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Part 0 SAR Char Report





The following samples were submitted and identified on behalf of the client as:

Equipment Under Test Notebook Computer

Brand Name HP

Model No. HSN-I41C **Company Name** HP Inc.

Company Address 1501 Page Mill Road, Palo Alto CA 94304 USA

IEEE/ANSI C95.1-1992, IEEE 1528-2013 **Standards**

FCC ID B94HNI41CTKR **Date of Receipt** Sep. 01, 2020

Date of Test(s) Sep. 15, 2020 ~ Sep. 30, 2020

Date of Issue Oct. 21, 2020

In the configuration tested, the EUT complied with the standards specified above.

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Ltd. Central RF Lab or testing done by SGS Taiwan Ltd. Central RF Lab in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Ltd. Central RF Lab in writing.

Signed on behalf of SGS

Clerk / Ruby Ou	Engineer / Bond Tsai	Asst. Manager / John Yeh	
Ruby Ou	BondIsai	John Teh	

Date: Oct. 21, 2020

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Revision History

Report Number	Revision	Description	Issue Date
ES/2020/80013	Rev.00	Initial creation of document	Oct. 21, 2020

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0. Guidance applied

The SAR testing method and procedure for this device is in accordance with the following standards:

IEEE/ANSI C95.1-1992

IEEE 1528-2013

KDB616217D04v01r02

KDB865664D01v01r04

KDB865664D02v01r02

KDB941225D01v03r01

KDB941225D05v02r05

KDB941225D05Av01r02

KDB447498D01v06

KDB248227D01v02r02

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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Central RF Lab			
No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan			
FCC Designation Number	TW0027		
Tel	+886-2-2299-3279		
Fax	+886-2-2298-0488		
Internet	http://www.tw.sgs.com/		

1.2 Details of Applicant

Company Name	HP Inc.
Company Address	1501 Page Mill Road, Palo Alto CA 94304 USA

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1.3 Description of EUT

Equipment Under Test	Notebook Computer				
Brand Name	HP				
Model No.	HSN-I41C				
FCC ID	B94HNI41CTKR				
	WLAN		lame : Intel lame : AX201NGW		
Integrated Module	WWAN		Name : Fo Name : T		
	NFC		Name : W Name : XI		
Mode of Operation					
	WCDMA		100%		
	LTE FDD	100%			
	LTE TDD Power Class 3		6	3.3%	
Duty Cycle	LTE TDD Power Class 2		4	13.3%	
	5G NR		100%		
	WLAN802.11 a/b/g/n/ac/ax(20M/40M/80M/160M)		100%		
	Bluetooth	,	100%		
	Tx5 antenna				
	WCDMA Band II		1850	_	1910
TV 5	WCDMA Band IV		1710	_	1755
TX Frequency Range (MHz)	WCDMA Band V		824	_	849
(···· ··-/	LTE FDD Band 2		1850		1910
	LTE FDD Band 4		1710	_	1755
	LTE FDD Band 5	824	_	849	

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	LTE FDD Band 7	2500	_	2570			
	LTE FDD Band 12	699	_	716			
	LTE FDD Band 13	777	_	787			
	LTE FDD Band 14	788	_	798			
	LTE FDD Band 17	704	_	716			
	LTE FDD Band 25	1850	_	1915			
	LTE FDD Band 26	814	_	849			
	LTE FDD Band 30	2305	_	2315			
	LTE TDD Band 38 Power Class 3	2570	_	2620			
	LTE TDD Band 41 Power Class 2/3	2496	_	2690			
	LTE FDD Band 66	1710	_	1780			
	n2	1850	_	1910			
	n5	824	_	849			
	n12	699	_	716			
TX Frequency Range (MHz)	n66	1710	_	1780			
(IVIFIZ)	Tx8 antenna						
	LTE FDD Band 2	1850	_	1910			
	LTE FDD Band 7	2500	_	2570			
	LTE FDD Band 42 Power Class 3	3400	_	3600			
	LTE FDD Band 48 Power Class 3	3550	_	3700			
	LTE FDD Band 66	1710	_	1780			
	n2	1850	_	1910			
	n7	2500	_	2570			
	n41	2496	_	2690			
	n66	1710	_	1780			
	WLAN/BT						
	WLAN802.11 b/g/n/ax(20M)	2412	_	2472			
	WLAN802.11 n/ax(40M)	2422	_	2462			

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	WLAN802.11 a/n/ac/ax(20M) 5.2G	5180	_	5240	
	WLAN802.11 n/ac/ax(40M) 5.2G	5190	_	5230	
	WLAN802.11 ac/ax(80M) 5.2G		5210		
	WLAN802.11 ac/ax(160M) 5.2G		5250		
	WLAN802.11 a/n/ac/ax(20M) 5.3G	5260	_	5320	
	WLAN802.11 n/ac/ax(40M) 5.3G	5270	_	5310	
TX Frequency Range	WLAN802.11 ac/ax(80M) 5.3G		5290		
(MHz)	WLAN802.11 a/n/ac/ax(20M) 5.6G	5500	_	5720	
	WLAN802.11 n/ac/ax(40M) 5.6G	5510	_	5710	
	WLAN802.11 ac/ax(80M) 5.6G	5530	_	5690	
	WLAN802.11 ac/ax(160M) 5.6G		5570		
	WLAN802.11 a/n/ac/ax(20M) 5.8G	5745	_	5825	
	WLAN802.11 n/ac/ax(40M) 5.8G	5755	_	5795	
	WLAN802.11 ac/ax(80M) 5.8G		5775		
	Bluetooth	2402	_	2480	
	Tx5 antenna				
	WCDMA Band II	9262	_	9538	
	WCDMA Band IV	1312	_	1513	
	WCDMA Band V	4132	_	4233	
	LTE FDD Band 2	18607	_	19193	
Channel Number	LTE FDD Band 4	19957	_	20393	
(ARFCN)	LTE FDD Band 5	20407		20643	
	LTE FDD Band 7	20775	_	21425	
	LTE FDD Band 12	23017	_	23173	
	LTE FDD Band 13	23205	_	23255	
	LTE FDD Band 14	23305	_	23355	
	LTE FDD Band 17	23755	_	23825	

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	LTE FDD Band 25	26047	_	26683		
	LTE FDD Band 26	26697	_	27033		
	LTE FDD Band 30	27685	_	27735		
	LTE TDD Band 38 Power Class 3	37775	_	38225		
	LTE TDD Band 41 Power Class 2/3	39675	_	41565		
	LTE FDD Band 66	131979	_	132665		
	n2	370500	_	381500		
	n5	165300	_	169300		
	n12	140300	_	142200		
	n66	342500	_	355500		
	Tx8 antenna					
	LTE FDD Band 2	18607	_	19193		
	LTE FDD Band 7	20775	_	21425		
	LTE FDD Band 42 Power Class 3	41615	_	43565		
Channel Number	LTE FDD Band 48 Power Class 3	55265	_	56715		
(ARFCN)	LTE FDD Band 66	131979	_	132665		
	n2	370500	_	381500		
	n7	500500	_	513500		
	n41	501204	_	535998		
	n66	342500	_	355500		
	WLAN/BT					
	WLAN802.11 b/g/n/ax(20M)	1	_	13		
	WLAN802.11 n/ax(40M)	3	_	11		
	WLAN802.11 a/n/ac/ax(20M) 5.2G	36	_	48		
	WLAN802.11 n/ac/ax(40M) 5.2G	38	_	46		
	WLAN802.11 ac/ax(80M) 5.2G		42			
	WLAN802.11 ac/ax(160M) 5.2G		50			
	WLAN802.11 a/n/ac/ax(20M) 5.3G	52		64		
	WLAN802.11 n/ac/ax(40M) 5.3G	54	_	62		

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	WLAN802.11 ac/ax(80M) 5.3G		58	
	WLAN802.11 a/n/ac/ax(20M) 5.6G	100	_	144
	WLAN802.11 n/ac/ax(40M) 5.6G	102	_	142
	WLAN802.11 ac/ax(80M) 5.6G	106	_	138
Channel Number (ARFCN)	WLAN802.11 ac/ax(160M) 5.6G	114		
	WLAN802.11 a/n/ac/ax(20M) 5.8G	149	_	165
	WLAN802.11 n/ac/ax(40M) 5.8G	151	_	159
	WLAN802.11 ac/ax(80M) 5.8G		155	
	Bluetooth	0	_	78

This device uses the Qualcomm® Smart Transmit feature to control and manage transmitting power in real time and to ensure the time-averaged RF exposure is in compliance with the FCC requirement at all times for 3G/4G/5G Sub-6 NR WWAN operations. Additionally, this device supports WLAN/BT technologies, but the output power of these modems is not controlled by the Smart Transmit algorithm.

