

TEST REPORT FOR SAR TESTING

Report No.: SRTC2023-9004(F)-23071705(H)
Product Name: Smart Phone
Applicant: Sharp Corporation
FCC ID: APYHRO00328

Reference Specification
Part 2.1093 IEEE Std 62209-1528 KDB Procedures

The State Radio_monitoring_center Testing Center (SRTC)

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1 GENERAL INFORMATION

1.1 Notes of the test report

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1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
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Address:	1 Takumi-cho, Sakai-ku, Sakai City, Osaka 590-8522, Japan

1.4 Manufacturer's details

Company:	Sharp Corporation
Address:	1 Takumi-cho, Sakai-ku, Sakai City, Osaka 590-8522, Japan

2 DESCRIPTION OF THE EQUIPMENT UNDER TEST

2.1 DUT information

Band Information	Frequency range
GSM850	824~849MHz
GSM1900	1850~1910MHz
WCDMA Band II	1852.4~1907.6MHz
WCDMA Band V	826.4~846.6MHz
LTE Band2	1850~1910MHz
LTE Band5	824~849 MHz
LTE Band12	699~716MHz
LTE Band17	704~716MHz
LTE Band38	2570~2620MHz
LTE Band41	2496~2690MHz
NR n41(NSA)	2496~2690MHz
Bluetooth	2400~2483.5MHz
Bluetooth Low Energy	2400~2483.5MHz
WIFI2.4GHz	2412MHz~2462MHz
WIFI5GHz UNII-1	5150MHz-5250MHz
WIFI5GHz UNII-2A	5250~5350MHz
WIFI5GHz UNII-2C	5470~5725MHz
WIFI5GHz UNII-3	5725MHz-5850MHz

Mode supported	Note
GSM_GMSK	NA
WCDMA_RMC Rel.99	NA
WCDMA_HSDPA Rel.5	NA
WCDMA_HSUPA Rel.6	NA
WCDMA_HSPA+ Rel.7	For Downlink
LTE_QPSK	NA
LTE_16QAM	NA
LTE_64QAM	NA
LTE_256QAM	For Downlink
NR CP-QPSK	NA
NR CP-16QAM	NA
NR CP-64QAM	NA
NR CP-256QAM	NA
NR DFT-pi/2 BPSK	NA
NR DFT-QPSK	NA
NR DFT-16QAM	NA
NR DFT-64QAM	NA
NR DFT-256QAM	NA
NR SCS-30KHz	for TDD only
BR/EDR	NA
BLE	NA
802.11b(2.4GHz)	NA
802.11g(2.4GHz)	NA
802.11n HT20(2.4GHz)	NA
802.11n HT40(2.4GHz)	NA
802.11a(5GHz)	NA
802.11ac(5GHz)	NA
802.11ac HT20(5GHz)	NA
802.11ac HT40(5GHz)	NA
802.11ac HT80(5GHz)	NA
802.11n HT20(5GHz)	NA
802.11n HT40(5GHz)	NA

Capability Class:	GPRS Multi-slots :	NFC
Class B	Class 12(Four Up)	Support

2.2 Exposure conditions

General description

Head Configuration: Measurements were made in “cheek” and “tilt” positions on both the left hand and right-hand sides of the phantom. The positions used in the measurements were according to IEEE 1528 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

Body Worn Configuration: The device was placed in the SPEAG holder below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance using a separate flat spacer that was removed before the start of the measurements. And the distance is normally determined according to the actual scene which might be the worst use condition for general exposure. The device's front and rear were oriented facing the phantom since these orientations give higher results for most regular portable devices.

Hotspot Configuration: Hotspot mode SAR is measured for all edges and surfaces of the device with a transmitting antenna located within 25 mm from that surface or edge; for the data modes, wireless technologies and frequency bands supporting hotspot mode.

Body Configuration: Body SAR is measured for all edges and surfaces of the device or refer to hotspot configuration. (For the device such as tablet and mobile phone etc.)

Limb Configuration: Extremity limb SAR is measured for all edges and surfaces of the device or refer to hotspot configuration.

Body-support Configuration: Body-support device such as laptop is not commonly require SAR test.

DUT Exposure Condition	Distance(mm)
Head	0
Body-worn	10
Body (Hotspot)	10

2.3 Other information

Testing Start Date:	2023/08/08
Testing End Date:	2023/08/26
DUT IMEI:	004401231527793 / 004401231527975
DUT H/W Version:	DVT(Remodeled to the equivalent of MP products)
DUT S/W Version:	A614G/A619G
Ambient Temperature within 18-25°C	22°C
Liquid Temperature change within $\pm 2^{\circ}\text{C}$	22°C
Humidity:	35%
Note	N/A

3 SPECIFICATION

Specification	Version	Title
Part 2.1093	2020	Radio frequency radiation exposure evaluation: portable devices.
IEEE Std 62209-1528	2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 248227 D01	v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS
KDB 447498 D01	v06	General RF Exposure Guidance
KDB 447498 D02	v02r01	SAR MEASUREMENT PROCEDURES FOR USB DONGLE TRANSMITTERS
KDB 643646 D01	v01r03	SAR TEST REDUCTION CONSIDERATIONS FOR OCCUPATIONAL PTT RADIOS
KDB 616217 D04	v01r02	SAR for laptop and tablets
KDB 648474 D04	v01r03	Handset SAR
KDB 865664 D01	v01r04	SAR Measurement from 100 MHz to 6 GHz
KDB 865664 D02	v01r02	RF Exposure Reporting
KDB 941225 D01	v03r01	3G SAR MEASUREMENT PROCEDURES
KDB 941225 D05	v02r05	SAR for LTE Devices
KDB 941225 D06	v02r01	SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES
KDB 941225 D07	v01r02	SAR EVALUATION PROCEDURES FOR UMPC MINI-TABLET DEVICES

4 TEST CONDITIONS

4.1 Test signal, frequencies and output power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link. Non-signaling mode also applied. The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence. In all operating bands the measurements were performed on lowest, middle and highest channels.

4.2 SAR measurement set-up

The system is based on a high precision robot (working range greater than 0.9m), which positions the probes with a positional repeatability of better than $\pm 0.02\text{mm}$. Special E- probe have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length =300mm) to the data acquisition unit. A cell controller system contains the power supply, robot controller, teaches pendant (Joystick), and remote control, is used to drive the robot motors. The PC consists of the Micron Pentium IV computer with Win7 system and SAR Measurement Software DASY5 Professional, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical Downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

4.3 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin headed "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements. System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles. The SPEAG device holder (see Section 4.6.1) was used to position the device in all tests whilst a tripod was used to position the validation dipoles against the flat section of phantom.

Shell thickness: $2 \pm 0.2 \text{ mm}$ on flat section ($6 \pm 0.2 \text{ mm}$ at ear point)

4.4 Tissue stimulants

Recommended values for the dielectric parameters of the tissue simulants are given in reference standards. The depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements. The following tissue stimulants were used for test:

Name	Broadband tissue-equivalent liquid
Type	HBBL600-10000V6 Simulating Liquid
Supplier	SPEAG
Component	Material used refer to 62209-1528 Annex F, the details are confidential.
	
Liquid depth for SAR Measurement	

4.5 Device holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy52 system.



4.6 Scan procedure

First, area scans were used for determination of the field distribution and the approximate location of the local peak SAR values. The SAR distribution is scanned along the inside surface, at least for an area larger than the projection of the handset and antenna. The angle between the probe axis and the surface normal line is recommended but not required to be less than 30°. The SAR distribution is first measured on a 2-D coarse grid. The scan region should cover all areas that are exposed and encompassed by the projection of the handset. There are 15 mm × 15 mm (equal or less than 2GHz), 12 mm × 12 mm (from 2GHz~4GHz) and 10mm x 10mm (from 4GHz~6GHz) measurement grid used when two staggered one-dimensional cubic splines are used to estimate the maximum SAR location.

When the reported 1g-SAR estimated by area scan is less than 1.40 w/kg.

Zoom scan was performed by using the configuration mentioned below or more conservative scan area and step to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

Below 3GHz: 32mmX32mmX30mm scan area with 8 mm X8 mm X5 mm steps

2GHz-3GHz: 32mmX32mmX30mm scan area with 8 mm X8 mm X5 mm steps

3GHz-4GHz: 28mmX28mmX28mm scan area with 7 mm X7 mm X4 mm steps

4GHz-5GHz: 25mmX25mmX24mm scan area with 5 mm X5 mm X3 mm steps

5GHz-6GHz: 25mmX25mmX22mm scan area with 5 mm X5 mm X2 mm steps

4.7 SAR averaging methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation. The interpolation, extrapolation and maximum search routines within Dasy5 are all based on the modified Quadratic Shepard's method (Robert J. Renka, "Multivariate Interpolation Of Large Sets Of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

The interpolation scheme combines a least-square fitted function method with a weighted average method. A triradiate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighbouring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

5 RESULT SUMMARY

The maximum reported SAR values for all exposure conditions supported are given as following. The device meet the compliance.

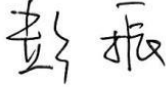
Licensed Band Standalone Transmission Summary(SISO1)				
Exposure Position	Frequency Band	SAR Result(W/kg)	Limit(W/kg)	Verdict
Head	GSM850	0.12	1.60	Pass
	GSM1900	0.07		
	WCDMA Band II	0.12		
	WCDMA Band V	0.02		
	LTE Band2	0.10		
	LTE Band5	0.02		
	LTE Band12	0.03		
	LTE Band17	0.03		
	LTE Band38	0.06		
	LTE Band41	0.07		
	NR Band41	0.05		
Body-Worn	GSM850	0.36		
	GSM1900	0.31		
	WCDMA Band II	0.52		
	WCDMA Band V	0.10		
	LTE Band2	0.45		
	LTE Band5	0.08		
	LTE Band12	0.08		
	LTE Band17	0.08		
	LTE Band38	0.16		
	LTE Band41	0.19		
Body (Hotspot)	NR Band41	0.33		
	GSM850	0.36		
	GSM1900	0.44		
	WCDMA Band II	0.68		
	WCDMA Band V	0.10		
	LTE Band2	0.54		
	LTE Band5	0.08		
	LTE Band12	0.08		
	LTE Band17	0.08		
	LTE Band38	0.24		
	LTE Band41	0.25		
	NR Band41	0.35		

Unlicensed Band Standalone Transmission Summary(SISO1)

Exposure Position	Frequency Band	SAR Result(W/kg)	Limit(W/kg)	Verdict
Head	BT/BLE	0.17	1.60	Pass
	WLAN2.4GHz	0.62		
	WLAN5GHz UNII-1	0.50		
	WLAN5GHz UNII-2A	0.64		
	WLAN5GHz UNII-2C	0.62		
	WLAN5GHz UNII-3	0.53		
Body-Worn	BT/BLE	0.01		
	WLAN2.4GHz	0.07		
	WLAN5GHz UNII-1	0.08		
	WLAN5GHz UNII-2A	0.10		
	WLAN5GHz UNII-2C	0.10		
	WLAN5GHz UNII-3	0.09		
Body (Hotspot)	BT/BLE	0.01		
	WLAN2.4GHz	0.08		
	WLAN5GHz UNII-1	Not support		
	WLAN5GHz UNII-2A	Not support		
	WLAN5GHz UNII-2C	Not support		
	WLAN5GHz UNII-3	Not support		

Simultaneous Transmission Summary

Exposure Position	Mode	Highest SAR Result(W/kg)	Limit(W/kg)	Verdict
Head	DC_2A_n41A +BT +WLAN5GHz	0.97	1.60	Pass
Body-Worn	DC_2A_n41A +BT +WLAN5GHz	0.78	1.60	Pass
Body (Hotspot)	DC_2A_n41A	0.89	1.60	Pass

This Test Report Is Approved by: Mr. Peng Zhen 	Review by: Mr. Li Bin 
Tested and issued by: Mr. Huang Yu Bin 	Approved date: 20230831

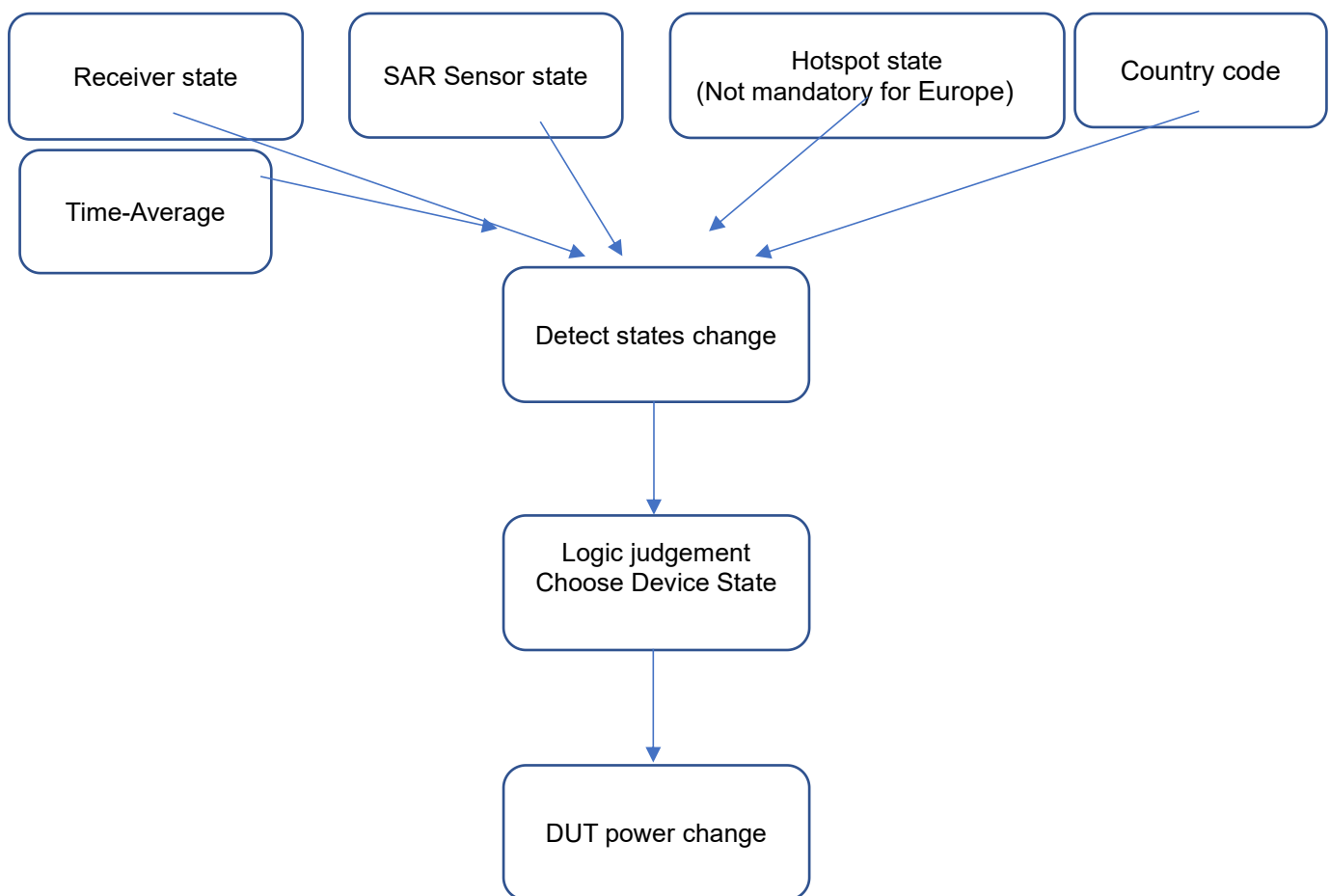
6 TEST RESULTS

6.1 Scenario

General description:

