

Report No.: SEWM2305000178RG05
Rev.: 01
Page: 1 of 88

FCC SAR TEST REPORT

Application No.: SEWM2305000178RG
Applicant: Cloud Mobile Holdings, LLC
Manufacturer: Shenzhen Along Electronics Co., LTD
Product Name: MIFI
Model No.(EUT): Sky_M2
Trade Mark: Cloud Mobile
FCC ID: 2AY6A-M2
Standards: FCC 47CFR §2.1093
Date of Receipt: 2023-05-19
Date of Test: 2023-06-28 to 2023-07-11
Date of Issue: 2023-07-14
Test conclusion: **PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:


Pantu Sun

Wireless Laboratory Manager



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Report No.: SEWM2305000178RG05
Rev.: 01
Page: 2 of 88

REVISION HISTORY

Report Number	Revision	Description	Issue Date
SEWM2305000178RG05	01	Original	2023-07-14



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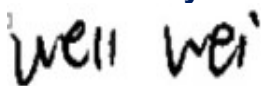
Rev.: 01

Page: 3 of 88

TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)
	Hotspot
GSM850	0.83
GSM1900	0.92
WCDMA Band II	0.93
WCDMA Band IV	0.99
WCDMA Band V	0.59
LTE Band 2	0.99
LTE Band 4	0.92
LTE Band 5	0.60
LTE Band 7	0.97
LTE Band 12	0.91
LTE Band 13	0.70
LTE Band 17	0.91
LTE Band 41	0.91
LTE Band 66	0.92
LTE Band 71	0.77
WI-FI (2.4GHz)	0.56
WI-FI (5GHz)	0.57
SAR Limited(W/kg)	1.60
Maximum Simultaneous Transmission SAR (W/kg)	
Scenario	Hotspot
Sum SAR	1.56
SPLSR	/
SPLSR Limited	1.60

Reviewed by



Well Wei

Prepared by



Nick Hu



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CONTENTS

1	GENERAL INFORMATION	6
1.1	DETAILS OF CLIENT	6
1.2	TEST LOCATION	6
1.3	TEST FACILITY	7
1.4	GENERAL DESCRIPTION OF EUT	8
1.4.1	DUT Antenna Locations(Front View)	9
1.4.2	LTE CA additional specification	10
1.5	TEST SPECIFICATION	11
1.6	RF EXPOSURE LIMITS	12
2	LABORATORY ENVIRONMENT	13
3	SAR MEASUREMENTS SYSTEM CONFIGURATION	14
3.1	THE SAR MEASUREMENT SYSTEM	14
3.2	ISOTROPIC E-FIELD PROBE EX3DV4	15
3.3	DATA ACQUISITION ELECTRONICS (DAE)	16
3.4	SAM TWIN PHANTOM	16
3.5	ELI PHANTOM	17
3.6	DEVICE HOLDER FOR TRANSMITTERS	18
3.7	MEASUREMENT PROCEDURE	19
3.7.1	Scanning procedure	19
3.7.2	Data Storage	21
3.7.3	Data Evaluation by SEMCAD	21
4	SAR MEASUREMENT VARIABILITY AND UNCERTAINTY	23
4.1	SAR MEASUREMENT VARIABILITY	23
4.2	SAR MEASUREMENT UNCERTAINTY	23
5	DESCRIPTION OF TEST POSITION	24
5.1	BODY EXPOSURE CONDITION	24
5.1.1	Body accessory exposure conditions	24
6	SAR SYSTEM VERIFICATION PROCEDURE	25
6.1	TISSUE SIMULATE LIQUID	25
6.1.1	Recipes for Tissue Simulate Liquid	25
6.1.2	Measurement for Tissue Simulate Liquid	26
6.2	SAR SYSTEM CHECK	27
6.2.1	Justification for Extended SAR Dipole Calibrations	28
6.2.2	Summary System Check Result(s)	29
6.2.3	Detailed System Check Results	29
7	TEST CONFIGURATION	30
7.1	3G SAR TEST REDUCTION PROCEDURE	30
7.2	OPERATION CONFIGURATIONS	30
7.2.1	GSM Test Configuration	30
7.2.2	WCDMA Test Configuration	30



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7.2.3	WiFi Test Configuration.....	38
7.2.4	LTE Test Configuration	45
8	TEST RESULT	48
8.1	MEASUREMENT OF RF CONDUCTED POWER	48
8.1.1	Conducted Power of GSM	48
8.1.2	Conducted Power of WCDMA.....	48
8.1.3	Conducted Power of LTE.....	50
8.1.4	Conducted Power of Downlink CA	71
8.1.5	Conducted Power of WIFI.....	72
8.2	STAND-ALONE SAR TEST EVALUATION	76
8.3	MEASUREMENT OF SAR DATA.....	77
8.3.1	SAR Result of GSM850.....	78
8.3.2	SAR Result of GSM1900	78
8.3.3	SAR Result of WCDMA Band II	78
8.3.4	SAR Result of WCDMA Band IV.....	79
8.3.5	SAR Result of WCDMA Band V.....	79
8.3.6	SAR Result of LTE Band 2.....	79
8.3.7	SAR Result of LTE Band 5.....	80
8.3.8	SAR Result of LTE Band 7.....	80
8.3.9	SAR Result of LTE Band 12.....	81
8.3.10	SAR Result of LTE Band 13.....	81
8.3.11	SAR Result of LTE Band 41.....	82
8.3.12	SAR Result of LTE Band 66.....	82
8.3.13	SAR Result of LTE Band 71.....	83
8.3.14	SAR Result of WIFI 2.4G	83
8.3.15	SAR Result of WIFI 5G.....	84
8.4	MULTIPLE TRANSMITTER EVALUATION	85
8.4.1	Simultaneous SAR SAR test evaluation.....	85
8.4.2	Simultaneous Transmission SAR Summation Scenario	85
9	EQUIPMENT LIST	87
10	CALIBRATION CERTIFICATE.....	88
11	PHOTOGRAPHS	88
APPENDIX A: DETAILED SYSTEM CHECK RESULTS.....		88
APPENDIX B: DETAILED TEST RESULTS		88
APPENDIX C: CALIBRATION CERTIFICATE		88
APPENDIX D: PHOTOGRAPHS		88



1 General Information

1.1 Details of Client

Applicant:	Cloud Mobile Holdings, LLC
Address:	1149 S. HILL ST. SUITE H400, LOS ANGELES, CA 90015
Manufacturer:	Shenzhen Along Electronics Co., LTD
Address:	No.35, Xinyuan Industrial Zone, Gushu Community, Xixiang Street, Bao 'an District, Shenzhen City

1.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test Engineer:	Leon Xu, Alan Zhang



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 7 of 88

1.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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Rev.: 01
Page: 8 of 88

1.4 General Description of EUT

Device Type :	portable device			
Exposure Category:	uncontrolled environment / general population			
Product Name:	MIFI			
Model No.(EUT):	Sky_M2			
FCC ID:	2AY6A-M2			
Trade Mark:	Cloud Mobile			
Product Phase:	Identical Prototype			
IMEI:	356842541506791			
Hardware Version:	AL_M02_MB_V12_B			
Software Version:	Android 12.0			
Antenna Type:	Integrated			
Device Operating Configurations :				
Modulation Mode:	GSM:GMSK, 8PSK; WCDMA: QPSK, 16QAM(HSPA+); LTE: QPSK,16QAM,64QAM WIFI: DSSS, OFDM; BT: GFSK, π/4DQPSK,8DPSK			
Device Class:	B			
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12	
HSDPA UE Category:	24	HSUPA UE Category	7	
	4, tested with power level 5(GSM850)			
	1, tested with power level 0(GSM1900)			
	3, tested with power control “all 1”(WCDMA Band)			
	3, tested with power control Max Power(LTE Band)			
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)	
	GSM850	824~849 MHz	869~894 MHz	
	GSM1900	1850~1910 MHz	925~960 MHz	
	WCDMA Band II	1850~1910	1930~1990	
	WCDMA Band IV	1710~1755	2110~2155	
	WCDMA Band V	824~849	869~894	
	LTE Band 2	1850 ~1910	1930 ~1990	
	LTE Band 4	1710~1755	2110~2155	
	LTE Band 5	824~849	869-894	
	LTE Band 7	2500~2570	2620~2690	
	LTE Band 12	699~716	729~746	
	LTE Band 13	777~787	746~756	
	LTE Band 17	704~716	734~746	
	LTE Band 41	2496~2690	2496~2690	
	LTE Band 66	1710~1780	2110~2200	
	LTE Band 71	663~698	617~652	
	Wi-Fi 2.4G	2412~2472	2412~2472	
	WIFI(5GHz)	5150-5250 5250-5350 5470-5725 5725-5850	5150-5250 5250-5350 5470-5725 5725-5850	
	RF Cable:	☒ Provided by the aplicant ☐ Provided by the laboratory		
	Battery Information:	Model:	SKY M2	
Normal Voltage:		3.8V		
Rated capacity:		3000mAh		
Manufacturer:		Shenzhen Kehuaxing Industrial Ltd.		

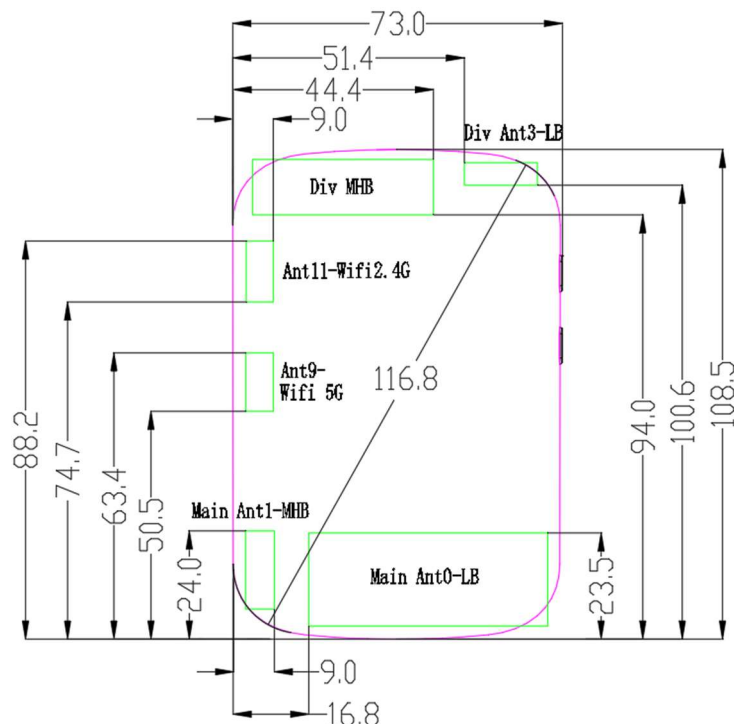


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1.4.1 DUT Antenna Locations(Front View)



Antenna	Support Band
Ant 0	GSM850, WCDMA B5, LTE B5/12/13/17/71
Ant 1	GSM1900, WCDMA B2/4, LTE B2/4/7/41/66
Ant 9	WIFI 5G
Ant 11	WIFI 2.4G

Note:

1) DIV Antenna does not support transmitter function.

According to the distance between LTE/WCDMA/WIFI&BT antennas and the sides of the EUT we can draw the conclusion that:

EUT Sides for SAR Testing							
Mode	Exposure Condition	Front	Back	Left	Right	Top	Bottom
Ant 0	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	No	Yes
Ant 1	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	Yes
Ant 9	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	No
Ant 11	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No

EUT Sides for SAR Testing

Note: When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.



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1.4.2 LTE CA additional specification

The device supports downlink and intra-band contiguous uplink LTE Carrier Aggregation (CA). When carrier aggregation applies, implementation and measurement details for the following are necessary.

Intra-band carrier aggregation requirements for uplink.

Intra-band and inter-band carrier aggregation requirements for downlink.

The possible downlink and uplink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0. The conducted power measurement results of downlink and uplink LTE CA are provided in Section 8 of this report per 3GPP TS 36.521-1 V14.4.0. The downlink LTE CA SAR test is not required since the maximum output power for downlink LTE CA was not more than 0.25dB higher than the maximum output power for without downlink LTE CA.

LTE Downlink CA List(DL CA)
CA_2A-2A
CA_2A-4A
CA_2A-5A
CA_2A-12A
CA_2A-13A
CA_2A-66A
CA_4A-4A
CA_4A-5A
CA_4A-12A
CA_4A-13A
CA_5A-5A
CA_5A-66A
CA_12A-12A
CA_12A-66A
CA_13A-66A
CA_66C
CA_66A-66A
CA_41A-41A
CA_41C



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1.5 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802.11 Wi-Fi SAR v02r02
KDB 648474 D04	Handset SAR v01r03
KDB 447498 D01	General RF Exposure Guidance v06
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03



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1.6 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain*Trunk)	1.60 mW/g	8.00 mW/g
Spatial Average SAR** (Whole Body)	0.08 mW/g	0.40 mW/g
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 mW/g	20.00 mW/g

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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

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



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 13 of 88

2 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ambient noise is checked and found very low and in compliance with requirement of standards.	
Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

Table 1: The Ambient Conditions



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3 SAR Measurements System Configuration

3.1 The SAR Measurement System

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation $SAR = \sigma (|E|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

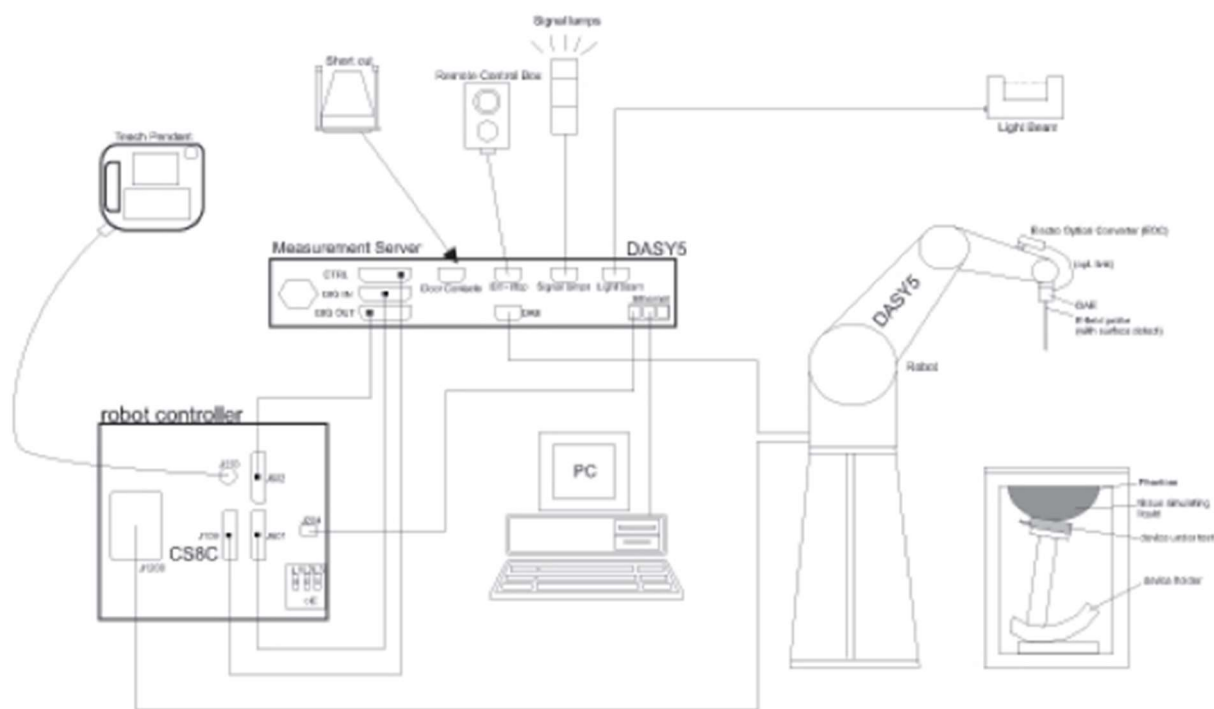
The DASY5 system for performing compliance tests consists of the following items:

A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation the data acquisition electronics (DAE).

A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

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

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



F-1. SAR Measurement System Configuration

- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system.

3.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI



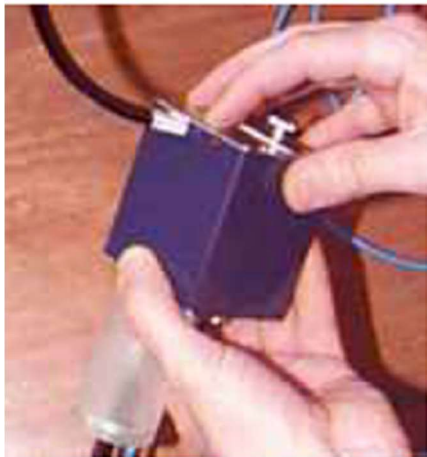
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3.3 Data Acquisition Electronics (DAE)

Model	DAE	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)	
Input Offset Voltage	< 5μV (with auto zero)	
Input Bias Current	< 50 f A	
Dimensions	60 x 60 x 68 mm	

3.4 SAM Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)	
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	
Wooden Support	SPEAG standard phantom table	

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

3.5 ELI Phantom

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



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

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.