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Antenna Information

Antenna information						
Vendor	WNC					
Antenna	Main Tx5 (PIFA)					
Part Number	6036B0253201 (81EABB15.G35)					
Frequency	699-787	814-849	1710-1780	1850-1910	2305-2315 2496-2690	
Gain (dBi)	-1.17	0.08	-0.85	0.31	3.45	-0.19
Vendor				G-BO		
Antenna			Main Tx	` '		
Part Number		60)36B025770	1 (260-2736	5)	
Frequency	699-787	814-849	1710-1780	1850-1910	2305-2315	2496-2690
Gain (dBi)	-1.20	-0.78	-0.98	-0.77	0.53	0.22
Vendor			AW	'AN		
Antenna			Main Tx	5 (PIFA)		
Part Number	6036B0255901 (AUP6Y-100025)					
Frequency	699-787	814-849	1710-1780	1850-1910	2305-2315	2496-2690
Gain (dBi)	-1.02	-3.45	-0.69	1.68	1.88	-0.38
Vendor	WNC					
Antenna	Aux3 Tx8 (PIFA)					
Part Number	6036	B0277201 (81EABD15.0	G04)		
Frequency	1710~1780	1850~1910	2490~2690	3400~3700		
Gain (dBi)	0.32	0.50	-0.60	-1.74		
Vendor		HON	G-BO			
Antenna		Aux3 Tx	8 (PIFA)			
Part Number	60)36B027870	1 (260-2743	7)		
Frequency	1710~1780	1850~1910	2490~2690	3400~3700		
Gain (dBi)	-1.20	-1.53	-3.77	-1.44		
Vendor	AWAN					
Antenna	Aux3 Tx8 (PIFA)					
Part Number	6036B0281501 (AUP6Y-100070)					
Frequency	1710~1780	1850~1910	2490~2690	3400~3700		
Gain (dBi)	-2.70	-1.71	-3.66	1.70		

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1.4 Time-Averaging for SAR

This device is enabled with Qualcomm® Smart Transmit algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 3G/4G/5G Sub-6 NR WWAN is in compliance with FCC requirements. This Part 0 report shows SAR characterization of WWAN radios for 3G/4G and 5G Sub-6 NR. Characterization is achieved by determining Plimit for 3G/4G and 5G Sub-6 NR that correspond to the exposure design targets after accounting for all device design related uncertainties, i.e., SAR_design_target (< FCC SAR limit) for sub-6 radio. The SAR characterization is denoted as SAR Char in this report. Section 1.5 includes a nomenclature of the specific terms used in this report.

The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part 1 report. The validation of the time-averaging algorithm and compliance under the dynamic (time-varying) transmission scenario for WWAN technologies are reported in Part 2 report (report Number could be found in Section 1.6 – Bibliography).



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1.5 Nomenclature for Part 0 Report

Technology	Term	Description
20/40/50	Plimit	The time-averaged RF power which corresponds to SAR_design_target
3G/4G/5G Sub-6 NR	Pmax	Maximum tune-up power level
Sub-6 INK	SAR_design_target	The SAR design target for SAR compliance. It shall be
		less than SAR limit after accounting for all device design
		related uncertainties.
	SAR Char	Plimit for all technologies/bands for all applicable DSI

1.6 Bibliography

Report Type	Report Number
FCC SAR Test Report (Part 1)	ES/2020/80013
RF Exposure Part 2 Test Report	ES/2020/80013

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1.7 Test Environment

Ambient Temperature: 22±2° C Tissue Simulating Liquid: 22±2° C

1.8 Operation Description

For WWAN, the EUT is controlled by using a Radio Communication Tester, and the communication between the EUT and the tester is established by air link. Also, the device is a laptop computer with notebook mode only, so SAR measurement for notebook mode is required.

Notebook mode

SAR is measured with display screen open at 90 degree and bottom side of keyboard touch against the flat phantom.

Note

For WWAN, there are two TX antennas, the one is WWAN 5 TX located on the top edge of display screen, the other is WWAN 8 TX antenna located on the bottom edge of display screen. In order to mitigate RF exposure concern, Qualcomm smart transmit is used in WWAN.

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1.9 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|²)/ ρ where σ and ρ are the conductivity and mass density of the tissue-simulant.

The DASY 5 system for performing compliance tests consists of the following items:

- 1. A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- 2. A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage intissue simulating liquid. The probe is equipped with an optical surface detector system.
- 3. 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.

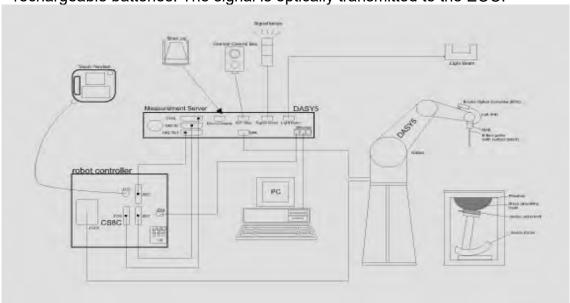


Fig. a The block diagram of SAR system

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- 4. The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- 5. 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.
- 6. A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- 7. A computer operating Windows 7.
- 8. DASY 5 software.
- 9. Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- 10. Tissue simulating liquid mixed according to the given recipes.
- 11. Validation dipole kits allowing to validate the proper functioning of the system.



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1.10 System Components

EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to
Calibration	organic solvents, e.g., DGBE) Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 750/835/1750/1900/2300/2600/330/3500 /3700 MHz Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to > 6 GHz
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic	10 μW/g to > 100 mW/g
Range	Linearity: ± 0.2 dB (noise: typically < 1 μW/g)
Dimensions	Tip diameter: 2.5 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

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PHANTOM

Model	ELI
Construction	The ELI phantom is used 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.
Shell Thickness	2 ± 0.2 mm
Filling Volume	Approx. 30 liters
Dimensions	Major axis: 600 mm
	Minor axis: 400 mm

DEVICE HOLDER

DEVICE HOLDS	=1 \	
Construction	The device holder (Supporter) for	
	Notebook is made by POM	
	(polyoxymethylene resin) ,	
	which is non-metal and	
	non-conductive. The height can	
	be adjusted to fit varies kind of	A
	notebooks.	
		Device Holder

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1.11 Evaluation Procedures

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

- 1. The extraction of the measured data (grid and values) from the Zoom Scan.
- 2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- 3. The generation of a high-resolution mesh within the measured volume
- 4. The interpolation of all measured values from the measurement grid to the high-resolution grid
- 5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- 6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements.

The measured volume of 30x30x30mm contains about 30g of tissue.

The first procedure is an extrapolation (incl. Boundary correction) to get the points

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between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

1.12 Probe Calibration Procedures

For the calibration of E-field probes in lossy liquids, an electric field with an accurately known field strength must be produced within the measured liquid. For standardization purposes it would be desirable if all measurements which are necessary to assess the correct field strength would be traceable to standardized measurement procedures. In the following two different calibration techniques are summarized:

1.12.1 Transfer Calibration with Temperature Probes

In lossy liquids the specific absorption rate (SAR) is related both to the electric field (E) and the temperature gradient ($\delta T / \delta t$) in the liquid.

$$SAR = \frac{\sigma}{\rho} |E|^2 = c \frac{\delta T}{\delta t}$$

whereby σ is the conductivity, ρ the density and c the heat capacity of the liquid.

Hence, the electric field in lossy liquid can be measured indirectly by measuring the temperature gradient in the liquid. Non-disturbing temperature probes (optical probes or thermistor probes with resistive lines) with high spatial resolution (<1-2 mm) and fast reaction time (<1 s) are available and can be easily calibrated with high precision [1]. The setup and the exciting source have no influence on the calibration; only the relative positioning uncertainties of the standard temperature probe and the E-field probe to be calibrated must be considered. However, several problems limit the available accuracy of probe calibrations with temperature probes:

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- 1. The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.
- 2. The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
- 3. The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures (~ 2% for c; much better for ρ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed $\pm 5\%$.
- 4. Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

Considering these problems, the possible accuracy of the calibration of E-field probes with temperature gradient measurements in a carefully designed setup is about $\pm 10\%$ (RSS) [2]. Recently, a setup which is a combination of the waveguide techniques and the thermal measurements was presented in [3]. The estimated uncertainty of the setup is $\pm 5\%$ (RSS) when the same liquid is used for the calibration and for actual measurements and ± 7 -9% (RSS) when not, which is in good agreement with the estimates given in [2].

