	R	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	± 9.6 %	R	√3	0.7	0.7	± 3.9 %	± 3.9 %
Linearity	± 4.7 %	R	√3	1	1	± 2.7 %	± 2.7 %
Modulation Response	± 2.4 %	R	√3	1	1	± 1.4 %	± 1.4 %
System Detection Limits	± 1.0 %	R	√3	1	1	± 0.6 %	± 0.6 %
Boundary Effects	± 2.0 %	R	√3	1	1	± 1.2 %	± 1.2 %
Readout Electronics	± 0.3 %	N	1	1	1	± 0.3 %	± 0.3 %
Response Time	± 0.8 %	R	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	± 2.6 %	R	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	± 3.0 %	R	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	± 3.0 %	R	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	± 0.04 %	R	√3	1	1	± 0.0 %	± 0.0 %
Probe Positioning	± 0.8 %	R	√3	1	1	± 0.5 %	± 0.5 %
Post-processing	± 4.0 %	R	√3	1	1	± 2.3 %	± 2.3 %
Test Sample Related							
Device Holder	± 3.6 %	N	1	1	1	± 3.6 %	± 3.6 %
Test sample Positioning	± 2.9 %	N	1	1	1	± 2.9 %	± 2.9 %
Power Scaling	± 0.0 %	R	√3	1	1	± 0.0 %	± 0.0 %
Power Drift	± 5.0 %	R	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	± 7.6 %	R	√3	1	1	± 4.4 %	± 4.4 %
SAR correction	± 1.9 %	N	1	1	0.84	± 1.9 %	± 1.6 %
Liquid Conductivity (mea.)	+ 4.96 %	N	1	0.78	0.71	± 3.9 %	± 3.5 %
Liquid Permittivity (mea.)	+ 5.65 %	N	1	0.23	0.26	± 1.3 %	± 1.5 %
Temp. unc. - Conductivity	± 3.4 %	R	√3	0.78	0.71	± 1.5 %	± 1.4 %
Temp. unc. - Permittivity	± 0.4 %	R	√3	0.23	0.26	± 0.1 %	± 0.1 %
Combined Std. Uncertainty						± 12.6 %	± 12.5 %
Expanded STD Uncertainty (κ=2)						± 25.2 %	± 24.9 %

Note: This uncertainty budget for validation is worst-case.
Table of uncertainties are listed for ISO/IEC 17025.

SECTION 10: Parameter Check

The dielectric parameters were checked prior to assessment using the DAK dielectric probe kit.
The dielectric parameters measurement is reported in each correspondent section.

According to KDB 865664 D01, +/- 5 % tolerances are required for εr and σ and then below table which is the target value of the simulated tissue liquid is quoted from KDB 865664 D01.

Target Frequency	Head		Body	
(MHz)	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
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

The dielectric parameters are linearly interpolated between the closest pair of target frequencies to determine the applicable dielectric parameters corresponding to the device test frequency.

10.1 For SAR system check

SAR 1 Room

SAR1 Tissue Simulating Liquids											
Data	Ambient Temp. [deg.C]	Relative Humidity [%]	Liquid Temp. [deg.C]	Frequency	Permittivity			Conductivity			Remark
					Measured	Target	Delta	Measured	Target	Delta	
				[MHz]	ε'	ε'	+/- 5 [%]	σ [S/m]	σ [S/m]	+/- 5 [%]	
2023/6/6	23.0	40	22.5	1900	40.30	40.00	0.74	1.45	1.40	3.40	
2023/6/12	23.0	40	22.5	1900	39.49	40.00	-1.28	1.42	1.40	1.17	
2023/6/13	23.5	40	23.5	1900	40.46	40.00	1.16	1.37	1.40	-2.19	
2023/6/13	23.5	40	23.5	2600	39.47	39.01	1.19	1.89	1.96	-3.78	
2023/6/19	22.5	40	22.5	1900	39.81	40.00	-0.47	1.40	1.40	0.25	
2023/6/20	22.5	40	22.5	2600	39.39	39.01	0.98	1.94	1.96	-1.32	
2023/6/23	22.5	40	22.5	1900	38.89	40.00	-2.77	1.40	1.40	-0.03	
2023/7/4	22.5	40	22.0	2450	38.86	39.20	-0.86	1.74	1.80	-3.45	
2023/7/4	22.5	40	22.0	5250	36.19	35.93	0.73	4.65	4.71	-1.29	
2023/7/8	24.0	45	23.5	750	42.01	41.94	0.17	0.88	0.89	-1.71	
2023/7/8	24.0	45	23.5	835	41.82	41.50	0.77	0.90	0.90	0.53	
2023/7/13	20.5	40	20.0	5600	36.61	35.53	3.04	4.86	5.07	-4.11	
2023/7/14	20.5	40	20.0	5800	36.33	35.30	2.92	5.12	5.27	-2.79	
2023/7/18	20.0	40	19.5	2450	40.00	39.20	2.04	1.75	1.80	-3.04	

SAR 2 Room

SAR2 Tissue Simulating Liquids											
Data	Ambient Temp. [deg.C]	Relative Humidity [%]	Liquid Temp. [deg.C]	Frequency	Permittivity			Conductivity			Remark
					Measured	Target	Delta	Measured	Target	Delta	
				[MHz]	ε'	ε'	+/- 10 [%]	σ [S/m]	σ [S/m]	+/- 10 [%]	
2023/6/5	23.0	40.0	22.5	835	43.84	41.50	5.65	0.92	0.90	2.56	
2023/6/8	23.0	40.0	22.5	1750	39.70	40.08	-0.94	1.31	1.37	-4.39	
2023/6/12	23.0	40.0	22.5	1750	39.46	40.08	-1.55	1.35	1.37	-1.56	
2023/6/13	23.0	40.0	22.5	835	42.12	41.50	1.49	0.94	0.90	4.26	
2023/6/13	23.0	40.0	22.5	1750	40.23	40.08	0.39	1.36	1.37	-0.46	
2023/6/19	23.0	40.0	22.5	835	40.91	41.50	-1.42	0.94	0.90	4.72	
2023/6/20	23.0	40.0	22.5	835	40.19	41.50	-3.15	0.94	0.90	4.73	
2023/6/20	23.0	40.0	22.5	1750	38.42	40.08	-4.13	1.34	1.37	-2.46	
2023/6/26	23.0	40.0	22.5	835	39.90	41.50	-3.86	0.94	0.90	4.47	
2023/7/3	24.0	40.0	23.5	5600	36.24	35.53	1.99	4.82	5.07	-4.90	
2023/7/3	24.0	40.0	23.5	5800	35.80	35.30	1.43	5.09	5.27	-3.40	
2023/7/8	24.0	40.0	23.5	1750	38.60	40.08	-3.69	1.33	1.37	-2.95	
2023/7/8	24.0	40.0	23.5	1900	38.35	40.00	-4.11	1.42	1.40	1.22	
2023/7/12	20.0	40.0	20.0	5600	34.97	35.53	-1.59	4.97	5.07	-1.93	
2023/7/12	20.0	40.0	20.0	5800	34.69	35.30	-1.73	5.25	5.27	-0.41	
2023/7/17	20.0	40.0	20.0	5250	37.25	35.93	3.67	4.57	4.71	-2.81	
2023/7/17	20.0	40.0	20.0	5600	36.78	35.53	3.52	4.91	5.07	-3.14	
2023/7/17	20.0	40.0	20.0	5800	36.46	35.30	3.28	5.20	5.27	-1.30	

SAR 3 Room

SAR3 Tissue Simulating Liquids											
Data	Ambient Temp. [deg.C]	Relative Humidity [%]	Liquid Temp. [deg.C]	Frequency	Permittivity			Conductivity			Remark
					Measured	Target	Delta	Measured	Target	Delta	
				[MHz]	ε'	ε'	+/- 5 [%]	σ [S/m]	σ [S/m]	+/- 5 [%]	
2023/6/5	23.0	40	22.5	750	41.77	41.94	-0.41	0.90	0.89	0.75	
2023/6/13	22.5	40	22.5	750	40.46	41.94	-3.53	0.87	0.89	-2.76	
2023/6/20	22.5	40	22.5	750	40.17	41.94	-4.21	0.87	0.89	-2.60	
2023/6/26	23.0	40	22.5	750	40.68	41.94	-3.00	0.90	0.89	0.21	
2023/7/8	24.0	40	23.5	2450	38.53	39.20	-1.72	1.76	1.80	-1.98	
2023/7/8	24.0	40	23.5	5600	36.04	35.53	1.43	4.86	5.07	-4.11	
2023/7/14	24.0	40.0	23.5	2450	38.68	39.20	-1.33	1.77	1.80	-1.93	
2023/7/17	23.0	40.0	22.5	1750	40.42	40.08	0.86	1.32	1.37	-3.93	
2023/7/17	23.0	40.0	22.5	2450	39.46	39.20	0.65	1.80	1.80	-0.16	

10.2 For SAR measurement

SAR 1 Room

SAR1 Tissue Simulating Liquids											
Data	Ambient Temp. [deg.C]	Relative Humidity [%]	Liquid Temp. [deg.C]	Frequency	Permittivity			Conductivity			Remark
					Measured	Target	Delta	Measured	Target	Delta	
				[MHz]	ε'	ε'	+/- 5 [%]	σ [S/m]	σ [S/m]	+/- 5 [%]	
2023/6/6	23.0	40.0	22.5	1800	40.63	40.00	1.57	1.38	1.40	-1.41	
2023/6/6	23.0	40.0	22.5	1930	40.25	40.00	0.61	1.47	1.40	4.96	
2023/6/12	23.0	40.0	22.5	1800	39.61	40.00	-0.98	1.36	1.40	-2.90	
2023/6/12	23.0	40.0	22.5	1960	39.49	40.00	-1.28	1.45	1.40	3.54	
2023/6/13	23.5	40.0	23.5	1850	40.30	40.00	0.75	1.34	1.40	-4.40	
2023/6/13	23.5	40.0	23.5	1910	40.50	40.00	1.26	1.38	1.40	-1.63	
2023/6/13	23.5	40.0	23.5	2500	39.57	39.14	1.12	1.82	1.85	-1.76	
2023/6/13	23.5	40.0	23.5	2680	39.40	38.91	1.27	1.95	2.05	-4.94	
2023/6/19	22.5	40.0	22.5	1800	39.99	40.00	-0.02	1.34	1.40	-4.37	
2023/6/19	22.5	40.0	22.5	2000	39.60	40.00	-0.99	1.45	1.40	3.92	
2023/6/20	22.5	40.0	22.5	2500	39.42	39.14	0.72	1.86	1.85	0.34	
2023/6/20	22.5	40.0	22.5	2700	39.34	38.88	1.18	2.02	2.07	-2.70	
2023/6/23	22.5	40.0	22.5	1800	39.10	40.00	-2.26	1.34	1.40	-4.26	
2023/6/23	22.5	40.0	22.5	2000	38.66	40.00	-3.35	1.45	1.40	3.65	
2023/7/4	22.5	40.0	22.0	2350	39.12	39.38	-0.66	1.66	1.71	-3.13	
2023/7/4	22.5	40.0	22.0	2550	38.77	39.07	-0.78	1.82	1.91	-4.41	
2023/7/4	22.5	40.0	22.0	5150	36.58	36.04	1.49	4.47	4.60	-2.95	
2023/7/4	22.5	40.0	22.0	5350	36.04	35.81	0.62	4.82	4.81	0.21	
2023/7/8	24.0	45.0	23.5	650	42.30	42.46	-0.37	0.85	0.89	-3.94	
2023/7/8	24.0	45.0	23.5	850	41.78	41.50	0.68	0.91	0.92	-0.66	
2023/7/8	24.0	45.0	23.5	735	42.05	42.02	0.07	0.88	0.89	-1.92	
2023/7/8	24.0	45.0	23.5	935	41.62	41.46	0.39	0.94	0.99	-4.96	
2023/7/13	20.5	40.0	20.0	5500	36.95	35.64	3.66	4.81	4.96	-3.14	
2023/7/13	20.5	40.0	20.0	5700	36.45	35.41	2.94	5.04	5.17	-2.52	
2023/7/14	20.5	40.0	20.0	5700	36.45	35.41	2.94	5.04	5.17	-2.52	
2023/7/14	20.5	40.0	20.0	5900	36.05	35.20	2.41	5.15	5.38	-4.24	
2023/7/18	20.0	40.0	19.5	2350	40.17	39.38	2.02	1.67	1.71	-2.36	
2023/7/18	20.0	40.0	19.5	2550	39.91	39.07	2.13	1.82	1.91	-4.70	