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3.6 Device Holder for Transmitters



F-2. Device Holder for Transmitters

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon=3$ and loss tangent $\delta=0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



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3.7 Measurement procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.

Step 2: Area scan

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 12mm*12mm or 10mm*10mm. Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Zoom scan

Around this point, a volume of 32mm*32mm*30mm ($f \leq 2\text{GHz}$), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points ($f \leq 2\text{GHz}$), 7x7x7 points (f for 2-3GHz) and 7x7x12 points (f for 5-6GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification). The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2013.



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		$\leq 3 \text{ GHz}$	$> 3 \text{ GHz}$
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		$5 \pm 1 \text{ mm}$	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location		$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$		$\leq 2 \text{ GHz: } \leq 15 \text{ mm}$ $2 - 3 \text{ GHz: } \leq 12 \text{ mm}$	$3 - 4 \text{ GHz: } \leq 12 \text{ mm}$ $4 - 6 \text{ GHz: } \leq 10 \text{ mm}$
		When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$		$\leq 2 \text{ GHz: } \leq 8 \text{ mm}$ $2 - 3 \text{ GHz: } \leq 5 \text{ mm}^*$	$3 - 4 \text{ GHz: } \leq 5 \text{ mm}^*$ $4 - 6 \text{ GHz: } \leq 4 \text{ mm}^*$
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$	$\leq 5 \text{ mm}$	$3 - 4 \text{ GHz: } \leq 4 \text{ mm}$ $4 - 5 \text{ GHz: } \leq 3 \text{ mm}$ $5 - 6 \text{ GHz: } \leq 2 \text{ mm}$
	graded grid $\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	$\leq 4 \text{ mm}$	$3 - 4 \text{ GHz: } \leq 3 \text{ mm}$ $4 - 5 \text{ GHz: } \leq 2.5 \text{ mm}$ $5 - 6 \text{ GHz: } \leq 2 \text{ mm}$
	$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z	$\geq 30 \text{ mm}$	$3 - 4 \text{ GHz: } \geq 28 \text{ mm}$ $4 - 5 \text{ GHz: } \geq 25 \text{ mm}$ $5 - 6 \text{ GHz: } \geq 22 \text{ mm}$

Step 4: Power reference measurement (drift)

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The indicated drift is mainly the variation of the DUT's output power and should vary max. $\pm 5\%$



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3.7.2 Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DAE4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

$$V_i = U_i + U_i^2 \cdot cf / dcpi$$

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

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

cf = crest factor of exciting field (DASY parameter)

dcpi = diode compression point (DASY parameter)

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

E-field probes:

$$E_i = (V_i / Normi \cdot ConvF)^{1/2}$$



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H-field probes:

$$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1}f + a_{i2}f^2) / f$$

With V_i = compensated signal of channel i ($i = x, y, z$)

Normi = sensor sensitivity of channel i ($i = x, y, z$)
[mV/(V/m)²] for E-field Probes

ConvF = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

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

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

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

$$E_{tot} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

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

$$SAR = (E_{tot}^2 \cdot \sigma) / (\epsilon \cdot 1000)$$

with SAR = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

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

ϵ = equivalent tissue density in g/cm³

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

$$P_{pwe} = E_{tot}^2 / 3770 \text{ or } P_{pwe} = H_{tot}^2 \cdot 37.7$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm²

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m



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4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
 - 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
 - 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
 - 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

4.2 SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.



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5 Description of Test Position

5.1 Body Exposure Condition

5.1.1 Body accessory exposure conditions

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W $\geq$ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.



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6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

The following tables give the recipes for tissue simulating liquids to be used in different frequency bands:

Ingredients (% by weight)	Frequency (MHz)				
	450	700-900	1750-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99+% Pure Sodium Chloride Water: De-ionized, 16 MΩ ⁺ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose					
HSL5GHz is composed of the following ingredients: Water: 50-65% Mineral oil: 10-30% Emulsifiers: 8-25% Sodium salt: 0-1.5%					

Table 2: Recipe of Tissue Simulate Liquid



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 26 of 88

6.1.2 Measurement for Tissue Simulate Liquid

The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was $22 \pm 2^\circ\text{C}$.

Measurement for Tissue Simulate Liquid									
Tissue Type	Measured Frequency (MHz)	Target Tissue ($\pm 5\%$)		Measured Tissue		Deviation (Within $\pm 5\%$)		Liquid Temp. ($^\circ\text{C}$)	Test Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
750 Head	750	41.90	0.89	41.905	0.876	0.01%	-1.57%	22.3	2023/6/28
835 Head	835	41.50	0.90	41.392	0.911	-0.26%	1.22%	22.4	2023/7/3
1750 Head	1750	40.10	1.37	40.065	1.344	-0.09%	-1.90%	22.3	2023/7/4
1900 Head	1900	40.00	1.40	39.501	1.375	-1.25%	-1.79%	22.1	2023/7/5
2450 Head	2450	39.20	1.80	38.336	1.769	-2.20%	-1.72%	22.2	2023/7/10
2600 Head	2600	39.00	1.96	38.985	1.959	-0.04%	-0.05%	22.4	2023/7/6
5250 Head	5250	35.90	4.66	35.503	4.706	-1.11%	0.99%	22.3	2023/7/11
5600 Head	5600	35.50	5.07	34.831	5.178	-1.88%	2.13%	22.3	2023/7/11
5750 Head	5750	35.40	5.22	34.459	5.362	-2.66%	2.72%	22.3	2023/7/11

Table 3: Measurement result of Tissue electric parameters



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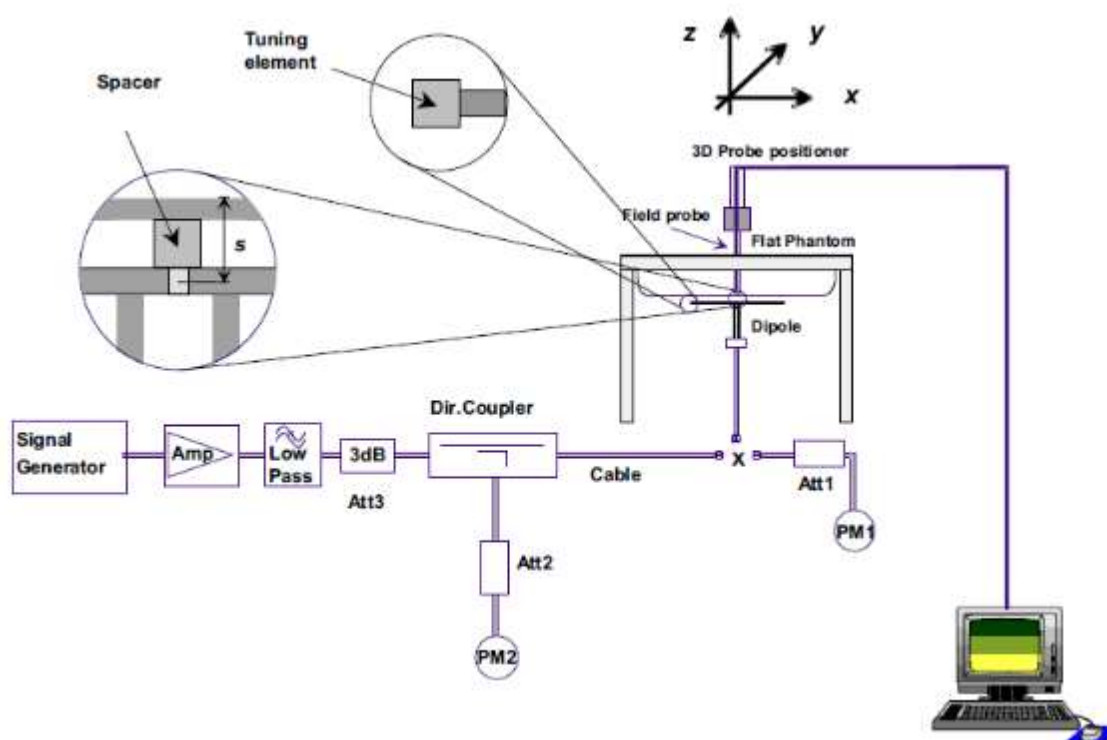
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6.2 SAR System Check

The microwave circuit arrangement for system Check is sketched in F-12. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within $\pm 10\%$ from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table (A power level of 250mW (below 3GHz) or 100mW (3-6GHz) was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range $22\pm 2^{\circ}\text{C}$, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above $15\pm 0.5\text{ cm}$ in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



F-3. the microwave circuit arrangement used for SAR system check

Report No.: SEWM2305000178RG05

Rev.: 01

Page: 28 of 88

6.2.1 Justification for Extended SAR Dipole Calibrations

1) Referring to KDB865664 D01 requirements for dipole calibration, instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

- a) There is no physical damage on the dipole;
- b) System check with specific dipole is within 10% of calibrated value;
- c) Return-loss is within 10% of calibrated measurement;
- d) Impedance is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.



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6.2.2 Summary System Check Result(s)

Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D750V3	Head	2.09	1.35	8.36	5.40	8.48	5.56	-1.42%	-2.88%	22.3	2023-06-28
D835V2	Head	2.31	1.53	9.24	6.12	9.65	6.33	-4.25%	-3.32%	22.4	2023-07-03
D1750V2	Head	8.86	4.72	35.44	18.88	37.00	19.30	-4.65%	-3.21%	22.3	2023-07-04
D1900V2	Head	9.77	5.11	39.08	20.44	39.70	20.30	-1.56%	0.69%	22.1	2023-07-05
D2450V2	Head	11.90	5.43	47.60	21.72	51.90	23.70	-8.29%	-8.35%	22.2	2023-07-10
D2600V2	Head	13.30	5.76	53.20	23.04	57.10	25.40	-6.83%	-9.29%	22.4	2023-07-06
Validation Kit		Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D5GHzV2	Head(5.25GHz)	7.93	2.25	79.30	22.50	78.00	21.80	1.67%	3.21%	22.3	2023-07-11
	Head(5.6GHz)	8.43	2.37	84.30	23.70	79.90	22.50	5.51%	5.33%	22.3	2023-07-11
	Head(5.75GHz)	8.28	2.32	82.80	23.20	76.40	21.20	8.38%	9.43%	22.3	2023-07-11

Table 4: SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A



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7 Test Configuration

7.1 3G SAR Test Reduction Procedure

According to KDB 941225D01, in the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as "otherwise" in the applicable procedures; SAR measurement is required for the secondary mode.

7.2 Operation Configurations

7.2.1 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using CMW500 the power lever is set to "5" and "0" in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

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

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode

7.2.2 WCDMA Test Configuration

1) . Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 31 of 88

maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

2) . **Body SAR**

SAR for body configurations is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

3) . **HSDPA / HSUPA / DC-HSDPA**

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

a) **HSDPA**

HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(β_c , β_d), and HS-DPCCH power offset parameters (Δ_{ACK} , Δ_{NACK} , Δ_{CQI}) are set according to values indicated in the following table The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.



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Sub-test	β_c	Bd	$\beta_d(SF)$	β_c/β_d	β_{hs}	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note1: ΔACK , $\Delta NACK$ and $\Delta CQI = 8$ Ahs = $\beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1.A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, ΔACK and $\Delta NACK = 8$ (Ahs = 30/15) with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta CQI =$

7 (Ahs = 24/15) with $\beta_{hs} = 24/15 * \beta_c$.

Note3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI"s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 5: settings of required H-Set 1 QPSK acc. to 3GPP 34.121



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HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	Maximum HS-DSCH Transport Block Bits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 6: HSDPA UE category

b) HSUPA

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSUPA should be configured according to the values indicated below as well as other applicable procedures described in the „WCDMA Handset“ and „Release 5 HSUPA Data Device“ sections of 3G device.



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Sub-test ¹⁾	β_c ²⁾	β_d ³⁾	β_d (SF) ⁴⁾	β_o/β_d ⁵⁾	β_{hs} ⁶⁾	β_{ec} ⁷⁾	β_{ed} ⁸⁾	β_c (SF) ⁹⁾	β_{ed} (code) ¹⁰⁾	CM ¹¹⁾ (dB) ¹²⁾	MP R ¹³⁾ (dB) ¹⁴⁾	AG ¹⁵⁾ Inde ¹⁶⁾	E-TFC I ¹⁷⁾
1 ¹⁾	11/15 ⁽³⁾ ²⁾	15/15 ⁽³⁾ ³⁾	64 ⁴⁾	11/15 ⁽³⁾ ⁵⁾	22/15 ⁶⁾	209/225 ⁷⁾	1039/225 ⁸⁾	4 ⁹⁾	1 ¹⁰⁾	1.0 ¹¹⁾	0.0 ¹²⁾	20 ¹³⁾	75 ¹⁴⁾
2 ¹⁾	6/15 ²⁾	15/15 ³⁾	64 ⁴⁾	6/15 ⁵⁾	12/15 ⁶⁾	12/15 ⁷⁾	94/75 ⁸⁾	4 ⁹⁾	1 ¹⁰⁾	3.0 ¹¹⁾	2.0 ¹²⁾	12 ¹³⁾	67 ¹⁴⁾
3 ¹⁾	15/15 ²⁾	9/15 ³⁾	64 ⁴⁾	15/9 ⁵⁾	30/15 ⁶⁾	30/15 ⁷⁾	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$ ⁸⁾	4 ⁹⁾	2 ¹⁰⁾	2.0 ¹¹⁾	1.0 ¹²⁾	15 ¹³⁾	92 ¹⁴⁾
4 ¹⁾	2/15 ²⁾	15/15 ³⁾	64 ⁴⁾	2/15 ⁵⁾	4/15 ⁶⁾	2/15 ⁷⁾	56/75 ⁸⁾	4 ⁹⁾	1 ¹⁰⁾	3.0 ¹¹⁾	2.0 ¹²⁾	17 ¹³⁾	71 ¹⁴⁾
5 ¹⁾	15/15 ⁽⁴⁾ ²⁾	15/15 ⁽⁴⁾ ³⁾	64 ⁴⁾	15/15 ⁽⁴⁾ ⁵⁾	30/15 ⁶⁾	24/15 ⁷⁾	134/15 ⁸⁾	4 ⁹⁾	1 ¹⁰⁾	1.0 ¹¹⁾	0.0 ¹²⁾	21 ¹³⁾	81 ¹⁴⁾

Note 1: ΔACK , $\Delta NACK$ and $\Delta CQI = 8$ $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$
 Note 2: CM = 1 for $\beta_o/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
 Note 3: For subtest 1 the β_o/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.
 Note 4: For subtest 5 the β_o/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.
 Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
 Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Table 7: Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF	11484	5.76
	4	4	2	4	20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF	22996	?
	4	4	10	4	20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4. UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM. (TS25.306-7.3.0).

Table 8: HSUPA UE category



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c) DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a Second serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

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

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13.

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK.

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI's
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Table 9: settings of required H-Set 12 QPSK acc. to 3GPP 34.121
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 above.
2. Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.



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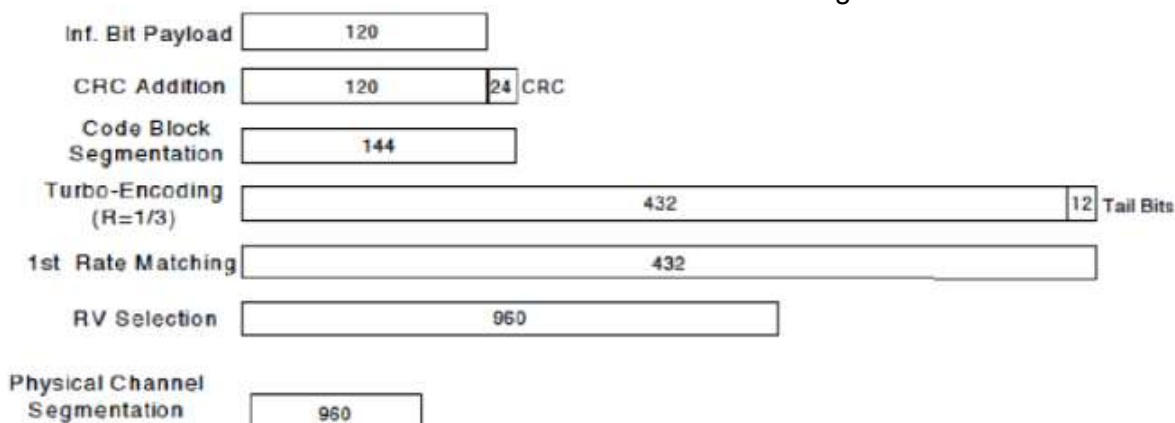


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

Sub-test ^o	β_c ^o	β_d ^o	β_d (SF) ^o	β_c/β_d ^o	$\beta_{hs}(1)$ ^o	CM(dB)(2) ^o	MPR ^o (dB) ^o
1 ^o	2/15 ^o	15/15 ^o	64 ^o	2/15 ^o	4/15 ^o	0.0 ^o	0 ^o
2 ^o	12/15(3) ^o	15/15(3) ^o	64 ^o	12/15(3) ^o	24/15 ^o	1.0 ^o	0 ^o
3 ^o	15/15 ^o	8/15 ^o	64 ^o	15/8 ^o	30/15 ^o	1.5 ^o	0.5 ^o
4 ^o	15/15 ^o	4/15 ^o	64 ^o	15/4 ^o	30/15 ^o	1.5 ^o	0.5 ^o

Note 1: ΔACK , $\Delta NACK$ and $\Delta CQI=8$ $A_{hs}=\beta_{hs}/\beta_c=30/15$ $\beta_{hs}=30/15 * \beta_c$
 Note 2: CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
 Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c=11/15$ and $\beta_d=15/15$

Up commands are set continuously to set the UE to Max power.