1.12.2 Calibration with Analytical Fields

In this method a technical setup is used in which the field can be calculated analytically from measurements of other physical magnitudes (e.g., input power). This corresponds to the standard field method for probe calibration in air; however, there is no standard defined for fields in lossy liquids. When using calculated fields in lossy liquids for probe calibration, several points must be considered in the assessment of the uncertainty:

- 1. The setup must enable accurate determination of the incident power.
- 2. The accuracy of the calculated field strength will depend on the assessment of the dielectric parameters of the liquid.

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3. Due to the small wavelength in liquids with high permittivity, even small setups might be above the resonant cutoff frequencies. The field distribution in the setup must be carefully checked for conformity with the theoretical field distribution.

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1.13 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1, By the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

- 1. Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).
- 2. Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.
- 3. Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of

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tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section. (Table 4.)

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

Table 4. RF exposure limits

Notes:

- 1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
- Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

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2. Instruments List

. IIISU UIIIE	iilo Liol				
Manufacturer	Device	Туре	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	3665	Aug.20,2020	Aug.19,2021
		D750V3	1015	Aug.13,2020	Aug.12,2021
		D835V2	4d063	Aug.13,2020	Aug.12,2021
		D1750V2	1008	Aug.14,2020	Aug.13,2021
00540	System Validation	D1900V2	5d173	Apr.22,2020	Apr.21,2021
SPEAG	Dipole	D2300V2	1023	Aug.13,2020	Aug.12,2021
		D2600V2	1005	Jan.29,2020	Jan.28,2021
		D3500V2	1009	Aug.12,2020	Aug.11,2021
		D3700V2	1057	Nov.04,2019	Nov.03,2020
SPEAG	Data acquisition Electronics	DAE4	856	Apr.23,2020	Apr.22,2021
SPEAG	Software	DASY 52 V52.10.3	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration
Agilent	Network Analyzer	E5071C	MY46100433	Dec.13,2019	Dec.12,2020
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required
Agilent	Dual-directional	772D	MY46151242	Aug.17,2020	Aug.16,2021
Agiletit	coupler	778D	MY48220468	Aug.17,2020	Aug.16,2021
Agilent	RF Signal Generator	N5181A	MY50141235	May.04,2020	May.03,2021
Agilent	Power Meter	E4417A	MY51410006	Mar.09,2020	Mar.08,2021
Λ -::! - : 4	Power Sensor	E020411	MY51470001	Mar.09,2020	Mar.08,2021
Agilent	Lower Sellsol	E9301H	MY51470002	Mar.09,2020	Mar.08,2021

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Manufacturer	Device	Туре	Serial number	Date of last calibration	Date of next calibration
TECPEL	Digital thermometer	DTM-303A	TP130074	Apr.10,2020	Apr.09,2021
Anritsu	Radio Communication Test	MT8820C	6201061049	Dec.08,2019	Dec.07,2020
R&S	Radio Communication Test	CMW 500	125470	Dec.11,2019	Dec.10,2020

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3. Uncertainty Budget

Measurement Uncertainty evaluation template for DUT SAR test (3-6G)

		-			l,		. ***		, 1
A	c	D	е		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probabilit y	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	8
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	8
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	8
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	8
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	8
Probe Positioning with respect to phantom	2.90%	R	√3	1.732	1	1	1.67%	1.67%	8
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	8
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	8
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	1.05%	N	1	1	0.64	0.43	0.67%	0.45%	М
Liquid Conductivity (mea.)	1.36%	N	1	1	0.6	0.49	0.82%	0.67%	М
Combined standard uncertainty		RSS					11.76%	11.73%	
Expant uncertainty (95% confidence							23.53%	23.47%	

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Measurement Uncertainty evaluation template for DUT SAR test (0.3-3G)

A	С	D	е		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probabilit y	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.00%	N	1	1	1	1	6.00%	6.00%	∞
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	~
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	~
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	~
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	1.15%	N	1	1	0.64	0.43	0.74%	0.49%	М
Liquid Conductivity (mea.)	1.16%	N	1	1	0.6	0.49	0.70%	0.57%	М
Combined standard uncertainty		RSS					11.46%	11.43%	
Expant uncertainty (95% confidence							22.93%	22.87%	

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4. SAR Characterization

4.1 SAR_design_target and Uncertainty

SAR design target is determined by ensuring that it is less than FCC SAR limit after accounting for total device designed related uncertainties specified by the manufacturer (see Table 4-1).

SAR design target < SAR limit x 10 $^{(-total uncertainty/10)}$

	Uncertainty dB (k=2)
Total uncertainty	1.0

Exposure	Antenna	Frequency band	SAR_design_target
Laptop mode	Tx5	All	0.647 W/Kg
	Tx8	All	0.452 W/Kg

4.2 SAR Characterization

SAR test results corresponding to Pmax for each antenna/technology/band can be found in next chapter.

Plimit is calculated by linearly scaling the measured SAR at the Pmax to SAR design target. Plimit determination corresponding to SAR design target are shown in next chapter.

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5. SAR test results for Plimit calculations