In common, there are several power change schemes based on technologies mentioned below, but different product use different method to change conducted power for relevant transmitters. These methods could be used together on both standalone and simultaneous transmission (Depends on specific scenario)

Receiver:	Triggered when receive ON/OFF
P-sensor:	Triggered when sensor ON/OFF
Hotspot:	Triggered when hotspot ON/OFF
Country code:	Triggered through MCC/A-GNSS
TA:	Time average SAR based on Qualcomm



DUT Power change scheme	Scenario	Note
Hotspot	Hotspot	Hotspot NOT with reduce power

6.2 Average conducted power with Tune up tolerance

6.2.1 GSM

General description:

GPRS Coding Scheme	Bit Rate (kbit/s/slot)		Modulation	Code Rate
CS-1	8.0		GMSK	1/2
CS-2	12.0		GMSK	≈2/3
CS-3	14.4		GMSK	≈3/4
CS-4	20.0		GMSK	1
EDGE Modulation and Coding Scheme (MCS)	Bit Rate (kbit/s/slot)	Modulation	Data Code Rate	Header Code Rate
MCS-1	8.8	GMSK	≈0.53	≈0.53
MCS-2	11.2	GMSK	≈0.66	≈0.53
MCS-3	14.8	GMSK	≈0.85	≈0.53
MCS-4	17.6	GMSK	1	≈0.53
MCS-5	22.4	8PSK	≈0.37	1/3
MCS-6	29.6	8PSK	≈0.49	1/3
MCS-7	44.8	8PSK	≈0.76	≈0.39
MCS-8	57.05	8PSK	≈0.92	≈0.39
MCS-9	61.85	8PSK	1	≈0.39

Division Factors:

To average the power, the division factor is as follows:

1TX-slot (1uplink) = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots(2uplink) = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots (3uplink) = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots (4uplink) = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

Note: GSM SAR was tested under the mode with maximum frame average power.

Licensed SISO

ANT1/2

Full Power

GSM850

TX Mode	TX slot	Burst Power (dBm)			Tune up Tolerance (dBm)	Frame power(dBm)			Tune up Tolerance (dBm)
		Frequency/Channel				Frequency/Channel			
		824.2	836.6	848.8		824.2	836.6	848.8	
		128	190	251		128	190	251	
GSM	1 slot	32.42	32.71	32.63	33.20	23.39	23.68	23.60	24.00
GPRS (GMSK)	1 slot	32.54	32.59	32.54	33.20	23.51	23.56	23.51	24.00
	2 slots	29.81	29.94	29.99	30.50	23.79	23.92	23.97	24.00
	3 slots	27.70	27.90	28.27	28.70	23.44	23.64	24.01	24.50
	4 slots	26.53	26.91	26.86	27.50	23.52	23.90	23.85	24.00

GSM1900

TX Mode	TX slot	Burst Power (dBm)			Tune up Tolerance (dBm)	Frame power(dBm)			Tune up Tolerance (dBm)
		Frequency/Channel				Frequency/Channel			
		1850	1880	1910		1850	1880	1910	
		512	661	810		512	661	810	
GSM	1 slot	29.21	29.14	29.08	30.20	20.18	20.11	20.05	20.50
GPRS (GMSK)	1 slot	29.17	28.93	28.86	30.20	20.14	19.90	19.83	20.50
	2 slots	26.26	26.31	26.25	27.50	20.24	20.29	20.23	20.50
	3 slots	24.07	24.10	24.07	25.70	19.81	19.84	19.81	20.00
	4 slots	22.98	22.99	23.08	24.50	19.97	19.98	20.07	20.50

6.2.2 WCDMA

General description:

Release 99

The following tests were completed according to the test requirements outlined in 3GPP TS34.121-1 specification.

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	RMC mode AMR mode	12.2kbps RMC 12.2kbps RMC in 3.4 kbps SRB
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

Release 5

The following 4 Sub-tests were completed according to Release 5 procedures in 3GPP TS34.121.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	CM(dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/18	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

Note2: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$.

Note3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Release 6

The following 5 Sub-tests were completed according to Release 6 procedures in 3GPP TS34.121.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MP R (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	2.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4	2	2.0	2.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	2.0	21	81

Note1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

Note2: CM=1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c=10/15$ and $\beta_d=15/15$.

Note4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c=14/15$ and $\beta_d=15/15$.

NOTE5: Testing UE using E-DPDCH Physical layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

NOTE6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Release 7

The following 1 Sub-test was completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121.

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	$\beta_{ed1}: 30/15$ $\beta_{ed2}: 30/15$	$\beta_{ed3}: 24/15$ $\beta_{ed4}: 24/15$	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ 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 $\beta_d = 0$ 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.

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

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.		

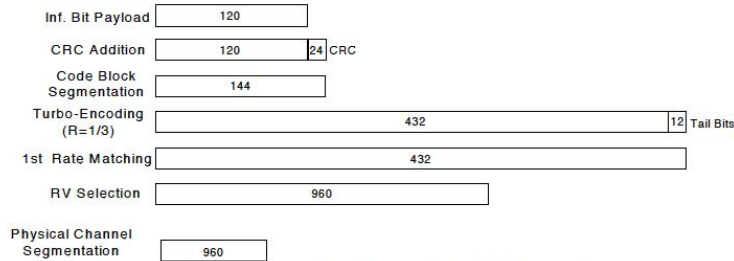


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in 3GPP TS34.121.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	CM(dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/18	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

Note2: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$.

Note3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Release 9

The clause (UE Maximum Output Power for DC-HSUPA) is **incomplete** in 3GPP TS34.121 so far.

Parameter	Unit	Cell 1
Cell type		Serving cell
UTRA RF Channel Number		As defined in clause 5.2BB.4.1
Qqualmin	dB	-24
Qrxlevmin	dBm	-115
UE_TXPWR_MAX_RACH	dBm	+21
I_{or} (see notes 1 and 2)	dBm/3.84 MHz	-86
NOTE 1: The power level is specified in terms of I_{or} instead of CPICH_RSCP because RSCP is a receiver measurement, whereas the SS can only set I_{or} .		
NOTE 2: The cell fulfils TS 25.304, clause 5.2.3.1.2.		

Note: UMTS SAR was tested under Rel.99 RMC 12.2kbps mode. For other higher release configuration, SAR was not required.

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ANT1/2

Full Power

band II

Mode		RF Output Power(dBm)			Tune up Tolerance (dBm)
		9262	9400	9538	
		1852.4	1880	1907.6	
Release 99	RMC,12.2kbps	22.21	22.19	22.25	23.3
HSDPA	Subtest1	21.17	21.18	21.23	22.3
	Subtest2	21.16	21.12	21.24	22.3
	Subtest3	20.65	20.67	20.72	21.8
	Subtest4	20.59	20.66	20.71	21.8
HSUPA	Subtest1	21.09	21.10	21.15	22.3
	Subtest2	19.18	19.19	19.26	20.3
	Subtest3	20.64	20.66	20.73	21.3
	Subtest4	18.95	18.97	18.92	20.3
	Subtest5	21.06	21.06	21.15	22.3

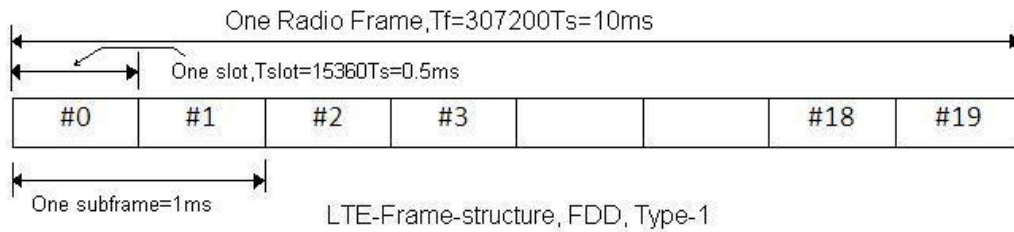
band V

Mode		RF Output Power(dBm)			Tune up Tolerance (dBm)
		4132	4183	4233	
		826.4	836.6	846.6	
Release 99	RMC,12.2kbps	23.05	23.17	23.17	24
HSDPA	Subtest1	22.08	22.16	22.13	23
	Subtest2	22.05	22.14	22.13	23
	Subtest3	21.49	21.64	21.62	22.5
	Subtest4	21.55	21.63	21.62	22.5
HSUPA	Subtest1	21.99	22.17	22.14	23
	Subtest2	20.05	20.13	20.16	21
	Subtest3	21.04	21.12	21.15	22
	Subtest4	19.83	19.92	19.83	21
	Subtest5	22.05	22.14	22.14	23

6.2.3 LTE

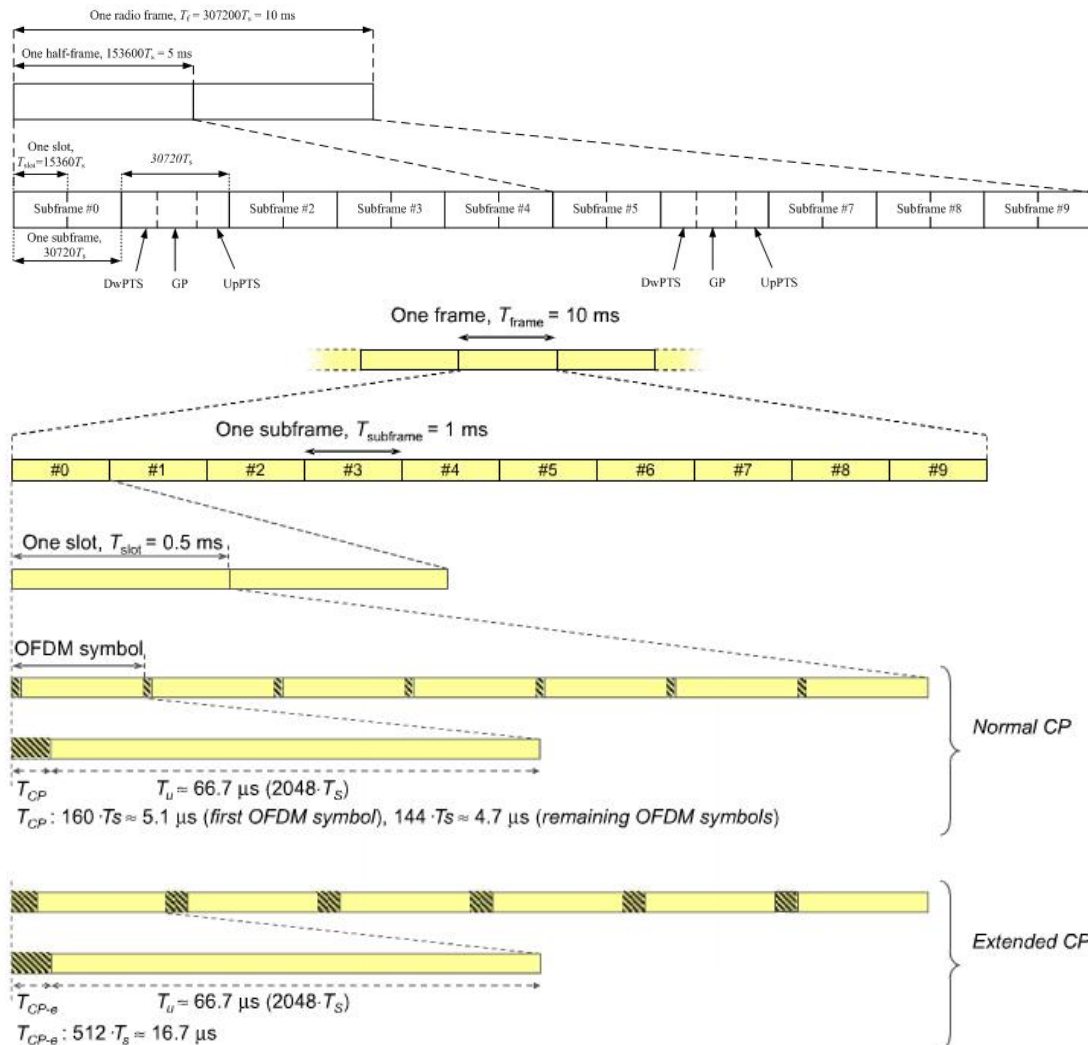
General description:

FDD-LTE frame structure



Type 1 is used as LTE FDD frame structure. As shown in the figure above, an LTE TDD frame is made of total 20 slots, each of 0.5ms. Two consecutive time slots will form one subframe. 10 such subframes form one radio frame. One subframe duration is about 1 ms. and the duty cycle is inherent as 100%.

TDD-LTE frame structure



Uplink-downlink configuration

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Special sub-frame configuration

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	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
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	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			-	-	-
8	$24144 \cdot T_s$			-	-	-

Special sub-frame with cyclic prefix uplink

Special sub-frame configuration		Duty factor with normal cyclic prefix in uplink	Duty factor with extended cyclic prefix in uplink
Normal cyclic prefix in downlink	0~4	7.13%	8.33%
	5~9	14.3%	16.7%
Extended cyclic prefix in downlink	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

One sub-frame is $30720T_s=1\text{ms}$, when UpPTS(uplink) in special sub-frame with extended cyclic prefix, duty factor = $5120/30720=0.167$. There are 5 sub-frames in half frame(3up link), so the final duty factor is $(30720 \cdot 3 + 5120) / (30720 \cdot 5) = 63.3\%$ which we used to evaluate the SAR compliance (worst case)

Note: SRTC perform SAR test with maximum duty factor equal to 63.3% by using uplink-downlink configuration 0.