Note:

1. The Dual Carriers transmission only applies to HSDPA physical channels
2. The Dual Carriers belong to the same Node and are on adjacent carriers.
3. The Dual Carriers do not support MIMO to serve UEs configured for dual cell operation
4. The Dual Carriers operate in the same frequency band.
5. The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6. The device doesn't support carrier aggregation for it just can operate in Release 8.



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Report No.: SEWM2305000178RG05
Rev.: 01
Page: 37 of 88

d) HSPA+

Per KDB941225D01, SAR is required for Rel. 7 HSPA+ when SAR is required for Rel. 6 HSPA; otherwise, the 3G SAR test reduction procedure is applied to (uplink) HSPA+ with 12.2 kbps RMC as the primary mode. Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

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

Sub-test	β_c (Note 3)	β_d	β_{HS} (Note 1)	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	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{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, $MPR = \text{MAX}(CM-1, 0)$. 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.											



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 38 of 88

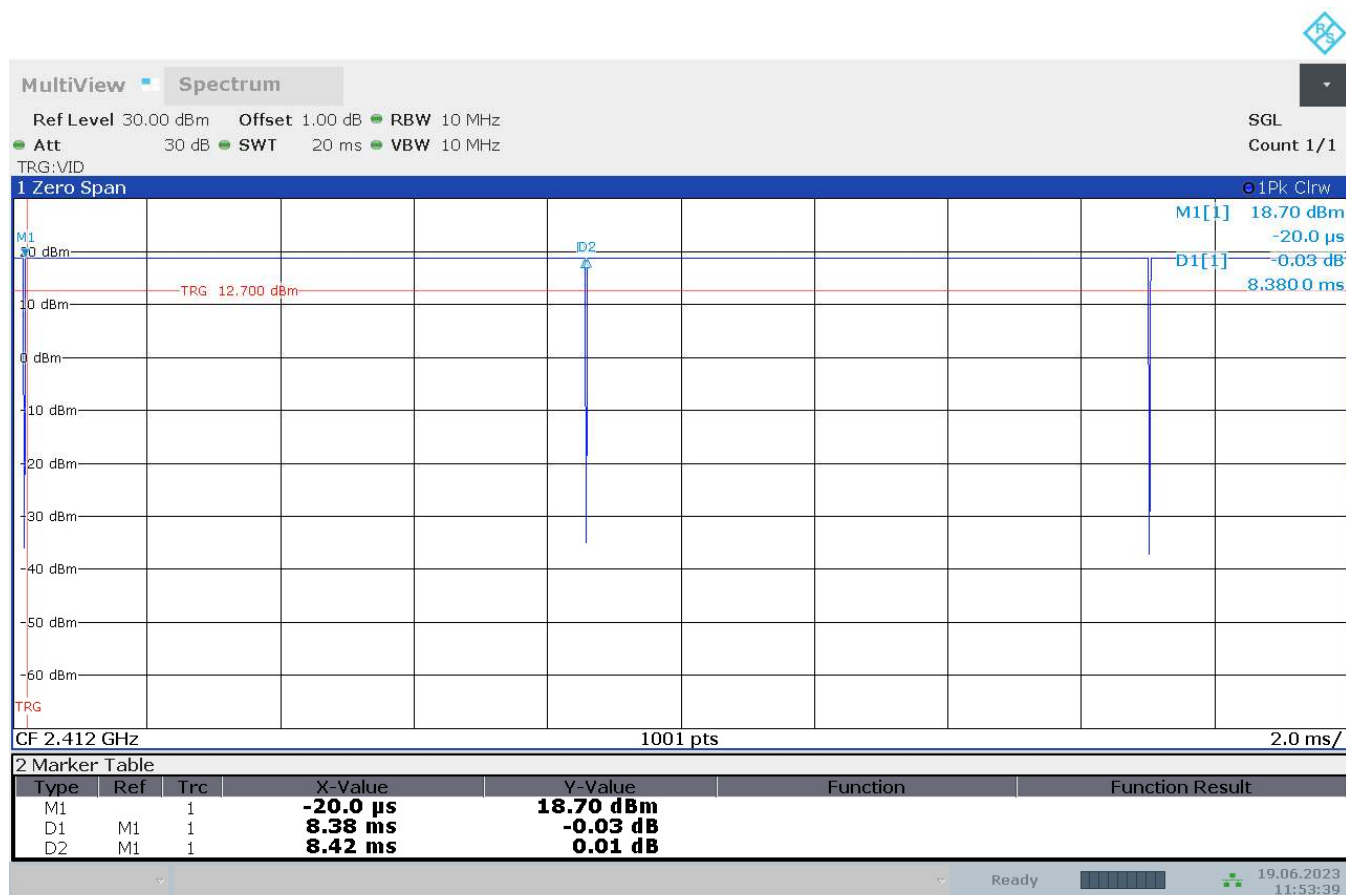
7.2.3 WiFi Test Configuration

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

7.2.3.1 Duty cycle

Wi-Fi 2.4GHz 802.11b:

Duty cycle=99.52%



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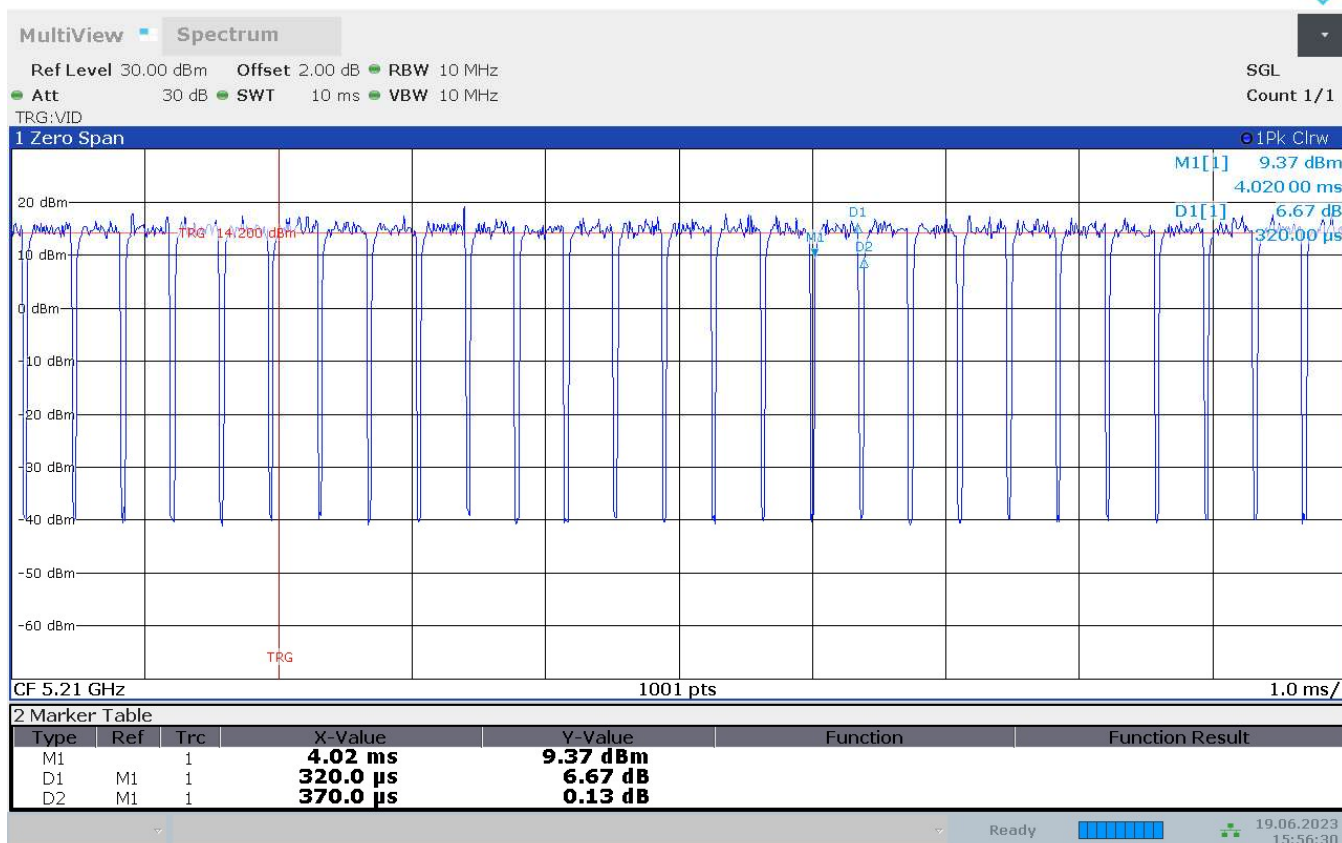
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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 39 of 88

Wi-Fi 5GHz 802.11ac VHT80:
Duty cycle=86.49%



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7.2.3.2 Initial Test Position SAR Test Reduction Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

- 1) . When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).
- 2) . When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.
- 3) . For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

7.2.3.3 Initial Test Configuration Procedures

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to *reported* SAR of the initial test configuration. For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

When the *reported* SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until *reported* SAR is ≤ 1.2 W/kg or all required channels are tested.

7.2.3.4 Subsequent Test Configuration Procedures

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.

- 1) . When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.



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- 2) . When the highest *reported* SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.
- 3) . The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.
 - a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.
 - b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the *reported* SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.
- 4) . SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:
 - a) replace "subsequent test configuration" with "next subsequent test configuration" (i.e., subsequent next highest specified maximum output power configuration)
 - b) replace "initial test configuration" with "all tested higher output power configurations"



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7.2.3.5 2.4 GHz WiFi SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions. When SAR measurement is required for an OFDM configuration, the initial test configuration, subsequent test configuration and initial test position procedures are applied. The SAR test exclusion requirements for 802.11g/n OFDM configurations are described in following.

- **802.11b DSSS SAR Test Requirements**

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) . When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) . When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

- **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3, including sub-sections). SAR is not required for the following 2.4 GHz OFDM conditions.

- 1) . When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
- 2) . When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.



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7.2.3.6 WiFi 5G SAR Test Procedures

7.2.3.6.1 U-NII-1 and U-NII-2A Bands

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following:

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest *reported* SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest *reported* SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
- 3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest *reported* SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

7.2.3.6.2 U-NII-2C and U-NII-3 Bands

The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.



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7.2.3.6.3 OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements

The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

- 1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
- 2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
- 3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
- 4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
 - The channel closest to mid-band frequency is selected for SAR measurement.
 - For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

7.2.3.6.4 SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 band are supported, the highest maximum output power transmission mode configuration and maximum output power channel across the bands must be used to determine SAR test reduction, according to the initial test configuration and subsequent test configuration requirements. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.



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7.2.4 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The Anritsu MT8820C was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

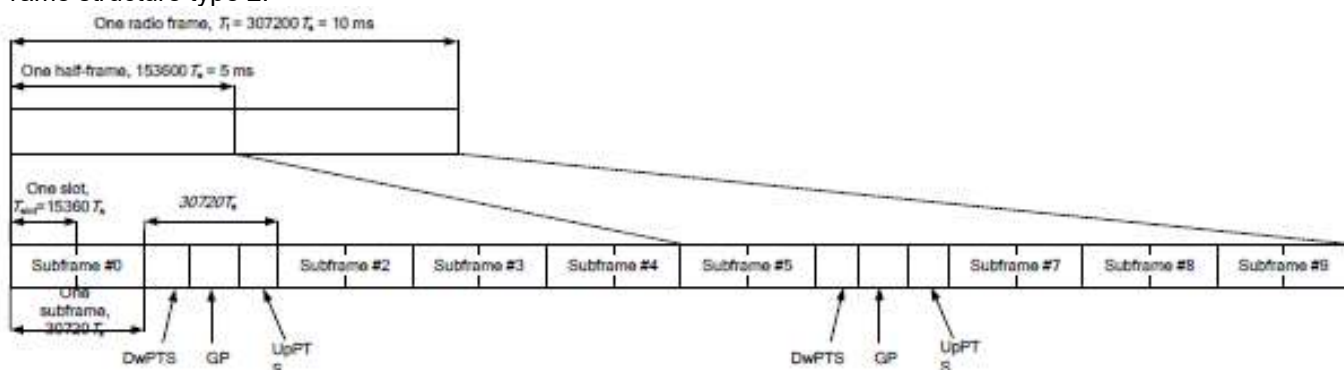
TDD LTE test consideration

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

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

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

Frame structure type 2:



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Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592.Ts	2192.Ts	2560.Ts	7680.Ts	2192.Ts	2560.Ts
1	19760.Ts			20480.Ts		
2	21952.Ts			23040.Ts		
3	24144.Ts			25600.Ts		
4	26336.Ts	4384.Ts	5120.Ts	7680.Ts	4384.Ts	5120.Ts
5	6592.Ts			20480.Ts		
6	19760.Ts			23040.Ts		
7	21952.Ts			25600.Ts		
8	24144.Ts			-	-	-
9	13168.Ts			-	-	-

Uplink-downlink configurations.

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

Calculated Duty Cycle=[Extended cyclic prefix in uplink x (Ts) x # of S + # of U]/10ms

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33



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A) Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

B) MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3

C) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.



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8 Test Result

8.1 Measurement of RF conducted Power

8.1.1 Conducted Power of GSM

GSM 850										
Burst Output Power(dBm)						Division Factors	Frame-Average Output Power(dBm)			
Channel		128	190	251	Tune up		128	190	251	Tune up
GSM(GMSK)	GSM	31.52	31.53	31.47	32.00	-9.19	22.33	22.34	22.28	22.81
GPRS (GMSK)	1 TX Slot	31.48	31.52	31.47	32.00	-9.19	22.29	22.33	22.28	22.81
	2 TX Slots	30.92	30.93	30.86	31.50	-6.18	24.74	24.75	24.68	25.32
	3 TX Slots	28.98	28.95	28.97	29.50	-4.42	24.56	24.53	24.55	25.08
	4 TX Slots	27.36	27.36	27.33	28.00	-3.17	24.19	24.19	24.16	24.83
EGPRS (GMSK)	1 TX Slot	31.53	31.46	31.47	32.00	-9.19	22.34	22.27	22.28	22.81
	2 TX Slots	30.96	30.91	30.89	31.50	-6.18	24.78	24.73	24.71	25.32
	3 TX Slots	29.00	28.97	28.94	29.50	-4.42	24.58	24.55	24.52	25.08
	4 TX Slots	27.26	27.37	27.26	28.00	-3.17	24.09	24.20	24.09	24.83
EGPRS (8PSK)	1 TX Slot	29.26	29.19	29.27	30.00	-9.19	20.07	20.00	20.08	20.81
	2 TX Slots	27.78	27.70	27.79	29.00	-6.18	21.60	21.52	21.61	22.82
	3 TX Slots	25.18	25.12	25.10	26.00	-4.42	20.76	20.70	20.68	21.58
	4 TX Slots	23.77	23.72	23.80	25.00	-3.17	20.60	20.55	20.63	21.83

GSM 1900										
Burst Output Power(dBm)						Division Factors	Frame-Average Output Power(dBm)			
Channel		512	661	810	Tune up		512	661	810	Tune up
GSM(GMSK)	GSM	27.01	27.05	26.99	27.50	-9.19	17.82	17.86	17.80	18.31
GPRS (GMSK)	1 TX Slot	27.00	27.04	26.94	27.50	-9.19	17.81	17.85	17.75	18.31
	2 TX Slots	26.31	26.32	26.39	26.50	-6.18	20.13	20.14	20.21	20.32
	3 TX Slots	24.47	24.51	24.48	25.50	-4.42	20.05	20.09	20.06	21.08
	4 TX Slots	23.13	23.07	23.05	23.50	-3.17	19.96	19.90	19.88	20.33
EGPRS (GMSK)	1 TX Slot	26.99	27.02	26.97	27.50	-9.19	17.80	17.83	17.78	18.31
	2 TX Slots	26.31	26.29	26.35	26.50	-6.18	20.13	20.11	20.17	20.32
	3 TX Slots	24.45	24.52	24.58	25.50	-4.42	20.03	20.10	20.16	21.08
	4 TX Slots	23.15	23.02	23.06	23.50	-3.17	19.98	19.85	19.89	20.33
EGPRS (8PSK)	1 TX Slot	23.81	23.86	23.86	24.50	-9.19	14.62	14.67	14.67	15.31
	2 TX Slots	22.63	22.64	22.62	23.50	-6.18	16.45	16.46	16.44	17.32
	3 TX Slots	20.26	20.23	20.32	21.50	-4.42	15.84	15.81	15.90	17.08
	4 TX Slots	18.71	18.85	18.65	19.50	-3.17	15.54	15.68	15.48	16.33

8.1.2 Conducted Power of WCDMA

WCDMA Band II					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	19.63	19.65	19.55	21.00
	12.2kbps AMR	19.58	19.61	19.53	21.00
HSDPA	Subtest 1	18.96	19.03	19.11	20.00
	Subtest 2	18.99	19.08	19.13	20.00
	Subtest 3	18.46	18.59	18.61	19.50
	Subtest 4	18.61	18.41	18.64	19.50
HSUPA	Subtest 1	16.90	16.94	17.00	18.50
	Subtest 2	17.09	17.02	17.08	18.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 49 of 88