T_x5

	IAJ																	
WCCARAI S WWC NS SEPPRES Cas NS 1952 SEED SEED SEED Comp. C SEED	Band / Mode	Antenna		Bandwidth	Modulation	RB size	RB offset		Channel	Duty cycle				conducted power	1g-SAR		Plimit**	Pmax* (dBm)
WCCRAM S WHC NS SSPF Region NS MS 1809 9800 1909 1	WCDMAII	5	WNC	na	3GPP Religi	na	na	1852.4	9262	100.00%	Bottom	Omm	0		0.023	38 71		23.5
WCCHARL S NNC Na																	i	
WCCBARI S 188																		
WCCANAL S		5	НВ		3GPP Rel99			1852.4	9262	100.00%				24.16		38.84	1	23.5
WCDANAL S																	38.71	
MCCBART S	WCDMA II	5			3GPP Rel99			1907.6	9887	100.00%			0	24.14	0.015	40.49	1	23.5
VECCHAN S	WCDMA II	5	AWAN	na	3GPP Rel99		na	1852.4	9262	100.00%	Bottom		0	24.16	0.022	38.84	1	23.5
WCCBAN S WWC ma SQFF Regio ma ma F7:24 1412 150,000 Belton omn 0 23.5 60.2 3.6 3.6 150,000 WCCBAN S WWC ma SQFF Regio ma ma F7:24 1412 150,000 Belton omn 0 2.2 60.2 3.6 3.6 120,000 WCCBAN S HB ma SQFF Regio ma ma F7:24 1412 150,000 Belton omn 0 2.5 150,000 3.5 3.6 3.5 3.5 3.6 3.5 3.6 3.5 3.6 3.5 3.6 3.5 3.6 3.5 3.6 3.5 3.6 3.5 3.6	WCDMA II		AWAN	na	3GPP Rel99			1880	9400	100.00%				24.06	0.013	41.03		
WCCMAN S WNC ma SpeP page ma ma 1722 ma 1722 ma ma 1722 ma ma ma ma 1722 ma ma ma ma ma ma ma		5	AWAN	na	3GPP Rel99	na	na		9887	100.00%	Bottom	0mm	0	24.14	0.015	40.49		23.5
WCCDAM S				na		na	na	1712.4							0.022			
WCCAMAW S HE ma SOPP Radio na ma 1772.44 1112 100007h Bedom Domm 0 2,235 0.022 38.63 38.64 25.5															0.025			
WCCDAM S 18																		
WCCDAN S																		
VCCMAN																	38.46	
WCCAMA																		
WCCDMAV S WNC res SOPP Refetto res res SOPP Refetto res																		
WCDMAV S WWC res SOPPResso res res SOS 4 4132 1000076 Bobern Orner O 2412 O.014 4.052 2.25																		
WCCMAN																		
WCDMAV S WWC Pa SOPP Regig Fra Fra Sobe																		
WCDMAV S H8																	-	
WCCMAV S H8 na SGPP Feb89 na na 636.6 4183 100.00% Bellom 0 23.87 0.014 61.52 25.5 10.00% 10.																	-	
WCCMAY S H8 na 3GPP Fa899 na na 684.6 4233 100.00% 80ton 0mm 0 23.85 0.012 61.18 23.5 WCCMAY S AVVAN na 3GPP Fa899 na na 684.6 4132 100.00% 80ton 0mm 0 23.87 0.013 40.94 23.5 0.00 42.87 0.013 40.94 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.87 0.00 41.85 23.5 0.00 42.85 0.00 41.85 23.5 0.00 42.85																		
WCOMAV S AWAN Pa SGPP Re89 Pa Pa Pa Pa Pa Pa Pa P							_										39.92	
WCCMAW S AWAN na 30PP Re899 na na 8366 4183 100,00% Belton 0 0 23.87 0.013 40,948 22.5																	-	
WCDMAY S							_										-	
LTE B2 5 WNKC 20 OPSK 1 0 1980 19700 100,00% Bottom Omm 0 23,82 0,009 42,39 14164 23 11EB2 5 WNKC 20 OPSK 1 99 1900 1900 100,00% Bottom Omm 0 23,84 0,001 4164 23 11EB2 5 WNKC 20 OPSK 1 99 1900 1900 100,00% Bottom Omm 0 23,86 0,009 42,29 23 11EB2 5 WNKC 20 OPSK 1 50 1860 18700 100,00% Bottom Omm 0 23,84 0,001 42,55 23 11EB2 5 WNKC 20 OPSK 1 50 1860 18700 100,00% Bottom Omm 0 23,84 0,001 42,55 41,64 23 11EB2 5 WNKC 20 OPSK 1 50 1860 18700 100,00% Bottom Omm 0 23,64 0,000 42,26 23 11EB2 5 WNKN 20 OPSK 1 50 1860 18700 100,00% Bottom Omm 0 23,64 0,000 42,76 23 11EB2 5 WNKN 20 OPSK 1 50 1860 18700 100,00% Bottom Omm 0 23,64 0,000 42,76 23 11EB2 5 WNKN 20 OPSK 1 50 1860 18700 100,00% Bottom Omm 0 23,64 0,000 42,76 23 11EB2 5 WNKN 20 OPSK 1 50 1860 18700 100,00% Bottom Omm 0 23,64 0,000 42,76 23 11EB4 5 WNKC 20 OPSK 1 50 1720 20050 100,00% Bottom Omm 0 23,64 0,000 42,76 23 11EB4 5 WNKC 20 OPSK 1 50 1720 20050 100,00% Bottom Omm 0 23,64 0,000 33,50 23 11EB4 5 WNKC 20 OPSK 1 50 1720 20050 100,00% Bottom Omm 0 23,64 0,000 33,50																	-	
LTE B2 S WNKC 20 OPSK 1 50 1880 18000 19000 Belton Omm 0 23,94 0.009 42,26 23																		
LTE B2 S WNKC 20 OPSK 1 99 1900 19100 19000 19000 000000																		
LTEB2 5 H8 20 OPSK 1 50 1890 18700 100.00% Bottom 0mm 0 23.82 0.009 42.39 1,64 23 1,74 24 1,64 23 1,74 24 1,74																	1	
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	LTE B12	5	AWAN	10	QPSK	1	50	711	23130	100.00%	Bottom	0mm	0	23.78	0.012	41.10	<u></u>	23.5

^{*} Pmax is used for RF tune-up procedure. The maximum allowed output power is equal to Pmax + 1dB uncertainty.

The maximum allowed output power is the Plimit + 1dB device uncertainty, and if Plimit is higher than Pmax, the device output power will be Pmax instead.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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^{**} All Plimit power levels in above table corresponding to average power levels after accounting for duty cycle in the case TDD modulation schemes (LTE TDD).



