

TEST REPORT



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1. Report No : DRRFCC2511-0062(1)

2. Customer

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3. Use of Report : FCC Original Certification

4. Product Name / Model Name : PLC wireless USB communication device / RCPOR-PLC300B

FCC ID : 2APB6-PLC300B

5. FCC Regulation(s) : CFR 47 Part 2 subpart 2.1093

Test Method Used : IEEE 1528-2013, IEC/IEEE 62209-1528:2020,

IEC 62209-2 2010, IEC 62209-2 2010/AMD1:2019

FCC SAR KDB Publications (Details in test report)

6. Date of Test : 2025.10.29

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing

8. Testing Environment : Refer to appended test report.

9. Test Result : Refer to attached test report.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Reviewed by
	Name : SeungMin Lim 	Name : HakMin Kim 

2025 . 11 . 20 .

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If this report is required to confirmation of authenticity, please contact to report@dtnc.net

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Test Report Version

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1. DESCRIPTION OF DEVICE

1.1 General Information

EUT type	PLC wireless USB communication device				
FCC ID	2APB6-PLC300B				
Equipment model name(s)	RCPORT-PLC300B				
PMN(Product Marketing Name)	RCPORT-PLC300B				
Equipment serial no.	Identical prototype				
FVIN (Firmware Version Identification Number)	1.0				
FCC & ISED MRA Designation No.	KR0034				
ISED#	5740A				
TX Frequency Range	Band	Mode	Operating Modes	Bandwidth	Frequency
	2.4 GHz WLAN	802.11b/g/n	Data	HT20	2 412 ~ 2 462 MHz
Equipment Class	Band	Reported SAR			
		1g SAR (W/kg)			
		Body			
DTS	2.4 GHz W-LAN	0.56			
FCC Equipment Class	Digital Transmission System(DTS)				
Date(s) of Tests	2025.10.29				
Antenna Type	Internal Antenna				
Functions					
Note					

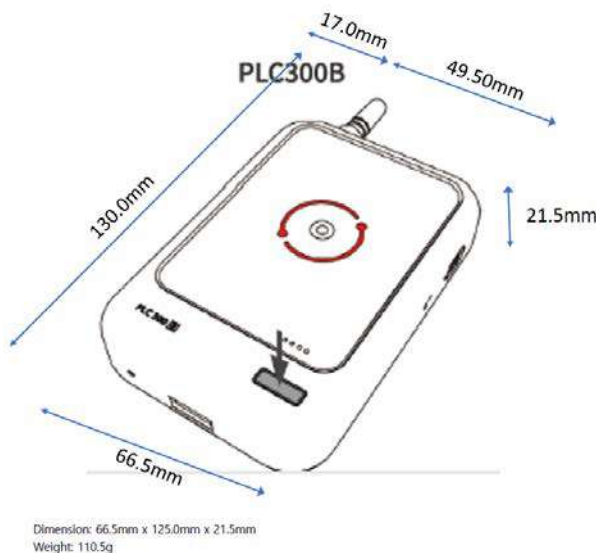
1.2 Power Reduction for SAR

There is no power reduction used for any band/mode implemented in this device for SAR purposes.

1.3 Nominal and Maximum Output Power Specifications

The Nominal and Maximum Output Power Specifications are in section 7 of this test report.

1.4 DUT Antenna Locations



Mode	Device Sides for SAR Testing						
	Top #1	Top #2	Bottom	Front	Rear	Right	Left
2.4 GHz W-LAN	O	O	X	O	O	O	O

Note 1: O - Test / X - Not test.

Note 2: Bottom with USB cord is exempted as the cord does not come close to the body.