	Subtest 3	18.01	17.95	18.08	19.00
	Subtest 4	16.58	16.54	16.58	18.00
	Subtest 5	18.02	18.00	18.12	19.00
HSPA+	16QAM	17.02	17.00	17.10	18.00

WCDMA Band IV					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	19.79	19.86	19.85	21.00
	12.2kbps AMR	19.69	19.81	19.83	21.00
HSDPA	Subtest 1	19.28	19.28	19.37	20.00
	Subtest 2	19.26	19.25	19.35	20.00
	Subtest 3	18.78	18.89	18.97	19.50
	Subtest 4	18.88	18.75	18.87	19.50
HSUPA	Subtest 1	17.23	17.2	17.30	18.50
	Subtest 2	17.37	17.26	17.36	18.00
	Subtest 3	18.35	18.31	18.42	19.00
	Subtest 4	16.82	16.80	16.89	18.00
	Subtest 5	18.32	18.26	18.43	19.00
HSPA+	16QAM	17.26	17.21	17.38	18.00

WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	23.15	23.21	23.20	24.00
	12.2kbps AMR	23.11	23.18	23.19	24.00
HSDPA	Subtest 1	22.74	22.82	22.84	23.00
	Subtest 2	22.76	22.77	22.73	23.00
	Subtest 3	22.21	22.36	22.32	22.50
	Subtest 4	22.29	22.18	22.37	22.50
HSUPA	Subtest 1	20.61	20.57	20.69	21.50
	Subtest 2	20.82	20.66	20.90	21.00
	Subtest 3	21.83	21.65	21.85	22.00
	Subtest 4	20.31	20.24	20.37	21.00
	Subtest 5	21.68	21.69	21.75	22.00
HSPA+	16QAM	20.69	20.68	20.84	21.00



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8.1.3 Conducted Power of LTE

LTE Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18607	18900	19193	
1.4MHz	QPSK	1	0	19.35	19.46	19.40	21.00
		1	2	19.72	19.71	19.66	21.00
		1	5	19.19	19.39	19.27	21.00
		3	0	19.33	19.56	19.46	21.00
		3	2	19.39	19.54	19.48	21.00
		3	3	19.21	19.53	19.27	21.00
	16QAM	6	0	18.57	18.63	18.59	20.00
		1	0	18.58	18.65	18.65	20.00
		1	2	18.66	18.61	18.63	20.00
		1	5	18.65	18.65	18.63	20.00
		3	0	18.61	18.59	18.66	20.00
		3	2	18.69	18.60	18.58	20.00
	64QAM	3	3	18.58	18.65	18.66	20.00
		6	0	17.61	17.81	17.74	19.00
		1	0	17.64	17.73	17.67	19.00
		1	2	17.60	17.73	17.68	19.00
		1	5	17.68	17.72	17.67	19.00
		3	0	17.69	17.72	17.67	19.00
3MHz	QPSK	3	2	17.66	17.79	17.72	19.00
		3	3	17.62	17.75	17.65	19.00
		6	0	16.74	16.85	16.87	18.00
	16QAM	1	0	19.38	19.52	19.42	21.00
		1	7	19.76	19.77	19.71	21.00
		1	14	19.25	19.35	19.25	21.00
	64QAM	8	0	18.75	18.85	18.77	20.00
		8	4	18.67	18.75	18.60	20.00
		8	7	18.58	18.62	18.55	20.00
	16QAM	15	0	18.65	18.75	18.65	20.00
		1	0	18.73	18.81	18.74	20.00
		1	7	19.05	19.21	19.07	20.00
		1	14	18.53	18.68	18.57	20.00
	64QAM	8	0	17.72	17.89	17.77	19.00
		8	4	17.66	17.76	17.67	19.00
		8	7	17.45	17.58	17.41	19.00
		15	0	17.61	17.74	17.55	19.00
	16QAM	1	0	17.81	17.84	17.79	19.00
		1	7	17.97	18.06	17.97	19.00
		1	14	17.68	17.74	17.55	19.00
		8	0	16.88	17.00	16.86	18.00
		8	4	16.93	17.03	16.91	18.00
		8	7	16.79	16.87	16.82	18.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 51 of 88

		15	0	16.80	16.88	16.79	18.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18625	18900	19175	
5MHz	QPSK	1	0	19.42	19.46	19.36	21.00
		1	13	19.65	19.72	19.68	21.00
		1	24	19.17	19.37	19.17	21.00
		12	0	18.73	18.91	18.76	20.00
		12	6	18.65	18.78	18.74	20.00
		12	13	18.46	18.57	18.45	20.00
		25	0	18.62	18.72	18.69	20.00
	16QAM	1	0	18.69	18.82	18.62	20.00
		1	13	19.04	19.12	19.11	20.00
		1	24	18.61	18.62	18.56	20.00
		12	0	17.69	17.85	17.71	19.00
		12	6	17.69	17.72	17.65	19.00
		12	13	17.52	17.59	17.54	19.00
		25	0	17.60	17.73	17.63	19.00
	64QAM	1	0	17.73	17.82	17.79	19.00
		1	13	17.94	18.02	17.99	19.00
		1	24	17.62	17.71	17.62	19.00
		12	0	16.86	16.98	16.77	18.00
		12	6	16.84	17.00	16.91	18.00
		12	13	16.81	16.93	16.81	18.00
		25	0	16.89	16.87	16.80	18.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18650	18900	19150	
10MHz	QPSK	1	0	19.42	19.50	19.42	21.00
		1	25	19.65	19.77	19.68	21.00
		1	49	19.24	19.34	19.28	21.00
		25	0	18.76	18.88	18.74	20.00
		25	13	18.66	18.71	18.72	20.00
		25	25	18.51	18.62	18.46	20.00
		50	0	18.67	18.76	18.66	20.00
	16QAM	1	0	18.74	18.82	18.69	20.00
		1	25	19.01	19.14	19.07	20.00
		1	49	18.52	18.63	18.49	20.00
		25	0	17.73	17.84	17.74	19.00
		25	13	17.58	17.68	17.62	19.00
		25	25	17.43	17.61	17.44	19.00
		50	0	17.61	17.75	17.63	19.00
	64QAM	1	0	17.82	17.83	17.73	19.00
		1	25	17.93	18.03	17.97	19.00
		1	49	17.63	17.74	17.62	19.00
		25	0	16.91	16.99	16.88	18.00
		25	13	16.94	16.93	16.88	18.00
		25	25	16.78	16.90	16.75	18.00
		50	0	16.81	16.94	16.85	18.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
15MHz	QPSK	1	0	19.39	19.50	19.42	21.00
		1	38	19.67	19.79	19.73	21.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 52 of 88

		1	74	19.18	19.35	19.24	21.00
		36	0	18.79	18.87	18.70	20.00
		36	18	18.63	18.74	18.74	20.00
		36	39	18.57	18.54	18.54	20.00
		75	0	18.66	18.78	18.71	20.00
	16QAM	1	0	18.73	18.82	18.61	20.00
		1	38	19.09	19.20	19.12	20.00
		1	74	18.56	18.59	18.59	20.00
		36	0	17.80	17.80	17.74	19.00
		36	18	17.71	17.73	17.68	19.00
		36	39	17.51	17.57	17.53	19.00
		75	0	17.65	17.78	17.64	19.00
	64QAM	1	0	17.73	17.83	17.71	19.00
		1	38	17.95	18.05	17.90	19.00
		1	74	17.65	17.80	17.57	19.00
		36	0	16.87	16.97	16.86	18.00
		36	18	16.84	17.06	16.88	18.00
		36	39	16.84	16.95	16.79	18.00
		75	0	16.80	16.99	16.89	18.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	19.35	19.54	19.45	21.00
		1	50	19.76	19.81	19.78	21.00
		1	99	19.24	19.28	19.24	21.00
		50	0	18.74	18.82	18.76	20.00
		50	25	18.72	18.80	18.73	20.00
		50	50	18.50	18.63	18.53	20.00
		100	0	18.71	18.76	18.63	20.00
	16QAM	1	0	18.70	18.80	18.72	20.00
		1	50	19.10	19.10	19.14	20.00
		1	99	18.48	18.69	18.57	20.00
		50	0	17.78	17.76	17.76	19.00
		50	25	17.72	17.71	17.66	19.00
		50	50	17.44	17.62	17.50	19.00
		100	0	17.64	17.69	17.65	19.00
	64QAM	1	0	17.71	17.87	17.73	19.00
		1	50	18.02	18.14	17.96	19.00
		1	99	17.68	17.74	17.66	19.00
		50	0	16.93	16.93	16.86	18.00
		50	25	16.92	17.03	16.91	18.00
		50	50	16.73	16.87	16.78	18.00
		100	0	16.80	16.91	16.76	18.00



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Report No.: SEWM2305000178RG05
 Rev.: 01
 Page: 53 of 88

LTE Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19957	20175	20393	
1.4MHz	QPSK	1	0	18.39	18.68	18.54	20.00
		1	2	18.84	18.87	18.86	20.00
		1	5	18.26	18.37	18.30	20.00
		3	0	18.36	18.61	18.54	20.00
		3	2	18.49	18.54	18.47	20.00
		3	3	18.32	18.55	18.43	20.00
		6	0	17.73	17.67	17.66	19.00
	16QAM	1	0	17.72	17.82	17.68	19.00
		1	2	17.81	17.71	17.66	19.00
		1	5	17.73	17.77	17.71	19.00
		3	0	17.79	18.67	17.66	19.00
		3	2	17.78	17.67	17.70	19.00
		3	3	17.67	17.67	17.68	19.00
		6	0	16.75	16.74	16.78	18.00
	64QAM	1	0	16.76	16.85	16.84	18.00
		1	2	16.78	16.86	16.75	18.00
		1	5	16.77	16.82	16.83	18.00
		3	0	16.71	16.80	16.78	18.00
		3	2	16.72	16.83	16.75	18.00
		3	3	16.74	16.76	16.74	18.00
		6	0	15.82	16.02	15.98	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19965	20175	20385	
3MHz	QPSK	1	0	18.47	18.60	18.47	20.00
		1	7	18.74	18.88	18.84	20.00
		1	14	18.24	18.50	18.32	20.00
		8	0	17.84	17.89	17.75	19.00
		8	4	17.72	17.83	17.80	19.00
		8	7	17.62	17.71	17.64	19.00
		15	0	17.68	17.87	17.67	19.00
	16QAM	1	0	17.74	17.96	17.76	19.00
		1	7	18.09	18.29	18.18	19.00
		1	14	17.69	17.76	17.61	19.00
		8	0	16.81	16.93	16.85	18.00
		8	4	16.71	16.84	16.73	18.00
		8	7	16.58	16.71	16.55	18.00
		15	0	16.66	16.82	16.70	18.00
	64QAM	1	0	16.88	16.85	16.81	18.00
		1	7	17.08	17.08	17.06	18.00
		1	14	16.72	16.76	16.72	18.00
		8	0	15.93	16.05	15.97	17.00
		8	4	15.99	16.09	15.95	17.00
		8	7	15.94	15.97	15.86	17.00
		15	0	15.86	15.96	15.94	17.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 54 of 88

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19975	20175	20375	
5MHz	QPSK	1	0	18.40	18.61	18.44	20.00
		1	13	18.76	18.87	18.78	20.00
		1	24	18.33	18.48	18.27	20.00
		12	0	17.82	17.90	17.79	19.00
		12	6	17.71	17.91	17.85	19.00
		12	13	17.54	17.61	17.63	19.00
		25	0	17.75	17.79	17.78	19.00
	16QAM	1	0	17.88	17.91	17.81	19.00
		1	13	18.13	18.21	18.11	19.00
		1	24	17.67	17.72	17.55	19.00
		12	0	16.80	16.94	16.84	18.00
		12	6	16.72	16.80	16.70	18.00
		12	13	16.53	16.71	16.55	18.00
		25	0	16.72	16.81	16.68	18.00
	64QAM	1	0	16.86	16.92	16.78	18.00
		1	13	17.03	17.18	17.01	18.00
		1	24	16.69	16.81	16.76	18.00
		12	0	15.94	16.00	15.93	17.00
		12	6	15.91	16.04	16.01	17.00
		12	13	15.88	16.03	15.88	17.00
		25	0	15.88	15.95	15.94	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	18.42	18.40	18.38	20.00
		1	25	18.66	18.84	18.67	20.00
		1	49	18.29	18.35	18.27	20.00
		25	0	17.71	17.88	17.80	19.00
		25	13	17.58	17.75	17.59	19.00
		25	25	17.48	17.58	17.60	19.00
		50	0	17.64	17.80	17.60	19.00
	16QAM	1	0	17.72	17.77	17.67	19.00
		1	25	18.04	18.14	17.99	19.00
		1	49	17.55	17.64	17.52	19.00
		25	0	16.73	16.82	16.72	18.00
		25	13	16.68	16.78	16.58	18.00
		25	25	16.43	16.52	16.42	18.00
		50	0	16.65	16.75	16.61	18.00
	64QAM	1	0	16.75	16.87	16.76	18.00
		1	25	16.93	17.06	16.89	18.00
		1	49	16.65	16.73	16.62	18.00
		25	0	15.80	15.91	15.85	17.00
		25	13	15.85	15.97	15.93	17.00
		25	25	15.72	15.94	15.80	17.00
		50	0	15.82	15.94	15.79	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	18.52	18.50	18.48	20.00
		1	38	18.76	18.94	18.77	20.00
		1	74	18.39	18.45	18.37	20.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 55 of 88

		36	0	17.81	17.98	17.90	19.00
		36	18	17.68	17.85	17.69	19.00
		36	39	17.58	17.68	17.70	19.00
		75	0	17.74	17.90	17.70	19.00
	16QAM	1	0	17.82	17.87	17.77	19.00
		1	38	18.14	18.24	18.09	19.00
		1	74	17.65	17.74	17.62	19.00
		36	0	16.83	16.92	16.82	18.00
		36	18	16.78	16.88	16.68	18.00
		36	39	16.53	16.62	16.52	18.00
		75	0	16.75	16.85	16.71	18.00
		1	0	16.85	16.97	16.86	18.00
	64QAM	1	38	17.03	17.16	16.99	18.00
		1	74	16.75	16.83	16.72	18.00
		36	0	15.90	16.01	15.95	17.00
		36	18	15.95	16.07	16.03	17.00
		36	39	15.82	16.04	15.90	17.00
		75	0	15.92	16.04	15.89	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	18.49	18.59	18.50	20.00
		1	50	18.76	18.99	18.80	20.00
		1	99	18.24	18.49	18.39	20.00
		50	0	17.83	17.92	17.86	19.00
		50	25	17.79	17.94	17.77	19.00
		50	50	17.61	17.68	17.61	19.00
		100	0	17.77	17.84	17.76	19.00
	16QAM	1	0	17.85	17.89	17.75	19.00
		1	50	18.15	18.17	18.22	19.00
		1	99	17.62	17.71	17.61	19.00
		50	0	16.76	16.99	16.81	18.00
		50	25	16.84	16.84	16.77	18.00
		50	50	16.66	16.70	16.61	18.00
		100	0	16.68	16.76	16.65	18.00
	64QAM	1	0	16.84	16.92	16.81	18.00
		1	50	17.07	17.16	17.04	18.00
		1	99	16.79	16.78	16.73	18.00
		50	0	15.96	16.08	15.95	17.00
		50	25	15.92	16.10	15.97	17.00
		50	50	15.84	15.99	15.95	17.00
		100	0	15.96	16.06	15.85	17.00



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LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20407	20525	20643	
1.4MHz	QPSK	1	0	22.89	23.01	22.95	24.00
		1	2	23.30	23.29	23.26	24.00
		1	5	22.75	22.87	22.87	24.00
		3	0	22.88	23.10	22.95	24.00
		3	2	22.91	23.01	23.00	24.00
		3	3	22.74	22.96	22.77	24.00
		6	0	22.16	22.13	22.07	23.00
	16QAM	1	0	22.19	22.09	22.05	23.00
		1	2	22.12	22.15	22.16	23.00
		1	5	22.10	22.15	22.17	23.00
		3	0	22.19	22.12	22.17	23.00
		3	2	22.25	22.14	22.17	23.00
		3	3	22.15	22.16	22.15	23.00
		6	0	21.10	21.31	21.15	22.00
	64QAM	1	0	21.16	21.29	21.21	22.00
		1	2	21.14	21.20	21.14	22.00
		1	5	21.17	21.29	21.14	22.00
		3	0	21.21	21.29	21.20	22.00
		3	2	21.19	21.36	21.29	22.00
		3	3	21.13	21.34	21.18	22.00
		6	0	20.28	20.51	20.29	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20415	20525	20635	
3MHz	QPSK	1	0	23.17	23.24	23.12	24.00
		1	7	23.37	23.43	23.45	24.00
		1	14	22.98	23.09	22.89	24.00
		8	0	22.51	22.60	22.52	23.00
		8	4	22.36	22.58	22.50	23.00
		8	7	22.22	22.39	22.29	23.00
		15	0	22.34	22.54	22.34	23.00
	16QAM	1	0	22.44	22.45	22.45	23.00
		1	7	22.49	22.31	22.73	23.00
		1	14	22.27	22.31	22.27	23.00
		8	0	21.49	21.63	21.42	22.00
		8	4	21.41	21.49	21.38	22.00
		8	7	21.25	21.27	21.22	22.00
		15	0	21.41	21.44	21.32	22.00
	64QAM	1	0	21.52	21.64	21.49	22.00
		1	7	21.72	21.51	21.75	22.00
		1	14	21.30	21.52	21.36	22.00
		8	0	20.49	20.74	20.53	21.00
		8	4	20.55	20.69	20.58	21.00
		8	7	20.55	20.70	20.43	21.00
		15	0	20.55	20.58	20.53	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 57 of 88