SAR 2 Room

SAR2 Tissue Simulating Liquids											
Data	Ambient Temp. [deg.C]	Relative Humidity [%]	Liquid Temp. [deg.C]	Frequency	Permittivity			Conductivity			Remark
					Measured	Target	Delta	Measured	Target	Delta	
				[MHz]	ε'	ε'	+/- 10 [%]	σ [S/m]	σ [S/m]	+/- 10 [%]	
2023/6/5	23.0	40.0	22.5	735	43.29	42.02	3.01	0.93	0.89	3.86	
2023/6/5	23.0	40.0	22.5	935	43.58	41.46	5.10	0.95	0.99	-3.40	
2023/6/8	23.0	40.0	22.5	1650	39.87	40.24	-0.91	1.26	1.31	-4.29	
2023/6/8	23.0	40.0	22.5	1850	39.52	40.00	-1.20	1.37	1.40	-2.24	
2023/6/12	23.0	40.0	22.5	1650	39.60	40.24	-1.59	1.29	1.31	-1.67	
2023/6/12	23.0	40.0	22.5	1850	39.23	40.00	-1.92	1.40	1.40	0.12	
2023/6/13	23.0	40.0	22.5	735	42.48	42.02	1.11	0.90	0.89	1.40	
2023/6/13	23.0	40.0	22.5	935	41.86	41.46	0.97	0.98	0.99	-1.20	
2023/6/13	23.0	40.0	22.5	1650	40.42	40.24	0.45	1.31	1.31	-0.14	
2023/6/13	23.0	40.0	22.5	1850	40.01	40.00	0.03	1.42	1.40	1.44	
2023/6/19	23.0	40.0	22.5	735	41.36	42.02	-1.56	0.89	0.89	0.18	
2023/6/19	23.0	40.0	22.5	935	40.65	41.46	-1.97	0.99	0.99	-0.27	
2023/6/20	23.0	40.0	22.5	735	40.41	42.02	-3.82	0.91	0.89	1.46	
2023/6/20	23.0	40.0	22.5	935	39.97	41.46	-3.59	0.98	0.99	-0.84	
2023/6/20	23.0	40.0	22.5	1650	38.50	40.24	-4.31	1.30	1.31	-0.94	
2023/6/20	23.0	40.0	22.5	1850	38.14	40.00	-4.65	1.39	1.40	-0.80	
2023/6/26	23.0	40.0	22.5	735	40.23	42.02	-4.25	0.91	0.89	1.89	
2023/6/26	23.0	40.0	22.5	935	39.60	41.46	-4.48	0.98	0.99	-1.22	
2023/7/3	24.0	40.0	23.5	5500	36.41	35.64	2.15	4.77	4.96	-3.83	
2023/7/3	24.0	40.0	23.5	5700	36.02	35.41	1.70	4.99	5.17	-3.34	
2023/7/3	24.0	40.0	23.5	5700	36.02	35.41	1.70	4.99	5.17	-3.34	
2023/7/3	24.0	40.0	23.5	5900	35.59	35.20	1.12	5.11	5.38	-4.87	
2023/7/8	24.0	40.0	23.5	1650	38.77	40.24	-3.66	1.28	1.31	-2.21	
2023/7/8	24.0	40.0	23.5	1850	38.43	40.00	-3.93	1.39	1.40	-0.69	
2023/7/8	24.0	40.0	23.5	1800	38.52	40.00	-3.69	1.36	1.40	-2.88	
2023/7/8	24.0	40.0	23.5	1990	38.28	40.00	-4.29	1.46	1.40	4.63	
2023/7/12	20.0	40.0	20.0	5500	35.27	35.64	-1.04	4.91	4.96	-1.14	
2023/7/12	20.0	40.0	20.0	5700	34.76	35.41	-1.86	5.16	5.17	-0.13	
2023/7/12	20.0	40.0	20.0	5700	34.76	35.41	-1.86	5.16	5.17	-0.13	
2023/7/12	20.0	40.0	20.0	5900	34.51	35.20	-1.95	5.24	5.38	-2.47	
2023/7/17	20.0	40.0	20.0	5150	37.64	36.04	4.43	4.38	4.60	-4.96	
2023/7/17	20.0	40.0	20.0	5350	37.10	35.81	3.59	4.72	4.81	-1.75	
2023/7/17	20.0	40.0	20.0	5500	37.06	35.64	3.97	4.84	4.96	-2.52	
2023/7/17	20.0	40.0	20.0	5700	36.60	35.41	3.35	5.10	5.17	-1.31	
2023/7/17	20.0	40.0	20.0	5700	36.60	35.41	3.35	5.10	5.17	-1.31	
2023/7/17	20.0	40.0	20.0	5900	36.29	35.20	3.09	5.19	5.38	-3.44	

SAR 3 Room

SAR3 Tissue Simulating Liquids											
Data	Ambient Temp. [deg.C]	Relative Humidity [%]	Liquid Temp. [deg.C]	Frequency	Permittivity			Conductivity			Remark
					Measured	Target	Delta	Measured	Target	Delta	
				[MHz]	ε'	ε'	+/- 5 [%]	σ [S/m]	σ [S/m]	+/- 5 [%]	
2023/6/5	23.0	40.0	22.5	650	41.67	42.46	-1.87	0.87	0.89	-1.95	
2023/6/5	23.0	40.0	22.5	850	41.83	41.50	0.79	0.94	0.92	2.25	
2023/6/13	22.5	40.0	22.5	650	40.43	42.46	-4.78	0.85	0.89	-3.66	
2023/6/13	22.5	40.0	22.5	850	40.42	41.50	-2.60	0.89	0.92	-3.26	
2023/6/20	22.5	40.0	22.5	650	40.38	42.46	-4.91	0.84	0.89	-4.93	
2023/6/20	22.5	40.0	22.5	850	40.02	41.50	-3.57	0.90	0.92	-1.25	
2023/6/26	23.0	40.0	22.5	650	41.07	42.46	-3.26	0.86	0.89	-3.03	
2023/6/26	23.0	40.0	22.5	850	40.33	41.50	-2.83	0.93	0.92	2.02	
2023/7/8	24.0	40.0	23.5	2350	38.72	39.38	-1.67	1.68	1.71	-1.53	
2023/7/8	24.0	40.0	23.5	2550	38.43	39.07	-1.64	1.83	1.91	-4.39	
2023/7/8	24.0	40.0	23.5	5500	36.34	35.64	1.95	4.81	4.96	-2.98	
2023/7/8	24.0	40.0	23.5	5700	35.79	35.41	1.06	5.05	5.17	-2.33	
2023/7/14	24.0	40.0	23.5	2350	38.85	39.38	-1.33	1.69	1.71	-1.11	
2023/7/14	24.0	40.0	23.5	2550	38.58	39.07	-1.27	1.83	1.91	-3.91	
2023/7/17	23.0	40.0	22.5	1700	40.53	40.16	0.93	1.28	1.34	-4.89	
2023/7/17	23.0	40.0	22.5	1850	40.22	40.00	0.56	1.38	1.40	-1.15	
2023/7/17	23.0	40.0	22.5	2350	39.73	39.38	0.89	1.69	1.71	-1.39	
2023/7/17	23.0	40.0	22.5	2550	39.25	39.07	0.45	1.89	1.91	-0.93	

SECTION 11: System Check confirmation

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 ≤ 3 GHz and ≥ 10.0 cm ± 0.5 cm for measurements > 3 GHz.
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 to 6 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
The coarse grid with a grid spacing of 15 mm (below 2 GHz), 12 mm (2 GHz to 4 GHz) and 10 mm (4 GHz to 6 GHz) was aligned with the dipole.
Around this point found in the coarse grid, a volume of 30 mm x 30 mm x 30 mm or more was assessed by measuring 7 x 7 x 7 points at least for below 3 GHz, a volume of 28 mm x 28 mm x 34 mm or more was assessed by measuring 8 x 8 x 8(ratio step method) points at least for 3 GHz to 5 GHz and a volume of 28 mm x 28 mm x 24 mm or more was assessed by measuring 8 x 8 x 8(ratio step method) points at least for 5 GHz to 6 GHz.
Distance between probe sensors and phantom surface was set to 1.4 mm.
The dipole input power (forward power) was 100 mW or 250 mW.
The results are normalized to 1 W input power.

The target(reference) SAR values can be obtained from the calibration certificate of system validation dipoles (Refer to Appendix 3). The target SAR values are SAR measured value in the calibration certificate scaled to 1 W.

SAR 1 Room

Date Tested	Test Freq	Model,S/N	T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ± 10 %
					Zoom Scan	Normalize to 1 W		
2023/6/6	1900	D1900V2,5d169	Head	1 g	10.30	41.2	39.56	4.1
				10 g	5.36	21.4	20.52	4.5
2023/6/12	1900	D1900V2,5d169	Head	1 g	10.40	41.6	39.56	5.2
				10 g	5.40	21.60	20.52	5.3
2023/6/13	1900	D1900V2,5d169	Head	1 g	9.94	39.8	39.56	0.5
				10 g	5.17	20.68	20.52	0.8
2023/6/13	2600	D2600V2,1030	Head	1 g	13.60	54.40	58.00	-6.2
				10 g	6.14	24.56	25.52	-3.8
2023/6/19	1900	D1900V2,5d169	Head	1 g	10.50	42.00	39.56	6.2
				10 g	5.49	21.96	20.52	7.0
2023/6/20	2600	D2600V2,1030	Head	1 g	14.30	57.20	58.00	-1.4
				10 g	6.44	25.76	25.52	0.9
2023/6/23	1900	D1900V2,5d169	Head	1 g	10.30	41.20	39.56	4.1
				10 g	5.38	21.52	20.52	4.9
2023/7/4	2450	D2450V2,713	Head	1 g	12.50	50.00	53.20	-6.0
				10 g	5.83	23.32	24.76	-5.8
2023/7/4	5250	D5GHV2,1020	Head	1 g	7.63	76.30	79.60	-4.1
				10 g	2.18	21.80	23.00	-5.2
2023/7/8	750	D750V3,1058	Head	1 g	2.21	8.84	8.68	1.8
				10 g	1.46	5.84	5.64	3.5
2023/7/8	835	D835V2,4d149	Head	1 g	2.52	10.08	9.84	2.4
				10 g	1.64	6.56	6.44	1.9
2023/7/13	5600	D5GHV2,1020	Head	1 g	8.41	84.10	81.30	3.4
				10 g	2.43	24.30	23.10	5.2
2023/7/14	5800	D5GHV2,1020	Head	1 g	8.21	82.10	79.10	3.8
				10 g	2.38	23.80	22.60	5.3
2023/7/18	2450	D2450V2,713	Head	1 g	13.20	52.80	53.20	-0.8
				10 g	6.24	24.96	24.76	0.8

SAR 2 Room

Date Tested	Test Freq	Model,S/N	T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ± 10 %
					Zoom Scan	Normalize to 1 W		
2023/6/5	835	D835V2,4d149	Head	1 g	2.43	9.7	9.84	-1.2
				10 g	1.58	6.3	6.44	-1.9
2023/6/8	1750	D1750V2,1089	Head	1 g	8.45	33.8	36.76	-8.1
				10 g	4.52	18.08	19.36	-6.6
2023/6/12	1750	D1750V2,1089	Head	1 g	8.57	34.28	36.76	-6.7
				10 g	4.54	18.16	19.36	-6.2
2023/6/13	835	D835V2,4d149	Head	1 g	2.48	9.92	9.84	0.8
				10 g	1.63	6.52	6.44	1.2
2023/6/13	1750	D1750V2,1089	Head	1 g	8.73	34.92	36.76	-5.0
				10 g	4.65	18.60	19.36	-3.9
2023/6/19	835	D835V2,4d149	Head	1 g	2.49	9.96	9.84	1.2
				10 g	1.61	6.44	6.44	0.0
2023/6/20	835	D835V2,4d149	Head	1 g	2.48	9.92	9.84	0.8
				10 g	1.62	6.48	6.44	0.6
2023/6/20	1750	D1750V2,1089	Head	1 g	8.71	34.84	36.76	-5.2
				10 g	4.62	18.48	19.36	-4.5
2023/6/26	835	D835V2,4d149	Head	1 g	2.54	10.16	9.84	3.3
				10 g	1.65	6.60	6.44	2.5
2023/7/3	5600	D5GHV2,1020	Head	1 g	8.44	84.40	81.30	3.8
				10 g	2.42	24.20	23.10	4.8
2023/7/3	5800	D5GHV2,1020	Head	1 g	7.99	79.90	79.10	1.0
				10 g	2.30	23.00	22.60	1.8
2023/7/8	1750	D1750V2,1089	Head	1 g	8.84	35.36	36.76	-3.8
				10 g	4.69	18.76	19.36	-3.1
2023/7/8	1900	D1900V2,5d169	Head	1 g	10.40	41.60	39.56	5.2
				10 g	5.41	21.64	20.52	5.5
2023/7/12	5600	D5GHV2,1020	Head	1 g	8.58	85.80	81.30	5.5
				10 g	2.48	24.80	23.10	7.4
2023/7/12	5800	D5GHV2,1020	Head	1 g	7.97	79.70	79.10	0.8
				10 g	2.31	23.10	22.60	2.2
2023/7/17	5250	D5GHV2,1020	Head	1 g	7.72	77.20	79.60	-3.0
				10 g	2.24	22.40	23.00	-2.6
2023/7/17	5600	D5GHV2,1020	Head	1 g	8.47	84.70	81.30	4.2
				10 g	2.44	24.40	23.10	5.6
2023/7/17	5800	D5GHV2,1020	Head	1 g	8.07	80.70	79.10	2.0
				10 g	2.34	23.40	22.60	3.5

SAR 3 Room

Date Tested	Test Freq	Model,S/N	T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ± 10 %
					Zoom Scan	Normalize to 1 W		
2023/6/5	750	D750V3,1058	Head	1 g	2.21	8.84	8.68	1.8
				10 g	1.44	5.76	5.64	2.1
2023/6/13	750	D750V3,1058	Head	1 g	2.16	8.64	8.68	-0.5
				10 g	1.42	5.68	5.64	0.7
2023/6/20	750	D750V3,1058	Head	1 g	2.13	8.52	8.68	-1.8
				10 g	1.40	5.60	5.64	-0.7
2023/6/26	750	D750V3,1058	Head	1 g	2.07	8.28	8.68	-4.6
				10 g	1.37	5.48	5.64	-2.8
2023/7/8	2450	D2450V2,713	Head	1 g	12.70	50.80	53.20	-4.5
				10 g	5.96	23.84	24.76	-3.7
2023/7/8	5600	D5GHV2,1020	Head	1 g	8.57	85.70	81.30	5.4
				10 g	2.40	24.00	23.10	3.9
2023/7/14	2450	D2450V2,713	Head	1 g	13.80	55.20	53.20	3.8
				10 g	6.43	25.72	24.76	3.9
2023/7/17	1750	D1750V2,1089	Head	1 g	8.76	35.04	36.76	-4.7
				10 g	4.64	18.56	19.36	-4.1
2023/7/17	2450	D2450V2,713	Head	1 g	13.90	55.60	53.20	4.5
				10 g	6.48	25.92	24.76	4.7

SECTION 12: Measured and Reported (Scaled) SAR Results

12.1 SAR evaluation procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the E-field at a fixed location above the ear point or central position of flat phantom was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and the horizontal grid spacing was 15 mm x 15 mm, 12 mm x 12 mm or 10 mm x 10 mm. Based on these data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point found in the Step 2 (area scan), a volume of 30 mm x 30 mm x 30 mm or more was assessed by measuring 7 x 7 x 7 points at least for below 3 GHz and a volume of 28 mm x 28 mm x 22.5 mm or more was assessed by measuring 8 x 8 x 6(ratio step method (*1)) points at least for 5 GHz band.

And for any secondary peaks found in the Step2 which are within 2 dB of maximum peak and not with this Step3 (Zoom scan) is repeated. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

(1). The data at the surface were extrapolated, since the center of the dipoles is 1 mm (EX3DV4) away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axes.
This polynomial was then used to evaluate the points between the surface and the probe tip.

(2). The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the “Not a knot"-condition (in x, y and z-directions) [4], [5]. The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

(3). All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

***1. Ratio step method parameters used;**
The first measurement point: 2 mm from the phantom surface, the initial grid separation: 2mm, subsequent graded grid ratio: 1.5
These parameters comply with the requirement of the KDB 865664D01.