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ANT1/2

Full Power

LTE Band2

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				18607	18900	19193	Tune-up Tolerance
				1850.7	1880	1909.3	
1.4	QPSK	1	0	21.97	21.83	21.92	23.3
		1	3	21.84	21.98	21.88	23.3
		1	5	21.90	21.91	21.88	23.3
		3	0	21.89	21.95	21.92	23.3
		3	1	21.94	21.95	22.02	23.3
		3	3	21.86	21.81	21.92	23.3
		6	0	20.95	20.87	20.91	23.3
	16QAM	1	0	21.18	21.02	21.18	23.3
		1	3	21.18	20.85	21.21	23.3
		1	5	21.10	20.82	21.19	23.3
		3	0	20.97	21.03	21.04	23.3
		3	1	20.93	20.93	21.08	23.3
		3	3	20.84	21.03	21.07	23.3
		6	0	19.96	19.90	20.09	23.3
	64QAM	1	0	20.24	19.95	20.09	23.3
		1	3	20.31	19.83	20.22	23.3
		1	5	20.33	20.16	20.26	23.3
		3	0	19.78	19.86	19.97	23.3
		3	1	20.17	20.18	20.12	23.3
		3	3	20.07	19.89	19.99	23.3
		6	0	18.90	19.08	18.86	23.3

LTE Band2

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				18615	18900	19185	Tune-up Tolerance
				1851.5	1880	1908.5	
3	QPSK	1	0	21.78	21.84	22.01	23.3
		1	8	21.76	21.92	22.00	23.3
		1	14	21.84	21.74	21.92	23.3
		8	0	20.94	20.93	20.96	23.3
		8	4	20.96	20.91	21.00	23.3
		8	7	20.95	20.90	20.97	23.3
		15	0	20.92	20.92	21.01	23.3
	16QAM	1	0	21.12	21.24	21.16	23.3
		1	8	21.39	21.00	21.00	23.3
		1	14	21.19	21.03	21.29	23.3
		8	0	19.84	19.96	19.96	23.3
		8	4	19.84	19.98	19.96	23.3
		8	7	19.91	19.90	19.99	23.3
		15	0	19.84	20.01	19.97	23.3
	64QAM	1	0	19.98	19.92	20.08	23.3
		1	8	19.96	19.92	20.25	23.3
		1	14	20.15	20.18	20.23	23.3

		8	0	19.05	18.91	18.97	23.3
		8	4	18.95	18.98	19.19	23.3
		8	7	19.04	19.07	19.04	23.3
		15	0	18.92	18.93	19.11	23.3

LTE Band2

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				18625	18900	19175	Tune-up Tolerance
				1852.5	1880	1907.5	
5	QPSK	1	0	21.79	21.88	21.88	23.3
		1	12	21.95	22.00	21.95	23.3
		1	24	21.82	21.88	22.03	23.3
		12	0	20.91	20.89	20.97	23.3
		12	7	20.95	20.97	21.01	23.3
		12	13	20.96	20.92	21.02	23.3
		25	0	20.90	20.94	20.99	23.3
	16QAM	1	0	21.24	21.16	21.02	23.3
		1	12	21.07	21.33	21.15	23.3
		1	24	21.11	21.21	21.26	23.3
		12	0	20.04	19.96	19.99	23.3
		12	7	19.90	20.03	20.18	23.3
		12	13	19.87	20.08	20.02	23.3
		25	0	20.00	19.90	19.95	23.3
	64QAM	1	0	20.26	20.34	20.02	23.3
		1	12	19.98	20.38	20.32	23.3
		1	24	20.16	20.30	20.29	23.3
		12	0	18.91	18.94	19.03	23.3
		12	7	18.94	19.00	19.11	23.3
		12	13	18.79	18.92	19.14	23.3
		25	0	18.91	18.97	18.98	23.3

LTE Band2

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				18650	18900	19150	Tune-up Tolerance
				1855	1880	1905	
10	QPSK	1	0	21.80	21.78	21.92	23.3
		1	25	21.91	21.98	22.14	23.3
		1	49	21.87	22.01	21.95	23.3
		25	0	20.92	20.92	21.02	23.3
		25	12	20.96	20.98	21.06	23.3
		25	25	20.98	20.99	21.02	23.3
		50	0	20.95	20.97	20.98	23.3
	16QAM	1	0	21.06	21.07	21.22	23.3
		1	25	21.07	21.25	21.12	23.3
		1	49	21.19	20.89	20.97	23.3
		25	0	19.97	19.94	19.88	23.3
		25	12	20.06	19.95	20.02	23.3
		25	25	20.07	19.93	20.02	23.3
		50	0	20.02	19.92	20.04	23.3
	64QAM	1	0	20.05	20.05	20.36	23.3
		1	25	19.86	20.22	20.12	23.3
		1	49	20.34	20.01	20.12	23.3
		25	0	18.99	18.96	18.89	23.3

		25	12	19.03	18.96	18.98	23.3
		25	25	18.96	18.99	19.08	23.3
		50	0	18.97	18.88	19.00	23.3

LTE Band2

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				18675	18900	19125	Tune-up Tolerance
				1857.5	1880	1902.5	
15	QPSK	1	0	21.74	21.66	21.75	23.3
		1	37	21.81	21.78	21.97	23.3
		1	74	21.87	21.72	21.77	23.3
		36	0	20.77	20.79	20.82	23.3
		36	29	20.78	20.77	20.90	23.3
		36	30	20.81	20.83	20.78	23.3
		75	0	20.82	20.77	20.85	23.3
	16QAM	1	0	20.54	20.49	21.16	23.3
		1	37	20.73	20.90	20.97	23.3
		1	74	21.35	21.15	21.02	23.3
		36	0	19.81	19.73	19.76	23.3
		36	29	19.79	19.69	19.89	23.3
		36	30	19.69	19.80	19.81	23.3
		75	0	19.87	19.87	19.81	23.3
	64QAM	1	0	19.54	20.05	19.88	23.3
		1	37	20.09	20.05	20.06	23.3
		1	74	20.13	19.69	20.10	23.3
		36	0	18.79	18.85	18.77	23.3
		36	29	18.81	18.85	18.82	23.3
		36	30	18.75	18.76	18.86	23.3
		75	0	18.78	18.87	18.82	23.3

LTE Band2

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				18700	18900	19100	Tune-up Tolerance
				1860	1880	1900	
20	QPSK	1	0	21.88	21.62	21.81	23.3
		1	49	21.78	21.78	21.84	23.3
		1	99	21.81	21.94	21.73	23.3
		50	0	20.83	20.79	20.80	23.3
		50	24	20.80	20.82	20.90	23.3
		50	50	20.80	20.87	20.90	23.3
		100	0	20.70	20.82	20.78	23.3
	16QAM	1	0	21.04	20.75	21.09	23.3
		1	49	20.73	21.18	20.87	23.3
		1	99	21.12	20.91	21.15	23.3
		50	0	19.70	19.68	19.84	23.3
		50	24	19.88	19.79	19.89	23.3
		50	50	19.70	19.84	19.85	23.3
		100	0	19.74	19.86	19.76	23.3
	64QAM	1	0	19.75	19.96	20.00	23.3
		1	49	19.86	20.06	20.06	23.3
		1	99	20.42	20.15	19.78	23.3
		50	0	18.80	18.71	18.81	23.3
		50	24	18.86	18.80	18.80	23.3

		50	50	18.81	18.75	18.87	23.3
		100	0	18.68	18.82	18.83	23.3

LTE Band5

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				20407	20525	20643	Tune-up Tolerance
				824.7	836.5	848.3	
1.4	QPSK	1	0	22.90	22.81	22.95	24
		1	3	22.92	22.90	23.00	24
		1	5	23.00	22.96	22.82	24
		3	0	22.85	22.97	23.00	24
		3	1	22.86	22.94	22.96	24
		3	3	22.88	22.92	22.96	24
		6	0	21.80	21.87	21.94	24
	16QAM	1	0	21.98	22.25	22.16	24
		1	3	21.95	22.32	22.31	24
		1	5	22.01	22.25	22.36	24
		3	0	21.89	22.05	21.89	24
		3	1	21.95	21.90	22.09	24
		3	3	22.16	22.06	21.89	24
		6	0	20.99	20.94	21.07	24
	64QAM	1	0	20.94	21.44	21.30	24
		1	3	20.82	21.07	21.16	24
		1	5	20.95	21.11	21.35	24
		3	0	21.13	21.09	21.08	24
		3	1	21.05	20.95	21.21	24
		3	3	20.87	21.11	21.00	24
		6	0	20.10	19.96	20.03	24

LTE Band5

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				20415	20525	20635	
				825.5	836.5	847.5	
3	QPSK	1	0	22.81	22.80	22.97	24
		1	8	22.80	23.06	23.07	24
		1	14	22.66	22.89	23.00	24
		8	0	21.87	21.88	21.98	24
		8	4	21.88	22.03	22.00	24
		8	7	21.93	21.95	21.98	24
		15	0	21.82	21.81	21.98	24
	16QAM	1	0	22.07	22.10	22.18	24
		1	8	22.08	22.04	22.42	24
		1	14	22.14	22.05	22.17	24
		8	0	20.89	20.91	20.96	24
		8	4	20.94	20.98	21.06	24
		8	7	20.90	21.06	21.05	24
		15	0	20.92	20.78	21.04	24
	64QAM	1	0	21.25	21.23	21.13	24
		1	8	21.42	21.11	21.16	24
		1	14	21.08	21.02	21.09	24
		8	0	19.96	19.87	20.14	24
		8	4	20.09	20.09	20.07	24
		8	7	19.96	19.98	20.01	24

		15	0	19.88	19.87	20.04	24
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LTE Band5

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				20425	20525	20625	Tune-up Tolerance
				826.5	836.5	846.5	
5	QPSK	1	0	22.89	22.83	22.88	24
		1	12	22.94	22.89	23.03	24
		1	24	22.72	23.01	22.87	24
		12	0	21.91	21.76	21.91	24
		12	7	21.91	22.00	22.04	24
		12	13	21.85	21.85	21.98	24
		25	0	21.89	21.83	21.94	24
	16QAM	1	0	22.06	22.15	22.06	24
		1	12	22.06	22.12	22.33	24
		1	24	21.90	21.98	22.42	24
		12	0	20.80	20.82	20.87	24
		12	7	21.06	20.94	21.03	24
		12	13	20.75	21.04	21.01	24
		25	0	20.96	20.90	20.95	24
	64QAM	1	0	21.06	21.22	21.37	24
		1	12	21.07	21.47	21.31	24
		1	24	21.01	21.39	21.36	24
		12	0	19.83	19.83	19.98	24
		12	7	20.04	20.06	19.80	24
		12	13	19.85	20.00	20.07	24
		25	0	19.90	19.85	19.90	24

LTE Band5

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				20450	20525	20600	
				829	836.5	844	
10	QPSK	1	0	22.77	22.88	22.96	24
		1	25	22.72	22.97	23.01	24
		1	49	22.87	22.93	22.86	24
		25	0	21.78	21.89	21.89	24
		25	12	21.89	21.84	22.02	24
		25	25	21.89	21.96	21.92	24
		50	0	21.89	21.80	21.92	24
	16QAM	1	0	22.14	22.04	22.24	24
		1	25	22.00	22.35	22.30	24
		1	49	22.10	22.12	22.01	24
		25	0	20.77	20.86	21.00	24
		25	12	20.95	20.84	21.02	24
		25	25	20.86	20.96	20.89	24
		50	0	20.89	20.80	20.94	24
	64QAM	1	0	21.25	20.84	20.96	24
		1	25	21.18	21.18	21.00	24
		1	49	21.44	21.04	21.09	24
		25	0	19.79	19.87	19.92	24
		25	12	19.86	19.91	20.04	24
		25	25	19.89	19.90	20.00	24
		50	0	19.89	19.85	19.93	24

LTE Band12

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				23017	23095	23173	Tune-up Tolerance
				699.7	707.5	715.3	
1.4	QPSK	1	0	23.01	23.15	22.98	24
		1	3	23.00	23.09	23.01	24
		1	5	23.04	23.17	22.96	24
		3	0	23.05	23.07	23.06	24
		3	1	22.99	23.10	22.99	24
		3	3	23.01	23.18	22.99	24
		6	0	21.94	22.07	22.09	24
	16QAM	1	0	22.19	22.22	22.29	24
		1	3	22.23	22.38	22.15	24
		1	5	22.07	22.27	22.10	24
		3	0	21.89	22.10	22.00	24
		3	1	22.01	22.21	21.97	24
		3	3	21.96	22.21	22.02	24
		6	0	21.05	21.00	21.22	24
	64QAM	1	0	21.33	21.19	21.14	24
		1	3	21.46	21.49	21.54	24
		1	5	21.09	21.31	20.88	24
		3	0	20.99	21.09	21.21	24
		3	1	21.09	21.25	21.22	24
		3	3	21.12	21.14	21.18	24
		6	0	19.94	20.15	19.98	24

LTE Band12

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				23025	23095	23165	
				700.5	707.5	714.5	
3	QPSK	1	0	22.99	22.95	23.10	24
		1	8	22.96	23.08	23.11	24
		1	14	22.91	23.10	23.03	24
		8	0	22.06	22.10	22.11	24
		8	4	22.11	22.19	22.16	24
		8	7	21.96	22.21	22.02	24
		15	0	22.07	22.11	22.06	24
	16QAM	1	0	22.02	22.13	22.34	24
		1	8	22.32	22.63	22.23	24
		1	14	22.16	22.10	22.06	24
		8	0	21.11	21.20	21.13	24
		8	4	21.13	21.26	21.28	24
		8	7	21.09	21.11	21.15	24
		15	0	21.14	21.15	21.13	24
	64QAM	1	0	21.25	21.12	21.43	24
		1	8	21.51	21.24	21.29	24
		1	14	21.23	21.35	21.28	24
		8	0	20.02	20.18	20.07	24
		8	4	20.23	20.10	20.19	24
		8	7	20.10	20.21	20.12	24
		15	0	20.10	20.07	20.13	24