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Band / Mode	Antenna	Antenna Vendor	Bandwidth	Modulation	RB size	RB offset	Frequency (MHz)	Channel	Duty cycle	Test position	Test Distance	MPR (dBm)	Measured conducted power (dBm)	TDD Correction	Measured 1g-SAR (W/Kg)	Plimit** (dBm)	Minimum Plimit** (dBm)	Pmax* (dBm)
LTE B13	5	WNC	10	QPSK	1	0	782	23230	100.00%	Bottom	0mm	0	23.56		0.011	41.15		23.5
LTE B13	5	WNC	10	QPSK	1	25	782	23230	100.00%	Bottom	0mm	0	23.71		0.010	41.87	1	23.5
LTE B13	5	WNC	10	QPSK	1	49	782	23230	100.00%	Bottom	0mm	0	23.79		0.012	41.11		23.5
LTE B13	5	HB	10	QPSK	1	0	782	23230	100.00%	Bottom	0mm	0	23.56		0.011	41.26		23.5
LTE B13	5	HB	10	QPSK	1	25	782	23230	100.00%	Bottom	0mm	0	23.71		0.010	41.82	41.11	23.5
LTE B13	5	HB	10	QPSK	1	49	782	23230	100.00%	Bottom	0mm	0	23.79		0.011	41.49		23.5
LTE B13	5	AWAN	10	QPSK	1	0	782	23230	100.00%	Bottom	0mm	0	23.56		0.011	41.26		23.5
LTE B13	5	AWAN	10	QPSK	1	25	782	23230	100.00%	Bottom	0mm	0	23.71		0.010	41.82		23.5
LTE B13	5	AWAN	10	QPSK	1	49	782	23230	100.00%	Bottom	0mm	0	23.79		0.009	42.24	1	23.5
LTE B14	5	WNC	10	QPSK	1	0	793	23330	100.00%	Bottom	0mm	0	23.64		0.011	41.35		23.5
LTE B14	5	WNC	10	QPSK	1	25	793	23330	100.00%	Bottom	0mm	0	23.74		0.012	41.06		23.5
LTE B14	5	WNC	10	QPSK	1	49	793	23330	100.00%	Bottom	0mm	0	23.57		0.010	41.83		23.5
LTE B14	5	HB	10	QPSK	1	0	793	23330	100.00%	Bottom	0mm	0	23.64		0.010	41.75		23.5
LTE B14	5	HB	10	QPSK	1	25	793	23330	100.00%	Bottom	0mm	0	23.74		0.011	41.44	41.06	23.5
LTE B14	5	HB	10	QPSK	1	49	793	23330	100.00%	Bottom	0mm	0	23.57		0.009	42.14		23.5
LTE B14	5	AWAN	10	QPSK	1	0	793	23330	100.00%	Bottom	0mm	0	23.64		0.011	41.34		23.5
LTE B14	5	AWAN	10	QPSK	1	25	793	23330	100.00%	Bottom	0mm	0	23.74		0.011	41.44	l	23.5
LTE B14	5	AWAN	10	QPSK	1	49	793	23330	100.00%	Bottom	0mm	0	23.57		0.010	41.68		23.5
LTE B17	5	WNC	10	QPSK	1	49	709	23780	100.00%	Bottom	0mm	0	23.61		0.013	40.58		23.5
LTE B17	5	WNC	10	QPSK	1	49	710	23790	100.00%	Bottom	0mm	0	23.54		0.012	40.86	l	23.5
LTE B17	5	WNC	10	QPSK	1	49	711	23800	100.00%	Bottom	0mm	0	23.59		0.010	41.70	l	23.5
LTE B17	5	HB	10	QPSK	1	50	709	23780	100.00%	Bottom	0mm	0	23.61		0.012	40.93		23.5
LTE B17	5	HB	10	QPSK	1	50	710	23790	100.00%	Bottom	0mm	0	23.54		0.012	40.86	40.58	23.5
LTE B17	5	HB	10	QPSK	1	50	711	23800	100.00%	Bottom	0mm	0	23.59		0.010	41.70		23.5
LTE B17	5	AWAN	10	QPSK	1	50	709	23780	100.00%	Bottom	0mm	0	23.61		0.011	41.31		23.5
LTE B17	5	AWAN	10	QPSK	1	50	710	23790	100.00%	Bottom	0mm	0	23.54		0.012	40.86		23.5
LTE B17	5	AWAN	10	QPSK	1	50	711	23800	100.00%	Bottom	0mm	0	23.59		0.010	41.70		23.5
LTE B25	5	WNC	20	QPSK	1	0	1860	26140	100.00%	Bottom	0mm	0	23.75		0.017	39.58		23
LTE B25	5	WNC	20	QPSK	1	0	1882.5	26365	100.00%	Bottom	0mm	0	23.60		0.016	39.67	4	23
LTE B25	5	WNC	20	QPSK	1	50	1905	26590	100.00%	Bottom	0mm	0	23.68		0.015	40.03		23
LTE B25	5	HB	20	QPSK	1	50	1860	26140	100.00%	Bottom	0mm	0	23.75		0.016	39.82		23
LTE B25	5	HB	20	QPSK	1	50	1882.5	26365	100.00%	Bottom	0mm	0	23.60		0.015	39.95	39.58	23
LTE B25	5	HB	20	QPSK	1	50	1905	26590	100.00%	Bottom	0mm	0	23.68		0.015	40.03		23
LTE B25	5	AWAN	20	QPSK	1	50	1860	26140	100.00%	Bottom	0mm	0	23.75		0.014	40.40		23
LTE B25	5	AWAN	20	QPSK	1	50	1882.5	26365	100.00%	Bottom	0mm	0	23.60		0.016	39.67		23
LTE B25	5	AWAN	20	QPSK	1	50	1905	26590	100.00%	Bottom	0mm	0	23.68		0.015	40.03		23
LTE B26	5	WNC	15	QPSK	1	0	831.5	26865	100.00%	Bottom	0mm	0	23.89		0.009	42.46		23.5
LTE B26	5	WNC	15	QPSK	1	36	836.5	26915	100.00%	Bottom	0mm	0	23.95		0.006	44.28		23.5
LTE B26	5	WNC	15	QPSK	1	0	841.5	26965	100.00%	Bottom	0mm	0	23.88		0.006	44.21		23.5
LTE B26	5	HB	15	QPSK	_	50	831.5	26865	100.00%	Bottom	0mm	_	23.89		0.008	42.85	-	23.5
LTE B26	5	HB	15	QPSK	1	50	836.5	26915	100.00%	Bottom	0mm	0	23.95		0.006	44.28	42.46	23.5
LTE B26	5	HB	15	QPSK	1	50	841.5	26965	100.00%	Bottom	0mm	0	23.88		0.006	44.21		23.5
LTE B26	5	AWAN	15	QPSK	1	50	831.5	26865	100.00%	Bottom	0mm	0	23.89		0.008	42.87	l	23.5
LTE B26	5	AWAN	15	QPSK	1	50	836.5	26915	100.00%	Bottom	0mm	0	23.95		0.006	44.28	l	23.5
LTE B26	5	AWAN	15	QPSK	1	50	841.5	26965	100.00%	Bottom	0mm	0	23.88		0.006	44.21		23.5
LTE B30	5	WNC	10	QPSK	1 1	0	2310	27710	100.00%	Bottom	0mm	0	22.61		0.003	46.19	l	22
LTE B30 LTE B30	5	WNC	10 10	QPSK QPSK	1	25 49	2310 2310	27710 27710	100.00%	Bottom	0mm	0	22.49 22.44		0.003	46.53	ł	22
LTE B30	5	HB	10	QPSK	1	49 50	2310	27710	100.00%	Bottom Bottom	0mm 0mm	0	22.44		0.002	46.73 47.71	l	22
LTE B30	5	HB HB	10	QPSK	1	50	2310	27710	100.00%	Bottom	0mm	0	22.49		0.002	47.71	40.45	22
LTE B30	5	HB HB	10	QPSK	1	50	2310	27710					22.49		0.002	47.59	46.19	
LTE B30	5	AWAN	10	QPSK	1	50	2310	27710	100.00%	Bottom	0mm	0	22.44		0.002	47.54	l	22
										Bottom	0mm						ł	
LTE B30	5	AWAN	10	QPSK	1	50	2310	27710	100.00%	Bottom	0mm	0	22.49		0.002	47.59	l	22
LTE B30	5	AWAN	10	QPSK	1	50	2310	27710	100.00%	Bottom	0mm	0	22.44	21.05	0.002	47.54		22
LTE B38	5	WNC	20	QPSK	1	0	2580	37850	63.30%	Bottom	0mm	0	23.94	21.95	0.005	43.01	l	21
LTE B38	5	WNC	20	QPSK QPSK	1 1	50 0	2595 2610	38000 38150	63.30% 63.30%	Bottom Bottom	0mm 0mm	0	23.77	21.78	0.004	43.80 43.66	l	21
LTE B38	5	WNC HB	20	QPSK	1	50	2610 2580	38150 37850	63.30%	Bottom	0mm 0mm	0	23.80	21.81	0.004	43.66	l	21
			20	QPSK	1		2580 2595	38000				_	23.94					
LTE B38	5	HB HB	20	QPSK	1	50 50	2595 2610	38000	63.30%	Bottom	0mm	0	23.77	21.78	0.004	43.87 43.90	43.01	21
											0mm						-	
LTE B38	5	AWAN	20	QPSK	1	50	2580	37850	63.30%	Bottom	0mm	0	23.94	21.95	0.005	43.07	l	21
LTE B38	5	AWAN	20	QPSK		50	2595	38000	63.30%	Bottom	0mm	0	23.77	21.78	0.004	43.87	l	21
LTE B38	5	AWAN	20	QPSK	1	50	2610	38150	63.30%	Bottom	0mm	0	23.80	21.81	0.004	43.90		21