Step 4: Re-measurement of the E-field at the same location as in Step 1.
Confirmation after SAR testing
It was checked that the power drift [W] is within +/-5 %.The verification of power drift during the SAR test is that DASY5 system calculates the power drift by measuring the e-filed at the same location at beginning and the end of the scan measurement for each test position.

DASY5/6 system calculation Power drift value[dB] =20log(Ea)/(Eb)
Before SAR testing : Eb[V/m]
After SAR testing : Ea[V/m]

Limit of power drift[W] =+/-5 %
X[dB]=10log[P]=10log(1.05/1)=10log(1.05)-10log(1)=0.212 dB

from E-filed relations with power.
p=E^2/η=E^2/
Therefore, The correlation of power and the E-filed
XdB=10log(P)=10log(E)^2=20log(E)

Therefore,
The calculated power drift of DASY5 System must be the less than +/-0.212 dB.

Step size.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm □ 1 mm	½·δ·ln(2) mm □ 0.5 mm
Maximum probe angle from probe axis to phantomsurface 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 withat least one measurement point on the test device.	
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
	gradedgrid	$\Delta z_{Zoom}(1)$: between 1st two points closestto 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 subsequentpoints	≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoomscan 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 IEEE Std1528-2013 for details.
* When zoom scan is required and the ***reported*** SAR from the *area scan based 1-g SAR estimation* procedures ofKDB Publication 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.

12.1.1 KDB 447498 D01 (General RF Exposure Guidance):

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ✧ ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ✧ ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ✧ ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

- When reported SAR value is exceed 1.2W/kg(if any), device holder perturbation verification is required; however, since distance between device holder and antenna of EUT is enough, it was not conducted.
- Reported SAR= Measured SAR [W/kg] · Scaled factor
  * Scaled factor = Maximum tune-up tolerance limit [mW] / Measured power [mW]
- Maximum tune-up tolerance limit is by the specification from a customer.

Note: Measured value is rounded round off to three decimal places

WLAN SAR Test Reduction criteria are as follows

12.1.2 KDB 941225 D01 (SAR test for 3G device):

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≦1/4 dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ration of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≦ 1.2 W/kg, SAR measurement is not required for the secondary mode.

12.1.3 KDB 941225 D01 (SAR for LTE Devices):

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.

12.1.4 KDB 248227 D01 (SAR Guidance for 802.11(WLAN) Transmitters):

SAR test reduction for 802.11 WLAN transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.
The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The *initial test position(s)* is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the *reported* SAR for the *initial test position* is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the *initial test position* to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the *reported* SAR is ≤ 0.8 W/kg or all required test positions are tested.
    - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
    - When it is unclear, all equivalent conditions must be tested.
- 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.
    - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.

- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the *initial test position*, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the *initial test position*.

SAR Test Reduction criteria(excluding WLAN) are as follows

12.2 SAR result (WWAN Part)

12.2.1 GSM 850

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Prot No.
								Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	GPRS 3 Slots	Max	19	Rear	190	836.6	30.00	28.59	0.541	0.749	
				22	Top	190	836.6	30.00	28.59	0.421	0.582	
				19	Right	190	836.6	30.00	28.59	0.047	0.065	
					Left	190	836.6	30.00	28.59	0.026	0.036	
		GPRS 2 Slots	Reduced	0	Rear	190	836.6	23.00	22.10	0.522	0.642	
					Top	128	824.4	23.00	22.35	0.558	0.648	
						190	836.6	23.00	22.10	0.662	0.814	
						251	848.8	23.00	22.34	0.724	**0.843**	G850
					Right	190	836.6	23.00	22.10	0.033	0.041	
					Left	190	836.6	23.00	22.10	0.033	0.041	

12.2.2 PCS 1900

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Prot No.
								Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	GPRS 4 Slots	Max	19	Rear	661	1880.0	26.00	25.02	0.273	0.342	
				22	Top	661	1880.0	26.00	25.02	0.281	0.352	
				19	Right	661	1880.0	26.00	25.02	0.031	0.039	
					Left	661	1880.0	26.00	25.02	0.060	0.075	
		GPRS 4 Slots	Redeused	0	Rear	512	1850.2	18.00	17.56	0.707	0.782	
						661	1880.0	18.00	17.81	0.922	**0.963**	G1900
						810	1909.8	18.00	17.88	0.906	0.931	
					Top	512	1850.2	18.00	17.56	0.776	0.859	
						661	1880.0	18.00	17.81	0.908	0.949	
						810	1909.8	18.00	17.88	0.705	0.725	
					Right	661	1880.0	18.00	17.81	0.074	0.077	
					Left	661	1880.0	18.00	17.81	0.044	0.046	

12.2.3 WCDMA Band 2

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	standalone	Release 99	Max	19	Rear	9400	1880.0	24.50	23.63	0.490	0.599	
				22	Top	9400	1880.0	24.50	23.63	0.456	0.557	
				19	Right	9400	1880.0	24.50	23.63	0.059	0.072	
					Left	9400	1880.0	24.50	23.63	0.048	0.059	
		Release 99	Redeused	0	Rear	9400	1880.0	13.50	13.24	0.626	**0.665**	W2
					Top	9400	1880.0	13.50	13.24	0.578	0.614	
					Right	9400	1880.0	13.50	13.24	0.055	0.058	
					Left	9400	1880.0	13.50	13.24	0.029	0.031	

12.2.4 WCDMA Band 4

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	Release 99	Max	19	Rear	1413	1732.6	25.00	23.99	0.463	0.584	
				22	Top	1413	1732.6	25.00	23.99	0.456	0.575	
				19	Right	1413	1732.6	25.00	23.99	0.098	0.124	
					Left	1413	1732.6	25.00	23.99	0.060	0.076	
		Release 99	Redeused	0	Rear	1413	1732.6	13.00	12.40	0.654	**0.751**	W4
					Top	1413	1732.6	13.00	12.40	0.598	0.687	
					Right	1413	1732.6	13.00	12.40	0.044	0.051	
					Left	1413	1732.6	13.00	12.40	0.102	0.117	

12.2.5 WCDMA Band 5

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	Release 99	Max	19	Rear	4183	836.6	24.50	23.63	0.563	0.688	
				22	Top	4183	836.6	24.50	23.63	0.401	0.490	
				19	Right	4183	836.6	24.50	23.63	0.054	0.066	
					Left	4183	836.6	24.50	23.63	0.030	0.037	
		Release 99	Redeused	0	Rear	4132	826.4	17.00	16.13	0.705	0.861	
						4183	836.6	17.00	15.83	0.738	0.966	
						4233	846.6	17.00	16.12	0.676	0.828	
					Top	4132	826.4	17.00	16.13	0.869	1.062	
						4183	836.6	17.00	15.83	0.861	**1.127**	W5
						4233	846.6	17.00	16.12	0.803	0.983	
					Right	4183	836.6	17.00	15.83	0.031	0.041	
					Left	4183	836.6	17.00	15.83	0.033	0.043	

12.2.6 LTE Band 2

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	Max	19	Rear	18700	1860.0	1	99	25.00	24.47	0.436	0.493	
								50	24	24.50	23.47	0.357	0.453	
				22	Top	18700	1860.0	1	99	25.00	24.47	0.501	0.566	
								50	24	24.50	23.47	0.394	0.499	
				19	Right	18700	1860.0	1	99	25.00	24.47	0.054	0.061	
								50	24	24.50	23.47	0.036	0.046	
					Left	18700	1860.0	1	99	25.00	24.47	0.042	0.047	
								50	24	24.50	23.47	0.033	0.042	
			Redeused	0	Rear	18700	1860.0	1	0	14.50	13.68	0.590	0.713	
								50	0	14.50	13.66	0.590	0.716	
					Top	18700	1860.0	1	0	14.50	13.68	0.593	**0.716**	L2-1
								50	0	14.50	13.66	0.588	0.713	
					Right	18700	1860.0	1	0	14.50	13.68	0.053	0.064	
								50	0	14.50	13.66	0.051	0.062	
					Left	18700	1860.0	1	0	14.50	13.68	0.029	0.035	
								50	0	14.50	13.66	0.035	0.042	

12.2.7 LTE Band 2(ENDC)

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Sub 2 Ant.	Standalone	QPSK	Max	19	Rear	18700	1860.0	1	99	24.00	23.72	0.188	0.201	
								50	50	23.00	22.70	0.180	0.193	
				0	Right	18700	1860.0	1	99	24.00	23.72	0.464	**0.495**	L2-2
								50	50	23.00	22.70	0.371	0.398	
				19	Bottom	18700	1860.0	1	99	24.00	23.72	0.287	0.306	
								50	50	23.00	22.70	0.236	0.253	
				0	Left	18700	1860.0	1	99	24.00	23.72	0.265	0.283	
								50	50	23.00	22.70	0.207	0.222	
			Redeused	0	Rear	18700	1860.0	1	99	11.50	11.08	0.381	0.420	
								50	50	11.50	10.97	0.377	0.426	
					Bottom	18700	1860.0	1	99	11.50	11.08	0.344	0.379	
								50	50	11.50	10.97	0.341	0.385	

12.2.8 LTE Band 5

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	Max	19	Rear	20525	836.5	1	0	25.00	23.99	0.565	**0.713**	L5
								25	0	24.00	23.01	0.452	0.568	
				22	Top	20525	836.5	1	0	25.00	23.99	0.425	0.536	
								25	0	24.00	23.01	0.345	0.433	
				19	Right	20525	836.5	1	0	25.00	23.99	0.034	0.043	
								25	0	24.00	23.01	0.038	0.048	
					Left	20525	836.5	1	0	25.00	23.99	0.034	0.043	
								25	0	24.00	23.01	0.028	0.035	
			Redeused	0	Rear	20525	836.5	1	0	15.00	13.92	0.429	0.550	
								25	0	15.00	14.01	0.425	0.534	
					Top	20525	836.5	1	0	15.00	13.92	0.523	0.671	
								25	0	15.00	14.01	0.537	0.674	
					Right	20525	836.5	1	0	15.00	13.92	0.037	0.047	
								25	0	15.00	14.01	0.037	0.046	
					Left	20525	836.5	1	0	15.00	13.92	0.023	0.029	
								25	0	15.00	14.01	0.022	0.028	

12.2.9 LTE Band 12

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	Max	19	Rear	23095	707.5	1	0	25.00	23.90	0.360	0.464	
								25	0	24.00	22.82	0.293	0.384	
				22	Top	23095	707.5	1	0	25.00	23.90	0.189	0.243	
								25	0	24.00	22.82	0.153	0.201	
				19	Right	23095	707.5	1	0	25.00	23.90	0.022	0.028	
								25	0	24.00	22.82	0.019	0.025	
					Left	23095	707.5	1	0	25.00	23.90	0.030	0.039	
								25	0	24.00	22.82	0.026	0.034	
			Redeused	0	Rear	23095	707.5	1	0	17.00	16.23	0.467	0.558	
								25	0	17.00	16.25	0.468	0.556	
					Top	23095	707.5	1	0	17.00	16.23	0.508	**0.607**	L12
								25	0	17.00	16.25	0.510	0.606	
					Right	23095	707.5	1	0	17.00	16.23	0.040	0.048	
								25	0	17.00	16.25	0.040	0.048	
					Left	23095	707.5	1	0	17.00	16.23	0.028	0.033	
								25	0	17.00	16.25	0.026	0.031	

12.2.10 LTE Band 13

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	Max	19	Rear	23230	782.0	1	0	25.00	23.79	0.462	0.610	
								25	0	24.00	22.81	0.376	0.495	
				22	Top	23230	782.0	1	0	25.00	23.79	0.386	0.510	
								25	0	24.00	22.81	0.317	0.417	
				19	Right	23230	782.0	1	0	25.00	23.79	0.037	0.049	
								25	0	24.00	22.81	0.031	0.041	
					Left	23230	782.0	1	0	25.00	23.79	0.030	0.039	
								25	0	24.00	22.81	0.029	0.038	
			Redeused	0	Rear	23230	782.0	1	0	17.00	16.65	0.648	0.702	
								25	0	17.00	16.62	0.650	**0.709**	L13
					Top	23230	782.0	1	0	17.00	16.65	0.595	0.645	
								25	0	17.00	16.62	0.587	0.641	
					Right	23230	782.0	1	0	17.00	16.65	0.047	0.051	
								25	0	17.00	16.62	0.047	0.051	
					Left	23230	782.0	1	0	17.00	16.65	0.038	0.041	
								25	0	17.00	16.62	0.036	0.039	

12.2.11 LTE Band 26

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	Max	19	Rear	26865	831.5	1	0	25.00	23.87	0.432	0.560	
								36	0	24.00	22.93	0.359	0.459	
				22	Top	26865	831.5	1	0	25.00	23.87	0.416	0.540	
								36	0	24.00	22.93	0.344	0.440	
				19	Right	26865	831.5	1	0	25.00	23.87	0.057	0.074	
								36	0	24.00	22.93	0.044	0.056	
					Left	26865	831.5	1	0	25.00	23.87	0.049	0.064	
								36	0	24.00	22.93	0.033	0.042	
			Redeused	0	Rear	26865	831.5	1	0	15.00	13.81	0.426	0.560	
								36	0	15.00	13.81	0.424	0.558	
					Top	26865	831.5	1	0	15.00	13.81	0.519	0.683	
								36	0	15.00	13.81	0.526	**0.692**	L26
					Right	26865	831.5	1	0	15.00	13.81	0.044	0.058	
								36	0	15.00	13.81	0.043	0.057	
					Left	26865	831.5	1	0	15.00	13.81	0.029	0.038	
								36	0	15.00	13.81	0.030	0.039	

12.2.12 LTE Band 41

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	standalone	QPSK	Max	19	Rear	40620	2593.0	1	0	25.00	24.63	0.176	0.192	
								50	50	24.00	23.62	0.127	0.139	
				22	Top	40620	2593.0	1	0	25.00	24.63	0.158	0.172	
								50	50	24.00	23.62	0.099	0.108	
				19	Right	40620	2593.0	1	0	25.00	24.63	0.034	0.037	
								50	50	24.00	23.62	0.026	0.028	
					Left	40620	2593.0	1	0	25.00	24.63	0.008	0.009	
								50	50	24.00	23.62	0.007	0.008	
			Redeused	0	Rear	40620	2593.0	1	0	14.00	13.78	0.456	0.480	
								50	50	14.00	13.68	0.458	**0.493**	L41
					Top	40620	2593.0	1	0	14.00	13.78	0.337	0.355	
								50	50	14.00	13.68	0.338	0.364	
					Right	40620	2593.0	1	0	14.00	13.78	0.023	0.024	
								50	50	14.00	13.68	0.021	0.023	
					Left	40620	2593.0	1	0	14.00	13.78	0.004	0.004	
								50	50	14.00	13.68	0.005	0.005	