LTE Band12

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				23035	23095	23155	Tune-up Tolerance
				701.5	707.5	713.5	
5	QPSK	1	0	23.02	23.09	23.10	24
		1	12	23.10	23.18	23.14	24
		1	24	23.00	23.01	23.07	24
		12	0	21.93	22.12	21.95	24
		12	7	22.14	22.15	22.01	24
		12	13	22.01	22.20	22.11	24
		25	0	22.04	22.11	22.07	24
	16QAM	1	0	21.91	22.29	22.19	24
		1	12	22.37	22.42	22.19	24
		1	24	22.40	22.34	22.50	24
		12	0	21.14	21.17	21.09	24
		12	7	21.02	21.20	21.07	24
		12	13	21.02	21.19	21.03	24
		25	0	21.09	21.19	21.06	24
	64QAM	1	0	21.11	21.60	21.20	24
		1	12	21.37	21.48	21.46	24
		1	24	21.24	21.30	21.16	24
		12	0	19.99	20.14	19.98	24
		12	7	20.10	20.18	20.02	24
		12	13	20.08	20.21	20.30	24
		25	0	20.05	20.04	20.03	24

LTE Band12

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				23060	23095	23130	
				704	707.5	711	
10	QPSK	1	0	23.04	22.95	23.10	24
		1	25	23.58	23.16	23.23	24
		1	49	23.15	23.07	23.00	24
		25	0	22.03	22.06	22.16	24
		25	12	22.10	22.15	22.15	24
		25	25	22.13	22.15	22.16	24
		50	0	22.13	22.04	22.13	24
	16QAM	1	0	22.20	22.30	22.20	24
		1	25	22.11	22.39	22.25	24
		1	49	22.61	22.39	22.15	24
		25	0	21.00	21.09	21.14	24
		25	12	21.17	21.21	21.14	24
		25	25	21.16	21.13	21.06	24
		50	0	21.07	21.13	21.17	24
	64QAM	1	0	21.20	21.20	21.46	24
		1	25	21.13	21.77	21.42	24
		1	49	21.54	21.50	20.90	24
		25	0	20.05	20.13	20.05	24
		25	12	20.18	20.05	20.20	24
		25	25	20.24	20.14	20.10	24
		50	0	20.17	20.08	20.01	24

LTE Band17

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				23755	23790	23825	Tune-up Tolerance
				706.5	710	713.5	
5	QPSK	1	0	23.19	23.23	23.23	24
		1	12	23.26	23.23	23.32	24
		1	24	23.15	23.22	23.15	24
		12	0	22.24	22.15	22.17	24
		12	7	22.32	22.24	22.26	24
		12	13	22.28	22.19	22.26	24
		25	0	22.20	22.20	22.19	24
	16QAM	1	0	22.53	22.44	22.44	24
		1	12	22.46	22.39	22.44	24
		1	24	22.32	22.45	22.40	24
		12	0	21.24	21.19	21.46	24
		12	7	21.26	21.19	21.25	24
		12	13	21.34	21.22	21.27	24
		25	0	21.26	21.18	21.35	24
	64QAM	1	0	21.36	21.34	21.47	24
		1	12	21.60	21.44	21.55	24
		1	24	21.17	21.24	21.30	24
		12	0	20.17	20.29	20.22	24
		12	7	20.27	20.27	20.26	24
		12	13	20.31	20.24	20.3	24
		25	0	20.13	20.15	20.18	24

LTE Band17

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				23780	23790	23800	Tune-up Tolerance
				709	710	711	
10	QPSK	1	0	23.20	23.14	23.21	24
		1	25	23.29	23.37	23.28	24
		1	49	23.13	23.12	23.23	24
		25	0	22.16	22.23	22.28	24
		25	12	22.26	22.23	22.22	24
		25	25	22.25	22.34	22.29	24
		50	0	22.20	22.16	22.18	24
	16QAM	1	0	22.59	22.19	22.69	24
		1	25	22.47	22.55	22.36	24
		1	49	22.47	22.48	22.23	24
		25	0	21.28	21.20	21.34	24
		25	12	21.35	21.24	21.30	24
		25	25	21.26	21.19	21.27	24
		50	0	21.22	21.19	21.20	24
	64QAM	1	0	21.59	21.23	21.43	24
		1	25	21.44	21.64	21.69	24
		1	49	21.60	21.28	21.56	24
		25	0	20.16	20.22	20.24	24
		25	12	20.31	20.27	20.23	24
		25	25	20.20	20.37	20.28	24
		50	0	20.16	20.17	20.28	24

LTE Band38

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				37775	38000	38225	
				2572.5	2595	2617.5	
5	QPSK	1	0	22.56	22.49	22.44	24
		1	12	22.65	22.52	22.41	24
		1	24	22.49	22.33	22.40	24
		12	0	21.58	21.42	21.47	24
		12	7	21.61	21.52	21.52	24
		12	13	21.60	21.48	21.45	24
		25	0	21.58	21.45	21.48	24
	16QAM	1	0	21.36	21.58	21.80	24
		1	12	21.65	21.62	21.66	24
		1	24	21.88	21.47	21.61	24
		12	0	20.64	20.49	20.38	24
		12	7	20.62	20.57	20.54	24
		12	13	20.67	20.54	20.42	24
		25	0	20.62	20.48	20.50	24
	64QAM	1	0	20.74	20.46	20.35	24
		1	12	20.64	20.59	20.39	24
		1	24	20.67	20.51	20.42	24
		12	0	19.47	19.58	19.49	24
		12	7	19.62	19.47	19.42	24
		12	13	19.52	19.55	19.34	24
		25	0	19.64	19.48	19.44	24

LTE Band38

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				37800	38000	38200	
				2575	2595	2615	
10	QPSK	1	0	22.55	22.38	22.38	24
		1	25	22.54	22.33	22.49	24
		1	49	22.45	22.39	22.43	24
		25	0	21.54	21.45	21.41	24
		25	12	21.59	21.41	21.46	24
		25	25	21.51	21.42	21.49	24
		50	0	21.60	21.44	21.39	24
	16QAM	1	0	21.57	21.56	21.61	24
		1	25	21.73	21.50	21.71	24
		1	49	21.65	21.85	21.44	24
		25	0	20.64	20.49	20.43	24
		25	12	20.68	20.43	20.42	24
		25	25	20.58	20.40	20.48	24
		50	0	20.57	20.44	20.49	24
	64QAM	1	0	20.64	20.56	20.50	24
		1	25	20.71	20.67	20.73	24
		1	49	20.59	20.54	20.31	24
		25	0	19.56	19.47	19.47	24
		25	12	19.62	19.45	19.42	24
		25	25	19.53	19.51	19.52	24
		50	0	19.59	19.43	19.47	24

LTE Band38

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				37825	38000	38175	Tune-up Tolerance
				2577.5	2595	2612.5	
15	QPSK	1	0	22.51	22.27	22.21	24
		1	37	22.41	22.18	22.31	24
		1	74	22.37	22.25	22.22	24
		36	0	21.44	21.30	21.29	24
		36	29	21.42	21.29	21.35	24
		36	30	21.42	21.29	21.38	24
		75	0	21.45	21.31	21.24	24
	16QAM	1	0	21.43	21.18	21.42	24
		1	37	21.20	21.53	21.55	24
		1	74	21.43	21.29	21.41	24
		36	0	20.38	20.32	20.21	24
		36	29	20.40	20.30	20.32	24
		36	30	20.42	20.33	20.34	24
		75	0	20.40	20.31	20.23	24
	64QAM	1	0	20.76	20.43	20.15	24
		1	37	20.41	20.53	20.37	24
		1	74	20.49	20.58	20.35	24
		36	0	19.43	19.30	19.28	24
		36	29	19.32	19.44	19.34	24
		36	30	19.36	19.21	19.41	24
		75	0	19.43	19.35	19.35	24

LTE Band38

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				37850	38000	38150	
				2580	2595	2610	
20	QPSK	1	0	22.30	22.25	22.39	24
		1	49	22.28	22.11	22.19	24
		1	99	22.33	22.11	22.26	24
		50	0	21.42	21.25	21.22	24
		50	24	21.38	21.28	21.27	24
		50	50	21.32	21.33	21.31	24
		100	0	21.28	21.29	21.20	24
	16QAM	1	0	21.86	21.38	21.47	24
		1	49	21.63	21.33	21.64	24
		1	99	21.26	21.27	21.20	24
		50	0	20.42	20.30	20.18	24
		50	24	20.40	20.23	20.24	24
		50	50	20.26	20.24	20.37	24
		100	0	20.25	20.25	20.30	24
	64QAM	1	0	20.64	20.21	20.11	24
		1	49	20.79	20.11	20.53	24
		1	99	20.59	20.65	20.29	24
		50	0	19.40	19.27	19.24	24
		50	24	19.34	19.36	19.34	24
		50	50	19.18	19.27	19.32	24
		100	0	19.25	19.32	19.21	24

LTE Band41

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				39675	40620	41565	Tune-up Tolerance
				2498.5	2593	2687.5	
5	QPSK	1	0	22.80	23.94	22.43	24.5
		1	12	22.94	23.97	22.59	24.5
		1	24	22.86	24.00	22.44	24.5
		12	0	21.90	23.04	21.55	24.5
		12	7	21.96	23.04	21.59	24.5
		12	13	21.89	22.99	21.48	24.5
		25	0	21.92	22.99	21.52	24.5
	16QAM	1	0	21.86	22.86	21.83	24.5
		1	12	21.84	22.81	21.54	24.5
		1	24	21.65	22.81	21.51	24.5
		12	0	20.77	22.08	20.54	24.5
		12	7	20.86	22.14	20.51	24.5
		12	13	20.93	22.11	20.63	24.5
		25	0	20.89	22.01	20.58	24.5
	64QAM	1	0	20.89	21.74	20.65	24.5
		1	12	20.80	21.86	20.69	24.5
		1	24	20.72	21.70	20.39	24.5
		12	0	19.93	21.03	19.34	24.5
		12	7	19.92	21.05	19.66	24.5
		12	13	19.96	20.95	19.51	24.5
		25	0	19.90	20.94	19.48	24.5

LTE Band41

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				39700	40620	41540	
				2501	2593	2685	
10	QPSK	1	0	22.68	23.93	22.38	24.5
		1	25	22.80	23.89	22.42	24.5
		1	49	22.77	23.99	22.39	24.5
		25	0	21.71	22.94	21.48	24.5
		25	12	21.85	22.88	21.49	24.5
		25	25	21.85	22.96	21.50	24.5
		50	0	21.79	22.92	21.50	24.5
	16QAM	1	0	21.72	22.85	21.43	24.5
		1	25	21.82	22.96	21.54	24.5
		1	49	21.80	23.03	21.57	24.5
		25	0	20.76	22.00	20.56	24.5
		25	12	20.73	21.92	20.48	24.5
		25	25	20.78	21.86	20.46	24.5
		50	0	20.77	21.89	20.44	24.5
	64QAM	1	0	20.77	21.64	20.43	24.5
		1	25	20.41	22.07	20.38	24.5
		1	49	20.78	22.23	20.10	24.5
		25	0	19.76	20.87	19.45	24.5
		25	12	19.82	20.87	19.53	24.5
		25	25	19.79	20.95	19.51	24.5
		50	0	19.79	20.91	19.39	24.5

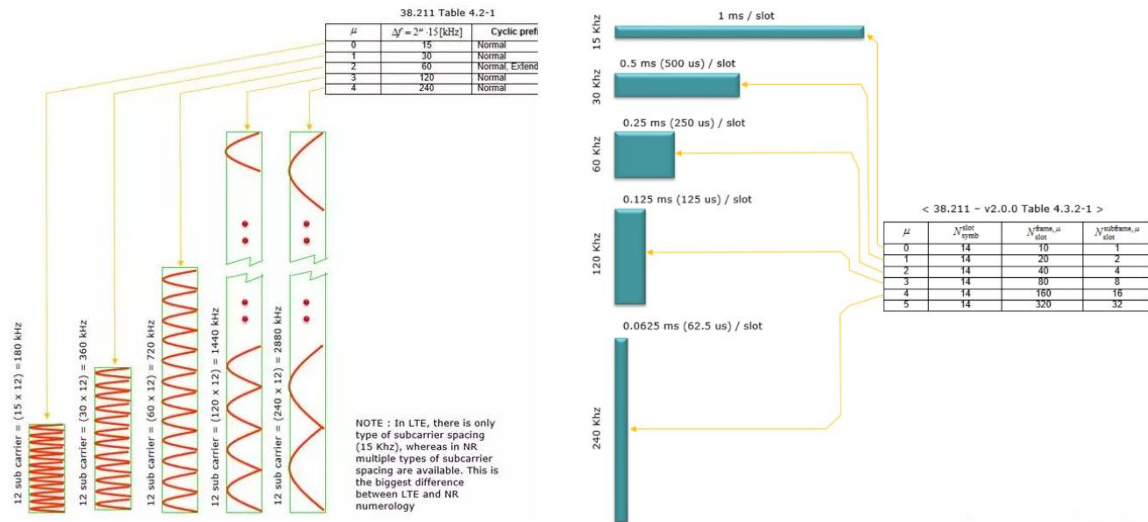
LTE Band41

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			
				39725	40620	41515	Tune-up Tolerance
				2503.5	2593	2682.5	
15	QPSK	1	0	22.51	23.45	22.34	24.5
		1	37	22.63	23.54	22.32	24.5
		1	74	22.54	23.77	22.31	24.5
		36	0	21.60	22.72	21.38	24.5
		36	29	21.58	22.69	21.35	24.5
		36	30	21.58	22.73	21.43	24.5
		75	0	21.55	22.69	21.36	24.5
	16QAM	1	0	21.47	22.48	21.43	24.5
		1	37	21.33	22.71	21.30	24.5
		1	74	21.73	22.70	21.47	24.5
		36	0	20.59	21.67	20.4	24.5
		36	29	20.66	21.77	20.39	24.5
		36	30	20.62	21.69	20.43	24.5
		75	0	20.64	21.71	20.36	24.5
	64QAM	1	0	20.56	21.83	20.31	24.5
		1	37	21.15	21.58	20.24	24.5
		1	74	20.68	21.98	20.46	24.5
		36	0	19.65	20.68	19.43	24.5
		36	29	19.57	20.77	19.46	24.5
		36	30	19.65	20.75	19.41	24.5
		75	0	19.59	20.79	19.34	24.5