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													Measured		Measured		Minimum	
Band / Mode	Antenna	Antenna Vendor	Bandwidth	Modulation	RB size	RB offset	Frequency (MHz)	Channel	Duty cycle	Test position	Test Distance	MPR (dBm)	conducted power	TDD Correction	1g-SAR	Plimit** (dBm)	Plimit**	Pmax* (dBm)
		vondoi					(142.12.)			podition	Diotario	(dDill)	(dBm)	Concount	(W/Kg)	(dDiii)	(dBm)	(dDill)
LTE B41	5	WNC	20	QPSK	1	0	2506	39750	63.30%	Bottom	0mm	0	23.87	21.88	0.008	40.71		21
LTE B41	5	WNC	20	QPSK QPSK	1	99	2549.5 2593	40185 40620	63.30% 63.30%	Bottom Bottom	0mm 0mm	0	23.80	21.81	0.008	40.89 40.04	-	21
LTE B41	5	WNC	20	QPSK	1	0	2636.5	41055	63.30%	Bottom	0mm	0	23.70	21.71	0.009	40.49	1	21
LTE B41	5	WNC	20	QPSK	1	0	2680	41490	63.30%	Bottom	0mm	0	23.70	21.71	0.009	40.52		21
LTE B41	5	HB	20	QPSK	1	50	2506	39750	63.30%	Bottom	0mm	0	23.87	21.88	0.008	40.96		21
LTE B41	5	HB	20	QPSK	1	50	2549.5	40185	63.30%	Bottom	0mm	0	23.80	21.81	0.008	40.89		21
LTE B41 LTE B41	5	HB HB	20 20	QPSK QPSK	1	50 50	2593 2636.5	40620 41055	63.30% 63.30%	Bottom Bottom	0mm 0mm	0	23.96 23.70	21.97 21.71	0.010	40.08 40.79	40.04	21
LTE B41	5	HB	20	QPSK	1	50	2680	41490	63.30%	Bottom	0mm	0	23.70	21.71	0.008	40.79	1	21
LTE B41	5	AWAN	20	QPSK	1	50	2506	39750	63.30%	Bottom	0mm	0	23.87	21.88	0.008	40.96		21
LTE B41	5	AWAN	20	QPSK	1	50	2549.5	40185	63.30%	Bottom	0mm	0	23.80	21.81	0.008	40.89	i	21
LTE B41	5	AWAN	20	QPSK	1	50	2593	40620	63.30%	Bottom	0mm	0	23.96	21.97	0.010	40.08		21
LTE B41	5	AWAN	20	QPSK	1	50	2636.5	41055	63.30%	Bottom	0mm	0	23.70	21.71	0.009	40.28		21
LTE B41	5	AWAN	20	QPSK	1	50	2680	41490	63.30%	Bottom	0mm	0	23.70	21.71	0.008	40.79		21
LTE B41(HPUE)	5	WNC	20	QPSK QPSK	1 1	50	2506 2549.5	39750 40185	43.30% 43.30%	Bottom	Omm Omm	0	26.78 26.65	23.14	0.018	38.70 39.36		22.4
LTE B41(HPUE)	5	WNC	20	QPSK	1	0	2593	40620	43.30%	Bottom	0mm	0	26.88	23.24	0.020	38.30	ł	22.4
LTE B41(HPUE)	5	WNC	20	QPSK	1	0	2636.5	41055	43.30%	Bottom	0mm	0	26.64	23.00	0.019	38.33	1	22.4
LTE B41(HPUE)	5	WNC	20	QPSK	1	0	2680	41490	43.30%	Bottom	0mm	0	26.61	22.97	0.017	38.78		22.4
LTE B41(HPUE)	5	HB	20	QPSK	1	50	2506	39750	43.30%	Bottom	0mm	0	26.78	23.14	0.017	38.95		22.4
LTE B41(HPUE) LTE B41(HPUE)	5	HB HB	20	QPSK QPSK	1 1	50 50	2549.5 2593	40185 40620	43.30% 43.30%	Bottom Bottom	0mm 0mm	0	26.65 26.88	23.01	0.014	39.66 38.57		22.4
LTE B41(HPUE)	5	HB HB	20	QPSK	1	50	2636.5	41055	43.30%	Bottom	0mm	0	26.64	23.24	0.019	38.56	38.3	22.4
LTE B41(HPUE)	5	HB	20	QPSK	1	50	2680	41490	43.30%	Bottom	0mm	0	26.61	22.97	0.016	39.04	l	22.4
LTE B41(HPUE)	5	AWAN	20	QPSK	1	50	2506	39750	43.30%	Bottom	0mm	0	26.78	23.14	0.018	38.70	1	22.4
LTE B41(HPUE)	5	AWAN	20	QPSK	1	50	2549.5	40185	43.30%	Bottom	0mm	0	26.65	23.01	0.015	39.36	i	22.4
LTE B41(HPUE)	5	AWAN	20	QPSK	1	50	2593	40620	43.30%	Bottom	0mm	0	26.88	23.24	0.020	38.34		22.4
LTE B41(HPUE)	5	AWAN	20	QPSK	1	50	2636.5	41055	43.30%	Bottom	0mm	0	26.64	23.00	0.019	38.33		22.4
LTE B41(HPUE)	5	AWAN	20	QPSK	1	50	2680	41490	43.30%	Bottom	0mm	0	26.61	22.97	0.016	39.04		22.4
LTE B66	5	WNC	20	QPSK QPSK	1 1	0	1720 1745	132072	100.00%	Bottom	0mm	0	23.98		0.025	38.11	ŀ	23
LTE B66	5	WNC	20	QPSK	1	50 0	1745	132322	100.00%	Bottom Bottom	0mm 0mm	0	23.69		0.016	39.76	ł	23
LTE B66	5	HB	20	QPSK	1	99	1720	132072	100.00%	Bottom	0mm	0	23.98		0.023	38.29	1 1	23
LTE B66	5	HB	20	QPSK	1	99	1745	132322	100.00%	Bottom	0mm	0	23.69		0.015	40.04	38.11	23
LTE B66	5	HB	20	QPSK	1	99	1770	132572	100.00%	Bottom	0mm	0	23.90		0.023	38.39		23
LTE B66	5	AWAN	20	QPSK	1	99	1720	132072	100.00%	Bottom	0mm	0	23.98		0.024	38.29	}	23
LTE B66	5	AWAN	20	QPSK	1	99	1745	132322	100.00%	Bottom	0mm	0	23.69		0.016	39.76		23
LTE B66	5	AWAN	20	QPSK	1	99	1770	132572	100.00%	Bottom	0mm	0	23.90		0.023	38.39		23
5G n2 5G n2	5 5	WNC	20 20	PV2 BPSK PV2 BPSK	1 1	1 1	1860 1880	372000 376000	100.00%	Bottom Bottom	0mm 0mm	0	23.91		0.014 0.012	40.56 40.66	-	23
5G n2	5	WNC	20	PV2 BPSK	1	1	1900	380000	100.00%	Bottom	0mm	0	23.72		0.012	41.27		23
5G n2	5	HB	20	PI/2 BPSK	1	1	1860	372000	100.00%	Bottom	0mm	0	23.91		0.013	40.88	i	23
5G n2	5	HB	20	PI/2 BPSK	1	1	1880	376000	100.00%	Bottom	0mm	0	23.18		0.011	40.88	2	23
5G n2	5	HB AWAN	20	PV2 BPSK PV2 BPSK	1 1	1	1900	380000	100.00%	Bottom	0mm	0	23.72		0.011	41.42 40.88		23
5G n2 5G n2	5	AWAN	20	PV2 BPSK PV2 BPSK	1	1	1860 1880	372000 376000	100.00%	Bottom Bottom	0mm 0mm	0	23.91		0.013	40.88		23
5G n2	5	AWAN	20	PI/2 BPSK	1	1	1900	380000	100.00%	Bottom	0mm	0	23.72		0.011	41.42	İ	23
5G n5	5	WNC	20	PV2 BPSK	1	1	834	166800	100.00%	Bottom	0mm	0	23.68		0.008	42.95		23
5G n5	5	WNC	20	PI/2 BPSK	1	1	836.5	167300	100.00%	Bottom	0mm	0	23.64		0.012	40.96	l	23
5G n5	5	WNC	20 20	PV2 BPSK PV2 BPSK	1 1	1	839 834	167800 166800	100.00%	Bottom	0mm 0mm	0	23.60		0.010	41.53 42.76	1	23
5G n5	5	HB HB	20	PV2 BPSK PV2 BPSK	1	1	834	166800	100.00%	Bottom	0mm 0mm	0	23.68		0.008	42.76	- 40.0-	23
5G n5	5	HB	20	PV2 BPSK	1	1	839	167800	100.00%	Bottom	0mm	0	23.60		0.010	41.71	40.96	23
5G n5	5	AWAN	20	PV2 BPSK	1	1	834	166800	100.00%	Bottom	0mm	0	23.68		0.008	42.76	l	23
5G n5	5	AWAN	20	PI/2 BPSK	1	1	836.5	167300	100.00%	Bottom	0mm	0	23.64		0.011	41.34	1	23
5G n5	5	AWAN	20	PI/2 BPSK	1	1	839	167800	100.00%	Bottom	0mm	0	23.60		0.010	41.71	<u></u>	23
5G n12	5	WNC	15	PI/2 BPSK	1	1	706.5	141300	100.00%	Bottom	0mm	0	23.96		0.016	39.97		23
5G n12	5	WNC	15	PV2 BPSK	1	1	707.5	141500	100.00%	Bottom	0mm	0	23.95		0.017	39.88	l	23
5G n12 5G n12	5	WNC HB	15 15	PV2 BPSK PV2 BPSK	1 1	1	708.5 706.5	141700 141300	100.00%	Bottom Bottom	0mm 0mm	0	23.93		0.015	40.16 40.31	l	23
5G n12	5	HB	15	PV2 BPSK	1	1	707.5	141500	100.00%	Bottom	Omm	0	23.95		0.015	40.02	39.88	23
5G n12	5	HB	15	PV2 BPSK	1	1	708.5	141700	100.00%	Bottom	0mm	0	23.93		0.015	40.02	Jo.00	23
5G n12	5	AWAN	15	PI/2 BPSK	1	1	706.5	141300	100.00%	Bottom	0mm	0	23.96		0.016	40.03	1	23
5G n12	5	AWAN	15	PI/2 BPSK	1	1	707.5	141500	100.00%	Bottom	0mm	0	23.95		0.016	40.02]	23
5G n12	5	AWAN	15	PI/2 BPSK	1	1	708.5	141700	100.00%	Bottom	0mm	0	23.93		0.015	40.28		23
5G n66	5	WNC	20	PI/2 BPSK	1	1	1720	344000	100.00%	Bottom	0mm	0	23.86		0.012	41.17		23
5G n66 5G n66	5	WNC	20 20	PV2 BPSK PV2 BPSK	1	1 1	1745 1770	349000 354000	100.00% 100.00%	Bottom Bottom	0mm 0mm	0	23.45 23.95		0.012	40.63 40.60	1	23
5G n66	5	HB	20	PV2 BPSK	1	1	1770	344000	100.00%	Bottom	0mm	0	23.86		0.014	41.56	l	23
5G n66	5	HB	20	PI/2 BPSK	1	1	1745	349000	100.00%	Bottom	0mm	0	23.45		0.012	40.77	40.6	23
5G n66	5	HB	20	PI/2 BPSK	1	1	1770	354000	100.00%	Bottom	0mm	0	23.95		0.013	40.92	1	23
5G n66	5	AWAN	20	PI/2 BPSK	1	1	1720	344000	100.00%	Bottom	0mm	0	23.86		0.012	41.18]	23
5G n66	5	AWAN	20	PI/2 BPSK	1	1	1745	349000	100.00%	Bottom	0mm	0	23.45		0.012	40.77	l	23
5G n66	5	AWAN	20	PI/2 BPSK	1	1	1770	354000	100.00%	Bottom	0mm	0	23.95		0.013	40.92		23