12.2.13 LTE Band 66

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	Max	19	Rear	132322	1745.0	1	99	24.50	24.02	0.456	0.509	
								50	50	23.50	22.81	0.374	0.438	
				22	Top	132322	1745.0	1	99	24.50	24.02	0.542	0.605	
								50	50	23.50	22.81	0.447	0.524	
				19	Right	132322	1745.0	1	99	24.50	24.02	0.108	0.121	
								50	50	23.50	22.81	0.094	0.110	
					Left	132322	1745.0	1	99	24.50	24.02	0.066	0.074	
								50	50	23.50	22.81	0.054	0.063	
			Redeused	0	Rear	132322	1745.0	1	99	14.00	13.02	0.625	0.783	
								50	50	14.00	13.06	0.638	**0.792**	L66
					Top	132322	1745.0	1	99	14.00	13.02	0.618	0.774	
								50	50	14.00	13.06	0.624	0.775	
					Right	132322	1745.0	1	99	14.00	13.02	0.069	0.086	
								50	50	14.00	13.06	0.071	0.088	
					Left	132322	1745.0	1	99	14.00	13.02	0.109	0.137	
								50	50	14.00	13.06	0.110	0.137	

12.2.14 NR Band n5

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	DFT-s-OFDM QPSK	Max	19	Rear	167300	836.5	1	1	25.00	23.52	0.359	0.505	
								50	28	25.00	23.40	0.415	**0.600**	n5
				22	Top	167300	836.5	1	1	25.00	23.52	0.234	0.329	
								50	28	25.00	23.40	0.267	0.386	
				19	Right	167300	836.5	1	1	25.00	23.52	0.034	0.048	
								50	28	25.00	23.40	0.035	0.051	
					Left	167300	836.5	1	1	25.00	23.52	0.026	0.037	
								50	28	25.00	23.40	0.027	0.039	
			Redeused	0	Rear	167300	836.5	1	1	15.00	14.52	0.394	0.440	
								50	0	15.00	14.44	0.405	0.461	
					Top	167300	836.5	1	1	15.00	14.52	0.485	0.542	
								50	0	15.00	14.44	0.503	0.572	
					Right	167300	836.5	1	1	15.00	14.52	0.033	0.037	
								50	0	15.00	14.44	0.035	0.040	
					Left	167300	836.5	1	1	15.00	14.52	0.033	0.037	
								50	0	15.00	14.44	0.036	0.041	

12.2.15 NR Band n66

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	DFT-s-OFDM QPSK	Max	19	Rear	349000	1745.0	1	104	25.00	24.22	0.429	0.513	
								50	28	25.00	24.04	0.482	0.601	
				22	Top	349000	1745.0	1	104	25.00	24.22	0.343	0.410	
								50	28	25.00	24.04	0.329	0.410	
				19	Right	349000	1745.0	1	104	25.00	24.22	0.066	0.079	
								50	28	25.00	24.04	0.071	0.089	
					Left	349000	1745.0	1	104	25.00	24.22	0.050	0.060	
								50	28	25.00	24.04	0.051	0.064	
			Redeused	0	Rear	349000	1745.0	1	104	14.50	14.18	0.645	0.694	
								50	56	14.50	14.20	0.653	0.700	
					Top	349000	1745.0	1	104	14.50	14.18	0.669	**0.720**	n66
								50	56	14.50	14.20	0.621	0.665	
					Right	349000	1745.0	1	104	14.50	14.18	0.074	0.080	
								50	56	14.50	14.20	0.073	0.078	
					Left	349000	1745.0	1	104	14.50	14.18	0.109	0.117	
								50	56	14.50	14.20	0.108	0.116	

12.3 Repeated measurement

According to KDB 865664 D1.
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.

RAT	Band	DSI	Test Position	Dist. (mm)	Mod	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm) Tune-up limit	Power (dBm) Meas.	1-g SAR (W/kg) Meas. 1st	1-g SAR (W/kg) Meas. 2nd	Ratio	Plot
GSM	1900	1	Rear	0	GPRS 4 Slot	661	1880	NA	NA	18.00	17.81	0.922	0.902	-2.22%	RP1
WCDMA	5	1	Top	0	Rel 99	4132	826.4	NA	NA	17.00	16.13	0.869	0.863	-0.70%	RP2

12.4 SAR result (WLAN & BT Part)

12.4.1 WLAN (DTS Band) SISO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Prot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi1	Standalone	802.11b 1Mbps	Max	19	Rear	1	2412.0	98.86%	20.0	19.38	0.061	0.071	
				22	Top	1	2412.0	98.86%	20.0	19.38	0.049	0.057	
				19	Right	1	2412.0	98.86%	20.0	19.38	0.091	0.106	
				19	Left	1	2412.0	98.86%	20.0	19.38	0.002	0.002	
			Redeused	0	Rear	11	2462.0	98.86%	12.0	11.21	0.500	0.607	
					Top	11	2462.0	98.86%	12.0	11.21	0.297	0.360	
					Right	11	2462.0	98.86%	12.0	11.21	0.548	**0.665**	WL2S
					Left	11	2462.0	98.86%	12.0	11.21	0.000	0.000	

12.4.2 WLAN (DTS Band) MIMO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi1	Standalone	802.11b 1 Mbps	Max	19	Rear	6	2437.0	98.90%	20.0	19.08	0.155	0.194	
				22	Top	6	2437.0	98.90%	20.0	19.08	0.167	0.209	
				19	Right	6	2437.0	98.90%	20.0	19.08	0.090	0.112	
				19	Left	6	2437.0	98.90%	20.0	19.08			
			Redeused	0	Rear	1	2412.0	98.90%	12.0	11.36	0.370	0.434	
					Top	1	2412.0	98.90%	12.0	11.36			
					Right	1	2412.0	98.90%	12.0	11.36	0.455	0.533	
					Left	1	2412.0	98.90%	12.0	11.36			
WiFi2			Max	19	Rear	6	2437.0	98.90%	20.0	18.88			
				22	Top	6	2437.0	98.90%	20.0	18.88			
				19	Right	6	2437.0	98.90%	20.0	18.88			
				19	Left	6	2437.0	98.90%	20.0	18.88	0.133	0.174	
			Redeused	0	Rear	1	2412.0	98.90%	12.0	10.99	0.591	**0.754**	WL2M
					Top	1	2412.0	98.90%	12.0	10.99	0.275	0.351	
					Right	1	2412.0	98.90%	12.0	10.99			
					Left	1	2412.0	98.90%	12.0	10.99	0.467	0.596	

12.4.3 WLAN (UNII-1 & 2A Band) SISO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi2	Standalone	802.11a 6Mbps	Max	19	Rear	64	5320.0	96.75%	15.0	14.41	0.015	0.018	
				22	Top	64	5320.0	96.75%	15.0	14.41	0.021	0.025	
				19	Right	64	5320.0	96.75%	15.0	14.41	0.002	0.002	
				19	Left	64	5320.0	96.75%	15.0	14.41	0.102	0.121	
		802.11ac (VHT80)	Redeused	0	Rear	58	5290.0	94.53%	6.5	5.24	0.392	0.554	
					Top	58	5290.0	94.53%	6.5	5.24	0.062	0.088	
					Right	58	5290.0	94.53%	6.5	5.24	0.000	0.000	
					Left	58	5290.0	94.53%	6.5	5.24	0.563	**0.796**	WL5.3S

12.4.4 WLAN (UNII-1 & 2A Band) MIMO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi1	Standalone	802.11a 6Mbps	Max	19	Rear	64	5320.0	96.81%	15.0	14.45	0.024	0.028	
				22	Top	64	5320.0	96.81%	15.0	14.45			
				19	Right	64	5320.0	96.81%	15.0	14.45	0.085	0.100	
				19	Left	64	5320.0	96.81%	15.0	14.45			
		802.11ac (VHT80)	Redeused	0	Rear	58	5290.0	90.41%	6.5	5.38			
					Top	58	5290.0	90.41%	6.5	5.38			
					Right	58	5290.0	90.41%	6.5	5.38	0.273	0.391	
					Left	58	5290.0	90.41%	6.5	5.38			
WiFi2		802.11a 6Mbps	Max	19	Rear	64	5320.0	96.81%	15.0	14.03			
				22	Top	64	5320.0	96.81%	15.0	14.03	0.027	0.035	
				19	Right	64	5320.0	96.81%	15.0	14.03			
				19	Left	64	5320.0	96.81%	15.0	14.03	0.103	0.133	
		802.11ac (VHT80)	Redeused	0	Rear	58	5290.0	90.41%	6.5	5.52	0.574	0.796	
					Top	58	5290.0	90.41%	6.5	5.52	0.054	0.075	
					Right	58	5290.0	90.41%	6.5	5.52			
					Left	58	5290.0	90.41%	6.5	5.52	0.771	**1.069**	WL5.3M

12.4.5 WLAN (UNII-2C Band) SISO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi2	Standalone	802.11a 6Mbps	Max	19	Rear	100	5500.0	96.75%	17.0	16.19	0.005	0.006	
				22	Top	100	5500.0	96.75%	17.0	16.19	0.012	0.015	
				19	Right	100	5500.0	96.75%	17.0	16.19	0.012	0.015	
				19	Left	100	5500.0	96.75%	17.0	16.19	0.063	0.078	
			Redeused	0	Rear	140	5700.0	96.75%	10.0	9.31	0.519	**0.629**	WL5.5S
					Top	140	5700.0	96.75%	10.0	9.31	0.051	0.062	
					Right	140	5700.0	96.75%	10.0	9.31	0.000	0.000	
					Left	140	5700.0	96.75%	10.0	9.31	0.428	0.519	

12.4.6 WLAN (UNII-2C Band) MIMO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi1	Standalone	802.11a 6Mbps	Max	19	Rear	124	5620.0	96.81%	17.0	16.44	0.049	0.058	
				22	Top	124	5620.0	96.81%	17.0	16.44	0.039	0.046	
				19	Right	124	5620.0	96.81%	17.0	16.44	0.110	0.129	
				19	Left	124	5620.0	96.81%	17.0	16.44	0.035	0.041	
			Redeused	0	Rear	140	5700.0	96.81%	10.0	9.50	0.411	0.476	
					Top	140	5700.0	96.81%	10.0	9.50	0.055	0.064	
					Right	140	5700.0	96.81%	10.0	9.50	0.666	**0.772**	WL5.5M
					Left	140	5700.0	96.81%	10.0	9.50			
WiFi2			Max	19	Rear	124	5620.0	96.81%	17.0	15.65			
				22	Top	124	5620.0	96.81%	17.0	15.65			
				19	Right	124	5620.0	96.81%	17.0	15.65	0.110	0.155	
				19	Left	124	5620.0	96.81%	17.0	15.65			
			Redeused	0	Rear	140	5700.0	96.81%	10.0	8.98	0.543	0.709	
					Top	140	5700.0	96.81%	10.0	8.98	0.034	0.044	
					Right	140	5700.0	96.81%	10.0	8.98			
					Left	140	5700.0	96.81%	10.0	8.98	0.392	0.512	

* The part that is changing color is no sar peak.

12.4.7 WLAN (UNII-3 Band) SISO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi2	Standalone	802.11a 6Mbps	Max	19	Rear	165	5825.0	96.75%	17.0	16.14	0.130	0.164	
				22	Top	165	5825.0	96.75%	17.0	16.14	0.040	0.050	
				19	Right	165	5825.0	96.75%	17.0	16.14	0.000	0.000	
				19	Left	165	5825.0	96.75%	17.0	16.14	0.094	0.118	
			Redeused	0	Rear	157	5785.0	96.75%	9.5	9.48	0.643	0.668	
					Top	157	5785.0	96.75%	9.5	9.48	0.027	0.028	
					Right	157	5785.0	96.75%	9.5	9.48	0.008	0.008	
					Left	157	5785.0	96.75%	9.5	9.48	0.659	**0.684**	WL5.8S

12.4.8 WLAN (UNII-3 Band) MIMO

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi1	Standalone	802.11a 6Mbps	Max	19	Rear	149	5745.0	96.81%	17.0	16.35	0.057	0.068	
				22	Top	149	5745.0	96.81%	17.0	16.35	0.034	0.041	
				19	Right	149	5745.0	96.81%	17.0	16.35	0.117	0.140	
				19	Left	149	5745.0	96.81%	17.0	16.35	0.086	0.103	
			Redeused	0	Rear	157	5785.0	96.81%	9.5	9.46	0.329	0.343	
					Top	157	5785.0	96.81%	9.5	9.46	0.053	0.055	
					Right	157	5785.0	96.81%	9.5	9.46	0.436	0.455	
					Left	157	5785.0	96.81%	9.5	9.46			
WiFi2			Max	19	Rear	149	5745.0	96.81%	17.0	15.79			
				22	Top	149	5745.0	96.81%	17.0	15.79			
				19	Right	149	5745.0	96.81%	17.0	15.79			
				19	Left	149	5745.0	96.81%	17.0	15.79			
			Redeused	0	Rear	157	5785.0	96.81%	9.5	9.32	0.454	0.489	
					Top	157	5785.0	96.81%	9.5	9.32			
					Right	157	5785.0	96.81%	9.5	9.32			
					Left	157	5785.0	96.81%	9.5	9.32	0.485	**0.522**	WL5.8M

* The part that is changing color is no sar peak.

12.4.9 Bluetooth

Antenna	RF Exposure Conditions	Mode	Power State	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
WiFi1	Standalone	GFSK 125k coded 37 pkt	Max	19	Rear	0	2402.0	82.47%	15.0	14.77	0.024	0.030	
				22	Top	0	2402.0	82.47%	15.0	14.77	0.018	0.023	
				19	Right	0	2402.0	82.47%	15.0	14.77	0.030	0.038	
				19	Left	0	2402.0	82.47%	15.0	14.77	0.000	0.000	
		GFSK BR (DH5)	Redeused	0	Rear	0	2402.0	76.85%	12.0	10.44	0.241	0.350	
					Top	0	2402.0	76.85%	12.0	10.44	0.119	0.173	
					Right	0	2402.0	76.85%	12.0	10.44	0.265	**0.385**	BT
					Left	0	2402.0	76.85%	12.0	10.44	0.000	0.000	

SECTION 13: Simultaneous transmission SAR test exclusion considerations

13.1 Sum and SPLSR

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based on sum of SAR, the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit, then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met. When a pair of the summation is above 1.58 W/kg for 1g SAR, then SAR to Peak Location Ratio (SPLSR) is performed, as conservative even though applicable limit is 1.6 W/kg. finally sum of SAR value is convert to TER, see next section.
Simultaneous transmission for ENDC mode is treated on part2 test report.

SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR_1 + SAR_2)^{1.5} / Ri$$

Where:

SAR_1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR_2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR_1 + SAR_2)^{1.5} / Ri \leq 0.04$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine SAR_1.or SAR_2. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

13.1.1 Sum of the SAR for WWAN & WLAN & BT in (Rear) position Max Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant .1(MIMO)	DTS Ant.2(MIMO)	UNII Ant.1(SISO)	UNII Ant.1(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Rear	0.749	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	2.GSM 1900	Rear	0.342	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	3.WCDMA Band Ⅱ	Rear	0.599	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	4.WCDMA Band Ⅳ	Rear	0.584	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	5.WCDMA Band Ⅴ	Rear	0.688	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	6.LTE Band 2	Rear	0.493	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	7.LTE Band 2(ENDC)	Rear	0.201	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	8.LTE Band 4/66	Rear	0.509	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	9.LTE Band 5	Rear	0.713	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	10.LTE Band 12/17	Rear	0.464	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	11.LTE Band 13	Rear	0.610	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	12.LTE Band 26	Rear	0.560	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	13.LTE Band 41	Rear	0.192	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	14.NR Band n5	Rear	0.600	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	15.NR Band n66	Rear	0.601	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	NR + ENDC 1 . 14 + 6	Rear	1.093	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	NR + ENDC 2 .14 + 8	Rear	1.109	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	NR + ENDC 3 .15 + 7	Rear	0.802	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	NR + ENDC 4 .15 + 9	Rear	1.314	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	NR + ENDC 5 . 15 + 10	Rear	1.065	0.071	0.194	0.000	0.164	0.068	0.000	0.030
	NR + ENDC 6 . 15 + 11	Rear	1.211	0.071	0.194	0.000	0.164	0.068	0.000	0.030

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1	WWAN+ DTS MIMO	WWAN+ UNII Ant.2	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 3 + 4	1 + 5	1 + 6 + 7	1 + 8	1 + 5 + 8	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Rear	0.820	0.943	0.913	0.817	0.779	0.943	0.847
	2.GSM 1900	Rear	0.413	0.536	0.506	0.410	0.372	0.536	0.440
	3.WCDMA Band Ⅱ	Rear	0.670	0.793	0.763	0.667	0.629	0.793	0.697
	4.WCDMA Band Ⅳ	Rear	0.655	0.778	0.748	0.652	0.614	0.778	0.682
	5.WCDMA Band Ⅴ	Rear	0.759	0.882	0.852	0.756	0.718	0.882	0.786
	6.LTE Band 2	Rear	0.564	0.687	0.657	0.561	0.523	0.687	0.591
	7.LTE Band 2(ENDC)	Rear	0.272	0.395	0.365	0.269	0.231	0.395	0.299
	8.LTE Band 4/66	Rear	0.580	0.703	0.673	0.577	0.539	0.703	0.607
	9.LTE Band 5	Rear	0.784	0.907	0.877	0.781	0.743	0.907	0.811
	10.LTE Band 12/17	Rear	0.535	0.658	0.628	0.532	0.494	0.658	0.562
	11.LTE Band 13	Rear	0.681	0.804	0.774	0.678	0.640	0.804	0.708
	12.LTE Band 26	Rear	0.631	0.754	0.724	0.628	0.590	0.754	0.658
	13.LTE Band 41	Rear	0.263	0.386	0.356	0.260	0.222	0.386	0.290
	14.NR Band n5	Rear	0.671	0.794	0.764	0.668	0.630	0.794	0.698
	15.NR Band n66	Rear	0.672	0.795	0.765	0.669	0.631	0.795	0.699
	NR + ENDC 1 . 14 + 6	Rear	1.164	1.287	1.257	1.161	1.123	1.287	1.191
	NR + ENDC 2 .14 + 8	Rear	1.180	1.303	1.273	1.177	1.139	1.303	1.207
	NR + ENDC 3 .15 + 7	Rear	0.873	0.996	0.966	0.870	0.832	0.996	0.900
	NR + ENDC 4 .15 + 9	Rear	1.385	1.508	1.478	1.382	1.344	1.508	1.412
	NR + ENDC 5 . 15 + 10	Rear	1.136	1.259	1.229	1.133	1.095	1.259	1.163
	NR + ENDC 6 . 15 + 11	Rear	1.282	1.405	1.375	1.279	1.241	1.405	1.309

13.1.2 Sum of the SAR for WWAN & WLAN & BT in (Rear) position Redeused Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant.1(MIMO)	DTS Ant.2(MIMO)	UNII Ant.2(SISO)	UNII Ant.1(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Rear	0.642	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	2.GSM 1900	Rear	0.963	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	3.WCDMA Band II	Rear	0.665	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	4.WCDMA Band IV	Rear	0.751	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	5.WCDMA Band V	Rear	0.966	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	6.LTE Band 2	Rear	0.716	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	7.LTE Band 2(ENDC)	Rear	0.426	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	8.LTE Band 4/66	Rear	0.792	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	9.LTE Band 5	Rear	0.550	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	10.LTE Band 12/17	Rear	0.558	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	11.LTE Band 13	Rear	0.709	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	12.LTE Band 26	Rear	0.560	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	13.LTE Band 41	Rear	0.493	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	14.NR Band n5	Rear	0.461	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	15.NR Band n66	Rear	0.700	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	NR + ENDC 1 . 14 + 6	Rear	1.177	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	NR + ENDC 2 .14 + 8	Rear	1.253	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	NR + ENDC 3 .15 + 7	Rear	1.126	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	NR + ENDC 4 .15 + 9	Rear	1.250	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	NR + ENDC 5 . 15 + 10	Rear	1.258	0.607	0.434	0.754	0.668	0.476	0.796	0.350
	NR + ENDC 6 . 15 + 11	Rear	1.409	0.607	0.434	0.754	0.668	0.476	0.796	0.350

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2(SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 3 + 4	1 + 5	1 + 6 + 7	1 + 8	1 + 5 + 8	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Rear	1.249	**1.830**	1.310	**1.914**	0.992	**1.660**	**2.264**
	2.GSM 1900	Rear	1.570	**2.151**	**1.631**	**2.235**	1.313	**1.981**	**2.585**
	3.WCDMA Band II	Rear	1.272	**1.853**	1.333	**1.937**	1.015	**1.683**	**2.287**
	4.WCDMA Band IV	Rear	1.358	**1.939**	1.419	**2.023**	1.101	**1.769**	**2.373**
	5.WCDMA Band V	Rear	1.573	**2.154**	**1.634**	**2.238**	1.316	**1.984**	**2.588**
	6.LTE Band 2	Rear	1.323	**1.904**	1.384	**1.988**	1.066	**1.734**	**2.338**
	7.LTE Band 2(ENDC)	Rear	1.033	**1.614**	1.094	**1.698**	0.776	1.444	**2.048**
	8.LTE Band 4/66	Rear	1.399	**1.980**	1.460	**2.064**	1.142	**1.810**	**2.414**
	9.LTE Band 5	Rear	1.157	**1.738**	1.218	**1.822**	0.900	1.568	**2.172**
	10.LTE Band 12/17	Rear	1.165	**1.746**	1.226	**1.830**	0.908	1.576	**2.180**
	11.LTE Band 13	Rear	1.316	**1.897**	1.377	**1.981**	1.059	**1.727**	**2.331**
	12.LTE Band 26	Rear	1.167	**1.748**	1.228	**1.832**	0.910	1.578	**2.182**
	13.LTE Band 41	Rear	1.100	**1.681**	1.161	**1.765**	0.843	1.511	**2.115**
	14.NR Band n5	Rear	1.068	**1.649**	1.129	**1.733**	0.811	1.479	**2.083**
	15.NR Band n66	Rear	1.307	**1.888**	1.368	**1.972**	1.050	**1.718**	**2.322**
	NR + ENDC 1 . 14 + 6	Rear	**1.784**	**2.365**	**1.845**	**2.449**	1.527	**2.195**	**2.799**
	NR + ENDC 2 .14 + 8	Rear	**1.860**	**2.441**	**1.921**	**2.525**	**1.603**	**2.271**	**2.875**
	NR + ENDC 3 .15 + 7	Rear	**1.733**	**2.314**	**1.794**	**2.398**	1.476	**2.144**	**2.748**
	NR + ENDC 4 .15 + 9	Rear	**1.857**	**2.438**	**1.918**	**2.522**	**1.600**	**2.268**	**2.872**
	NR + ENDC 5 . 15 + 10	Rear	**1.865**	**2.446**	**1.926**	**2.530**	**1.608**	**2.276**	**2.880**
	NR + ENDC 6 . 15 + 11	Rear	**2.016**	**2.597**	**2.077**	**2.681**	**1.759**	**2.427**	**3.031**

Note : The red letters indicate 1.594 over, and the SPLSR is performed in the next section.

13.1.3 Sum of the SAR for WWAN & WLAN & BT in (Top / Bottom) position Max Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant .1(MIMO)	DTS Ant .2(MIMO)	UNII Ant.2(SISO)	UNII Ant.1(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Top	0.582	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	2.GSM 1900	Top	0.477	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	3.WCDMA Band II	Top	0.557	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	4.WCDMA Band IV	Top	0.575	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	5.WCDMA Band V	Top	0.490	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	6.LTE Band 2	Top	0.566	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	7.LTE Band 2(ENDC)	Bottom	0.306	0.400	0.400	0.400	0.400	0.400	0.400	0.400
	8.LTE Band 4/66	Top	0.605	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	9.LTE Band 5	Top	0.536	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	10.LTE Band 12/17	Top	0.243	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	11.LTE Band 13	Top	0.510	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	12.LTE Band 26	Top	0.540	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	13.LTE Band 41	Top	0.172	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	14.NR Band n5	Top	0.386	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	15.NR Band n66	Top	0.410	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	NR + ENDC 1 . 14 + 6	Top	0.952	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	NR + ENDC 2 .14 + 8	Top	0.991	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	NR + ENDC 3 .15 + 7	Top	0.716	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	NR + ENDC 4 .15 + 9	Top	0.946	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	NR + ENDC 5 . 15 + 10	Top	0.653	0.057	0.209	0.000	0.050	0.046	0.035	0.023
	NR + ENDC 6 . 15 + 11	Top	0.920	0.057	0.209	0.000	0.050	0.046	0.035	0.023

Note : The SAR values for (WLAN & BT) in WWAN 7. (LTE Band 2(ENDC) are estimates. See section3.3.

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2(SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 3 + 4	1 + 5	1 + 6 + 7	1 + 8	1 + 5 + 8	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Top	0.639	0.791	0.632	0.663	0.605	0.655	0.686
	2.GSM 1900	Top	0.534	0.686	0.527	0.558	0.500	0.550	0.581
	3.WCDMA Band II	Top	0.614	0.766	0.607	0.638	0.580	0.630	0.661
	4.WCDMA Band IV	Top	0.632	0.784	0.625	0.656	0.598	0.648	0.679
	5.WCDMA Band V	Top	0.547	0.699	0.540	0.571	0.513	0.563	0.594
	6.LTE Band 2	Top	0.623	0.775	0.616	0.647	0.589	0.639	0.670
	7.LTE Band 2(ENDC)	Bottom	0.706	1.106	0.706	1.106	0.706	1.106	1.506
	8.LTE Band 4/66	Top	0.662	0.814	0.655	0.686	0.628	0.678	0.709
	9.LTE Band 5	Top	0.593	0.745	0.586	0.617	0.559	0.609	0.640
	10.LTE Band 12/17	Top	0.300	0.452	0.293	0.324	0.266	0.316	0.347
	11.LTE Band 13	Top	0.567	0.719	0.560	0.591	0.533	0.583	0.614
	12.LTE Band 26	Top	0.597	0.749	0.590	0.621	0.563	0.613	0.644
	13.LTE Band 41	Top	0.229	0.381	0.222	0.253	0.195	0.245	0.276
	14.NR Band n5	Top	0.443	0.595	0.436	0.467	0.409	0.459	0.490
	15.NR Band n66	Top	0.467	0.619	0.460	0.491	0.433	0.483	0.514
	NR + ENDC 1 . 14 + 6	Top	1.009	1.161	1.002	1.033	0.975	1.025	1.056
	NR + ENDC 2 .14 + 8	Top	1.048	1.200	1.041	1.072	1.014	1.064	1.095
	NR + ENDC 3 .15 + 7	Top	0.773	0.925	0.766	0.797	0.739	0.789	0.820
	NR + ENDC 4 .15 + 9	Top	1.003	1.155	0.996	1.027	0.969	1.019	1.050
	NR + ENDC 5 . 15 + 10	Top	0.710	0.862	0.703	0.734	0.676	0.726	0.757
	NR + ENDC 6 . 15 + 11	Top	0.977	1.129	0.970	1.001	0.943	0.993	1.024

13.1.4 Sum of the SAR for WWAN & WLAN & BT in (Top / Bottom) position Redeused Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant .1(MIMO)	DTS Ant .2(MIMO)	UNII Ant.2(SISO)	UNII Ant.1(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Top	0.843	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	2.GSM 1900	Top	0.949	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	3.WCDMA Band II	Top	0.614	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	4.WCDMA Band IV	Top	0.687	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	5.WCDMA Band V	Top	1.127	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	6.LTE Band 2	Top	0.716	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	7.LTE Band 2(ENDC)	Bottom	0.385	0.400	0.400	0.400	0.400	0.400	0.400	0.400
	8.LTE Band 4/66	Top	0.775	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	9.LTE Band 5	Top	0.674	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	10.LTE Band 12/17	Top	0.607	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	11.LTE Band 13	Top	0.645	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	12.LTE Band 26	Top	0.692	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	13.LTE Band 41	Top	0.364	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	14.NR Band n5	Top	0.572	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	15.NR Band n66	Top	0.720	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	NR + ENDC 1 . 14 + 6	Top	1.288	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	NR + ENDC 2 .14 + 8	Top	1.347	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	NR + ENDC 3 .15 + 7	Top	1.105	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	NR + ENDC 4 .15 + 9	Top	1.394	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	NR + ENDC 5 . 15 + 10	Top	1.327	0.360	0.000	0.351	0.088	0.064	0.075	0.173
	NR + ENDC 6 . 15 + 11	Top	1.365	0.360	0.000	0.351	0.088	0.064	0.075	0.173

Note : The SAR values for (WLAN & BT) in WWAN 7 (LTE Band 2(ENDC) are estimates. See section3.3.