Bandwidth	Modulation	RB size	RB offset	20425	20525	20625	Tune up
				Channel	Channel	Channel	
5MHz	QPSK	1	0	23.18	23.29	23.15	24.00
		1	13	23.38	23.40	23.45	24.00
		1	24	23.01	23.06	22.91	24.00
		12	0	22.55	22.65	22.49	23.00
		12	6	22.33	22.57	22.50	23.00
		12	13	22.25	22.40	22.22	23.00
		25	0	22.42	22.55	22.33	23.00
	16QAM	1	0	22.46	22.46	22.47	23.00
		1	13	22.51	22.33	22.71	23.00
		1	24	22.26	22.33	22.31	23.00
		12	0	21.45	21.60	21.40	22.00
		12	6	21.35	21.51	21.31	22.00
		12	13	21.19	21.24	21.22	22.00
		25	0	21.35	21.46	21.39	22.00
	64QAM	1	0	21.44	21.57	21.50	22.00
		1	13	21.78	21.57	21.73	22.00
		1	24	21.30	21.52	21.31	22.00
		12	0	20.53	20.64	20.58	21.00
		12	6	20.54	20.68	20.55	21.00
		12	13	20.47	20.67	20.45	21.00
		25	0	20.61	20.55	20.51	21.00
10MHz	QPSK	1	0	23.11	23.24	23.15	24.00
		1	25	23.37	23.46	23.42	24.00
		1	49	23.02	23.04	22.96	24.00
		25	0	22.50	22.65	22.47	23.00
		25	13	22.40	22.51	22.42	23.00
		25	25	22.24	22.39	22.22	23.00
		50	0	22.38	22.55	22.39	23.00
	16QAM	1	0	22.47	22.46	22.45	23.00
		1	25	22.56	22.39	22.75	23.00
		1	49	22.24	22.34	22.35	23.00
		25	0	21.46	21.62	21.44	22.00
		25	13	21.37	21.47	21.32	22.00
		25	25	21.26	21.22	21.21	22.00
		50	0	21.36	21.42	21.32	22.00
	64QAM	1	0	21.53	21.61	21.52	22.00
		1	25	21.70	21.50	21.78	22.00
		1	49	21.38	21.49	21.37	22.00
		25	0	20.52	20.66	20.61	21.00
		25	13	20.61	20.72	20.62	21.00
		25	25	20.47	20.69	20.47	21.00
		50	0	20.56	20.59	20.60	21.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 58 of 88

LTE Band 7				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20775	21100	21425	
5MHz	QPSK	1	0	21.09	21.20	21.08	22.50
		1	13	21.34	21.40	21.36	22.50
		1	24	20.89	20.97	20.86	22.50
		12	0	20.40	20.45	20.44	21.50
		12	6	20.40	20.53	20.34	21.50
		12	13	20.19	20.32	20.19	21.50
		25	0	20.37	20.42	20.27	21.50
	16QAM	1	0	20.46	20.56	20.44	21.50
		1	13	20.73	20.82	20.73	21.50
		1	24	20.19	20.27	20.22	21.50
		12	0	19.41	19.51	19.39	20.50
		12	6	19.35	19.40	19.34	20.50
		12	13	19.13	19.24	19.18	20.50
		25	0	19.28	19.40	19.34	20.50
	64QAM	1	0	19.37	19.63	19.52	20.50
		1	13	19.73	19.81	19.67	20.50
		1	24	19.35	19.38	19.26	20.50
		12	0	18.49	18.58	18.57	19.50
		12	6	18.56	18.73	18.56	19.50
		12	13	18.55	18.67	18.53	19.50
		25	0	18.51	18.63	18.54	19.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20800	21100	21400	
10MHz	QPSK	1	0	21.09	21.16	21.14	22.50
		1	25	21.42	21.50	21.39	22.50
		1	49	20.93	21.02	20.94	22.50
		25	0	20.42	20.48	20.44	21.50
		25	13	20.33	20.48	20.35	21.50
		25	25	20.23	20.35	20.17	21.50
		50	0	20.35	20.42	20.39	21.50
	16QAM	1	0	20.46	20.48	20.39	21.50
		1	25	20.72	20.78	20.81	21.50
		1	49	20.22	20.41	20.18	21.50
		25	0	19.38	19.52	19.41	20.50
		25	13	19.32	19.45	19.37	20.50
		25	25	19.19	19.31	19.21	20.50
		50	0	19.28	19.37	19.34	20.50
	64QAM	1	0	19.39	19.49	19.38	20.50
		1	25	19.67	19.76	19.71	20.50
		1	49	19.33	19.43	19.30	20.50
		25	0	18.47	18.64	18.54	19.50
		25	13	18.57	18.63	18.64	19.50
		25	25	18.41	18.58	18.47	19.50
		50	0	18.48	18.61	18.57	19.50



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 59 of 88

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20825	21100	21375	
15MHz	QPSK	1	0	21.06	21.09	21.09	22.50
		1	38	21.34	21.46	21.39	22.50
		1	74	20.93	20.94	20.94	22.50
		36	0	20.41	20.57	20.47	21.50
		36	18	20.33	20.45	20.31	21.50
		36	39	20.18	20.31	20.20	21.50
		75	0	20.36	20.41	20.28	21.50
	16QAM	1	0	20.38	20.41	20.32	21.50
		1	38	20.80	20.86	20.78	21.50
		1	74	20.18	20.34	20.26	21.50
		36	0	19.35	19.59	19.47	20.50
		36	18	19.28	19.41	19.29	20.50
		36	39	19.14	19.28	19.15	20.50
		75	0	19.27	19.43	19.29	20.50
	64QAM	1	0	19.45	19.54	19.51	20.50
		1	38	19.66	19.81	19.63	20.50
		1	74	19.29	19.42	19.31	20.50
		36	0	18.59	18.63	18.58	19.50
		36	18	18.56	18.68	18.62	19.50
		36	39	18.49	18.59	18.51	19.50
		75	0	18.53	18.66	18.51	19.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20850	21100	21350	
20MHz	QPSK	1	0	21.06	21.12	21.03	22.50
		1	50	21.44	21.59	21.30	22.50
		1	99	20.92	20.93	20.94	22.50
		50	0	20.46	20.55	20.49	21.50
		50	25	20.30	20.54	20.38	21.50
		50	50	20.17	20.28	20.20	21.50
		100	0	20.34	20.45	20.31	21.50
	16QAM	1	0	20.32	20.49	20.38	21.50
		1	50	20.72	20.92	20.79	21.50
		1	99	20.20	20.32	20.27	21.50
		50	0	19.45	19.55	19.39	20.50
		50	25	19.31	19.43	19.31	20.50
		50	50	19.23	19.27	19.24	20.50
		100	0	19.32	19.40	19.37	20.50
	64QAM	1	0	19.53	19.56	19.45	20.50
		1	50	19.63	19.77	19.75	20.50
		1	99	19.30	19.41	19.38	20.50
		50	0	18.58	18.58	18.50	19.50
		50	25	18.60	18.58	18.51	19.50
		50	50	18.56	18.49	18.56	19.50
		100	0	18.51	18.60	18.53	19.50



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LTE FDD Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23017	23095	23173	
1.4MHz	QPSK	1	0	22.41	22.56	22.43	24.00
		1	2	22.85	22.73	22.71	24.00
		1	5	22.26	22.27	22.30	24.00
		3	0	22.38	22.65	22.52	24.00
		3	2	22.41	22.55	22.57	24.00
		3	3	22.18	22.56	22.39	24.00
		6	0	21.67	21.70	21.70	23.00
	16QAM	1	0	21.72	21.71	21.60	23.00
		1	2	21.66	21.64	21.66	23.00
		1	5	21.67	21.62	21.68	23.00
		3	0	21.67	21.71	21.62	23.00
		3	2	21.71	21.69	21.64	23.00
		3	3	21.68	21.56	21.64	23.00
		6	0	20.61	20.82	20.72	22.00
	64QAM	1	0	20.66	20.71	20.75	22.00
		1	2	20.64	20.79	20.77	22.00
		1	5	20.66	20.75	20.72	22.00
		3	0	20.60	20.79	20.74	22.00
		3	2	20.67	20.78	20.64	22.00
		3	3	20.74	20.73	20.66	22.00
		6	0	19.77	19.92	19.86	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23025	23095	23165	
3MHz	QPSK	1	0	22.56	22.64	22.67	24.00
		1	7	22.96	23.00	22.87	24.00
		1	14	22.37	22.57	22.46	24.00
		8	0	21.97	22.06	21.99	23.00
		8	4	21.95	21.93	21.92	23.00
		8	7	21.74	21.78	21.73	23.00
		15	0	21.87	21.96	21.82	23.00
	16QAM	1	0	21.98	22.11	21.98	23.00
		1	7	22.35	22.47	22.26	23.00
		1	14	21.83	21.86	21.76	23.00
		8	0	21.06	21.05	21.03	22.00
		8	4	20.87	20.95	20.86	22.00
		8	7	20.67	20.76	20.66	22.00
		15	0	20.80	20.97	20.89	22.00
	64QAM	1	0	21.00	21.02	21.05	22.00
		1	7	21.16	21.31	21.16	22.00
		1	14	20.85	21.03	20.91	22.00
		8	0	20.01	20.12	19.98	21.00
		8	4	20.16	20.23	20.11	21.00
		8	7	20.08	20.14	20.03	21.00
		15	0	20.11	20.20	20.10	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23035	23095	23155	
5MHz	QPSK	1	0	22.61	22.73	22.69	24.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 61 of 88

		1	13	22.96	23.05	22.94	24.00
		1	24	22.40	22.52	22.45	24.00
		12	0	21.97	22.06	22.08	23.00
		12	6	21.90	21.94	21.91	23.00
		12	13	21.70	21.80	21.69	23.00
		25	0	21.83	21.97	21.89	23.00
	16QAM	1	0	21.87	22.04	21.97	23.00
		1	13	22.29	22.41	22.23	23.00
		1	24	21.77	21.86	21.75	23.00
		12	0	20.98	21.06	21.00	22.00
		12	6	20.95	20.93	20.92	22.00
		12	13	20.67	20.74	20.69	22.00
	64QAM	25	0	20.80	20.90	20.83	22.00
		1	0	20.94	21.02	21.02	22.00
		1	13	21.24	21.36	21.15	22.00
		1	24	20.77	21.04	20.96	22.00
		12	0	20.03	20.18	20.06	21.00
		12	6	20.07	20.28	20.11	21.00
		12	13	19.99	20.12	20.08	21.00
		25	0	20.12	20.18	20.04	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23060	23095	23130	
10MHz	QPSK	1	0	22.58	22.67	22.70	24.00
		1	25	22.90	23.06	22.86	24.00
		1	49	22.35	22.60	22.50	24.00
		25	0	22.00	21.99	22.05	23.00
		25	13	21.89	21.95	21.86	23.00
		25	25	21.72	21.80	21.69	23.00
	16QAM	50	0	21.85	22.02	21.85	23.00
		1	0	21.91	22.06	21.88	23.00
		1	25	22.33	22.45	22.32	23.00
		1	49	21.79	21.81	21.73	23.00
		25	0	21.06	20.98	21.01	22.00
		25	13	20.88	20.96	20.94	22.00
		25	25	20.68	20.78	20.67	22.00
		50	0	20.85	20.92	20.91	22.00
	64QAM	1	0	20.98	21.09	20.96	22.00
		1	25	21.23	21.32	21.23	22.00
		1	49	20.85	21.05	20.92	22.00
		25	0	20.10	20.17	20.08	21.00
		25	13	20.17	20.29	20.07	21.00
		25	25	20.01	20.10	20.11	21.00
		50	0	20.11	20.18	20.07	21.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 62 of 88

LTE FDD Band 13				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23205	23230	23255	
5MHz	QPSK	1	0	22.55	22.72	22.63	24.00
		1	13	22.97	23.00	22.86	24.00
		1	24	22.34	22.54	22.44	24.00
		12	0	21.98	22.02	22.01	23.00
		12	6	21.93	21.91	21.90	23.00
		12	13	21.71	21.77	21.74	23.00
		25	0	21.82	21.97	21.80	23.00
	16QAM	1	0	21.93	22.08	21.89	23.00
		1	13	22.30	22.41	22.29	23.00
		1	24	21.73	21.82	21.69	23.00
		12	0	21.06	20.99	21.03	22.00
		12	6	20.91	20.95	20.84	22.00
		12	13	20.64	20.80	20.65	22.00
		25	0	20.82	20.90	20.85	22.00
	64QAM	1	0	20.95	21.00	20.96	22.00
		1	13	21.23	21.30	21.16	22.00
		1	24	20.77	21.02	20.91	22.00
		12	0	20.03	20.12	19.97	21.00
		12	6	20.16	20.27	20.15	21.00
		12	13	20.02	20.08	20.07	21.00
		25	0	20.14	20.15	20.03	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
10MHz	QPSK	1	0	/	23230	/	24.00
		1	25	/	23.02	/	24.00
		1	49	/	22.58	/	24.00
		25	0	/	22.07	/	23.00
		25	13	/	21.98	/	23.00
		25	25	/	21.84	/	23.00
		50	0	/	22.00	/	23.00
	16QAM	1	0	/	22.03	/	23.00
		1	25	/	22.47	/	23.00
		1	49	/	21.82	/	23.00
		25	0	/	21.04	/	22.00
		25	13	/	20.92	/	22.00
		25	25	/	20.73	/	22.00
		50	0	/	20.92	/	22.00
	64QAM	1	0	/	21.04	/	22.00
		1	25	/	21.35	/	22.00
		1	49	/	21.02	/	22.00
		25	0	/	20.14	/	21.00
		25	13	/	20.27	/	21.00
		25	25	/	20.08	/	21.00
		50	0	/	20.16	/	21.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 63 of 88

LTE FDD Band 17				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23755	23790	23825	
5MHz	QPSK	1	0	22.56	22.69	22.66	24.00
		1	13	22.93	23.07	22.92	24.00
		1	24	22.41	22.57	22.45	24.00
		12	0	21.97	21.98	22.03	23.00
		12	6	21.94	21.99	21.90	23.00
		12	13	21.69	21.80	21.72	23.00
		25	0	21.81	22.02	21.79	23.00
	16QAM	1	0	21.88	22.03	21.87	23.00
		1	13	22.33	22.42	22.27	23.00
		1	24	21.74	21.80	21.72	23.00
		12	0	21.03	21.03	21.06	22.00
		12	6	20.92	20.90	20.85	22.00
		12	13	20.74	20.83	20.65	22.00
		25	0	20.82	20.94	20.83	22.00
	64QAM	1	0	20.94	21.07	20.99	22.00
		1	13	21.19	21.39	21.14	22.00
		1	24	20.77	21.05	20.95	22.00
		12	0	20.03	20.13	20.04	21.00
		12	6	20.14	20.21	20.15	21.00
		12	13	20.01	20.09	20.07	21.00
		25	0	20.04	20.18	20.09	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23780	23790	23800	
10MHz	QPSK	1	0	22.55	22.66	22.63	24.00
		1	25	22.99	23.14	22.93	24.00
		1	49	22.38	22.56	22.44	24.00
		25	0	21.93	22.07	22.00	23.00
		25	13	21.97	22.00	21.91	23.00
		25	25	21.69	21.79	21.73	23.00
		50	0	21.86	21.97	21.84	23.00
	16QAM	1	0	21.96	22.08	21.96	23.00
		1	25	22.32	22.46	22.29	23.00
		1	49	21.78	21.83	21.74	23.00
		25	0	20.99	20.98	20.97	22.00
		25	13	20.92	20.95	20.92	22.00
		25	25	20.68	20.81	20.64	22.00
		50	0	20.77	20.94	20.85	22.00
	64QAM	1	0	21.01	21.05	20.96	22.00
		1	25	21.14	21.40	21.24	22.00
		1	49	20.82	21.03	20.91	22.00
		25	0	20.09	20.08	20.05	21.00
		25	13	20.11	20.23	20.17	21.00
		25	25	20.08	20.14	20.06	21.00
		50	0	20.08	20.12	20.08	21.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 64 of 88