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·																			
													Measured		Measured		Minimum		
Band / Mode	Antenna	Antenna	Bandwidth	Modulation	RB size	RB offset	Frequency	Channel	Duty cycle	Test	Test	MPR	conducted	TDD	1g-SAR	Plimit**	Plimit**	Pmax*	
		Vendor					(MHz)			position	Distance	(dBm)	power	Correction	(W/Kg)	(dBm)	(dBm)	(dBm)	
LTE B2	8	WNC	20	QPSK	- 1	0	1860	18700	100.00%	Bottom	0mm	0	(dBm)		0.586	22.69		23	
LTE B2	8	WNC	20	QPSK	1	0	1880	18900	100.00%	Bottom	0mm	0	23.82		0.684	22.09	1	23	
LTE B2	8	WNC	20	QPSK	1	0	1900	19100	100.00%	Bottom	0mm	0	23.75		0.446	23.81	t	23	
LTE B2	8	HB	20	QPSK	1	0	1860	18700	100.00%	Bottom	0mm	0	23.82		0.547	22.99	22.11	23	23
LTE B2	8	HB	20	OPSK	1	0	1880	18900	100.00%	Bottom	0mm	0	23.91		0.645	22.37			23
LTE B2	8	HB	20	QPSK	1	ő	1900	19100	100.00%	Bottom	0mm	ő	23.75		0.429	23.98		23	
LTE B2	8	AWAN	20	QPSK	1	0	1860	18700	100.00%	Bottom	0mm	0	23.82		0.530	23.13	1	23	
LTE B2	8	AWAN	20	QPSK	1	0	1880	18900	100.00%	Bottom	0mm	0	23.91		0.664	22.24		23	
LTE B2	8	AWAN	20	QPSK	1	0	1900	19100	100.00%	Bottom	0mm	0	23.75		0.416	24.11	Ī	23	
LTE B7	8	WNC	20	QPSK	1	50	2510 2535	20850 21100	100.00%	Bottom	0mm	0	23.92 23.85		1.350	19.17		23	
LTE B7	8	WNC	20	QPSK	1	50	2535	21100	100.00%	Bottom	0mm	0	23.85		1.720	18.05		23 23 23	
LTE B7	8	WNC	20	QPSK	1	50	2560	21350	100.00%	Bottom	0mm	0	23.00		1.270	18.51	ļ		
LTE B7	8	HB	20	QPSK	1	50	2510	20850	100.00%	Bottom	0mm	0	23.92		1.249	19.51		23	
LTE B7	8	HB	20	QPSK	1	50	2535	21100	100.00%	Bottom	0mm	0	23.85		1.633	18.27	18.05	23 23	
LTE B7	8	HB	20	QPSK	1	50	2560	21350	100.00%	Bottom	0mm	0	23.00		1.166	18.88			
LTE B7	8	AWAN	20	QPSK	1	50	2510	20850	100.00%	Bottom	0mm	0	23.92		1.340	19.20	ļ	23	
LTE B7	8	AWAN	20	QPSK QPSK	1	50	2535	21100	100.00%	Bottom	0mm	0	23.85		1.710	18.07 18.62		23	
LTE B42	8	WNC	20	QPSK	1	50 99	2560 3560	21350 43190	100.00% 63.30%	Bottom Bottom	0mm 0mm	0	23.00	21.44	0.984	18.07		23 21.5	
LTE B42	8	WNC	20	QPSK	1	99	3575	43340	63.30%	Bottom	0mm	0	23.43	21.44	1.030	18.24		21.5	
LTE B42	8	WNC	20	OPSK	1	99	3590	43490	63 30%	Bottom	0mm	0	23.77	21.78	1 110	17.88	i	21.5	
LTE B42	8	HB	20	OPSK	1	99	3560	43190	63.30%	Bottom	0mm	0	23.43	21.44	0.963	18.16	i i	21.5	
LTE B42	8	HB	20	QPSK	1	99	3575	43340	63.30%	Bottom	0mm	0	23.80	21.81	0.966	18.52	17.88	21.5	
LTE B42	8	HB	20	QPSK	1	99	3590	43490	63.30%	Bottom	0mm	0	23.77	21.78	1.088	17.97	11.00	21.5	
LTE B42	8	AWAN	20	OPSK	1	99	3560	43190	63.30%	Bottom	0mm	0	23.43	21.44	0.929	18.32	i	21.5	
LTE B42	8	AWAN	20	QPSK	1	99	3575	43340	63.30%	Bottom	0mm	0	23.80	21.81	1.020	18.28	t	21.5	
LTE B42	8	AWAN	20	QPSK	1	99	3590	43490	63.30%	Bottom	0mm	0	23.77	21.78	1.100	17.92	t	21.5	
LTE B48	8	WNC	20	QPSK	1	50	3560	55340	63.30%	Bottom	0mm	0	21.60	19.61	0.851	16.87		19	
LTE B48	8	WNC	20	QPSK	1	50	3603.3	55773	63.30%	Bottom	0mm	ő	21.65	19.66	0.794	17.22	Ī	19	
LTE B48	8	WNC	20	QPSK	1	50	3646.7	56207	63.30%	Bottom	0mm	0	21.66	19.67	0.797	17.21	Ī	19	
LTE B48	8	WNC	20	QPSK	1	50	3690	56640	63.30%	Bottom	0mm	0	21.48	19.49	0.677	17.74	1	19	
LTE B48	8	HB	20	QPSK	1	50	3560	55340	63.30%	Bottom	0mm	0	21.60	19.61	0.832	16.96	l	19	
LTE B48	8	HB	20	QPSK	1	50	3603.3	55773	63.30%	Bottom	0mm	0	21.65	19.66	0.737	17.54		19	
LTE B48	8	HB	20	QPSK	1	50	3646.7	56207	63.30%	Bottom	0mm	0	21.66	19.67	0.755	17.45	16.87	19	
LTE B48	8	HB	20	QPSK	1	50	3690	56640	63.30%	Bottom	0mm	0	21.48	19.49	0.645	17.95	Ī	19	
LTE B48	8	AWAN	20	QPSK	1	50	3560	55340	63.30%	Bottom	0mm	0	21.60	19.61	0.826	17.00	Ī	19	
LTE B48	8	AWAN	20	QPSK	1	50	3603.3	55773	63.30%	Bottom	0mm	0	21.65	19.66	0.784	17.27	i	19	
LTE B48	8	AWAN	20	QPSK	1	50	3646.7	56207	63.30%	Bottom	0mm	0	21.66	19.67	0.793	17.23		19	
LTE B48	8	AWAN	20	QPSK	1	50	3690	56640	63.30%	Bottom	0mm	0	21.48	19.49	0.658	17.86	t	19	
LTE B66	8	WNC	20	QPSK	1	99	1720	132072	100.00%	Bottom	0mm	0	23.89	10.40	0.892	20.94		23	
LTE B66	8	WNC	20	QPSK	1	99	1745	132322	100.00%	Bottom	0mm	ő	23.90		1.050	20.24	i	23	
LTE B66	8	WNC	20	QPSK	1	99	1770	132572	100.00%	Bottom	0mm	Ö	23.88		0.806	21.37	İ	23 23	
LTE B66	8	HB	20	QPSK	1	99	1720	132072	100.00%	Bottom	0mm	0	23.89		0.867	21.06	Ī	23	
LTE B66	8	HB	20	QPSK	1	99	1745	132322	100.00%	Bottom	0mm	0	23.90		1.036	20.30	20.24	23	
LTE B66	8	HB	20	QPSK	1	99	1770	132572	100.00%	Bottom	0mm	0	23.88		0.735	21.77		23	
LTE B66	8	AWAN	20	QPSK	1	99	1720	132072	100.00%	Bottom	0mm	0	23.89		0.875	21.02	Ī	23	
LTE B66	8	AWAN	20	QPSK	1	99	1745	132322	100.00%	Bottom	0mm	0	23.90		0.975	20.56	İ	23	
LTE B66	8	AWAN	20	QPSK	1	99	1770	132572	100.00%	Bottom	0mm	0	23.88		0.782	21.50	1	23 23	