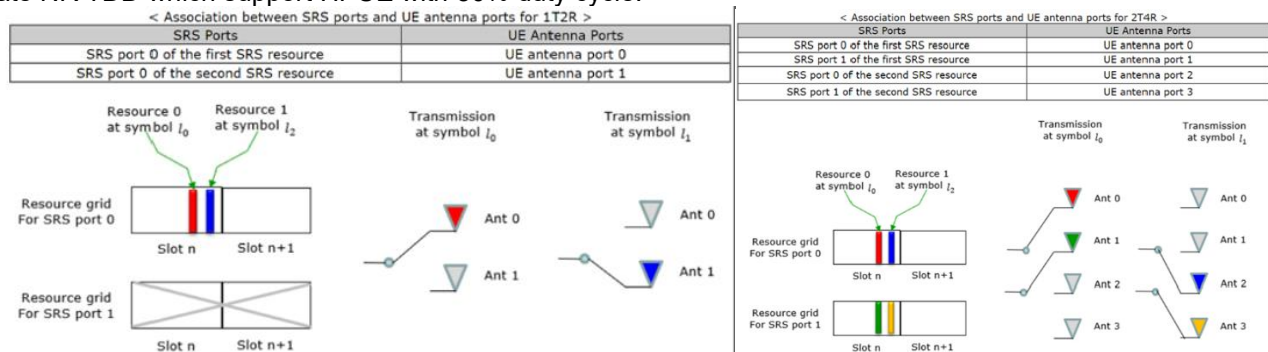
LTE Band41

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			Tune-up Tolerance
				39750	40620	41490	
				2506	2593	2680	
20	QPSK	1	0	22.50	23.71	22.45	24.5
		1	49	22.67	23.71	22.56	24.5
		1	99	22.62	23.71	22.41	24.5
		50	0	21.69	22.76	21.35	24.5
		50	24	21.70	22.76	21.38	24.5
		50	50	21.67	22.76	21.41	24.5
		100	0	21.67	22.76	21.28	24.5
	16QAM	1	0	21.56	22.65	21.27	24.5
		1	49	21.71	22.41	21.60	24.5
		1	99	21.70	22.66	21.39	24.5
		50	0	20.68	21.77	20.32	24.5
		50	24	20.66	21.8	20.37	24.5
		50	50	20.60	21.78	20.44	24.5
		100	0	20.69	21.73	20.3	24.5
	64QAM	1	0	20.31	21.48	20.00	24.5
		1	49	20.43	21.48	20.00	24.5
		1	99	20.26	21.70	20.24	24.5
		50	0	19.66	20.76	19.38	24.5
		50	24	19.66	20.72	19.39	24.5
		50	50	19.54	20.81	19.41	24.5
		100	0	19.66	20.75	19.34	24.5

6.2.4 NR SA



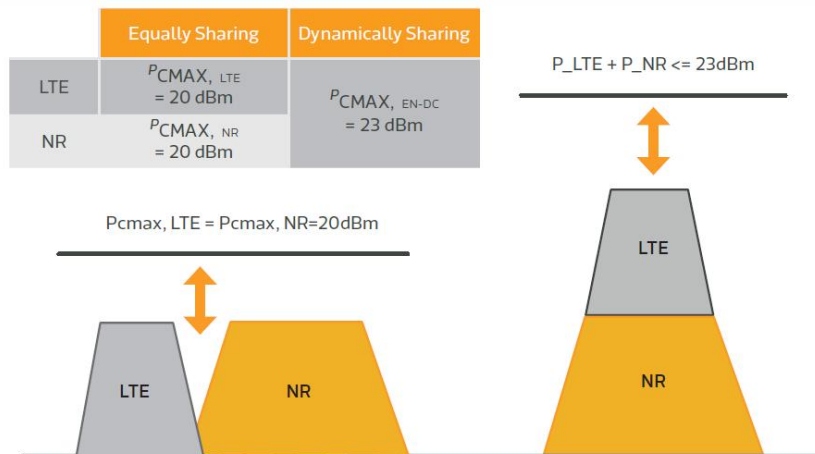
For TDD NR Band operation does not have the fixed UL/DL frame structure in the normal operation, but if the duty cycle larger than 50% for HPUE, MPR applied according to 3GPP. So SRTC proposing the conservative way to evaluate NR TDD which support HPUE with 50% duty cycle.



When DUT support SRS AS, the function shall be taken into account. Switching period (the last 6 symbols could be used in one slot) is low and not stable with automatically (1slot-2560slots) transmit or triggered by DCI format controlled by high layer, Then DUT choose the antenna(s) with best performance.

NSA

DPS (Dynamically Power Sharing) allocation method is often used for NR and LTE carrier of ENDC.



According to 3GPP 38.521 the maximum power for DFT-s-OFDM PI/2 BPSK (if support) and DFT-s-OFDM QPSK, so other wave-form (CP) and higher order modulation (such as 16QAM, 64QAM, 256QAM) are not mentioned here.

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ANT1

Full Power

NR n41

SCS	Modulation	Band Width	RB allocation	Range	Channel	Frequency (MHz)	Output Power(dBm)	Tune up Tolerance (dBm)
30KHZ	DFT-s-OFDM PI/2 BPSK	20MHz	25@12	low	501204	2506.02	23.06	24
			25@12	mid	518598	2592.99	23.25	
			25@12	high	535998	2679.99	23.33	
			1@1	low	501204	2506.02	23.18	24
			1@1	mid	518598	2679.99	23.17	
			1@1	high	535998	2592.99	23.33	
			1@49	low	501204	2506.02	23.15	24
			1@49	mid	518598	2592.99	23.08	
			1@49	high	535998	2679.99	23.18	
		60MHz	81@40	low	505200	2526.00	23.28	24
			81@40	mid	518598	2592.99	23.40	
			81@40	high	531996	2659.98	23.18	
			1@1	low	505200	2526	23.30	24
			1@1	mid	518598	2592.99	22.99	
			1@1	high	531996	2659.98	23.25	
			1@160	low	505200	2526	23.06	24
			1@160	mid	518598	2592.99	23.39	
			1@160	high	531996	2659.98	23.04	
		100MHz	135@67	low	509202	2546.01	22.94	24
			135@67	mid	518598	2592.99	22.91	
			135@67	high	528000	2640	22.96	
			1@1	low	509202	2546.01	23.35	24
			1@1	mid	518598	2592.99	23.41	
			1@1	high	528000	2640	23.45	
			1@271	low	509202	2546.01	23.30	24
			1@271	mid	518598	2592.99	23.05	
			1@271	high	528000	2640	23.14	
30KHZ	DFT-s-OFDM QPSK	20MHz	25@12	low	501204	2506.02	23.08	24
			25@12	mid	518598	2592.99	23.13	
			25@12	high	535998	2679.99	22.90	
			1@1	low	501204	2506.02	23.00	24
			1@1	mid	518598	2679.99	23.22	
			1@1	high	535998	2592.99	23.14	
			1@49	low	501204	2506.02	23.05	24
			1@49	mid	518598	2592.99	22.87	
			1@49	high	535998	2679.99	22.92	
		60MHz	81@40	low	505200	2526	23.12	24
			81@40	mid	518598	2592.99	23.19	
			81@40	high	531996	2659.98	23.13	
			1@1	low	505200	2526	23.07	24
			1@1	mid	518598	2592.99	22.84	
			1@1	high	531996	2659.98	22.99	
			1@160	low	505200	2526	22.86	24

			1@160	mid	518598	2592.99	22.90	
			1@160	high	531996	2659.98	23.18	
		100MHz	135@67	low	509202	2546.01	23.00	24
			135@67	mid	518598	2592.99	23.37	
			135@67	high	528000	2640	22.94	
			1@1	low	509202	2546.01	23.20	24
			1@1	mid	518598	2592.99	23.19	
			1@1	high	528000	2640	23.07	
			1@271	low	509202	2546.01	23.06	24
			1@271	mid	518598	2592.99	23.15	
			1@271	high	528000	2640	22.98	

6.2.5 Bluetooth

Note: Exclusion method based on EIRP is not applied for the BT, SRTC perform SAR measurement.

ANT7

SISO

BT

Modulation type	Conducted Average Power(dBm)			Tune-up
	2402MHz	2441MHz	2480MHz	
GFSK	10.52	10.31	10.61	12
$\pi/4$ DQPSK	9.34	10.94	9.40	11
8DPSK	9.12	10.08	10.07	11

BLE

Modulation type	Conducted Average Power(dBm)			Tune-up
	2402MHz	2440MHz	2480MHz	
GFSK (LE 1Mbps)	6.85	7.95	7.15	8
GFSK (LE 2Mbps)	7.16	7.21	7.12	8

6.2.6 WIFI

Note: Exclusion method based on EIRP is not applied for the WIFI, SRTC perform SAR measurement.

Unlicensed SISO

ANT7

Full Power

WLAN2.4GHz

Mode	Freq(MHz)	Average power (dBm)	Tune-up (dBm)
802.11b	2412	13.97	15
	2437	14.06	15
	2462	13.56	15
802.11g	2412	14.05	15
	2437	14.02	15
	2462	13.76	15
802.11n HT20	2412	13.92	15
	2437	13.89	15
	2462	13.68	15
802.11n HT40	2422	13.94	15
	2437	13.74	15
	2452	14.06	15

WLAN5GHz UNII-1

Mode	Freq(MHz)	Average power (dBm)	Tune-up (dBm)
802.11a	5180	11.22	12
	5220	11.35	12
	5240	11.70	12
802.11n HT20	5180	11.08	12
	5220	11.19	12
	5240	11.57	12
802.11n HT40	5190	11.17	12
	5230	11.39	12
802.11ac VHT20	5180	11.04	12
	5220	11.2	12
	5240	11.53	12
802.11ac VHT40	5190	11.21	12
	5230	11.4	12
802.11ac VHT80	5210	11.03	12

WLAN5GHz UNII-2A

Mode	Freq(MHz)	Average power (dBm)	Tune-up (dBm)
802.11a	5260	11.08	12
	5280	11.17	12
	5320	11.07	12

802.11n HT20	5260	10.99	12
	5280	11.01	12
	5320	10.95	12
802.11n HT40	5270	11.09	12
	5310	11.02	12
802.11ac VHT20	5260	11.02	12
	5280	11.02	12
	5320	10.96	12
802.11ac VHT40	5270	11.09	12
	5310	11.03	12
802.11ac VHT80	5290	10.8	12

WLAN5GHz UNII-2C

Mode	Freq(MHz)	Average power (dBm)	Tune-up (dBm)
802.11a	5500	10.25	12
	5580	10.02	12
	5700	10.46	12
802.11n HT20	5500	10.14	12
	5580	10.09	12
	5700	10.35	12
802.11n HT40	5510	10.19	12
	5590	10.18	12
	5670	10.11	12
802.11ac VHT20	5500	10.14	12
	5580	10.03	12
	5700	10.32	12
802.11ac VHT40	5510	10.21	12
	5590	10.23	12
	5670	10.13	12
802.11ac VHT80	5530	10.21	12
	5610	10.24	12

WLAN5GHz UNII-3

Mode	Freq(MHz)	Average power (dBm)	Tune-up (dBm)
802.11a	5745	11.46	12
	5785	11.76	12
	5825	11.6	12
802.11n HT20	5745	10.72	12
	5785	11.07	12
	5825	10.83	12
802.11n HT40	5755	10.82	12
	5795	11.03	12
802.11ac VHT20	5745	10.68	12
	5785	11.04	12
	5825	10.79	12

802.11ac VHT40	5755	10.72	12
	5795	10.93	12
802.11ac VHT80	5775	10.71	12

7 SAR RESULTS

7.1 T-issue and System Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue stimulants were measured every day using the dielectric probe kit and the network analyser. For the measurement of the following parameters the SPEAG DAKS-3.5 dielectric parameter probe is used, representing the open-ended coaxial probe measurement procedure. All tests were carried out within 24 hours of measuring the dielectric parameters.

Freq.(MHz)	Date	Liquid parameters	Measured	Target	Delta (%)	Tolerance (%)	Verdict
750	2023/8/11	ϵ_r	43.07	41.90	2.78	± 10	Pass
		σ [S/m]	0.93	0.89	4.49	± 10	Pass
835	2023/8/15	ϵ_r	42.99	41.50	3.59	± 10	Pass
		σ [S/m]	0.93	0.90	3.33	± 10	Pass
900	2023/8/16	ϵ_r	40.05	41.50	-3.49	± 10	Pass
		σ [S/m]	1.01	0.97	4.12	± 10	Pass
1800	2023/8/18	ϵ_r	39.31	40.00	-1.72	± 10	Pass
		σ [S/m]	1.40	1.40	0.01	± 10	Pass
2000	2023/8/19	ϵ_r	41.31	40.00	3.28	± 10	Pass
		σ [S/m]	1.47	1.40	5	± 10	Pass
2450	2023/08/11	ϵ_r	40.83	39.20	4.16	± 10	Pass
		σ [S/m]	1.74	1.80	-3.33	± 10	Pass
2600	2023/8/20	ϵ_r	38.65	39.00	-0.89	± 10	Pass
		σ [S/m]	1.92	1.96	-2.04	± 10	Pass
3500	2023/8/22	ϵ_r	39.05	37.90	-3.03	± 10	Pass
		σ [S/m]	3.04	2.91	4.47	± 10	Pass
3700	2023/8/23	ϵ_r	37.26	37.70	-1.17	± 10	Pass
		σ [S/m]	3.1	3.12	0.64	± 10	Pass
5200	2023/8/10	ϵ_r	36.68	36.00	1.88	± 5	Pass
		σ [S/m]	4.67	4.66	0.21	± 5	Pass
5300		ϵ_r	37.64	35.90	4.85	± 5	Pass
		σ [S/m]	4.77	4.76	0.21	± 5	Pass
5600	2023/8/9	ϵ_r	33.92	35.50	-4.45	± 5	Pass
		σ [S/m]	5.3	5.07	4.54	± 5	Pass
5800		ϵ_r	36.37	35.30	3.03	± 5	Pass
		σ [S/m]	5.40	5.27	2.25	± 5	Pass

A system check measurement was made following the determination of the dielectric parameters of the stimulant, using the dipole validation kit. Dipole was placed under the flat section of the twin SAM phantom. The system checking results (dielectric parameters and SAR values) are given in the table below. All tests were carried out within 24 hours of checking system. Plots of the system checking scans are given in Annex A. Tissue Stimulants used in the Measurements. **For the same frequency range, SAR measurement is the same day with system check, and there is no need to manually add test date in ANNEX A.**

Freq.(MHz)	Date	SAR measured (normalized to 1W)		Target (Ref. Value)	Delta(%)	Tolerance(%)	Verdict
750	2023/8/11	1g	8.56	8.40	1.90	±10	Pass
		10g	5.88	5.70	3.16	±10	Pass
835	2023/8/15	1g	9.28	9.38	-1.07	±10	Pass
		10g	6.08	6.25	-2.72	±10	Pass
900	2023/8/16	1g	10.72	10.90	-1.65	±10	Pass
		10g	7.32	7.00	4.57	±10	Pass
1450	2023/8/17	1g	40.00	38.90	2.83	±10	Pass
		10g	20.88	20.30	2.60	±10	Pass
1800	2023/8/18	1g	42.56	41.00	3.80	±10	Pass
		10g	19.96	20.50	-2.73	±10	Pass
2000	2023/8/19	1g	50.76	53.00	-4.23	±10	Pass
		10g	25.44	24.50	3.84	±10	Pass
2450	2023/08/11	1g	56.08	56.50	-0.74	±10	Pass
		10g	26.12	25.40	2.83	±10	Pass
2600	2023/8/20	1g	65.70	67.40	-2.52	±10	Pass
		10g	24.40	25.30	-3.56	±10	Pass
3500	2023/8/22	1g	71.6	68.80	4.07	±10	Pass
		10g	26.88	24.90	7.95	±10	Pass
3700	2023/8/23	1g	73.40	75.90	-3.29	±10	Pass
		10g	21.50	21.40	0.47	±10	Pass
5200	2023/8/10	1g	77.1	78.00	1.15	±10	Pass
		10g	22.4	22.00	1.82	±10	Pass
5300		1g	73.7	80.00	7.87	±10	Pass
		10g	21.9	22.60	3.10	±10	Pass
5600	2023/8/9	1g	79.60	78.50	1.40	±10	Pass
		10g	21.40	21.90	-2.28	±10	Pass
5800		1g	8.56	8.40	1.90	±10	Pass
		10g	5.88	5.70	3.16	±10	Pass

7.2 SAR Test result

In order to determine the largest value of the peak spatial-average SAR of a handset, all device positions, configurations, and operational modes should be tested for each frequency band according to Steps 1 to 3 below.