LTE Band 41 Full power				Conducted Power(dBm)					
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Channel	Channel	Tune up
				39675	40148	40620	41093	41565	
5MHz	QPSK	1	0	21.22	21.24	21.31	21.22	21.20	23.00
		1	13	21.30	21.35	21.40	21.30	21.26	23.00
		1	24	21.03	21.07	21.16	21.12	21.09	23.00
		12	0	20.63	20.57	20.64	20.65	20.63	22.00
		12	6	20.60	20.56	20.61	20.48	20.52	22.00
		12	13	20.33	20.39	20.46	20.34	20.36	22.00
		25	0	20.49	20.50	20.60	20.45	20.54	22.00
	16QAM	1	0	20.57	20.53	20.65	20.62	20.59	22.00
		1	13	20.83	20.95	21.01	20.88	20.88	22.00
		1	24	20.40	20.45	20.50	20.30	20.34	22.00
		12	0	19.53	19.65	19.72	19.52	19.52	21.00
		12	6	19.46	19.45	19.59	19.53	19.51	21.00
		12	13	19.32	19.33	19.43	19.27	19.38	21.00
		25	0	19.44	19.40	19.52	19.52	19.42	21.00
	64QAM	1	0	19.56	19.50	19.76	19.58	19.52	21.00
		1	13	19.88	19.85	19.93	19.79	19.84	21.00
		1	24	19.49	19.48	19.62	19.44	19.49	21.00
		12	0	18.75	18.74	18.75	18.72	18.69	20.00
		12	6	18.66	18.73	18.83	18.69	18.67	20.00
		12	13	18.57	18.66	18.65	18.65	18.60	20.00
		25	0	18.76	18.74	18.68	18.64	18.62	20.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Channel	Channel	Tune up
				39700	40160	40620	41080	41540	
10MHz	QPSK	1	0	21.21	21.24	21.34	21.26	21.23	23.00
		1	25	21.39	21.37	21.46	21.39	21.37	23.00
		1	49	21.01	21.13	21.16	21.08	21.11	23.00
		25	0	20.53	20.56	20.71	20.53	20.67	22.00
		25	13	20.54	20.47	20.62	20.58	20.42	22.00
		25	25	20.39	20.29	20.41	20.35	20.28	22.00
		50	0	20.48	20.53	20.64	20.52	20.44	22.00
	16QAM	1	0	20.52	20.54	20.65	20.48	20.52	22.00
		1	25	20.89	20.91	20.93	20.91	20.89	22.00
		1	49	20.41	20.36	20.44	20.37	20.36	22.00
		25	0	19.64	19.66	19.64	19.57	19.60	21.00
		25	13	19.50	19.53	19.58	19.47	19.57	21.00
		25	25	19.31	19.27	19.33	19.32	19.30	21.00
		50	0	19.47	19.42	19.53	19.47	19.41	21.00
	64QAM	1	0	19.64	19.56	19.68	19.61	19.61	21.00
		1	25	19.85	19.84	19.94	19.90	19.77	21.00
		1	49	19.47	19.53	19.55	19.46	19.48	21.00
		25	0	18.66	18.71	18.73	18.61	18.67	20.00
		25	13	18.82	18.72	18.90	18.70	18.69	20.00
		25	25	18.57	18.60	18.75	18.67	18.61	20.00
		50	0	18.60	18.67	18.77	18.71	18.76	20.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Channel	Channel	Tune up
				39725	40173	40620	41068	41515	
15MHz	QPSK	1	0	21.24	21.22	21.30	21.20	21.19	23.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 65 of 88

		1	38	21.43	21.40	21.36	21.34	21.32	23.00
		1	74	21.04	21.04	21.21	21.13	21.04	23.00
		36	0	20.59	20.60	20.68	20.58	20.69	22.00
		36	18	20.49	20.52	20.69	20.50	20.51	22.00
		36	39	20.42	20.30	20.44	20.36	20.44	22.00
		75	0	20.55	20.54	20.55	20.50	20.48	22.00
	16QAM	1	0	20.63	20.58	20.58	20.58	20.53	22.00
		1	38	20.93	20.97	21.08	20.85	20.94	22.00
		1	74	20.41	20.47	20.49	20.39	20.31	22.00
		36	0	19.61	19.59	19.64	19.56	19.59	21.00
		36	18	19.46	19.49	19.54	19.47	19.48	21.00
		36	39	19.33	19.34	19.36	19.32	19.36	21.00
	64QAM	75	0	19.50	19.39	19.58	19.45	19.44	21.00
		1	0	19.55	19.55	19.69	19.57	19.62	21.00
		1	38	19.85	19.82	19.98	19.85	19.87	21.00
		1	74	19.49	19.53	19.63	19.44	19.46	21.00
		36	0	18.70	18.61	18.75	18.68	18.66	20.00
		36	18	18.74	18.80	18.78	18.75	18.74	20.00
		36	39	18.63	18.61	18.81	18.72	18.70	20.00
		75	0	18.70	18.65	18.81	18.61	18.69	20.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Channel	Channel	Tune up
				39750	40185	40620	41055	41490	
20MHz	QPSK	1	0	21.23	21.19	21.28	21.21	21.20	23.00
		1	50	21.35	21.36	21.47	21.30	21.40	23.00
		1	99	21.07	21.09	21.15	21.06	21.03	23.00
		50	0	20.66	20.60	20.68	20.55	20.63	22.00
		50	25	20.46	20.51	20.59	20.48	20.51	22.00
		50	50	20.29	20.39	20.42	20.42	20.34	22.00
	16QAM	100	0	20.44	20.51	20.61	20.53	20.39	22.00
		1	0	20.57	20.49	20.60	20.53	20.47	22.00
		1	50	20.89	20.94	21.00	20.95	20.93	22.00
		1	99	20.47	20.46	20.47	20.33	20.40	22.00
		50	0	19.59	19.56	19.70	19.55	19.54	21.00
		50	25	19.50	19.51	19.49	19.48	19.52	21.00
	64QAM	50	50	19.40	19.33	19.33	19.28	19.29	21.00
		100	0	19.44	19.46	19.54	19.51	19.42	21.00
		1	0	19.64	19.61	19.72	19.59	19.62	21.00
		1	50	19.88	19.86	19.95	19.80	19.76	21.00
		1	99	19.49	19.49	19.60	19.48	19.47	21.00
		50	0	18.71	18.77	18.74	18.75	18.65	20.00
		50	25	18.75	18.71	18.80	18.76	18.72	20.00
		50	50	18.73	18.64	18.67	18.62	18.61	20.00
		100	0	18.74	18.68	18.81	18.72	18.68	20.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 66 of 88

LTE Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131979	132322	132665	
1.4MHz	QPSK	1	0	18.40	18.55	18.43	20.00
		1	2	18.66	18.66	18.68	20.00
		1	5	18.17	18.33	18.25	20.00
		3	0	18.34	18.53	18.44	20.00
		3	1	18.32	18.56	18.46	20.00
		3	3	18.18	18.42	18.22	20.00
		6	0	17.65	17.59	17.56	19.00
	16QAM	1	0	17.57	17.69	17.52	19.00
		1	2	17.67	17.62	17.62	19.00
		1	5	17.60	17.69	17.60	19.00
		3	0	17.66	17.58	17.56	19.00
		3	1	17.68	17.67	17.54	19.00
		3	3	17.64	17.56	17.56	19.00
		6	0	16.57	16.76	16.57	18.00
	64QAM	1	0	16.63	16.72	16.69	18.00
		1	2	16.61	16.72	16.71	18.00
		1	5	16.66	16.72	16.65	18.00
		3	0	16.57	16.72	16.59	18.00
		3	1	16.64	16.75	16.64	18.00
		3	3	16.64	16.80	16.74	18.00
		6	0	15.73	15.91	15.78	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131987	132322	132657	
3MHz	QPSK	1	0	18.53	18.54	18.54	20.00
		1	7	18.81	18.96	18.80	20.00
		1	14	18.30	18.36	18.32	20.00
		8	0	17.82	17.92	17.79	19.00
		8	4	17.77	17.82	17.78	19.00
		8	7	17.55	17.77	17.51	19.00
		15	0	17.69	17.81	17.73	19.00
	16QAM	1	0	17.80	17.89	17.74	19.00
		1	7	18.17	18.28	18.14	19.00
		1	14	17.71	17.70	17.56	19.00
		8	0	16.83	16.89	16.79	18.00
		8	4	16.75	16.82	16.76	18.00
		8	7	16.51	16.63	16.59	18.00
		15	0	16.73	16.87	16.68	18.00
	64QAM	1	0	16.80	16.88	16.82	18.00
		1	7	17.03	17.20	17.15	18.00
		1	14	16.79	16.84	16.70	18.00
		8	0	15.84	16.06	16.01	17.00
		8	4	16.05	16.01	15.90	17.00
		8	7	15.82	15.89	15.90	17.00
		15	0	15.97	15.98	15.91	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	
5MHz	QPSK	1	0	18.51	18.54	18.53	20.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 67 of 88

		1	13	18.83	18.86	18.77	20.00
		1	24	18.25	18.41	18.29	20.00
		12	0	17.77	17.95	17.79	19.00
		12	6	17.67	17.85	17.75	19.00
		12	13	17.58	17.72	17.61	19.00
		25	0	17.78	17.85	17.77	19.00
		1	0	17.83	17.95	17.76	19.00
		1	13	18.06	18.27	18.15	19.00
		1	24	17.69	17.67	17.59	19.00
		12	0	16.82	16.91	16.77	18.00
		12	6	16.74	16.78	16.80	18.00
		12	13	16.58	16.63	16.60	18.00
	16QAM	25	0	16.71	16.75	16.66	18.00
		1	0	16.88	16.91	16.86	18.00
		1	13	17.04	17.17	17.10	18.00
		1	24	16.69	16.82	16.72	18.00
		12	0	15.98	16.07	15.93	17.00
		12	6	16.03	16.12	15.96	17.00
	64QAM	12	13	15.78	15.94	15.94	17.00
		25	0	15.98	16.04	15.92	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	18.42	18.66	18.48	20.00
		1	25	18.75	18.94	18.79	20.00
		1	49	18.30	18.45	18.26	20.00
		25	0	17.86	17.95	17.87	19.00
		25	13	17.74	17.78	17.77	19.00
		25	25	17.59	17.72	17.53	19.00
		50	0	17.77	17.83	17.75	19.00
	16QAM	1	0	17.78	17.88	17.79	19.00
		1	25	18.14	18.23	18.12	19.00
		1	49	17.66	17.73	17.57	19.00
		25	0	16.78	16.93	16.78	18.00
		25	13	16.76	16.92	16.74	18.00
		25	25	16.51	16.63	16.53	18.00
		50	0	16.67	16.81	16.67	18.00
	64QAM	1	0	16.81	16.89	16.88	18.00
		1	25	17.08	17.15	17.12	18.00
		1	49	16.72	16.77	16.73	18.00
		25	0	15.93	16.03	15.93	17.00
		25	13	16.07	16.16	16.07	17.00
		25	25	15.81	16.05	15.84	17.00
		50	0	15.84	16.02	15.91	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	18.42	18.56	18.42	20.00
		1	38	18.75	18.94	18.73	20.00
		1	74	18.33	18.40	18.33	20.00
		36	0	17.85	17.91	17.86	19.00
		36	18	17.84	17.84	17.79	19.00
		36	39	17.53	17.69	17.59	19.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 68 of 88

	16QAM	75	0	17.75	17.79	17.72	19.00
		1	0	17.77	17.93	17.78	19.00
		1	38	18.20	18.35	18.20	19.00
		1	74	17.66	17.68	17.69	19.00
		36	0	16.82	17.00	16.83	18.00
		36	18	16.77	16.85	16.73	18.00
		36	39	16.61	16.72	16.60	18.00
		75	0	16.70	16.82	16.79	18.00
	64QAM	1	0	16.90	16.89	16.83	18.00
		1	38	17.13	17.11	17.04	18.00
		1	74	16.77	16.86	16.80	18.00
		36	0	15.99	15.98	15.93	17.00
		36	18	15.96	16.02	15.99	17.00
		36	39	15.81	15.95	15.83	17.00
		75	0	15.90	15.96	15.92	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	18.59	18.69	18.58	20.00
		1	50	18.80	19.00	18.88	20.00
		1	99	18.48	18.46	18.35	20.00
		50	0	17.96	18.06	17.91	19.00
		50	25	17.91	17.88	17.84	19.00
		50	50	17.67	17.79	17.75	19.00
		100	0	17.77	17.98	17.80	19.00
	16QAM	1	0	17.83	17.94	17.80	19.00
		1	50	18.31	18.31	18.25	19.00
		1	99	17.66	17.82	17.71	19.00
		50	0	16.94	17.02	16.98	18.00
		50	25	16.82	16.92	16.79	18.00
		50	50	16.69	16.71	16.68	18.00
		100	0	16.75	16.91	16.87	18.00
	64QAM	1	0	16.86	17.02	16.95	18.00
		1	50	17.19	17.24	17.14	18.00
		1	99	16.88	16.95	16.85	18.00
		50	0	16.04	16.12	16.03	17.00
		50	25	16.03	16.15	16.06	17.00
		50	50	15.97	16.08	16.00	17.00
		100	0	16.09	16.16	16.07	17.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 69 of 88

LTE Band 71				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				133147	133247	133447	
5MHz	QPSK	1	0	22.65	22.82	22.76	24.00
		1	13	23.03	23.11	22.96	24.00
		1	24	22.45	22.67	22.61	24.00
		12	0	22.05	22.15	22.18	23.00
		12	6	21.98	22.09	22.01	23.00
		12	13	21.82	21.88	21.79	23.00
		25	0	21.99	22.09	21.91	23.00
	16QAM	1	0	21.98	22.17	21.99	23.00
		1	13	22.42	22.54	22.42	23.00
		1	24	21.92	21.98	21.86	23.00
		12	0	21.12	21.10	21.10	22.00
		12	6	20.99	21.03	21.01	22.00
		12	13	20.83	20.84	20.83	22.00
		25	0	20.90	21.06	20.96	22.00
	64QAM	1	0	21.04	21.18	21.10	22.00
		1	13	21.29	21.40	21.32	22.00
		1	24	20.88	21.09	21.05	22.00
		12	0	20.15	20.27	20.15	21.00
		12	6	20.25	20.34	20.24	21.00
		12	13	20.17	20.24	20.16	21.00
		25	0	20.14	20.24	20.20	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				133172	133272	133422	
10MHz	QPSK	1	0	22.71	22.82	22.81	24.00
		1	25	23.09	23.12	23.01	24.00
		1	49	22.54	22.68	22.59	24.00
		25	0	22.10	22.15	22.14	23.00
		25	13	21.99	22.01	22.05	23.00
		25	25	21.80	21.86	21.83	23.00
		50	0	21.94	22.14	21.99	23.00
	16QAM	1	0	22.00	22.14	22.04	23.00
		1	25	22.41	22.59	22.36	23.00
		1	49	21.94	21.88	21.77	23.00
		25	0	21.07	21.07	21.12	22.00
		25	13	21.00	21.05	21.00	22.00
		25	25	20.76	20.83	20.79	22.00
		50	0	20.89	21.01	20.91	22.00
	64QAM	1	0	21.10	21.18	21.11	22.00
		1	25	21.26	21.40	21.33	22.00
		1	49	20.86	21.13	20.97	22.00
		25	0	20.10	20.26	20.13	21.00
		25	13	20.18	20.37	20.22	21.00
		25	25	20.16	20.25	20.11	21.00
		50	0	20.24	20.23	20.22	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				133197	133297	133397	
15MHz	QPSK	1	0	22.67	22.81	22.72	24.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 70 of 88

		1	38	23.03	23.10	22.96	24.00
		1	74	22.45	22.64	22.60	24.00
		36	0	22.11	22.10	22.17	23.00
		36	18	22.02	22.11	22.01	23.00
		36	39	21.86	21.92	21.78	23.00
		75	0	21.92	22.09	21.90	23.00
	16QAM	1	0	21.98	22.12	22.01	23.00
		1	38	22.41	22.60	22.35	23.00
		1	74	21.90	21.91	21.78	23.00
		36	0	21.08	21.11	21.12	22.00
		36	18	20.99	21.05	20.96	22.00
		36	39	20.80	20.86	20.75	22.00
	64QAM	75	0	20.89	21.05	20.95	22.00
		1	0	21.11	21.17	21.12	22.00
		1	38	21.35	21.48	21.32	22.00
		1	74	20.94	21.15	21.06	22.00
		36	0	20.17	20.27	20.14	21.00
		36	18	20.24	20.32	20.26	21.00
		36	39	20.09	20.18	20.22	21.00
		75	0	20.16	20.27	20.14	21.00
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
					133222	133322	133372
	20MHz	QPSK					Tune up
		16QAM					
		64QAM					



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8.1.4 Conducted Power of Downlink CA