5G n2	8	WNC	20	PI/2 BPSK	1	1	1860	372000	100.00%	Bottom	0mm	0	23.75		0.798	21.28		23	
5G n2	8	WNC	20	PI/2 BPSK	1	1	1880	376000	100.00%	Bottom	0mm	0	23.21		0.690	21.37		23	
5G n2	8	WNC	20	PI/2 BPSK	1	1	1900	380000	100.00%	Bottom	0mm	0	23.34		0.981	19.97	1	23	
5G n2	8	HB	20	PI/2 BPSK	1	1	1860	372000	100.00%	Bottom	0mm	0	23.75		0.761	21.49		23	
5G n2	8	HB HB	20	PI/2 BPSK	1	1	1880	376000	100.00%	Bottom	0mm	0	23.21		0.641	21.69	19.97	23	
5G n2 5G n2	8 8	AWAN	20	PI/2 BPSK PI/2 BPSK		1	1900 1860	380000 372000	100.00%	Bottom Bottom	0mm 0mm	0	23.34 23.75		0.896	20.37 21.60	+	23 23 23	
5G n2	8	AWAN	20	PI/2 BPSK	1	1	1880	376000	100.00%	Bottom	0mm	0	23.75		0.741	21.00		23	
5G n2	8	AWAN	20	PI/2 BPSK	i	1	1900	380000	100.00%	Bottom	0mm	0	23.34		0.960	20.07	t	23	
5G n7	8	WNC	20	PI/2 BPSK	1	1	2510	502000	100.00%	Bottom	0mm	0	23.59		1 290	19.04			
5G n7	8	WNC	20	PI/2 BPSK	1	1	2535	507000	100.00%	Bottom	0mm	Ö	23.85		1.320	19.20	İ	23 23	
5G n7	8	WNC	20	PI/2 BPSK	1_	1_	2560	512000	100.00%	Bottom	0mm	0	23.89		1.760	17.99	1	23	
5G n7	8	HB	20	PI/2 BPSK	1	1	2510	502000	100.00%	Bottom	0mm	0	23.59		1.220	19.28	Ī	23	
5G n7	8	HB	20	PI/2 BPSK	1	1	2535	507000	100.00%	Bottom	0mm	0	23.85		1.320	19.20	17.99	23	
5G n7	8	HB	20	PI/2 BPSK	1	1	2560	512000	100.00%	Bottom	0mm	0	23.89		1.740	18.04	1	23	
5G n7	8	AWAN	20	PI/2 BPSK	1	1	2510	502000	100.00%	Bottom	0mm	0	23.59		1.270	19.10	1	23	
5G n7	8	AWAN	20	PI/2 BPSK	1	1	2535	507000	100.00%	Bottom	0mm	0	23.85		1.230	19.50	1	23	
5G n7	8	AWAN	20	PI/2 BPSK	1	1	2560	512000	100.00%	Bottom	0mm	0	23.89		1.590	18.43		23	
5G n41 PC3	8	WNC	100	PI/2 BPSK	1	1	2546.01	509202	100.00%		0mm	0	23.36		1.110	19.46	ļ	23	
5G n41 PC3	8	WNC	100	PI/2 BPSK	1	1	2592.99	518598	100.00%	Bottom	0mm	0	23.74		1.310	19.12	1	23	
5G n41 PC3	8	WNC	100	PI/2 BPSK	1	1	2640	528000	100.00%	Bottom	0mm	0	23.50		0.984	20.12	ł	23	
5G n41 PC3	8	HB	100	PI/2 BPSK	1	1	2546.01	509202	100.00%	Bottom	0mm	0	23.36		1.020	19.83	40.10	23	
5G n41 PC3	8	HB	100	PI/2 BPSK	1	1_1_	2592.99	518598	100.00%	Bottom	0mm	0	23.74		1.250	19.32	19.12	23 23	
5G n41 PC3	8	HB	100	PI/2 BPSK	1	1	2640	528000	100.00%	Bottom	0mm	0	23.50		0.893	20.54	ł	23	
5G n41 PC3	8	AWAN	100	PI/2 BPSK	1	1	2546.01	509202	100.00%	Bottom	0mm	0	23.36		1.060	19.66	ļ	23	
5G n41 PC3	8	AWAN	100	PI/2 BPSK	1	1_1_	2592.99	518598	100.00%	Bottom	0mm	0	23.74		1.210	19.46	ł	23	
5G n41 PC3	8	AWAN	100	PI/2 BPSK	1	1_1_	2640	528000	100.00%	Bottom	0mm	0	23.50		0.969	20.19		23	
5G n41 PC2 5G n41 PC2	8 8	WNC	100	PI/2 BPSK PI/2 BPSK	1	1	2546.01 2592.99	509202 518598	100.00%	Bottom Bottom	0mm 0mm	0	26.30 26.45		2.630	18.65 18.62	ł	26 26	
5G n41 PC2	8	WNC	100	PI/2 BPSK	1	4	2640	528000	100.00%	Bottom	0mm	0	26.37		2.740	18.87	t	26	
5G n41 PC2	8	HB	100	PI/2 BPSK	1	1	2546.01	509202	100.00%	Bottom	0mm	0	26.30		2.540	18.79	i	26	
5G n41 PC2	8	HB	100	PI/2 BPSK	1	1	2592.99	518598	100.00%	Bottom	0mm	0	26.45		2.610	18.83	18.62	26	
5G n41 PC2	8	HB	100	PI/2 BPSK	1	i	2640	528000	100.00%	Bottom	0mm	0	26.37		2.510	18.92	1	26 26	
5G n41 PC2	8	AWAN	100	PI/2 BPSK	1	1	2546.01	509202	100.00%	Bottom	0mm	0	26.30		2.430	19.00	i .	26	
5G n41 PC2	8	AWAN	100	PI/2 BPSK	1	i	2592.99	518598	100.00%	Bottom	0mm	0	26.45		2.560	18.92	1	26	
EG 11 BGG	8	AWAN	100	PI/2 BPSK	_1	1	2640	528000	100.00%	Bottom	0mm	0	26.37		2.440	19.05	<u> </u>	26	
5G n41 PC2	8	WNC	20	PI/2 BPSK	1	1	1720	344000	100.00%	Bottom	0mm	0	23.78		0.942	20.59		23	
5G n41 PC2 5G n66		WNC	20	PI/2 BPSK	1	1	1745	349000	100.00%	Bottom	0mm	0	23.35		0.720	21.33	Ī	23	
	8	WINC							100 000										
5G n66		WNC	20	PI/2 BPSK	1	1	1770	354000	100.00%	Bottom	0mm	0	23.93		1.000	20.48	1	23	
5G n66 5G n66	8		20 20	PI/2 BPSK PI/2 BPSK	1	1 1	1770 1720	354000 344000	100.00%	Bottom	0mm 0mm	0	23.93		0.881	20.48	ł	23	
5G n66 5G n66 5G n66	8	WNC			1 1	1 1				Bottom							20.48	23	
5G n66 5G n66 5G n66 5G n66	8 8	WNC HB	20	PI/2 BPSK		1 1 1	1720	344000	100.00%	Bottom Bottom	0mm	0	23.78		0.881	20.88	20.48	23 23	
5G n66 5G n66 5G n66 5G n66 5G n66	8 8 8 8	WNC HB HB	20 20	PI/2 BPSK PI/2 BPSK	1	1 1 1 1	1720 1745	344000 349000	100.00% 100.00%	Bottom Bottom Bottom	0mm 0mm	0	23.78 23.35		0.881 0.653	20.88 21.75	20.48	23 23 23	
5G n66 5G n66 5G n66 5G n66 5G n66 5G n66	8 8 8 8	WNC HB HB	20 20 20	PI/2 BPSK PI/2 BPSK PI/2 BPSK	1	1 1 1 1 1	1720 1745 1770	344000 349000 354000	100.00% 100.00% 100.00%	Bottom Bottom	Omm Omm Omm	0 0	23.78 23.35 23.93		0.881 0.653 0.981	20.88 21.75 20.56	20.48	23 23	

- End of report -

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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