Step 1: The tests should be performed at the channel that is closest to the centre of the transmit frequency band.

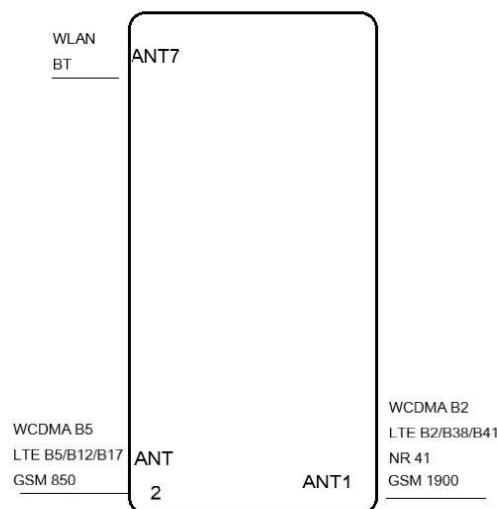
- a) All device positions (cheek and tilt, for both left and right sides of the SAM phantom),
- b) All configurations for each device position in a), e.g., antenna extended and retracted, and
- c) All operational modes for each device position in item a) and configuration in item b) in each frequency band, e.g., analog and digital, If more than three frequencies need to be tested (i.e., $N_c > 3$), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

Step 2: For the condition providing the highest peak spatial-average SAR determined in Step 1 for each frequency, perform all tests at all other test frequency channels, e.g., lowest and highest frequencies. In addition, for all other conditions (device position, configuration, and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies should be tested as well.

Step 3: Examine all data to determine the largest value of the peak.

Test and antenna position describe as follow:

Note: SRTC defined these positions (Back, Front, left, right, Top, Bottom) when facing the DUT screen.



License antenna	Position	Distances to edge (mm)	Test or not	Note
Ant1	Back	0.0	YES	WCDMA:B2 LTE:B2/B38/41 5G:N41 GSM:PCS1900
	Front	0.0	YES	
	Top	152.0	NO	
	Bottom	0.0	YES	
	Left	0.0	YES	
	Right	41.0	NO	
Ant2	Back	0.0	YES	WCDMA:B5 LTE:B5/B12/B17 GSM:GSM850
	Front	0.0	YES	
	Top	130.0	NO	
	Bottom	0.0	YES	
	Left	29.0	NO	
	Right	0.0	YES	

Unlicense antenna	Position	Distances to edge (mm)	Test or not	Note
Ant7	Back	0.0	YES	BT/WIFI2.4GHz WIFI5.2/5.3/5.6/5.8
	Front	0.0	YES	
	Top	0.0	YES	
	Bottom	140.0	NO	
	Left	60.0	NO	
	Right	0.0	YES	

Note: L<1GHz; 1GHz<M<2GHz; H>2GHz

The measured and reported SAR values are tabulated below:

Non-signaling mode duty cycle could be the most conservative condition which with 100% duty cycle. So duty factor=1/ duty cycle shall be taken into consideration for SAR measurement with Non-signaling mode.

SRTC ensure each reference point power drift within 0.21 dB, and the value of worst case of each frequency band mentioned in Annex_Plot.

7.2.1 Licensed SISO

ANT1/2

Full Power

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
GSM850	Exposure condition	Position	Channel				First	Second	First	Second
GPRS/EDGE GMSK	Head	Left Cheek	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.118	---	0.120	---
			H	26.86	27.50	1.02	---	---	---	---
		Left tilt	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.082	---	0.084	---
			H	26.86	27.50	1.02	---	---	---	---
		Right Cheek	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.074	---	0.075	---
			H	26.86	27.50	1.02	---	---	---	---
		Right tilt	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.054	---	0.055	---
			H	26.86	27.50	1.02	---	---	---	---
	Body-worn	Back	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.326	---	0.333	---
			H	26.86	27.50	1.02	---	---	---	---
		Front	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.351	---	0.358	---
			H	26.86	27.50	1.02	---	---	---	---
	Hotspot	Back	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.326	---	0.333	---
			H	26.86	27.50	1.02	---	---	---	---
		Front	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.351	---	0.358	---
			H	26.86	27.50	1.02	---	---	---	---
		Top	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	---	---	---	---
			H	26.86	27.50	1.02	---	---	---	---
		Bottom	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.282	---	0.288	---
			H	26.86	27.50	1.02	---	---	---	---
		Left	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	---	---	---	---
			H	26.86	27.50	1.02	---	---	---	---
		Right	L	26.53	27.50	1.03	---	---	---	---
			M	26.91	27.50	1.02	0.254	---	0.259	---
			H	26.86	27.50	1.02	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
GSM1900	Exposure condition	Position	Channel				First	Second	First	Second
GPRS/EDGE GMSK	Head	Left Cheek	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.068	---	0.071	---
			H	26.25	27.50	1.04	---	---	---	---
		Left tilt	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.053	---	0.055	---
			H	26.25	27.50	1.04	---	---	---	---
		Right Cheek	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.046	---	0.048	---
			H	26.25	27.50	1.04	---	---	---	---
		Right tilt	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.010	---	0.010	---
			H	26.25	27.50	1.04	---	---	---	---
	Body-worn	Back	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.302	---	0.314	---
			H	26.25	27.50	1.04	---	---	---	---
		Front	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.231	---	0.240	---
			H	26.25	27.50	1.04	---	---	---	---
	Hotspot	Back	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.302	---	0.314	---
			H	26.25	27.50	1.04	---	---	---	---
		Front	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.231	---	0.240	---
			H	26.25	27.50	1.04	---	---	---	---
		Top	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	---	---	---	---
			H	26.25	27.50	1.04	---	---	---	---
		Bottom	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.426	---	0.443	---
			H	26.25	27.50	1.04	---	---	---	---
		Left	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	0.172	---	0.179	---
			H	26.25	27.50	1.04	---	---	---	---
		Right	L	26.26	27.50	1.04	---	---	---	---
			M	26.31	27.50	1.04	---	---	---	---
			H	26.25	27.50	1.04	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
WCDMA II	Exposure condition	Position	Channel				First	Second	First	Second
RMC	Head	Left Cheek	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.095	---	0.123	---
			H	22.25	22.50	1.27	---	---	---	---
		Left tilt	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.051	---	0.067	---
			H	22.25	22.50	1.27	---	---	---	---
		Right Cheek	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.046	---	0.059	---
			H	22.25	22.50	1.27	---	---	---	---
		Right tilt	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.058	---	0.075	---
			H	22.25	22.50	1.27	---	---	---	---
	Body-worn	Back	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.403	---	0.520	---
			H	22.25	22.50	1.27	---	---	---	---
		Front	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.299	---	0.386	---
			H	22.25	22.50	1.27	---	---	---	---
	Hotspot	Back	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.403	---	0.520	---
			H	22.25	22.50	1.27	---	---	---	---
		Front	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.299	---	0.386	---
			H	22.25	22.50	1.27	---	---	---	---
		Top	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	---	---	---	---
			H	22.25	22.50	1.27	---	---	---	---
		Bottom	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.527	---	0.681	---
			H	22.25	22.50	1.27	---	---	---	---
		Left	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	0.214	---	0.277	---
			H	22.25	22.50	1.27	---	---	---	---
		Right	L	22.21	22.50	1.29	---	---	---	---
			M	22.19	22.50	1.29	---	---	---	---
			H	22.25	22.50	1.27	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
WCDMA V	Exposure condition	Position	Channel				First	Second	First	Second
RMC	Head	Left Cheek	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.019	---	0.023	---
			H	23.17	23.50	1.21	---	---	---	---
		Left tilt	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.012	---	0.015	---
			H	23.17	23.50	1.21	---	---	---	---
		Right Cheek	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.009	---	0.011	---
			H	23.17	23.50	1.21	---	---	---	---
		Right tilt	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.009	---	0.011	---
			H	23.17	23.50	1.21	---	---	---	---
	Body-worn	Back	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.074	---	0.090	---
			H	23.17	23.50	1.21	---	---	---	---
		Front	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.078	---	0.095	---
			H	23.17	23.50	1.21	---	---	---	---
	Hotspot	Back	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.074	---	0.090	---
			H	23.17	23.50	1.21	---	---	---	---
		Front	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.078	---	0.095	---
			H	23.17	23.50	1.21	---	---	---	---
		Top	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	---	---	---	---
			H	23.17	23.50	1.21	---	---	---	---
		Bottom	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.070	---	0.085	---
			H	23.17	23.50	1.21	---	---	---	---
		Left	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	---	---	---	---
			H	23.17	23.50	1.21	---	---	---	---
		Right	L	23.05	23.50	1.24	---	---	---	---
			M	23.17	23.50	1.21	0.055	---	0.067	---
			H	23.17	23.50	1.21	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
LTE2	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left Cheek	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.076	---	0.104	---
			H	21.73	23.30	1.44	---	---	---	---
		Left tilt	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.042	---	0.058	---
			H	21.73	23.30	1.44	---	---	---	---
		Right Cheek	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.043	---	0.059	---
			H	21.73	23.30	1.44	---	---	---	---
		Right tilt	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.031	---	0.043	---
			H	21.73	23.30	1.44	---	---	---	---
	Body-worn	Back	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.329	---	0.451	---
			H	21.73	23.30	1.44	---	---	---	---
		Front	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.246	---	0.338	---
			H	21.73	23.30	1.44	---	---	---	---
	Hotspot	Back	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.329	---	0.451	---
			H	21.73	23.30	1.44	---	---	---	---
		Front	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.246	---	0.338	---
			H	21.73	23.30	1.44	---	---	---	---
		Top	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	---	---	---	---
			H	21.73	23.30	1.44	---	---	---	---
		Bottom	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.392	---	0.538	---
			H	21.73	23.30	1.44	---	---	---	---
		Left	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	0.172	---	0.237	---
			H	21.73	23.30	1.44	---	---	---	---
		Right	L	21.81	23.30	1.41	---	---	---	---
			M	21.94	23.30	1.37	---	---	---	---
			H	21.73	23.30	1.44	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
LTE5	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left Cheek	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.018	---	0.024	---
			H	23.01	24.00	1.26	---	---	---	---
		Left tilt	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.013	---	0.017	---
			H	23.01	24.00	1.26	---	---	---	---
		Right Cheek	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.008	---	0.011	---
			H	23.01	24.00	1.26	---	---	---	---
		Right tilt	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.008	---	0.011	---
			H	23.01	24.00	1.26	---	---	---	---
	Body-worn	Back	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.064	---	0.081	---
			H	23.01	24.00	1.26	---	---	---	---
		Front	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.066	---	0.084	---
			H	23.01	24.00	1.26	---	---	---	---
	Hotspot	Back	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.064	---	0.081	---
			H	23.01	24.00	1.26	---	---	---	---
		Front	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.066	---	0.084	---
			H	23.01	24.00	1.26	---	---	---	---
		Top	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	---	---	---	---
			H	23.01	24.00	1.26	---	---	---	---
		Bottom	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.052	---	0.067	---
			H	23.01	24.00	1.26	---	---	---	---
		Left	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	---	---	---	---
			H	23.01	24.00	1.26	---	---	---	---
		Right	L	22.73	24.00	1.34	---	---	---	---
			M	22.97	24.00	1.27	0.048	---	0.062	---
			H	23.01	24.00	1.26	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
LTE12	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left Cheek	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.025	---	0.029	---
			H	23.57	24.00	1.10	---	---	---	---
		Left tilt	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.015	---	0.017	---
			H	23.57	24.00	1.10	---	---	---	---
		Right Cheek	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.010	---	0.011	---
			H	23.57	24.00	1.10	---	---	---	---
		Right tilt	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.010	---	0.011	---
			H	23.57	24.00	1.10	---	---	---	---
	Body-worn	Back	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.070	---	0.080	---
			H	23.57	24.00	1.10	---	---	---	---
		Front	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.072	---	0.082	---
			H	23.57	24.00	1.10	---	---	---	---
	Hotspot	Back	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.070	---	0.080	---
			H	23.57	24.00	1.10	---	---	---	---
		Front	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.072	---	0.082	---
			H	23.57	24.00	1.10	---	---	---	---
		Top	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	---	---	---	---
			H	23.57	24.00	1.10	---	---	---	---
		Bottom	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.038	---	0.043	---
			H	23.57	24.00	1.10	---	---	---	---
		Left	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	---	---	---	---
			H	23.57	24.00	1.10	---	---	---	---
		Right	L	23.46	24.00	1.13	---	---	---	---
			M	23.44	24.00	1.14	0.057	---	0.065	---
			H	23.57	24.00	1.10	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
LTE17	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left Cheek	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.024	---	0.027	---
			H	23.59	24.00	1.10	---	---	---	---
		Left tilt	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.015	---	0.017	---
			H	23.59	24.00	1.10	---	---	---	---
		Right Cheek	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.010	---	0.011	---
			H	23.59	24.00	1.10	---	---	---	---
		Right tilt	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.010	---	0.011	---
			H	23.59	24.00	1.10	---	---	---	---
	Body-worn	Back	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.074	---	0.082	---
			H	23.59	24.00	1.10	---	---	---	---
		Front	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.075	---	0.083	---
			H	23.59	24.00	1.10	---	---	---	---
	Hotspot	Back	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.074	---	0.082	---
			H	23.59	24.00	1.10	---	---	---	---
		Front	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.075	---	0.083	---
			H	23.59	24.00	1.10	---	---	---	---
		Top	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	---	---	---	---
			H	23.59	24.00	1.10	---	---	---	---
		Bottom	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.047	---	0.052	---
			H	23.59	24.00	1.10	---	---	---	---
		Left	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	---	---	---	---
			H	23.59	24.00	1.10	---	---	---	---
		Right	L	23.61	24.00	1.09	---	---	---	---
			M	23.56	24.00	1.11	0.058	---	0.064	---
			H	23.59	24.00	1.10	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
LTE38	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left Cheek	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.053	---	0.062	---
			H	22.97	24.00	1.27	---	---	---	---
		Left tilt	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.021	---	0.025	---
			H	22.97	24.00	1.27	---	---	---	---
		Right Cheek	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.009	---	0.011	---
			H	22.97	24.00	1.27	---	---	---	---
		Right tilt	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.009	---	0.011	---
			H	22.97	24.00	1.27	---	---	---	---
	Body-worn	Back	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.135	---	0.158	---
			H	22.97	24.00	1.27	---	---	---	---
		Front	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.138	---	0.161	---
			H	22.97	24.00	1.27	---	---	---	---
	Hotspot	Back	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.135	---	0.158	---
			H	22.97	24.00	1.27	---	---	---	---
		Front	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.138	---	0.161	---
			H	22.97	24.00	1.27	---	---	---	---
		Top	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	---	---	---	---
			H	22.97	24.00	1.27	---	---	---	---
		Bottom	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.204	---	0.239	---
			H	22.97	24.00	1.27	---	---	---	---
		Left	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	0.061	---	0.071	---
			H	22.97	24.00	1.27	---	---	---	---
		Right	L	23.41	24.00	1.15	---	---	---	---
			M	23.30	24.00	1.17	---	---	---	---
			H	22.97	24.00	1.27	---	---	---	---