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2(SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 4 + 5	1 + 5	1 + 6 + 7	1 + 8	1 + 6 + 7	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Top	1.203	1.194	0.931	0.982	1.016	1.104	1.155
	2.GSM 1900	Top	1.309	1.300	1.037	1.088	1.122	1.210	1.261
	3.WCDMA Band II	Top	0.974	0.965	0.702	0.753	0.787	0.875	0.926
	4.WCDMA Band IV	Top	1.047	1.038	0.775	0.826	0.860	0.948	0.999
	5.WCDMA Band V	Top	1.487	1.478	1.215	1.266	1.300	1.388	1.439
	6.LTE Band 2	Top	1.076	1.067	0.804	0.855	0.889	0.977	1.028
	7.LTE Band 2(ENDC)	Bottom	0.785	1.185	0.785	1.185	0.785	1.185	1.585
	8.LTE Band 4/66	Top	1.135	1.126	0.863	0.914	0.948	1.036	1.087
	9.LTE Band 5	Top	1.034	1.025	0.762	0.813	0.847	0.935	0.986
	10.LTE Band 12/17	Top	0.967	0.958	0.695	0.746	0.780	0.868	0.919
	11.LTE Band 13	Top	1.005	0.996	0.733	0.784	0.818	0.906	0.957
	12.LTE Band 26	Top	1.052	1.043	0.780	0.831	0.865	0.953	1.004
	13.LTE Band 41	Top	0.724	0.715	0.452	0.503	0.537	0.625	0.676
	14.NR Band n5	Top	0.932	0.923	0.660	0.711	0.745	0.833	0.884
	15.NR Band n66	Top	1.080	1.071	0.808	0.859	0.893	0.981	1.032
	NR + ENDC 1 . 14 + 6	Top	**1.648**	**1.639**	1.376	1.427	1.461	1.549	**1.600**
	NR + ENDC 2 .14 + 8	Top	**1.707**	**1.698**	1.435	1.486	1.520	**1.608**	**1.659**
	NR + ENDC 3 .15 + 7	Top	1.465	1.456	1.193	1.244	1.278	1.366	1.417
	NR + ENDC 4 .15 + 9	Top	**1.754**	**1.745**	1.482	1.533	1.567	**1.655**	**1.706**
	NR + ENDC 5 . 15 + 10	Top	**1.687**	**1.678**	1.415	1.466	1.500	1.588	**1.639**
	NR + ENDC 6 . 15 + 11	Top	**1.725**	**1.716**	1.453	1.504	1.538	**1.626**	**1.677**

Note : The red letters indicate 1.594 over, and the SPLSR is performed in the next section.

13.1.5 Sum of the SAR for WWAN & WLAN & BT in (Right) position Max Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant .1(MIMO)	DTS Ant .2(MIMO)	UNII Ant.1(SISO)	UNII Ant.1(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Right	0.065	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	2.GSM 1900	Right	0.039	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	3.WCDMA Band II	Right	0.072	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	4.WCDMA Band IV	Right	0.124	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	5.WCDMA Band V	Right	0.066	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	6.LTE Band 2	Right	0.061	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	7.LTE Band 2(ENDC)	Right	0.495	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	8.LTE Band 4/66	Right	0.121	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	9.LTE Band 5	Right	0.048	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	10.LTE Band 12/17	Right	0.028	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	11.LTE Band 13	Right	0.049	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	12.LTE Band 26	Right	0.074	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	13.LTE Band 41	Right	0.037	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	14.NR Band n5	Right	0.051	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	15.NR Band n66	Right	0.089	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	NR + ENDC 1 . 14 + 6	Right	0.112	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	NR + ENDC 2 .14 + 8	Right	0.172	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	NR + ENDC 3 .15 + 7	Right	0.584	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	NR + ENDC 4 .15 + 9	Right	0.137	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	NR + ENDC 5 . 15 + 10	Right	0.117	0.106	0.112	0.000	0.015	0.140	0.155	0.038
	NR + ENDC 6 . 15 + 11	Right	0.138	0.106	0.112	0.000	0.015	0.140	0.155	0.038

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2(SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 3 + 4	1 + 5	1 + 6 + 7	1 + 8	1 + 6 + 7	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Right	0.171	0.177	0.080	0.360	0.103	0.118	0.398
	2.GSM 1900	Right	0.145	0.151	0.054	0.334	0.077	0.092	0.372
	3.WCDMA Band II	Right	0.178	0.184	0.087	0.367	0.110	0.125	0.405
	4.WCDMA Band IV	Right	0.230	0.236	0.139	0.419	0.162	0.177	0.457
	5.WCDMA Band V	Right	0.172	0.178	0.081	0.361	0.104	0.119	0.399
	6.LTE Band 2	Right	0.167	0.173	0.076	0.356	0.099	0.114	0.394
	7.LTE Band 2(ENDC)	Right	0.601	0.607	0.510	0.790	0.533	0.548	0.828
	8.LTE Band 4/66	Right	0.227	0.233	0.136	0.416	0.159	0.174	0.454
	9.LTE Band 5	Right	0.154	0.160	0.063	0.343	0.086	0.101	0.381
	10.LTE Band 12/17	Right	0.134	0.140	0.043	0.323	0.066	0.081	0.361
	11.LTE Band 13	Right	0.155	0.161	0.064	0.344	0.087	0.102	0.382
	12.LTE Band 26	Right	0.180	0.186	0.089	0.369	0.112	0.127	0.407
	13.LTE Band 41	Right	0.143	0.149	0.052	0.332	0.075	0.090	0.370
	14.NR Band n5	Right	0.157	0.163	0.066	0.346	0.089	0.104	0.384
	15.NR Band n66	Right	0.195	0.201	0.104	0.384	0.127	0.142	0.422
	NR + ENDC 1 . 14 + 6	Right	0.218	0.224	0.127	0.407	0.150	0.165	0.445
	NR + ENDC 2 .14 + 8	Right	0.278	0.284	0.187	0.467	0.210	0.225	0.505
	NR + ENDC 3 .15 + 7	Right	0.690	0.696	0.599	0.879	0.622	0.637	0.917
	NR + ENDC 4 .15 + 9	Right	0.243	0.249	0.152	0.432	0.175	0.190	0.470
	NR + ENDC 5 . 15 + 10	Right	0.223	0.229	0.132	0.412	0.155	0.170	0.450
	NR + ENDC 6 . 15 + 11	Right	0.244	0.250	0.153	0.433	0.176	0.191	0.471

13.1.6 Sum of the SAR for WWAN & WLAN & BT in (Right) position Redeused Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant .1(MIMO)	DTS Ant .2(MIMO)	UNII Ant.2(SISO)	UNII Ant.1(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Right	0.041	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	2.GSM 1900	Right	0.077	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	3.WCDMA Band II	Right	0.058	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	4.WCDMA Band IV	Right	0.051	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	5.WCDMA Band V	Right	0.041	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	6.LTE Band 2	Right	0.064	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	7.LTE Band 2(ENDC)	Right	0.495	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	8.LTE Band 4/66	Right	0.088	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	9.LTE Band 5	Right	0.047	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	10.LTE Band 12/17	Right	0.048	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	11.LTE Band 13	Right	0.051	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	12.LTE Band 26	Right	0.058	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	13.LTE Band 41	Right	0.024	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	14.NR Band n5	Right	0.040	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	15.NR Band n66	Right	0.080	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	NR + ENDC 1 . 14 + 6	Right	0.104	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	NR + ENDC 2 .14 + 8	Right	0.128	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	NR + ENDC 3 .15 + 7	Right	0.575	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	NR + ENDC 4 .15 + 9	Right	0.127	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	NR + ENDC 5 . 15 + 10	Right	0.128	0.665	0.533	0.000	0.008	0.772	0.000	0.385
	NR + ENDC 6 . 15 + 11	Right	0.131	0.665	0.533	0.000	0.008	0.772	0.000	0.385

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2(SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 3 + 4	1 + 5	1 + 6 + 7	1 + 8	1 + 5 + 8	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Right	0.706	0.574	0.049	0.813	0.426	0.434	1.198
	2.GSM 1900	Right	0.742	0.610	0.085	0.849	0.462	0.470	1.234
	3.WCDMA Band II	Right	0.723	0.591	0.066	0.830	0.443	0.451	1.215
	4.WCDMA Band IV	Right	0.716	0.584	0.059	0.823	0.436	0.444	1.208
	5.WCDMA Band V	Right	0.706	0.574	0.049	0.813	0.426	0.434	1.198
	6.LTE Band 2	Right	0.729	0.597	0.072	0.836	0.449	0.457	1.221
	7.LTE Band 2(ENDC)	Right	1.160	1.028	0.503	1.267	0.880	0.888	**1.652**
	8.LTE Band 4/66	Right	0.753	0.621	0.096	0.860	0.473	0.481	1.245
	9.LTE Band 5	Right	0.712	0.580	0.055	0.819	0.432	0.440	1.204
	10.LTE Band 12/17	Right	0.713	0.581	0.056	0.820	0.433	0.441	1.205
	11.LTE Band 13	Right	0.716	0.584	0.059	0.823	0.436	0.444	1.208
	12.LTE Band 26	Right	0.723	0.591	0.066	0.830	0.443	0.451	1.215
	13.LTE Band 41	Right	0.689	0.557	0.032	0.796	0.409	0.417	1.181
	14.NR Band n5	Right	0.705	0.573	0.048	0.812	0.425	0.433	1.197
	15.NR Band n66	Right	0.745	0.613	0.088	0.852	0.465	0.473	1.237
	NR + ENDC 1 . 14 + 6	Right	0.769	0.637	0.112	0.876	0.489	0.497	1.261
	NR + ENDC 2 .14 + 8	Right	0.793	0.661	0.136	0.900	0.513	0.521	1.285
	NR + ENDC 3 .15 + 7	Right	1.240	1.108	0.583	1.347	0.960	0.968	**1.732**
	NR + ENDC 4 .15 + 9	Right	0.792	0.660	0.135	0.899	0.512	0.520	1.284
	NR + ENDC 5 . 15 + 10	Right	0.793	0.661	0.136	0.900	0.513	0.521	1.285
	NR + ENDC 6 . 15 + 11	Right	0.796	0.664	0.139	0.903	0.516	0.524	1.288

Note : The red letters indicate 1.594 over, and the SPLSR is performed in the next section.

13.1.7 Sum of the SAR for WWAN & WLAN & BT in (Left) position Max Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant .1(MIMO)	DTS Ant .2(MIMO)	UNII Ant.2(SISO)	UNII Ant.1(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Left	0.036	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	2.GSM 1900	Left	0.075	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	3.WCDMA Band II	Left	0.059	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	4.WCDMA Band IV	Left	0.076	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	5.WCDMA Band V	Left	0.037	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	6.LTE Band 2	Left	0.047	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	7.LTE Band 2(ENDC)	Left	0.283	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	8.LTE Band 4/66	Left	0.074	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	9.LTE Band 5	Left	0.043	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	10.LTE Band 12/17	Left	0.039	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	11.LTE Band 13	Left	0.039	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	12.LTE Band 26	Left	0.064	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	13.LTE Band 41	Left	0.009	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	14.NR Band n5	Left	0.039	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	15.NR Band n66	Left	0.064	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	NR + ENDC 1 . 14 + 6	Left	0.086	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	NR + ENDC 2 .14 + 8	Left	0.113	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	NR + ENDC 3 .15 + 7	Left	0.347	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	NR + ENDC 4 .15 + 9	Left	0.107	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	NR + ENDC 5 . 15 + 10	Left	0.103	0.002	0.000	0.174	0.121	0.103	0.133	0.000
	NR + ENDC 6 . 15 + 11	Left	0.103	0.002	0.000	0.174	0.121	0.103	0.133	0.000

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2(SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 3 + 4	1 + 5	1 + 6 + 7	1 + 8	1 + 5 + 8	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Left	0.038	0.210	0.157	0.272	0.036	0.157	0.272
	2.GSM 1900	Left	0.077	0.249	0.196	0.311	0.075	0.196	0.311
	3.WCDMA Band II	Left	0.061	0.233	0.180	0.295	0.059	0.180	0.295
	4.WCDMA Band IV	Left	0.078	0.250	0.197	0.312	0.076	0.197	0.312
	5.WCDMA Band V	Left	0.039	0.211	0.158	0.273	0.037	0.158	0.273
	6.LTE Band 2	Left	0.049	0.221	0.168	0.283	0.047	0.168	0.283
	7.LTE Band 2(ENDC)	Left	0.285	0.457	0.404	0.519	0.283	0.404	0.519
	8.LTE Band 4/66	Left	0.076	0.248	0.195	0.310	0.074	0.195	0.310
	9.LTE Band 5	Left	0.045	0.217	0.164	0.279	0.043	0.164	0.279
	10.LTE Band 12/17	Left	0.041	0.213	0.160	0.275	0.039	0.160	0.275
	11.LTE Band 13	Left	0.041	0.213	0.160	0.275	0.039	0.160	0.275
	12.LTE Band 26	Left	0.066	0.238	0.185	0.300	0.064	0.185	0.300
	13.LTE Band 41	Left	0.011	0.183	0.130	0.245	0.009	0.130	0.245
	14.NR Band n5	Left	0.041	0.213	0.160	0.275	0.039	0.160	0.275
	15.NR Band n66	Left	0.066	0.238	0.185	0.300	0.064	0.185	0.300
	NR + ENDC 1 . 14 + 6	Left	0.088	0.260	0.207	0.322	0.086	0.207	0.322
	NR + ENDC 2 .14 + 8	Left	0.115	0.287	0.234	0.349	0.113	0.234	0.349
	NR + ENDC 3 .15 + 7	Left	0.349	0.521	0.468	0.583	0.347	0.468	0.583
	NR + ENDC 4 .15 + 9	Left	0.109	0.281	0.228	0.343	0.107	0.228	0.343
	NR + ENDC 5 . 15 + 10	Left	0.105	0.277	0.224	0.339	0.103	0.224	0.339
	NR + ENDC 6 . 15 + 11	Left	0.105	0.277	0.224	0.339	0.103	0.224	0.339