CA List	PCC								SCC				Power	
	LTE	Ant	BW	UL	UL	Mod.	UL#	UL	LTE	BW	DL	DL	With CA	Without CA
	Band		(MHz)	Freq.	Channel		RB	RB	Band	(MHz)	Freq.	Channel	Tx. Power (dBm)	Tx. Power (dBm)
				(MHz)				Offset			(MHz)			
CA_2A-2A	Band 2	1	20M	1880	18900	QPSK	1	50	Band 2	5M	1987.5	1175	19.73	19.81
CA_2A-4A	Band 2	1	20M	1880	18900	QPSK	1	50	Band 4	20M	2132.5	2175	19.59	19.81
	Band 4	1	20M	1732.5	20175	QPSK	1	50	Band 2	20M	1960	900	18.86	18.99
CA_2A-5A	Band 2	0	20M	1880	18900	QPSK	1	50	Band 5	10M	881.5	2525	19.66	19.81
	Band 5	0	10M	836.5	20525	QPSK	1	25	Band 2	20M	1960	900	23.27	23.46
CA_2A-12A	Band 2	0	20M	1880	18900	QPSK	1	50	Band 12	10M	737.5	5095	19.66	19.81
	Band 12	0	10M	707.5	23095	QPSK	1	25	Band 2	20M	1960	900	23.03	23.06
CA_2A-13A	Band 2	0	20M	1880	18900	QPSK	1	50	Band 13	10M	751	5230	19.73	19.81
	Band 13	0	10M	782	23230	QPSK	1	25	Band 2	20M	1960	900	22.83	23.02
CA_2A-66A	Band 66	0	20M	1745	132322	QPSK	1	50	Band 2	20M	1960	900	18.78	19.00
	Band 2	1	20M	1880	18900	QPSK	1	25	Band 66	20M	2145	66786	19.72	19.81
CA_4A-4A	Band 4	1	20M	1732.5	20175	QPSK	1	50	Band 4	5M	2152.5	2375	18.88	18.99
CA_4A-5A	Band 4	1	20M	1732.5	20175	QPSK	1	50	Band 5	10M	881.5	2525	18.93	18.99
	Band 5	0	10M	836.5	20525	QPSK	1	25	Band 4	20M	2132.5	2175	23.26	23.46
CA_4A-12A	Band 4	1	20M	1732.5	20175	QPSK	1	50	Band 12	10M	737.5	5095	18.94	18.99
	Band 12	0	10M	707.5	23095	QPSK	1	25	Band 4	20M	2132.5	2175	22.95	23.06
CA_4A-13A	Band 4	1	20M	1732.5	20175	QPSK	1	50	Band 13	10M	751	5230	18.9	18.99
	Band 13	0	10M	782	23230	QPSK	1	25	Band 4	20M	2132.5	2175	22.89	23.02
CA_5A-5A	Band 5	0	10M	836.5	20525	QPSK	1	25	Band 5	5M	891.5	2625	23.26	23.46
CA_5A-66A	Band 5	0	10M	836.5	20525	QPSK	1	25	Band 66	20M	2145	66786	23.27	23.46
	Band 66	0	20M	1745	132322	QPSK	1	50	Band 5	10M	881.5	2525	18.87	19.00
CA_12A-12A	Band 12	0	10M	707.5	23095	QPSK	1	25	Band 12	5M	743.5	5155	23.03	23.06
CA_12A-66A	Band 12	0	10M	707.5	23095	QPSK	1	25	Band 66	20M	2145	66786	22.85	23.06
	Band 66	0	20M	1745	132322	QPSK	1	50	Band 12	10M	737.5	5095	18.88	19.00
CA_13A-66A	Band 13	0	10M	782	23230	QPSK	1	25	Band 66	20M	2145	66786	22.99	23.02
	Band 66	0	20M	1745	132322	QPSK	1	50	Band 13	10M	751	5230	18.78	19.00
CA_66C	Band 66	0	20M	1745	132322	QPSK	1	50	Band 66	20M	2174.8	67084	18.88	19.00
CA_66A-66A	Band 66	0	20M	1745	132322	QPSK	1	50	Band 66	5M	2177.5	67111	18.96	19.00
CA_41A-41A	Band 41	0	20M	2593	40620	QPSK	1	50	Band 41	5M	2687.5	41565	21.44	21.47
CA_41C	Band 41	0	20M	2593	40620	QPSK	1	50	Band 41	20M	2612.3	40813	21.28	21.47

Note:

- 1) . In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs.
- 2) . Conducted power measurement results of downlink LTE carrier aggregation are provided to quantify downlink only carrier aggregation SAR test exclusion per KDB 941225 D05A.Uplink maximum output power



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is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive, therefore SAR evaluation with downlink carrier aggregation can be excluded.

The possible downlink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0. The detailed conducted power measurement results of downlink LTE CA are provided in the SAR report per 3GPP TS 36.521-1 V14.4.0. According to KDB 941225 D05A, the downlink only carrier aggregation conditions for this device can be excluded from SAR testing.

8.1.5 Conducted Power of WIFI

WIFI 2.4G					
Mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11b	1	2412	1	17.03	18.00
	6	2437		17.32	18.00
	11	2462		17.06	18.00
802.11g	1	2412	6	14.62	15.00
	6	2437		14.73	15.00
	11	2462		14.79	15.00
802.11n HT20	1	2412	6.5	14.52	15.00
	6	2437		14.71	15.00
	11	2462		14.89	15.00
802.11n HT40	3	2422	13.5	13.23	14.00
	6	2437		13.06	14.00
	9	2452		13.21	14.00

WIFI 5G						
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11a	U-NII-1	36	5180	6	15.19	16.00
		40	5200		15.23	16.00
		44	5220		15.33	16.00
		48	5240		15.28	16.00
	U-NII-2A	52	5260		15.21	16.00
		56	5280		15.16	16.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 73 of 88

		60	5300		15.14	16.00
		64	5320		15.27	16.00
	U-NII-2C	100	5500		12.45	13.00
		104	5520		12.39	13.00
		108	5540		12.28	13.00
		112	5560		12.41	13.00
		116	5580		12.43	13.00
		132	5660		12.22	13.00
		136	5680		12.17	13.00
		140	5700		12.21	13.00
	U-NII-3	149	5745		10.52	11.00
		153	5765		10.51	11.00
		157	5785		10.59	11.00
		161	5805		10.42	11.00
		165	5825		10.63	11.00
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11n-HT20	U-NII-1	36	5180	MCS0	15.11	16.00
		40	5200		15.08	16.00
		44	5220		15.13	16.00
		48	5240		15.10	16.00
	U-NII-2A	52	5260		15.08	16.00
		56	5280		15.13	16.00
		60	5300		15.21	16.00
		64	5320		15.13	16.00
	U-NII-2C	100	5500		12.32	13.00
		104	5520		12.27	13.00
		108	5540		12.19	13.00
		112	5560		12.11	13.00
		116	5580		12.35	13.00
		132	5660		12.18	13.00
		136	5680		12.26	13.00
		140	5700		12.43	13.00
	U-NII-3	149	5745		12.11	13.00
		153	5765		12.31	13.00
		157	5785		12.23	13.00
		161	5805		12.21	13.00
		165	5825		12.36	13.00
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11n-HT40	U-NII-1	38	5190	MCS0	15.28	16.00
		46	5230		15.21	16.00
	U-NII-2A	54	5270		15.23	16.00
		62	5310		15.10	16.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 74 of 88

	U-NII-2C	102	5510		13.43	14.00
		110	5550		13.52	14.00
		118	5590		13.48	14.00
		134	5670		13.57	14.00
	U-NII-3	151	5755		12.26	13.00
		159	5795		12.51	13.00
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac-20	U-NII-1	36	5180	MCS0	15.24	16.00
		40	5200		15.27	16.00
		44	5220		15.33	16.00
		48	5240		15.16	16.00
	U-NII-2A	52	5260		15.09	16.00
		56	5280		15.19	16.00
		60	5300		15.25	16.00
		64	5320		15.16	16.00
	U-NII-2C	100	5500		12.53	13.00
		104	5520		12.16	13.00
		108	5540		12.13	13.00
		112	5560		12.23	13.00
		116	5580		12.61	13.00
		132	5660		12.38	13.00
		136	5680		12.18	13.00
		140	5700		12.55	13.00
	U-NII-3	149	5745		12.23	13.00
		153	5765		12.19	13.00
		157	5785		12.45	13.00
		161	5805		12.32	13.00
		165	5825		12.53	13.00
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac-40	U-NII-1	38	5190	MCS0	15.32	16.00
		46	5230		15.38	16.00
	U-NII-2A	54	5270		15.15	16.00
		62	5310		15.19	16.00
	U-NII-2C	102	5510		13.58	14.00
		110	5550		13.61	14.00
		118	5590		13.46	14.00
		134	5670		13.69	14.00
	U-NII-3	151	5755		12.38	13.00
		159	5795		12.68	13.00
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac	U-NII-1	42	5210	MCS0	15.49	16.00



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 75 of 88

80M	U-NII-2A	58	5290		15.52	16.00
	U-NII-2C	106	5530		13.87	15.00
	U-NII-3	155	5775		15.09	16.00

Note:

- a) Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.
- b) Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
 - 1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.
 - 2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.
- c) For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured.



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8.2 Stand-alone SAR test evaluation

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and Product specific 10g SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Freq. Band	Frequency (GHz)	Position	Average Power		Test Separation (mm)	Calculate Value	Exclusion Threshold	Exclusion (Y/N)
			dBm	mW				
Wi-Fi 2.4G	2.462	Hotspot	18	63.10	10	9.9	3	N
WIFI 5G	5.825	Hotspot	16	39.81	10	9.61	3	N

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

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

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.



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8.3 Measurement of SAR Data

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.
- 3) Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
- 4) For LTE B5 / B12 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
- 5) LTE band 17 / 4 SAR test was covered by Band 12 / 66; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

WiFi 2.4G:

- 1) When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is $\leq 1.2\text{ W/kg}$, SAR test for the other 802.11 modes are not required.

WiFi 5G:

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. As the highest reported SAR for a test configuration is $\leq 1.2\text{ W/kg}$, SAR is not required for U-NII-1 band for that configuration.
- 2) When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is $\leq 1.2\text{ W/kg}$, SAR test for the other 802.11 modes are not required.



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 78 of 88

8.3.1 SAR Result of GSM850

Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm)										
Front side	GPRS 2TS	190/836.6	1:4.15	0.730	-0.04	30.93	31.50	1.140	0.832	22.4
Front side	GPRS 2TS	128/824.2	1:4.15	0.675	0.03	30.92	31.50	1.143	0.771	22.4
Front side	GPRS 2TS	251/848.8	1:4.15	0.459	0.01	30.86	31.50	1.159	0.532	22.4
Back side	GPRS 2TS	190/836.6	1:4.15	0.468	-0.11	30.93	31.50	1.140	0.534	22.4
Left side	GPRS 2TS	190/836.6	1:4.15	0.327	-0.01	30.93	31.50	1.140	0.373	22.4
Right side	GPRS 2TS	190/836.6	1:4.15	0.402	-0.09	30.93	31.50	1.140	0.458	22.4
Bottom side	GPRS 2TS	190/836.6	1:4.15	0.211	0.02	30.93	31.50	1.140	0.241	22.4

Table 10: SAR of GSM850 for Body.

8.3.2 SAR Result of GSM1900

Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm)										
Front side	GPRS 3TS	661/1880	1:2.77	0.633	0.09	24.51	25.50	1.256	0.795	22.1
Back side	GPRS 3TS	661/1880	1:2.77	0.660	-0.01	24.51	25.50	1.256	0.829	22.1
Back side	GPRS 3TS	512/1850.2	1:2.77	0.719	0.02	24.47	25.50	1.268	0.911	22.1
Back side	GPRS 3TS	810/1909.8	1:2.77	0.725	-0.01	24.48	25.50	1.265	0.917	22.1
Left side	GPRS 3TS	661/1880	1:2.77	0.300	0.03	24.51	25.50	1.256	0.377	22.1
Bottom side	GPRS 3TS	661/1880	1:2.77	0.259	-0.09	24.51	25.50	1.256	0.325	22.1

Table 11: SAR of GSM1900 for Body.

8.3.3 SAR Result of WCDMA Band II

Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.681	-0.02	19.65	21.00	1.365	0.929	22.1
Front side	RMC	9262/1852.4	1:1	0.600	-0.06	19.63	21.00	1.371	0.823	22.1
Front side	RMC	9538/1907.6	1:1	0.534	0.07	19.55	21.00	1.396	0.746	22.1
Back side	RMC	9400/1880	1:1	0.529	0.14	19.65	21.00	1.365	0.722	22.1
Left side	RMC	9400/1880	1:1	0.242	0.01	19.65	21.00	1.365	0.330	22.1
Bottom side	RMC	9400/1880	1:1	0.341	-0.05	19.65	21.00	1.365	0.465	22.1

Table 12: SAR of WCDMA Band II for Body.



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 79 of 88

8.3.4 SAR Result of WCDMA Band IV

Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.750	0.13	19.86	21.00	1.300	0.975	22.3
Front side	RMC	1312/1712.4	1:1	0.745	0.11	19.79	21.00	1.321	0.984	22.3
Front side	RMC	1513/1752.6	1:1	0.760	0.13	19.85	21.00	1.303	0.990	22.3
Back side	RMC	1412/1732.4	1:1	0.519	0.01	19.86	21.00	1.300	0.675	22.3
Left side	RMC	1412/1732.4	1:1	0.285	-0.02	19.86	21.00	1.300	0.371	22.3
Bottom side	RMC	1412/1732.4	1:1	0.465	0.07	19.86	21.00	1.300	0.605	22.3

Table 13: SAR of WCDMA Band IV for Body.

8.3.5 SAR Result of WCDMA Band V

Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.492	-0.01	23.21	24.00	1.199	0.590	22.4
Back side	RMC	4182/836.4	1:1	0.268	0.05	23.21	24.00	1.199	0.321	22.4
Left side	RMC	4182/836.4	1:1	0.114	0.02	23.21	24.00	1.199	0.137	22.4
Right side	RMC	4182/836.4	1:1	0.252	-0.09	23.21	24.00	1.199	0.302	22.4
Bottom side	RMC	4182/836.4	1:1	0.242	0.01	23.21	24.00	1.199	0.290	22.4

Table 14: SAR of WCDMA Band V for Head and Body.

8.3.6 SAR Result of LTE Band 2

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	18900/1880	1:1	0.666	-0.02	19.81	21.00	1.315	0.876	22.1
Front side	20	QPSK 1_50	18700/1860	1:1	0.655	0.03	19.76	21.00	1.330	0.871	22.1
Front side	20	QPSK 1_50	19100/1900	1:1	0.748	0.12	19.78	21.00	1.324	0.991	22.1
Back side	20	QPSK 1_50	18900/1880	1:1	0.638	-0.13	19.81	21.00	1.315	0.839	22.1
Back side	20	QPSK 1_50	18700/1860	1:1	0.536	0.08	19.76	21.00	1.330	0.713	22.1
Back side	20	QPSK 1_50	19100/1900	1:1	0.580	0.02	19.78	21.00	1.324	0.768	22.1
Left side	20	QPSK 1_50	18900/1880	1:1	0.343	0.06	19.81	21.00	1.315	0.451	22.1
Bottom side	20	QPSK 1_50	18900/1880	1:1	0.394	0.09	19.81	21.00	1.315	0.518	22.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.578	-0.06	18.82	20.00	1.312	0.758	22.1
Back side	20	QPSK 50_0	18900/1880	1:1	0.536	0.01	18.82	20.00	1.312	0.703	22.1
Left side	20	QPSK 50_0	18900/1880	1:1	0.284	0.12	18.82	20.00	1.312	0.373	22.1
Bottom side	20	QPSK 50_0	18900/1880	1:1	0.304	-0.03	18.82	20.00	1.312	0.399	22.1
Hotspot Test data(Separate 10mm 100%RB)											
Front side	20	QPSK 100_0	18900/1880	1:1	0.557	0.01	18.76	20.00	1.330	0.741	22.1
Back side	20	QPSK 100_0	18900/1880	1:1	0.430	0.03	18.76	20.00	1.330	0.572	22.1

Table 15: SAR of LTE Band 2 for Body.



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8.3.7 SAR Result of LTE Band 5

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_25	20525/836.5	1:1	0.533	-0.02	23.46	24.00	1.132	0.604	22.4
Back side	10	QPSK 1_25	20525/836.5	1:1	0.324	-0.04	23.46	24.00	1.132	0.367	22.4
Left side	10	QPSK 1_25	20525/836.5	1:1	0.161	0.07	23.46	24.00	1.132	0.182	22.4
Righttt side	10	QPSK 1_25	20525/836.5	1:1	0.277	0.09	23.46	24.00	1.132	0.314	22.4
Bottom side	10	QPSK 1_25	20525/836.5	1:1	0.230	0.05	23.46	24.00	1.132	0.260	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.426	0.04	22.65	23.00	1.084	0.462	22.4
Back side	10	QPSK 25_0	20525/836.5	1:1	0.260	0.01	22.65	23.00	1.084	0.282	22.4
Left side	10	QPSK 25_0	20525/836.5	1:1	0.126	0.02	22.65	23.00	1.084	0.137	22.4
Righttt side	10	QPSK 25_0	20525/836.5	1:1	0.222	-0.07	22.65	23.00	1.084	0.241	22.4
Bottom side	10	QPSK 25_0	20525/836.5	1:1	0.190	-0.01	22.65	23.00	1.084	0.206	22.4

Table 16: SAR of LTE Band 5 for Body.