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
LTE41	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left touch	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.062	---	0.074	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Left tilt	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.045	---	0.054	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Right touch	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.009	---	0.011	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Right tilt	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.009	---	0.011	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
	Body-worn	Back	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.150	---	0.180	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Front	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.155	---	0.186	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
	Hotspot	Back	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.150	---	0.180	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Front	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.155	---	0.186	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Top	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	---	---	---	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Bottom	L	22.67	24.50	1.52	---	---	---	---

			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.211	---	0.253	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Left	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	0.071	---	0.085	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---
		Right	L	22.67	24.50	1.52	---	---	---	---
			L-M		24.50	---	---	---	---	---
			M	23.71	24.50	1.20	---	---	---	---
			M-H		24.50	---	---	---	---	---
			H	22.56	24.50	1.56	---	---	---	---

ANT1

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
NR n41	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left touch	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.038	---	0.046	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Left tilt	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.030	---	0.036	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Right touch	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.009	---	0.011	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Right tilt	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.009	---	0.011	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
	Body-worn	Back	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.207	---	0.251	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Front	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.273	---	0.330	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
	Hotspot	Back	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.207	---	0.251	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Front	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.273	---	0.330	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Top	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	---	---	---	---
			M-H		23.50	---	---	---	---	---

			H	23.07	23.50	1.20	---	---	---	---
		Bottom	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.290	---	0.351	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Left	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	0.118	---	0.143	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---
		Right	L	23.19	23.50	1.20	---	---	---	---
			L-M		23.50	---	---	---	---	---
			M	23.19	23.50	1.21	---	---	---	---
			M-H		23.50	---	---	---	---	---
			H	23.07	23.50	1.20	---	---	---	---

7.2.2 Unlicensed SISO

ANT7

Full Power

Test case				Meas power(dBm)	Tune-up (dBm)	Scaling factor	Duty cycle	Duty factor	Meas SAR(w/kg)		Report SAR(w/kg)	
BT	Exposure condition	Position	Channel						First	Second	First	Second
BR	Head	Left Cheek	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.170	---	0.172	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Left tilt	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.082	---	0.083	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Right Cheek	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.044	---	0.044	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Right tilt	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.057	---	0.058	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
	Body-worn	Back	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.010	---	0.010	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Front	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.010	---	0.010	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
	Hotspot	Back	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.010	---	0.010	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Front	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.010	---	0.010	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Top	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.010	---	0.010	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Bottom	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	---	---	---	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Left	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	---	---	---	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---
		Right	L	9.34	11.00	1.47	100%	1.00	---	---	---	---
			M	10.94	11.00	1.01	100%	1.00	0.010	---	0.010	---
			H	9.40	11.00	1.45	100%	1.00	---	---	---	---

Test case				Meas power(dBm)	Tune-up (dBm)	Scaling factor	Duty cycle	Duty factor	Meas SAR(w/kg)		Report SAR(w/kg)	
WLAN2.4GHz	Exposure condition	Position	Channel						First	Second	First	Second
802.11b	Head	Left Cheek	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.498	---	0.618	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Left tilt	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.235	---	0.291	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Right Cheek	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.122	---	0.151	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Right tilt	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.162	---	0.201	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
	Body-worn	Back	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.050	---	0.062	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Front	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.057	---	0.071	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
	Hotspot	Back	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.050	---	0.062	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Front	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.057	---	0.071	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Top	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.064	---	0.079	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Bottom	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	---	---	---	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Left	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	---	---	---	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---
		Right	L	13.97	15.00	1.27	100%	1.00	---	---	---	---
			M	14.06	15.00	1.24	100%	1.00	0.055	---	0.068	---
			H	13.56	15.00	1.39	100%	1.00	---	---	---	---

Test case				Meas power(dBm)	Tune-up (dBm)	Scaling factor	Duty cycle	Duty factor	Meas SAR(w/kg)		Report SAR(w/kg)	
WLAN5GHz UNII-1	Exposure condition	Position	Channel						First	Second	First	Second
802.11a	Head	Left Cheek	L	11.22	12.00	1.20	100%	1.00	---	---	---	---
			M	11.35	12.00	1.16	100%	1.00	0.431	---	0.499	---
			H	11.70	12.00	1.07	100%	1.00	---	---	---	---
		Left tilt	L	11.22	12.00	1.20	100%	1.00	---	---	---	---
			M	11.35	12.00	1.16	100%	1.00	0.426	---	0.494	---
			H	11.70	12.00	1.07	100%	1.00	---	---	---	---
		Right Cheek	L	11.22	12.00	1.20	100%	1.00	---	---	---	---
			M	11.35	12.00	1.16	100%	1.00	0.125	---	0.145	---
			H	11.70	12.00	1.07	100%	1.00	---	---	---	---
		Right tilt	L	11.22	12.00	1.20	100%	1.00	---	---	---	---
			M	11.35	12.00	1.16	100%	1.00	0.108	---	0.125	---
			H	11.70	12.00	1.07	100%	1.00	---	---	---	---
	Body-worn	Back	L	11.22	12.00	1.20	100%	1.00	---	---	---	---
			M	11.35	12.00	1.16	100%	1.00	0.010	---	0.012	---
			H	11.70	12.00	1.07	100%	1.00	---	---	---	---
		Front	L	11.22	12.00	1.20	100%	1.00	---	---	---	---
			M	11.35	12.00	1.16	100%	1.00	0.073	---	0.085	---
			H	11.70	12.00	1.07	100%	1.00	---	---	---	---

Test case				Meas power(dBm)	Tune-up (dBm)	Scaling factor	Duty cycle	Duty factor	Meas SAR(w/kg)		Report SAR(w/kg)	
WLAN5GHz UNII-2A	Exposure condition	Position	Channel						First	Second	First	Second
802.11a	Head	Left Cheek	L	11.08	12.00	1.24	100%	1.00	---	---	---	---
			M	11.17	12.00	1.21	100%	1.00	0.533	---	0.644	---
			H	11.07	12.00	1.24	100%	1.00	---	---	---	---
		Left tilt	L	11.08	12.00	1.24	100%	1.00	---	---	---	---
			M	11.17	12.00	1.21	100%	1.00	0.457	---	0.552	---
			H	11.07	12.00	1.24	100%	1.00	---	---	---	---
		Right Cheek	L	11.08	12.00	1.24	100%	1.00	---	---	---	---
			M	11.17	12.00	1.21	100%	1.00	0.154	---	0.186	---
			H	11.07	12.00	1.24	100%	1.00	---	---	---	---
		Right tilt	L	11.08	12.00	1.24	100%	1.00	---	---	---	---
			M	11.17	12.00	1.21	100%	1.00	0.137	---	0.166	---
			H	11.07	12.00	1.24	100%	1.00	---	---	---	---
	Body-worn	Back	L	11.08	12.00	1.24	100%	1.00	---	---	---	---
			M	11.17	12.00	1.21	100%	1.00	0.010	---	0.012	---
			H	11.07	12.00	1.24	100%	1.00	---	---	---	---
		Front	L	11.08	12.00	1.24	100%	1.00	---	---	---	---
			M	11.17	12.00	1.21	100%	1.00	0.082	---	0.099	---
			H	11.07	12.00	1.24	100%	1.00	---	---	---	---

Test case				Meas power(dBm)	Tune-up (dBm)	Scaling factor	Duty cycle	Duty factor	Meas SAR(w/kg)		Report SAR(w/kg)	
WLAN5GHz UNII-2C	Exposure condition	Position	Channel						First	Second	First	Second
802.11a	Head	Left Cheek	L	10.25	12.00	1.50	100%	1.00	---	---	---	---
			M	10.02	12.00	1.58	100%	1.00	0.394	---	0.622	---
			H	10.46	12.00	1.43	100%	1.00	---	---	---	---
		Left tilt	L	10.25	12.00	1.50	100%	1.00	---	---	---	---
			M	10.02	12.00	1.58	100%	1.00	0.307	---	0.485	---
			H	10.46	12.00	1.43	100%	1.00	---	---	---	---
		Right Cheek	L	10.25	12.00	1.50	100%	1.00	---	---	---	---
			M	10.02	12.00	1.58	100%	1.00	0.096	---	0.152	---
			H	10.46	12.00	1.43	100%	1.00	---	---	---	---
		Right tilt	L	10.25	12.00	1.50	100%	1.00	---	---	---	---
			M	10.02	12.00	1.58	100%	1.00	0.083	---	0.131	---
			H	10.46	12.00	1.43	100%	1.00	---	---	---	---
	Body-worn	Back	L	10.25	12.00	1.50	100%	1.00	---	---	---	---
			M	10.02	12.00	1.58	100%	1.00	0.010	---	0.016	---
			H	10.46	12.00	1.43	100%	1.00	---	---	---	---
		Front	L	10.25	12.00	1.50	100%	1.00	---	---	---	---
			M	10.02	12.00	1.58	100%	1.00	0.062	---	0.098	---
			H	10.46	12.00	1.43	100%	1.00	---	---	---	---

Test case				Meas power(dBm)	Tune-up (dBm)	Scaling factor	Duty cycle	Duty factor	Meas SAR(w/kg)		Report SAR(w/kg)	
WLAN5GHz UNII-3	Exposure condition	Position	Channel						First	Second	First	Second
802.11a	Head	Left Cheek	L	11.46	12.00	1.13	100%	1.00	---	---	---	---
			M	11.76	12.00	1.06	100%	1.00	0.505	---	0.535	---
			H	11.60	12.00	1.10	100%	1.00	---	---	---	---
		Left tilt	L	11.46	12.00	1.13	100%	1.00	---	---	---	---
			M	11.76	12.00	1.06	100%	1.00	0.386	---	0.409	---
			H	11.60	12.00	1.10	100%	1.00	---	---	---	---
		Right Cheek	L	11.46	12.00	1.13	100%	1.00	---	---	---	---
			M	11.76	12.00	1.06	100%	1.00	0.117	---	0.124	---
			H	11.60	12.00	1.10	100%	1.00	---	---	---	---
		Right tilt	L	11.46	12.00	1.13	100%	1.00	---	---	---	---
			M	11.76	12.00	1.06	100%	1.00	0.126	---	0.134	---
			H	11.60	12.00	1.10	100%	1.00	---	---	---	---
	Body-worn	Back	L	11.46	12.00	1.13	100%	1.00	---	---	---	---
			M	11.76	12.00	1.06	100%	1.00	0.010	---	0.011	---
			H	11.60	12.00	1.10	100%	1.00	---	---	---	---
		Front	L	11.46	12.00	1.13	100%	1.00	---	---	---	---
			M	11.76	12.00	1.06	100%	1.00	0.081	---	0.086	---
			H	11.60	12.00	1.10	100%	1.00	---	---	---	---

7.2.3 ENDC

For EN-DC SAR, as the existing SAR test system cannot test the multiple different frequency bands at the same time, SRTC suggest “reported max + reported max” to evaluate the inter-band Uplink EN-DC SAR from standalone SAR test results of each LTE and NR EN-DC component band.