13.1.8 Sum of the SAR for WWAN & WLAN & BT in (Left) position Redeused Power

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)							
			WWAN	WLAN & BT						
				DTS Ant .1(SISO)	DTS Ant.1(MIMO)	DTS Ant.2(MIMO)	UNII Ant.2(SISO)	UNII Ant.2(MIMO)	UNII Ant.2(MIMO)	BT Ant.1
			1	2	3	4	5	6	7	8
Standalone	1.GSM 850	Left	0.041	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	2.GSM 1900	Left	0.046	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	3.WCDMA Band II	Left	0.031	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	4.WCDMA Band IV	Left	0.117	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	5.WCDMA Band V	Left	0.043	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	6.LTE Band 2	Left	0.042	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	7.LTE Band 2(ENDC)	Left	0.283	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	8.LTE Band 4/66	Left	0.137	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	9.LTE Band 5	Left	0.029	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	10.LTE Band 12/17	Left	0.033	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	11.LTE Band 13	Left	0.041	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	12.LTE Band 26	Left	0.039	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	13.LTE Band 41	Left	0.005	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	14.NR Band n5	Left	0.041	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	15.NR Band n66	Left	0.117	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	NR + ENDC 1 . 14 + 6	Left	0.083	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	NR + ENDC 2 .14 + 8	Left	0.178	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	NR + ENDC 3 .15 + 7	Left	0.400	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	NR + ENDC 4 .15 + 9	Left	0.146	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	NR + ENDC 5 . 15 + 10	Left	0.150	0.000	0.000	0.596	0.796	0.000	1.069	0.000
	NR + ENDC 6 . 15 + 11	Left	0.158	0.000	0.000	0.596	0.796	0.000	1.069	0.000

RF Exposure	WWAN Bands	Test Position	Sum of SAR (W/kg)						
			WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2(SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
			1 + 2	1 + 3 + 4	1 + 5	1 + 6 + 7	1 + 8	1 + 5 + 8	1 + 6 + 7 + 8
Simultaneous Transmission	1.GSM 850	Left	0.041	0.637	0.837	1.110	0.041	0.837	1.110
	2.GSM 1900	Left	0.046	0.642	0.842	1.115	0.046	0.842	1.115
	3.WCDMA Band II	Left	0.031	0.627	0.827	1.100	0.031	0.827	1.100
	4.WCDMA Band IV	Left	0.117	0.713	0.913	1.186	0.117	0.913	1.186
	5.WCDMA Band V	Left	0.043	0.639	0.839	1.112	0.043	0.839	1.112
	6.LTE Band 2	Left	0.042	0.638	0.838	1.111	0.042	0.838	1.111
	7.LTE Band 2(ENDC)	Left	0.283	0.879	1.079	1.352	0.283	1.079	1.352
	8.LTE Band 4/66	Left	0.137	0.733	0.933	1.206	0.137	0.933	1.206
	9.LTE Band 5	Left	0.029	0.625	0.825	1.098	0.029	0.825	1.098
	10.LTE Band 12/17	Left	0.033	0.629	0.829	1.102	0.033	0.829	1.102
	11.LTE Band 13	Left	0.041	0.637	0.837	1.110	0.041	0.837	1.110
	12.LTE Band 26	Left	0.039	0.635	0.835	1.108	0.039	0.835	1.108
	13.LTE Band 41	Left	0.005	0.601	0.801	1.074	0.005	0.801	1.074
	14.NR Band n5	Left	0.041	0.637	0.837	1.110	0.041	0.837	1.110
	15.NR Band n66	Left	0.117	0.713	0.913	1.186	0.117	0.913	1.186
	NR + ENDC 1 . 14 + 6	Left	0.083	0.679	0.879	1.152	0.083	0.879	1.152
	NR + ENDC 2 .14 + 8	Left	0.178	0.774	0.974	1.247	0.178	0.974	1.247
	NR + ENDC 3 .15 + 7	Left	0.400	0.996	1.196	1.469	0.400	1.196	1.469
	NR + ENDC 4 .15 + 9	Left	0.146	0.742	0.942	1.215	0.146	0.942	1.215
	NR + ENDC 5 . 15 + 10	Left	0.150	0.746	0.946	1.219	0.150	0.946	1.219
	NR + ENDC 6 . 15 + 11	Left	0.158	0.754	0.954	1.227	0.158	0.954	1.227

13.2 SPLSR

The red text in the previous section and the circled areas in the table below are evaluated by the SPLSR.

WWAN	WWAN+ DTS Ant.1 (SISO)	WWAN+ DTS MIMO	WWAN+ UNII Ant.2 (SISO)	WWAN+ UNII MIMO	WWAN+ BT Ant.1	WWAN+ UNII Ant.2 (SISO)+ BT Ant.1	WWAN+ UNII MIMO+ BT Ant.1
2G	○	○	*1	*1	*1	○	○
3G	○	○	*1	*1	*1	○	○
4G(LTE)	*2	*2	*1 , *2	*1 , *2	*1 , *2	*2	*2
5G(SA)	*2	*2	*1 , *2	*1 , *2	*1 , *2	*2	*2
5G(NSA)	○	○	*1	*1	*1	○	○

*1 : Evaluated at maximum configuration.
*2 : LTE B2 , (4/66), 5, (12/17), 13 and NR n5 n66 were evaluated in combination with ENDC.

Note: Volume scan was performed in the next section for those with SPLSR exceeding 0.04.

See Appendix G for Data.

13.3 Volume Scan

Volume scan is only tested at the condition that SPLSR calculated results are over 0.04.

Test method is based on KDB:

- Other than a larger measurement volume to enclose all antennas and radiating structures of the test device, the measurement requirements of an enlarged zoom scan are the same as those required by a normal zoom scan.
- Grid setting is used finer resolution if frequency band is not same.
- Smaller scanning area is used than lager scan volume using pre area scan.
- Before combining each scan, each measurement point is scaled, if any, including duty factor so combined data is shown the scaled value.
- Scan range is capturing enough wide for both SAR distribution.

Combination & Result

Rat	Ant.	Rat	Ant.	Position Rear	Position Top
LTE B2	Main 1	NR n5	Main 1	0.956	1.150
LTE B66	Main 1	NR n5	Main 1	1.090	1.160
LTE B5	Main 1	NR n66	Main 1	-	1.140
LTE B12	Main 1	NR n66	Main 1	1.030	-
LTE B13	Main 1	NR n66	Main 1	1.150	-
WLAN 5.6 GHz MIMO	WiFi 1	Bluetooth	WiFi 1	0.706	-
WLAN 5.8 GHz MIMO	WiFi 1	Bluetooth	WiFi 1	0.724	-

Rat	Ant.	Rat	Ant.	Rat	Ant.	Position Right
NR n66	Main 1	WLAN 5.3 GHz MIMO	WiFi 1	Bluetooth	WiFi 1	0.834
NR n66	Main 1	WLAN 5.6 GHz MIMO	WiFi 1	Bluetooth	WiFi 1	1.210
NR n66	Main 1	WLAN 5.8 GHz MIMO	WiFi 1	Bluetooth	WiFi 1	1.040

Unit: W/kg

See appendix H for data.

13.4 Sum of the Volume Scan

Other than top side, summation of the volume scan with other transmitters is over the 1.6 w/kg. proceed the next section.

13.4.1 Sum of the SAR for Volume scan(LTE Band2 + NR n5) & WLAN & BT in (Top) position Reduced Power

Mode	Ant	Scaled	Σ 1-g SAR (W/kg)
WWAN(LTE Band2 + NR n5) + DTS SISO			
LTE B2 + NR n5	MAIN1	1.150	1.510
WLAN2.4 GHz SISO	Ant 1	0.360	
WWAN(LTE Band2 + NR n5) + DTS MIMO			
LTE B2 + NR n5	MAIN1	1.150	1.501
WLAN2.4 GHz MIMO	Ant 2	0.351	
WWAN(LTE Band2 + NR n5) + UNII 1A-2 SISO + BT Ant.1			
LTE B2 + NR n5	MAIN1	1.150	1.411
WLAN5.3 GHz SISO	Ant 2	0.088	
BT	Ant 1	0.173	
WWAN(LTE Band2 + NR n5) + UNII 1A-2 MIMO + BT Ant.1			
LTE B2 + NR n5	MAIN1	1.150	1.398
WLAN5.3 GHz MIMO	Ant 2	0.075	
BT	Ant 1	0.173	
WWAN(LTE Band2 + NR n5) + UNII 2-C SISO + BT Ant.1			
LTE B2 + NR n5	MAIN1	1.150	1.385
WLAN5.6 GHz SISO	Ant 2	0.062	
BT	Ant 1	0.173	
WWAN(LTE Band2 + NR n5) + UNII 2-C MIMO + BT Ant.1			
LTE B2 + NR n5	MAIN1	1.150	1.431
WLAN5.6 GHz MIMO	Ant 1	0.064	
WLAN5.6 GHz MIMO	Ant 2	0.044	
BT	Ant 1	0.173	
WWAN(LTE Band2 + NR n5) + UNII 3 SISO + BT Ant.1			
LTE B2 + NR n5	MAIN1	1.150	1.351
WLAN5.8 GHz SISO	Ant 2	0.028	
BT	Ant 1	0.173	
WWAN(LTE Band2 + NR n5) + UNII 3 MIMO + BT Ant.1			
LTE B2 + NR n5	MAIN1	1.150	1.378
WLAN5.8 GHz MIMO	Ant 1	0.055	
BT	Ant 1	0.173	

Below than 1.6 W/kg other analysis is not required.

13.4.2 Sum of the SAR for Volume scan(LTE Band66 + NR n5) & WLAN & BT in (Top) position Reduced Power

Mode	Ant	Scaled	Σ 1-g SAR (W/kg)
WWAN(LTE Band66 + NR n5) + DTS SISO			
LTE B66 + NR n5	MAIN1	1.160	1.520
WLAN2.4 GHz SISO	Ant 1	0.360	
WWAN(LTE Band66 + NR n5) + DTS MIMO			
LTE B66 + NR n5	MAIN1	1.160	1.511
WLAN2.4 GHz MIMO	Ant 2	0.351	
WWAN(LTE Band66 + NR n5) + UNII 1A-2 SISO + BT Ant.1			
LTE B66 + NR n5	MAIN1	1.160	1.421
WLAN5.3 GHz SISO	Ant 2	0.088	
BT	Ant 1	0.173	
WWAN(LTE Band66 + NR n5) + UNII 1A-2 MIMO + BT Ant.1			
LTE B66 + NR n5	MAIN1	1.160	1.408
WLAN5.3 GHz MIMO	Ant 2	0.075	
BT	Ant 1	0.173	
WWAN(LTE Band66 + NR n5) + UNII 2-C SISO + BT Ant.1			
LTE B66 + NR n5	MAIN1	1.160	1.395
WLAN5.6 GHz SISO	Ant 2	0.062	
BT	Ant 1	0.173	
WWAN(LTE Band66 + NR n5) + UNII 2-C MIMO + BT Ant.1			
LTE B66 + NR n5	MAIN1	1.160	1.441
WLAN5.6 GHz MIMO	Ant 1	0.064	
WLAN5.6 GHz MIMO	Ant 2	0.044	
BT	Ant 1	0.173	
WWAN(LTE Band66 + NR n5) + UNII 3 SISO + BT Ant.1			
LTE B66 + NR n5	MAIN1	1.160	1.361
WLAN5.8 GHz SISO	Ant 2	0.028	
BT	Ant 1	0.173	
WWAN(LTE Band66 + NR n5) + UNII 3 MIMO + BT Ant.1			
LTE B66 + NR n5	MAIN1	1.160	1.388
WLAN5.8 GHz MIMO	Ant 1	0.055	
BT	Ant 1	0.173	

Below than 1.6 W/kg other analysis is not required.

13.4.3 Sum of the SAR for Volume scan(LTE Band5 + NR n66) & WLAN & BT in (Top) position Reduced Power

Mode	Ant	Scaled	Σ 1-g SAR (W/kg)
WWAN(LTE Band5 + NR n66) + DTS SISO			
LTE B5 + NR n66	MAIN1	1.140	1.500
WLAN2.4 GHz SISO	Ant 1	0.360	
WWAN(LTE Band5 + NR n66) + DTS MIMO			
LTE B5 + NR n66	MAIN1	1.140	1.491
WLAN2.4 GHz MIMO	Ant 2	0.351	
WWAN(LTE Band5 + NR n66) + UNII 1A-2 SISO + BT Ant.1			
LTE B5 + NR n66	MAIN1	1.140	1.401
WLAN5.3 GHz SISO	Ant 2	0.088	
BT	Ant 1	0.173	
WWAN(LTE Band5 + NR n66) + UNII 1A-2 MIMO + BT Ant.1			
LTE B5 + NR n66	MAIN1	1.140	1.388
WLAN5.3 GHz MIMO	Ant 2	0.075	
BT	Ant 1	0.173	
WWAN(LTE Band5 + NR n66) + UNII 2-C SISO + BT Ant.1			
LTE B5 + NR n66	MAIN1	1.140	1.375
WLAN5.6 GHz SISO	MAIN1	0.062	
BT	Ant 1	0.173	
WWAN(LTE Band5 + NR n66) + UNII 2-C MIMO + BT Ant.1			
LTE B5 + NR n66	MAIN1	1.140	1.421
WLAN5.6 GHz MIMO	Ant 1	0.064	
WLAN5.6 GHz MIMO	Ant 2	0.044	
BT	Ant 1	0.173	
WWAN(LTE Band5 + NR n66) + UNII 3 SISO + BT Ant.1			
LTE B5 + NR n66	MAIN1	1.140	1.341
WLAN5.8 GHz SISO	Ant 2	0.028	
BT	Ant 1	0.173	
WWAN(LTE Band5 + NR n66) + UNII 3 MIMO + BT Ant.1			
LTE B5 + NR n66	MAIN1	1.140	1.368
WLAN5.8 GHz MIMO	Ant 1	0.055	
BT	Ant 1	0.173	

Below than 1.6 W/kg other analysis is not required.

13.5 Hybrid SPLSR

As per TCB workshop Nov 2019, volume scan vs other transmitters SPLSR is applied.