8.3.8 SAR Result of LTE Band 7

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	21100/2535	1:1	0.784	-0.04	21.59	22.50	1.233	0.967	22.4
Front side	20	QPSK 1_50	20850/2510	1:1	0.658	0.04	21.44	22.50	1.276	0.840	22.4
Front side	20	QPSK 1_50	21350/2560	1:1	0.669	0.08	21.30	22.50	1.318	0.882	22.4
Back side	20	QPSK 1_50	21100/2535	1:1	0.353	0.02	21.59	22.50	1.233	0.435	22.4
Left side	20	QPSK 1_50	21100/2535	1:1	0.409	0.01	21.59	22.50	1.233	0.504	22.4
Bottom side	20	QPSK 1_50	21100/2535	1:1	0.468	-0.09	21.59	22.50	1.233	0.577	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.563	0.05	20.55	21.50	1.245	0.701	22.4
Back side	20	QPSK 50_0	21100/2535	1:1	0.299	-0.02	20.55	21.50	1.245	0.372	22.4
Left side	20	QPSK 50_0	21100/2535	1:1	0.367	0.07	20.55	21.50	1.245	0.457	22.4
Bottom side	20	QPSK 50_0	21100/2535	1:1	0.431	-0.03	20.55	21.50	1.245	0.536	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 100_0	21100/2535	1:1	0.499	0.02	20.45	21.50	1.274	0.635	22.4

Table 17: SAR of LTE Band 7 for Body.



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8.3.9 SAR Result of LTE Band 12

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_25	23095/707.5	1:1	0.733	0.09	23.06	24.00	1.242	0.910	22.3
Back side	10	QPSK 1_25	23095/707.5	1:1	0.482	0.04	23.06	24.00	1.242	0.598	22.3
Left side	10	QPSK 1_25	23095/707.5	1:1	0.271	-0.08	23.06	24.00	1.242	0.336	22.3
Righttt side	10	QPSK 1_25	23095/707.5	1:1	0.411	0.01	23.06	24.00	1.242	0.510	22.3
Bottom side	10	QPSK 1_25	23095/707.5	1:1	0.139	-0.02	23.06	24.00	1.242	0.173	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23095/707.5	1:1	0.602	-0.18	21.99	23.00	1.262	0.760	22.3
Back side	10	QPSK 25_0	23095/707.5	1:1	0.392	-0.05	21.99	23.00	1.262	0.495	22.3
Left side	10	QPSK 25_0	23095/707.5	1:1	0.218	-0.12	21.99	23.00	1.262	0.275	22.3
Righttt side	10	QPSK 25_0	23095/707.5	1:1	0.336	0.06	21.99	23.00	1.262	0.424	22.3
Bottom side	10	QPSK 25_0	23095/707.5	1:1	0.132	0.01	21.99	23.00	1.262	0.167	22.3
Hotspot Test data(Separate 10mm 100%RB)											
Front side	10	QPSK 50_0	23095/707.5	1:1	0.512	-0.11	22.02	23.00	1.253	0.642	22.3

Table 18: SAR of LTE Band 12 for Body.

8.3.10SAR Result of LTE Band 13

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_25	23230/782	1:1	0.561	-0.04	23.02	24.00	1.253	0.703	22.3
Back side	10	QPSK 1_25	23230/782	1:1	0.327	0.04	23.02	24.00	1.253	0.410	22.3
Left side	10	QPSK 1_25	23230/782	1:1	0.134	0.03	23.02	24.00	1.253	0.168	22.3
Righttt side	10	QPSK 1_25	23230/782	1:1	0.273	0.09	23.02	24.00	1.253	0.342	22.3
Bottom side	10	QPSK 1_25	23230/782	1:1	0.190	-0.08	23.02	24.00	1.253	0.238	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.458	-0.04	22.07	23.00	1.239	0.567	22.3
Back side	10	QPSK 25_0	23230/782	1:1	0.273	-0.02	22.07	23.00	1.239	0.338	22.3
Left side	10	QPSK 25_0	23230/782	1:1	0.114	0.03	22.07	23.00	1.239	0.141	22.3
Righttt side	10	QPSK 25_0	23230/782	1:1	0.220	-0.05	22.07	23.00	1.239	0.273	22.3
Bottom side	10	QPSK 25_0	23230/782	1:1	0.168	0.08	22.07	23.00	1.239	0.208	22.3

Table 19: SAR of LTE Band 13 for Body.



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8.3.11 SAR Result of LTE Band 41

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	40620/2593	1:1.58	0.590	0.08	21.47	23.00	1.422	0.839	22.4
Front side	20	QPSK 1_50	39750/2506	1:1.58	0.625	0.19	21.35	23.00	1.462	0.914	22.4
Front side	20	QPSK 1_50	40185/2549.5	1:1.58	0.597	-0.01	21.36	23.00	1.459	0.871	22.4
Front side	20	QPSK 1_50	41055/2636.5	1:1.58	0.384	0.04	21.30	23.00	1.479	0.568	22.4
Front side	20	QPSK 1_50	41490/2680	1:1.58	0.377	0.09	21.40	23.00	1.445	0.545	22.4
Back side	20	QPSK 1_50	40620/2593	1:1.58	0.271	0.03	21.47	23.00	1.422	0.385	22.4
Left side	20	QPSK 1_50	40620/2593	1:1.58	0.299	-0.05	21.47	23.00	1.422	0.425	22.4
Bottom side	20	QPSK 1_50	40620/2593	1:1.58	0.395	0.11	21.47	23.00	1.422	0.562	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.535	0.01	20.68	22.00	1.355	0.725	22.4
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.313	0.07	20.68	22.00	1.355	0.424	22.4
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.338	-0.11	20.68	22.00	1.355	0.458	22.4
Bottom side	20	QPSK 50_0	40620/2593	1:1.58	0.473	-0.08	20.68	22.00	1.355	0.641	22.4
Hotspot Test data(Separate 10mm 100%RB)											
Front side	20	QPSK 100_0	40620/2593	1:1.58	0.549	0.02	20.61	22.00	1.377	0.756	22.4

Table 20: SAR of LTE Band 41 for Body.

8.3.12 SAR Result of LTE Band 66

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	132322/1745	1:1	0.640	-0.08	19.00	20.00	1.259	0.806	22.3
Front side	20	QPSK 1_50	132072/1720	1:1	0.700	0.02	18.80	20.00	1.318	0.923	22.3
Front side	20	QPSK 1_50	132572/1770	1:1	0.681	0.10	18.88	20.00	1.294	0.881	22.3
Back side	20	QPSK 1_50	132322/1745	1:1	0.337	-0.16	19.00	20.00	1.259	0.424	22.3
Left side	20	QPSK 1_50	132322/1745	1:1	0.190	0.03	19.00	20.00	1.259	0.239	22.3
Bottom side	20	QPSK 1_50	132322/1745	1:1	0.196	0.08	19.00	20.00	1.259	0.247	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.426	0.05	18.06	19.00	1.242	0.529	22.3
Back side	20	QPSK 50_0	132322/1745	1:1	0.291	0.01	18.06	19.00	1.242	0.361	22.3
Left side	20	QPSK 50_0	132322/1745	1:1	0.140	0.07	18.06	19.00	1.242	0.174	22.3
Bottom side	20	QPSK 50_0	132322/1745	1:1	0.174	0.11	18.06	19.00	1.242	0.216	22.3
Hotspot Test data(Separate 10mm 100%RB)											
Front side	20	QPSK 100_0	132322/1745	1:1	0.509	0.07	17.98	19.00	1.265	0.644	22.3

Table 21: SAR of LTE Band 66 for Body.



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8.3.13 SAR Result of LTE Band 71

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	133322/683	1:1	0.635	-0.04	23.15	24.00	1.216	0.772	22.3
Back side	20	QPSK 1_50	133322/683	1:1	0.340	0.01	23.15	24.00	1.216	0.414	22.3
Left side	20	QPSK 1_50	133322/683	1:1	0.164	-0.01	23.15	24.00	1.216	0.199	22.3
Rightt side	20	QPSK 1_50	133322/683	1:1	0.258	-0.09	23.15	24.00	1.216	0.314	22.3
Bottom side	20	QPSK 1_50	133322/683	1:1	0.203	0.13	23.15	24.00	1.216	0.247	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	133322/683	1:1	0.497	0.12	22.12	23.00	1.225	0.609	22.3
Back side	20	QPSK 50_0	133322/683	1:1	0.278	0.05	22.12	23.00	1.225	0.340	22.3
Left side	20	QPSK 50_0	133322/683	1:1	0.126	0.03	22.12	23.00	1.225	0.154	22.3
Rightt side	20	QPSK 50_0	133322/683	1:1	0.217	0.08	22.12	23.00	1.225	0.266	22.3
Bottom side	20	QPSK 50_0	133322/683	1:1	0.164	-0.04	22.12	23.00	1.225	0.201	22.3

Table 22: SAR of LTE Band 66 for Body.

8.3.14 SAR Result of WIFI 2.4G

Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data (Separate 10mm)											
Front side	802.11b	6/2437	99.52%	1.005	0.475	0.03	17.32	18.00	1.169	0.558	22.2
Back side	802.11b	6/2437	99.52%	1.005	0.214	0.06	17.32	18.00	1.169	0.251	22.2
Left side	802.11b	6/2437	99.52%	1.005	0.124	0.01	17.32	18.00	1.169	0.146	22.2
Top side	802.11b	6/2437	99.52%	1.005	0.096	-0.05	17.32	18.00	1.169	0.113	22.2

Table 23: SAR of WIFI 2.4G for Body.

Note:

- When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR test for the other 802.11 modes are not required.



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8.3.15SAR Result of WIFI 5G

Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Hotspot Test data of U-NII-2A(Separate 10mm)											
Front side	802.11ac 80M	58/5290	86.49%	1.156	0.189	0.10	15.52	16.00	1.117	0.244	22.3
Back side	802.11ac 80M	58/5290	86.49%	1.156	0.058	-0.08	15.52	16.00	1.117	0.075	22.3
Left side	802.11ac 80M	58/5290	86.49%	1.156	0.292	-0.02	15.52	16.00	1.117	0.377	22.3
Hotspot Test data of U-NII-2C(Separate 10mm)											
Front side	802.11ac 80M	106/5530	86.49%	1.156	0.241	-0.09	13.87	15.00	1.297	0.313	22.3
Back side	802.11ac 80M	106/5530	86.49%	1.156	0.091	-0.15	13.87	15.00	1.297	0.118	22.3
Left side	802.11ac 80M	106/5530	86.49%	1.156	0.261	-0.02	13.87	15.00	1.297	0.339	22.3
Hotspot Test data of U-NII-3(Separate 10mm)											
Front side	802.11ac 80M	155/5775	86.49%	1.156	0.418	-0.08	15.09	16.00	1.233	0.596	22.3
Back side	802.11ac 80M	155/5775	86.49%	1.156	0.166	-0.09	15.09	16.00	1.233	0.237	22.3
Left side	802.11ac 80M	155/5775	86.49%	1.156	0.338	0.02	15.09	16.00	1.233	0.482	22.3

Table 24: SAR of WIFI 5G for Body.



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8.4 Multiple Transmitter Evaluation

8.4.1 Simultaneous SAR SAR test evaluation

• Simultaneous Transmission Possibilities

NO	Simultaneous TX Combination	Support
1	WWAN+WIFI 2.4G	Y
2	WWAN+WIFI5G	Y

Note:

1) The device does not support DTM function.

8.4.2 Simultaneous Transmission SAR Summation Scenario

Simultaneous Transmission SAR Summation Scenario for WLAN Hotspot:

Test position		SARmax (W/kg)			Summed SAR	
		Main Ant0	WiFi 2.4G Ant6(chain0)	WiFi 5G Ant6(chain0)		
		1	2	3	1+2	1+3
GSM850	Front side	0.832	0.558	0.596	1.390	1.428
	Back side	0.534	0.251	0.237	0.785	0.771
	Left side	0.373	0.146	0.482	0.519	0.855
	Right side	0.458	/	/	0.458	0.458
	Top side	/	0.113	/	0.113	/
	Bottom side	0.241	/	/	0.241	0.241
GSM1900	Front side	0.795	0.558	0.596	1.353	1.391
	Back side	0.917	0.251	0.237	1.168	1.154
	Left side	0.377	0.146	0.482	0.523	0.592
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.325	/	/	0.325	0.325
WCDMA B2	Front side	0.929	0.558	0.596	1.487	1.525
	Back side	0.722	0.251	0.237	0.973	0.959
	Left side	0.330	0.146	0.482	0.476	0.812
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.465	/	/	0.465	0.465
WCDMA B4	Front side	0.990	0.558	0.596	1.548	1.586
	Back side	0.675	0.251	0.237	0.926	0.912
	Left side	0.371	0.146	0.482	0.517	0.853
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.605	/	/	0.605	0.605
WCDMA B5	Front side	0.590	0.558	0.596	1.148	1.186
	Back side	0.321	0.251	0.237	0.572	0.558
	Left side	0.137	0.146	0.482	0.283	0.619
	Right side	0.302	/	/	0.302	0.302
	Top side	/	0.113	/	0.113	/



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 86 of 88

	Bottom side	0.290	/	/	0.290	0.290
LTE B2	Front side	0.991	0.558	0.596	1.549	1.587
	Back side	0.839	0.251	0.237	1.090	1.076
	Left side	0.451	0.146	0.482	0.597	0.933
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.518	/	/	0.518	0.518
LTE B5	Front side	0.604	0.558	0.596	1.162	1.200
	Back side	0.367	0.251	0.237	0.618	0.604
	Left side	0.182	0.146	0.482	0.328	0.664
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.260	/	/	0.260	0.260
LTE B7	Front side	0.967	0.558	0.596	1.525	1.563
	Back side	0.435	0.251	0.237	0.686	0.672
	Left side	0.504	0.146	0.482	0.650	0.986
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.577	/	/	0.577	0.577
LTE B12	Front side	0.910	0.558	0.596	1.468	1.506
	Back side	0.598	0.251	0.237	0.849	0.835
	Left side	0.336	0.146	0.482	0.482	0.818
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.173	/	/	0.173	0.173
LTE B13	Front side	0.703	0.558	0.596	1.261	1.299
	Back side	0.410	0.251	0.237	0.661	0.647
	Left side	0.168	0.146	0.482	0.314	0.650
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.238	/	/	0.238	0.238
LTE B41	Front side	0.914	0.558	0.596	1.472	1.510
	Back side	0.424	0.251	0.237	0.675	0.661
	Left side	0.458	0.146	0.482	0.604	0.940
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.641	/	/	0.641	0.641
LTE B66	Front side	0.923	0.558	0.596	1.481	1.519
	Back side	0.424	0.251	0.237	0.675	0.661
	Left side	0.239	0.146	0.482	0.385	0.721
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.247	/	/	0.247	0.247
LTE B71	Front side	0.772	0.558	0.596	1.330	1.368
	Back side	0.414	0.251	0.237	0.665	0.651
	Left side	0.199	0.146	0.482	0.345	0.681
	Right side	/	/	/	/	/
	Top side	/	0.113	/	0.113	/
	Bottom side	0.247	/	/	0.247	0.247



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Report No.: SEWM2305000178RG05

Rev.: 01

Page: 87 of 88

9 Equipment list

Test Platform		SPEAG DASY5 Professional				
Description		SAR Test System (Frequency range 300MHz-6GHz)				
Software Reference		DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)				
Hardware Reference						
Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	Twin Phantom	SPEAG	QD000P40CD	1770	NCR	NCR
☒	DAE	SPEAG	DAE4	1324	2022-10-17	2023-10-16
☒	E-Field Probe	SPEAG	EX3DV4	3793	2022-09-30	2023-09-29
☒	Validation Kits	SPEAG	D750V3	1210	2021-09-08	2024-09-07
☒	Validation Kits	SPEAG	D835V2	4d161	2020-08-28	2023-08-27
☒	Validation Kits	SPEAG	1750V2	1038	2020-08-29	2023-08-28
☒	Validation Kits	SPEAG	D1900V2	5d114	2020-08-27	2023-08-26
☒	Validation Kits	SPEAG	D2450V2	922	2020-08-27	2023-08-26
☒	Validation Kits	SPEAG	D2600V2	1180	2021-05-12	2024-05-11
☒	Validation Kits	SPEAG	D5GHzV2	1313	2021-01-25	2024-01-24
☒	Dielectric parameter probes	SPEAG	DAKS-3.5	21460031	2023-03-20	2024-03-19
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	1148	2023-03-20	2024-03-19
☒	Universal Radio Communication Tester	R&S	CMW500	111637	2023-03-20	2024-03-19
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	R&S	SMB100A	182393	2023-02-06	2024-02-05
☒	Preamplifier	Qiji	YX28980933	202104001	NCR	NCR
☒	Power Sensor	Keysight	U2002H	MY5639004	2022-9-16	2023-09-15
☒	Power Sensor	Keysight	U2002H	MY48200110	2022-12-23	2023-12-22
☒	Attenuator	SHX	TS2-3dB	30704	NCR	NCR
☒	Coaxial low pass filter	Mini-Circuits	VLF-2500(+)	NA	NCR	NCR
☒	Coaxial low pass filter	Microlab Fxr	LA-F13	NA	NCR	NCR
☒	DC POWER SUPPLY	SAKO	SK1730SL5A	NA	NCR	NCR
☒	Speed reading thermometer	LKM	DTM3000	SUW201-30-01	2022-09-19	2023-09-18
☒	Humidity and Temperature Indicator	MingGao	MingGao	NA	2022-09-19	2023-09-18

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Report No.: SEWM2305000178RG05
Rev.: 01
Page: 88 of 88

10 Calibration certificate

Please see the Appendix C

11 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

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