Exposure condition	Head			
Position	Left cheek	Left tilt	Right cheek	Right tilt
DC_2A_n41A	0.150	0.094	0.070	0.054

Exposure condition	Body worn	
Position	Back	Front
DC_2A_n41A	0.702	0.668

Exposure condition	Hotspot					
Position	Back	Front	Top	Bottom	Left	Right
DC_2A_n41A	0.702	0.668	---	0.889	0.380	---

7.3 Simultaneous Transmission SAR Analysis

7.3.1 Multi-TX SAR

SRTC use algebraic summation first, if the value exceed limit, then adopt field vector summation as final result as well as satisfy any pair SPLSR for 1g-SAR = $(SAR1 + SAR2)1.5/R_i \leq 0.04$ (rounded to two decimal digits), SPLSR for 10g-SAR = $(SAR1 + SAR2)1.5/R \leq 0.10$ (rounded to two decimal digits)

Exposure condition	Head			
Position	Left cheek	Left tilt	Right cheek	Right tilt
WWAN Mode	WCDMA Band II	WCDMA Band II	WCDMA Band II	WCDMA Band II
WWAN Value	0.123	0.067	0.059	0.075
WWAN_ENDC Mode	DC_2A_n41A	DC_2A_n41A	DC_2A_n41A	DC_2A_n41A
WWAN_ENDC Value	0.150	0.094	0.070	0.054
WWAN_MAX Mode	DC_2A_n41A	DC_2A_n41A	DC_2A_n41A	WCDMA Band II
WWAN_MAX Value	0.150	0.094	0.070	0.075
BT	0.172	0.083	0.044	0.058
WLAN2.4GHz	0.618	0.291	0.151	0.201
WLAN5GHz	0.644	0.552	0.186	0.166
+BT	0.322	0.177	0.114	0.133
+WLAN2.4GHz	0.768	0.385	0.221	0.276
+WLAN5GHz	0.794	0.646	0.256	0.241
+BT +WLAN5GHz	0.966	0.729	0.300	0.299
MAX Mode	DC_2A_n41A +BT +WLAN5GHz	DC_2A_n41A +BT +WLAN5GHz	DC_2A_n41A +BT +WLAN5GHz	DC_2A_n41A +BT +WLAN5GHz
MAX Value	0.966	0.729	0.300	0.299

Exposure condition	Body worn	
Position	Back	Front
WWAN Mode	WCDMA Band II	WCDMA Band II
WWAN Value	0.520	0.386
WWAN_ENDC Mode	DC_2A_n41A	DC_2A_n41A
WWAN_ENDC Value	0.702	0.668
WWAN_MAX Mode	DC_2A_n41A	DC_2A_n41A
WWAN_MAX Value	0.702	0.668
BT	0.010	0.010
WLAN2.4GHz	0.062	0.071
WLAN5GHz	0.016	0.099
+BT	0.712	0.678
+WLAN2.4GHz	0.764	0.739
+WLAN5GHz	0.718	0.767
+BT +WLAN5GHz	0.728	0.777
MAX Mode	DC_2A_n41A +WLAN2.4GHz	DC_2A_n41A +BT +WLAN5GHz
MAX Value	0.764	0.777

Exposure condition	Hotspot					
Position	Back	Front	Top	Bottom	Left	Right
WWAN Mode	WCDMA Band II	WCDMA Band II	---	WCDMA Band II	WCDMA Band II	GSM850
WWAN Value	0.520	0.386	---	0.681	0.277	0.259
WWAN_ENDC Mode	DC_2A_n41A	DC_2A_n41A	---	DC_2A_n41A	DC_2A_n41A	---
WWAN_ENDC Value	0.702	0.668	---	0.889	0.380	---
WWAN_MAX Mode	DC_2A_n41A	DC_2A_n41A	---	DC_2A_n41A	DC_2A_n41A	GSM850
WWAN_MAX Value	0.702	0.668	---	0.889	0.380	0.259
BT	0.010	0.010	0.010	---	---	0.010
WLAN2.4GHz	0.062	0.071	0.079	---	---	0.068
WLAN5GHz	0.016	0.099	---	---	---	---
+BT	0.712	0.678	0.010	0.889	0.380	0.269
+WLAN2.4GHz	0.764	0.739	0.079	0.889	0.380	0.327
+WLAN5GHz	0.718	0.767	---	0.889	0.380	0.259
+BT +WLAN5GHz	0.728	0.777	0.010	0.889	0.380	0.259
MAX Mode	DC_2A_n41A +WLAN2.4GHz	DC_2A_n41A +BT +WLAN5GHz	WLAN2.4GHz	DC_2A_n41A	DC_2A_n41A	GSM850+WLAN2.4GHz
MAX Value	0.764	0.777	0.079	0.889	0.380	0.327

7.3.2 NFC

Phones with built-in NFC functions do not require separate SAR testing and can generally be tested according to the SAR measurement procedures normally required for the phone. Influences of the hardware introduced by the built-in NFC functions are inherently considered through testing of the other transmitters that require SAR evaluation. **Simultaneous transmission exclusion method applied for NFC.**

For NFC $P_{\text{available}} = P_{\text{th,m}} * (SAR_{\text{limit}} - SAR_1) / SAR_{\text{limit}}$

Head: $P_{\text{available}} = 20\text{mW} * (2.0 - 0.97) / 2.0 = 10.3 \text{ mW} = 10.13 \text{ dBm} > \text{power of NFC}$

Body worn: $P_{\text{available}} = 20\text{mW} * (2.0 - 0.78) / 2.0 = 12.2 \text{ mW} = 10.86 \text{ dBm} > \text{power of NFC}$

Hotspot: $P_{\text{available}} = 20\text{mW} * (2.0 - 0.89) / 2.0 = 11.1 \text{ mW} = 10.45 \text{ dBm} > \text{power of NFC}$

So the simultaneous transmission SAR test is not required

8 MEASUREMENT UNCERTAINTY

Uncertainty Budget (Frequency band: 300 MHz–10 GHz range)								
Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c_1) (1 g)	(c_2) (10 g)	Std. Unc. (1 g)	Std. Unc. (10 g)
Measurement System Errors								
CF	Probe Calibration	±18.6%	N	2	1	1	±9.3%	±9.3%
CF _{drift}	Probe Calibration Drift	±1.7%	R	$\sqrt{3}$	1	1	±0.98%	±0.98%
LIN	Probe Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.71%	±2.71%
BBS	Broadband Signal	±2.8%	R	$\sqrt{3}$	1	1	±1.62%	±1.62%
ISO	Probe Isotropy (axial)	±9.6%	R	$\sqrt{3}$	1	1	±5.54%	±5.54%
DAE	Other Probe+Electronic	±2.4%	N	1	1	1	±2.4%	±2.4%
AMB	RF Ambient	±0.0%	N	1	1	1	±0.0%	±0.0%
Δ_{sys}	Probe Positioning	±0.005mm	N	1	0.5	0.5	±0.25%	±0.25%
DAT	Data Processing	±4.0%	N	1	1	1	±4.0%	±4.0%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.) ^{DAK}	±3.0%	N	1	0.78	0.71	±2.34%	±2.13%
LIQ(T_σ)	Conductivity (temp.) ^{BB}	±2.43%	R	$\sqrt{3}$	0.78	0.71	±1.09%	±1.00%
EPS	Phantom Permittivity	±14.0%	R	$\sqrt{3}$	0.5	0.5	±4.04%	±4.04%
DIS	Distance DUT – TSL	±2.6%	N	1	2	2	±1.30%	±1.30%
D _{xyz}	Device Positioning	±0.9%	N	1	1	1	±0.9%	±0.9%
H	Device Holder	±2.8%	N	1	1	1	±2.8%	±2.8%
MOD	DUT Modulation	±2.4%	R	$\sqrt{3}$	1	1	±1.39%	±1.39%
TAS	Time-average SAR	±1.73%	R	$\sqrt{3}$	1	1	±1.00%	±1.00%
RF _{drift}	DUT drift	±1.78%	N	1	1	1	±1.78%	±1.78%
VAL	Validation antenna	±3.2%	N	1	1	1	±3.2%	±3.2%
P _{in}	Accepted power	±2.0%	N	1	1	1	±2.0%	±2.0%
Correction to the SAR results								
C(ϵ, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.60%
C(R)	SAR scaling ^p	±0%	R	$\sqrt{3}$	1	1	±0%	±0%
u(Δ SAR)	Combined Uncertainty						14.39	14.32
U	Expanded Uncertainty						28.78	28.64

Note: SRTC evaluate the components of uncertainty periodically to make sure there is no influence on SAR result.

9 TEST EQUIPMENTS

The measurements were performed using an automated near-field scanning system, DASY, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland, all the components and supplement devices listed below.

Test Equipment	Model	Serial Number	Calibration date	Calibration due data
DAE	DAE4	546	2022/09/15	2023/09/14
Dosimetric E-field Probe	EX3DV4	3708	2022/10/28	2023/10/27
Dipole Validation Kit	D450V2	1024	2020/10/26	2023/10/25
Dipole Validation Kit	D750V3	1101	2020/10/16	2023/10/15
Dipole Validation Kit	D835V2	4d023	2020/10/16	2023/10/15
Dipole Validation Kit	D900V2	171	2020/09/17	2023/09/16
Dipole Validation Kit	D1450V2	1065	2020/10/16	2023/10/15
Dipole Validation Kit	D1800V2	2d084	2020/09/18	2023/09/17
Dipole Validation Kit	D2000V2	1009	2020/10/14	2023/10/13
Dipole Validation Kit	D2450V2	738	2020/10/13	2023/10/12
Dipole Validation Kit	D2600V2	1166	2022/10/19	2025/10/18
Dipole Validation Kit	D3300V2	1014	2022/10/19	2025/10/18
Dipole Validation Kit	D3500V2	1090	2022/10/20	2025/10/19
Dipole Validation Kit	D3700V2	1058	2022/10/19	2025/10/18
Dipole Validation Kit	D3900V2	1033	2022/10/21	2025/10/20
Dipole Validation Kit	D4200V2	1013	2022/10/19	2025/10/18
Dipole Validation Kit	D4600V2	1033	2022/10/20	2025/10/19
Dipole Validation Kit	D4900V2	1025	2022/10/21	2025/10/20
Dipole Validation Kit	D5GHzV2	1079	2020/10/10	2023/10/09
Dipole Validation Kit	D6GHzV2	1055	2021/11/29	2024/11/28

Note: Longer calibration intervals of up to **3 years is acceptable** when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable.

Test Equipment	Model	Serial Number	Calibration date	Calibration due data
Signal Generator	E4438C	MY45090847	2023/03/20	2024/03/19
Power meter	E4417A	MY45101004	2023/06/20	2024/06/19
Power Sensor	E9300B	MY41496001	2023/06/20	2024/06/19
Power Sensor	E9300B	MY41496003	2023/06/20	2024/06/19
Vector Network Analyzer	VNA R140	0011213	2022/10/24	2023/10/23
Dielectric Parameter Probe	DAKS-3.5	1042	2022/10/24	2023/10/23
Communication Tester	CMW500	161702	2023/03/06	2024/03/05
Communication Tester	MT8820C	6201300660	2023/06/20	2024/06/19
Communication Tester	SP9500	20334	2023/03/06	2024/03/05

Software	Version
DASY5	52.10.4.1527
DASY6	16.0.0.116
SEMCAD X	14.6.14
DAK	3.0.4.1

SAR Target: Refers to system check, measured SAR (1g and 10g) deviates from the Target SAR value of calibration report within 10%.

Impedance and Return loss measured by Network analyzer: The most recent measurement of the real or imaginary parts of the impedance deviates within 5 Ω from the previous measurement. The most recent return-loss result deviates within 20% from the previous measurement. (Target from the last calibration report, Return loss<20db)

Dipole450 TSL Parameters (feed point 450MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	56.1 Ω +6.06j Ω	55.5 Ω +6.40j Ω
Return loss	-21.6 dB	-21.9 dB
Dipole750 TSL Parameters (feed point 750MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	53.9 Ω -2.02j Ω	53.7 Ω -1.63j Ω
Return loss	-27.5 dB	-28.2dB
Dipole835 TSL Parameters (feed point 835MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	53.4 Ω -3.16j Ω	52.6 Ω -2.37j Ω
Return loss	-30.1 dB	-29.3dB
Dipole900 TSL Parameters (feed point 900MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	50.6 Ω -5.24j Ω	49.1 Ω -6.69j Ω
Return loss	-23.8 dB	-23.4dB
Dipole1450 TSL Parameters (feed point 1450MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	53.7 Ω -2.95j Ω	52.4 Ω -1.35j Ω
Return loss	-32.1 dB	-31.5dB
Dipole1800 TSL Parameters (feed point 1800MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	47.8 Ω -3.06j Ω	48.9 Ω -2.71j Ω
Return loss	-31.3 dB	-30.6dB
Dipole2000 TSL Parameters (feed point 2000MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	51.1 Ω -3.37j Ω	49.4 Ω -2.46j Ω
Return loss	-30.6 dB	-31.9dB
Dipole2450 TSL Parameters (feed point 2450MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	54.2 Ω +5.98j Ω	53.3 Ω +6.38j Ω
Return loss	-22.9 dB	-23.1dB
Dipole2600 TSL Parameters (feed point 2600MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	48.4 Ω -6.71j Ω	47.9 Ω -7.80j Ω
Return loss	-22.5 dB	-21.7dB
Dipole3300 TSL Parameters (feed point 3300MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	54.2 Ω -6.1j Ω	54.7 Ω -6.3j Ω
Return loss	-23.1dB	-22.5dB
Dipole3500 TSL Parameters (feed point 3500MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	53.3 Ω +4.48j Ω	52.6 Ω +3.5j Ω
Return loss	-29.1 dB	-27.4dB
Dipole3700 TSL Parameters (feed point 3700MHz)		

Parameters	Measured data	Target (Ref. Value)
Impedance	47.6Ω+1.99jΩ	48.3Ω+1.1jΩ
Return loss	-34.5 dB	-33.6dB
Dipole3900 TSL Parameters		
(feed point 3900MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	50.1Ω-5.48jΩ	48.3Ω-4.9jΩ
Return loss	-26.7 dB	-25.6dB
(feed point 4100MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	57.6Ω-1.70jΩ	59.0Ω-0.8jΩ
Return loss	-20.8 dB	-21.6dB
Dipole4200 TSL Parameters		
(feed point 4300MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	53.9Ω-1.52jΩ	52.1Ω-1.6jΩ
Return loss	-33.5 dB	-31.7dB
Dipole4600 TSL Parameters		
(feed point 4500MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	46.9Ω-5.14jΩ	46.4Ω-4.5jΩ
Return loss	-25.2 dB	-24.5dB
(feed point 4700MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	54.8Ω-2.91jΩ	55.9Ω-3.20jΩ
Return loss	-25.4 dB	-24.0dB
Dipole4900 TSL Parameters		
(feed point 4900MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	51.8Ω-4.40jΩ	50.6Ω-5.2jΩ
Return loss	-26.9 dB	-25.7dB
Dipole5GHz TSL Parameters		
(feed point 5200MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	51.2Ω-11.89jΩ	50.2Ω-10.0jΩ
Return loss	-21.2 dB	-20.0dB
(feed point 5300MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	49.0Ω-6.40jΩ	47.2Ω-7.33jΩ
Return loss	-22.4 dB	-21.9dB
(feed point 5500MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	51.6Ω-6.61jΩ	52.0Ω-7.96jΩ
Return loss	-22.2 dB	-21.9dB
(feed point 5600MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	53.6Ω-4.31jΩ	55.7Ω-3.78jΩ
Return loss	-23.1 dB	-23.8dB
(feed point 5800MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	51.8Ω-6.96jΩ	53.7Ω-5.87jΩ
Return loss	-22.9 dB	-23.5dB
Dipole6500 TSL Parameters		
(feed point 6500MHz)		
Parameters	Measured data	Target (Ref. Value)
Impedance	52.3Ω-3.6jΩ	51.1Ω-2.2jΩ
Return loss	-31.1 dB	-32.3dB