Test Procedure

–Perform enlarged zoom scan/volume scan on the co-located antenna pair to determine 1g/10g aggregate SAR

–Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair

See Appendix I for data.

SECTION 14: Test instruments

Local Id	LIMS ID	Description	Manufacturer	Model	Serial	Last Cal Date	Interval
MDAE-03	141484	Data Acquisition Electronics	Schmid & Partner Engineering	DAE4	1372	2023/03/16	12
MOS-30	141569	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	3001	2022/07/03	12
MDAE-01	141482	Data Acquisition Electronics	Schmid & Partner Engineering	DAE4	509	2022/07/13	12
MPB-07	141597	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3825	2022/07/20	12
MDA-07	141457	Dipole Antenna	Schmid & Partner Engineering	D2450V2	713	2022/09/12	12
MDA-08	141467	Dipole Antenna	Schmid & Partner Engineering	D5GHzV2	1020	2022/11/23	12
MDA-20	141480	Dipole Antenna	Schmid&Partner Engineering AG	D750V3	1058	2021/05/11	36
COTS-MSAR-05	168521	cDASY6 Module SAR	Schmid & Partner Engineering	cDASY6 Module SAR	-	-	-
MDAE-02	141483	Data Acquisition Electronics	Schmid & Partner Engineering	DAE4	1369	2023/05/23	12
MPB-08	141598	Dosimetric E-Field Probe	Schmid & Partner Engineering	EX3DV4	3917	2023/05/23	12
MPF-03	142057	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1203	2023/05/10	12
MDH-01	142484	Device holder	Schmid & Partner Engineering	Mounting device for transmitte	-	2022/11/28	12
MDH-03	142488	Device holder	Schmid & Partner Engineering	Mounting device for transmitte	-	2022/11/28	12
MDH-04	142489	Device holder	Schmid & Partner Engineering	Mounting device for transmitte	-	2022/11/28	12
MOS-33	88581	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	2022/07/03	12
MRBT-02	142247	SAR robot	Schmid & Partner Engineering	TX60 Lspeag	F10/5E3LA1/A/01	2023/04/27	12
MOS-35	141573	Digital thermometer	HANNA INSTRUMENTS	Checktemp 4	-	2022/07/03	12
MRBT-03	142248	SAR robot	Schmid & Partner Engineering	TX60 Lspeag	F13/5PP1D1/A/01	2023/04/26	12
MPSAM-02	142060	SAM Phantom	Schmid & Partner Engineering	QD000P40CB	1333	2023/05/10	12
MOS-31	141570	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	3101	2022/07/03	12
MPF-02	142056	2mm Oval Flat Phantom	Schmid & Partner Engineering	QDOVA001BB	1045	2023/05/10	12
COTS-MSAR-04	141182	Dielectric assessment	Schmid&Partner Engineering AG	DAK	-	-	-
COTS-MPSE-02	173900	Softw are for MA24106A	Anritsu Corporation	Anritsu Pow erXpert	-	-	-
MDPK-03	141471	Dielectric assessment kit	Schmid & Partner Engineering	DAKS-3.5	0008	2023/04/17	12
MAT-78	142313	Attenuator	Telegrartner	J01156A0011	42294119	-	-
MNA-03	141551	Vector Reflectometer	Copper Mountain Technologies	PLANAR R140	0030913	2023/04/13	12
MOS-37	141574	Digital thermometer	LKM electronic	DTM3000	-	2022/07/03	12
MPF-04	142058	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1207	2023/05/10	12
MPSE-20	141833	Pow er sensor	Keysight Technologies Inc	N8482H	MY53050001	2023/06/28	12
MPSAM-03	142061	SAM Phantom	Schmid&Partner Engineering AG	QD000P40CD	1764	2023/05/10	12
MPSAM-04	142062	SAM Phantom	Schmid&Partner Engineering AG	QD000P40CD	1762	2023/05/10	12
MPSE-24	141843	Pow er sensor	Anritsu Corporation	MA24106A	1026164	2023/03/09	12
MPSE-25	141844	Pow er sensor	Anritsu Corporation	MA24106A	1031504	2023/03/09	12
MRFA-24	141875	Pre Amplifier	R&K	R&K CGA020M602-2633R	B30550	2023/06/27	12
MHBBL600-10000	176484	Head Simulating Liquid	Schmid & Partner Engineering	HBBL600-10000V6	SL AAH U16 BC	-	-
COTS-MSAR-03	141181	Dasy5	Schmid & Partner Engineering	DASY5	-	-	-
MRBT-04	142249	SAR robot	Schmid & Partner Engineering	TX60 Lspeag	F13/5PP1A1/A/01	2023/04/26	12
MSG-10	141890	Signal Generator	Keysight Technologies Inc	N5181A	MY47421098	2022/11/04	12
MWTR-01	142865	Water, distilled	KISHIDA CHEMICAL Co.,Ltd.	020-85566	K70244M	-	-
SSDA-04	141963	Dipole Antenna	Schmid&Partner Engineering AG	D835V2	4d149	2022/03/14	36
SSDA-06	141964	Dipole Antenna	Schmid&Partner Engineering AG	D1750V2	1089	2022/03/15	36
SSDA-08	141965	Dipole Antenna	Schmid&Partner Engineering AG	D1900V2	5d169	2022/03/15	36
MPSE-31	221492	Pow er sensor	Keysight Technologies Inc	E9300H	MY62080002	2022/08/02	12
MPSE-32	221493	Pow er Sensor	Anritsu Corporation	MA24118A	2123074	2022/08/02	12
MPSE-33	221497	Pow er Sensor	Anritsu Corporation	MA24118A	2123095	2022/08/02	12
MAT-81	141311	Attenuator	Weinschel Associates	WA1-20-33	100131	2023/04/03	12
MRENT-S23	236950	RF Device, Passive, Field	Schmid & Partner Engineering	EX3DV4	7652	2023/04/24	12
MRENT-S22	221514	Dosimetric E-Field Probe	Schmid & Partner Engineering	EX3DV4	3745	2023/04/18	12
MDA-19	141479	Dipole Antenna	Schmid&Partner Engineering AG	D2600V2	1030	2022/03/18	36
MRENT-S12	169562	Data Acquisition Electronics	Schmid & Partner Engineering	DAE4	554	2023/04/14	12

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

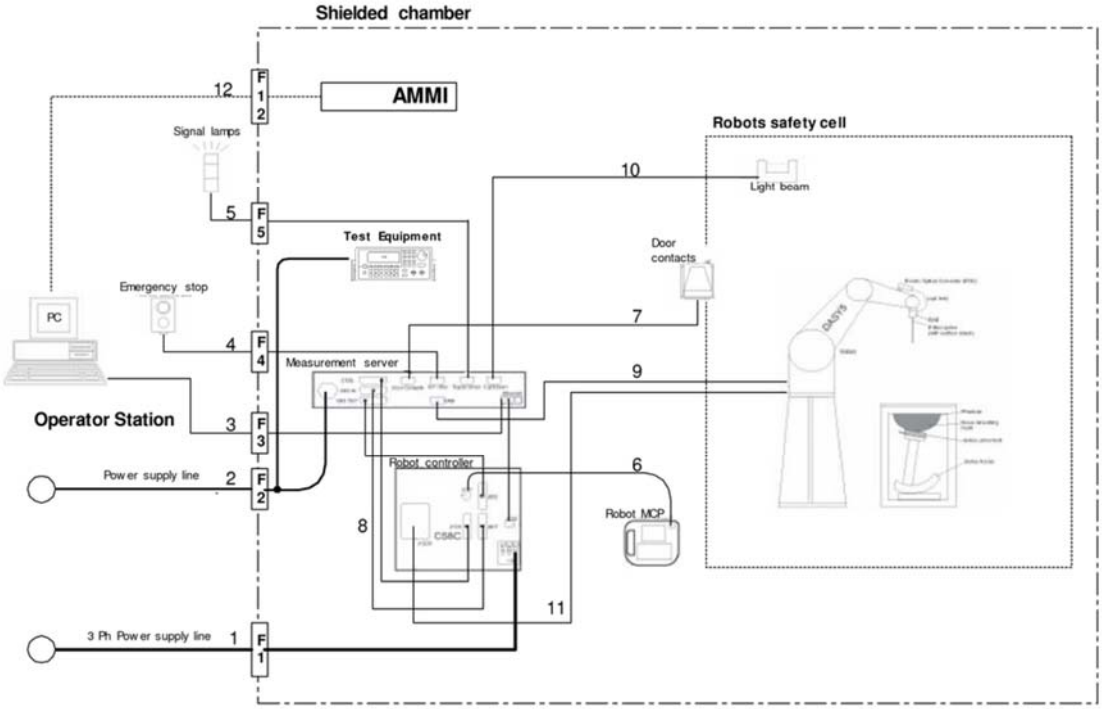
The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

SAR room is checked before every testing and ambient noise is <0.012 W/kg

14.1 System specifications

Configuration and peripherals



The DASY5 system for performing compliance tests consist of the following items:
Our system is DASY6; however, it behaves as DASY5.

a) A standard high precision 6-axis robot (Stäubli RX family) with controller and software.
An arm extension for accommodating the data acquisition electronics (DAE).

b) An isotropic field probe optimized and calibrated for the targeted measurement.

c) A data acquisition electronic (DAE), which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

d) The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection.
The EOC is connected to the measurement server.

e) 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.

f) The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.

g) A computer running Windows 10 or 7 and the DASY5/6 software.

h) Remote control with teaches pendant and additional circuitry for robot safety such as warning lamps, etc.

i) The phantom, the device holder and other accessories according to the targeted measurement.

System check uncertainty

The uncertainty budget has been determined for the DASY5 measurement system according to the SPEAG documents and is given in the following Table.

Repeatability Budget for System Check

<0.3 to 3 GHz range Body>

Error Description	Uncertainty value ± %	Probability distribution	divisor	(ci) 1 g	(ci) 10 g	Standard Uncertainty (1 g) ± %	Standard Uncertainty (10 g) ± %
Measurement System							
Probe calibration	± 1.8	Normal	1	1	1	± 1.8	± 1.8
Axial isotropy of the probe	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Spherical isotropy of the probe	± 0.0	Rectangular	√3	1	0	± 0.0	± 0.0
Boundary effects	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Probe linearity	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Detection limit	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Modulation response	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Readout electronics	± 0.0	Normal	1	1	1	± 0.0	± 0.0
Response time	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Integration time	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
RF ambient Noise	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
RF ambient Reflections	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Probe Positioner	± 0.02	Rectangular	√3	1	1	± 0.0	± 0.0
Probe positioning	± 0.4	Rectangular	√3	1	1	± 0.2	± 0.2
Max.SAR Eval.	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Dipole Related							
Dev. of experimental dipole	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Dipole Axis to Liquid Distance	± 2.0	Rectangular	√3	1	1	± 1.2	± 1.2
Input power and SAR drift meas.	± 3.4	Rectangular	√3	1	1	± 2.0	± 2.0
Phantom and Setup							
Phantom uncertainty	± 4.0	Rectangular	√3	1	1	± 2.3	± 2.3
SAR correction	± 1.9	Rectangular	√3	1	0.84	± 1.1	± 0.9
Liquid conductivity (meas.)	± 5.0	Normal	1	0.78	0.71	+ 3.9	+ 3.6
Liquid permittivity (meas.)	± 5.0	Normal	1	0.26	0.26	- 1.3	- 1.3
Temp. unc. - Conductivity	± 3.4	Rectangular	√3	0.78	0.71	± 1.5	± 1.4
Temp. unc. - Permittivity	± 0.4	Rectangular	√3	0.23	0.26	± 0.1	± 0.1
Combined Standard Uncertainty						± **5.856**	± **5.562**
Expanded Uncertainty (k=2)						± **11.7**	± **11.1**

Table of uncertainties are listed for ISO/IEC 17025.

<3 to 6 GHz range Body >

Error Description	Uncertainty value ± %	Probability distribution	divisor	(ci) 1 g	(ci) 10 g	Standard Uncertainty (1 g) ± %	Standard Uncertainty (10 g) ± %
Measurement System							
Probe calibration	± 1.8	Normal	1	1	1	± 1.8	± 1.8
Axial isotropy of the probe	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Spherical isotropy of the probe	± 0.0	Rectangular	√3	1	0	± 0.0	± 0.0
Boundary effects	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Probe linearity	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Detection limit	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Modulation response	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Readout electronics	± 0.0	Normal	1	1	1	± 0.0	± 0.0
Response time	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Integration time	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
RF ambient Noise	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
RF ambient Reflections	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Probe Positioner	± 0.04	Rectangular	√3	1	1	± 0.0	± 0.0
Probe positioning	± 0.8	Rectangular	√3	1	1	± 0.5	± 0.5
Max.SAR Eval.	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Test Sample Related							
Dev. of experimental dipole	± 0.0	Rectangular	√3	1	1	± 0.0	± 0.0
Dipole Axis to Liquid Distance	± 2.0	Rectangular	√3	1	1	± 1.2	± 1.2
Input power and SAR drift meas.	± 3.4	Rectangular	√3	1	1	± 2.0	± 2.0
Phantom and Setup							
Phantom uncertainty	± 4.0	Rectangular	√3	1	1	± 2.3	± 2.3
SAR correction	± 1.9	Rectangular	√3	1	0.84	± 1.1	± 0.9
Liquid conductivity (meas.)	± 5.0	Normal	1	0.78	0.71	+ 3.9	+ 3.6
Liquid permittivity (meas.)	± 5.0	Normal	1	0.26	0.26	- 1.3	- 1.3
Temp. unc. - Conductivity	± 3.4	Rectangular	√3	0.78	0.71	± 1.5	± 1.4
Temp. unc. - Permittivity	± 0.4	Rectangular	√3	0.23	0.26	± 0.1	± 0.1
Combined Standard Uncertainty						± **5.870**	± **5.576**
Expanded Uncertainty (k=2)						± **11.7**	± **11.2**

Table of uncertainties are listed for ISO/IEC 17025.

Appendixes

Refer to separated files for the following appendixes.

Appendix A: EUT and SAR Setup Photos

Appendix B: Antenna Dimensions & Separation Distances

Appendix C: Proximity Sensor Triggering

Appendix D: LTE Carrier Aggregation

Appendix E: System Check

Appendix F: SAR Measurement data

Appendix G: SPLSR

Appendix H: Volume scan plot

Appendix I: Hybrid SPLSR

Appendix J: Calibration data

End of Report