1.5 Guidance Applied

- IEEE 1528-2013
- IEC 62209-2 2010
- IEC 62209-2 2010/AMD1:2019
- IEC/IEEE 62209-1528:2020
- FCC KDB Publication 447498 D01v06 (General RF Exposure Guidance)
- FCC KDB Publication 248227 D01v02r02 (802.11 Wi-Fi SAR)
- FCC KDB Publication 648474 D04v01r03 (Handset SAR)
- FCC KDB Publication 690783 D01v01r03 (SAR Listings on Grants)
- FCC KDB Publication 865664 D01v01r04 (SAR Measurement 100 MHz to 6 GHz)
- FCC KDB Publication 865664 D02v01r02 (RF Exposure Reporting)
- October 2016 TCB Workshop Notes (DUT Holder Perturbations)
- April 2019 TCB Workshop Notes (Tissue Simulating Liquids)

1.6 Device Serial Numbers

The serial numbers used for each test are indicated alongside the results in Section 9.

2. INTROCUCTION

The FCC and Industry Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). 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 NCRP, 1986, Bethesda, MD 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.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ) It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Fig. 2.1)

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dv} \right)$$

Fig. 2.1 SAR Mathematical Equation

SAR is expressed in units of Watts per Kilogram (W/kg).

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

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m³)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.

3. DOSIMETRIC ASSESSMENT

3.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4.1).
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4.1). On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4.1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

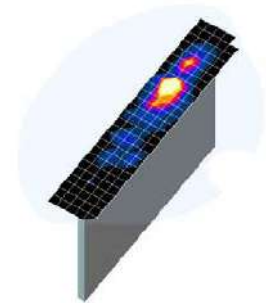


Figure 3.1
Sample SAR Area Scan

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm $\pm$ 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2)$ mm $\pm$ 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° $\pm$ 1°	20° $\pm$ 1°
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ 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: Δx_{Zoom} , Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.				
* When zoom scan is required and the <u>reported</u> SAR from the <u>area scan based 1-g SAR estimation</u> procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Table 3.1 Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

Replaced paragraph 6.3.1 d) of IEC 62209-2 2010 with the following:

Measure the three-dimensional SAR distribution at each of the local maxima locations identified in step c) (zoom scan procedure).

For frequencies at or below 3 GHz, the following procedure shall be applied (see Table 4.2):

The horizontal grid step shall be 8 mm or less. The grid step in the vertical direction shall be 5 mm or less if uniform spacing is used. If variable spacing is used in the vertical direction, the maximum spacing between the two closest measured points to the phantom shell (M1 and M2, see Figure 4.2) shall be 4 mm or less and the spacing between farther points shall increase by a factor of 1.5 or less. The minimum size of the zoom scan volume shall be 30 mm by 30 mm by 30 mm. For other parameters, see Table 3.2 and Figure 4.2.

For frequencies above 3 GHz, the minimum size of the zoom scan volume may be reduced to 22 mm by 22 mm by 22 mm. The horizontal grid step shall be $(24/f \text{ [GHz]})$ mm or less. If uniform spacing in the vertical direction is used, the grid step in the vertical direction shall be $(10/(f \text{ [GHz]} - 1))$ mm or less. If variable spacing is used in the vertical direction, the maximum spacing between the two measured points closest to the phantom shell shall be $(12/f \text{ [GHz]})$ mm or less and the spacing between further points shall increase by a factor of 1.5 or less. For other parameters, see Table 4.2 and Figure 4.2.

When the highest 1 g or 10 g cube is touching the boundary of a zoom-scan volume, the entire zoom scan shall be repeated with the new centre located at the maximum psSAR location indicated by the preceding zoom scan measurement.

If the zoom scan measured as defined above complies with both of the following criteria, or if the peak spatial-average SAR is below 0.1 W/kg, no additional measurements are needed:

- 1) the smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x and y directions (Δx , Δy). This shall be checked for the measured zoom scan plane conformal to the phantom at the distance z_{M1} . The minimum distance shall be recorded in the SAR test report;
- 2) the ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the x-y location of the measured maximum SAR value shall be at least 30 % (see Figure 4.2). This ratio (in %) shall be recorded in the SAR test report.

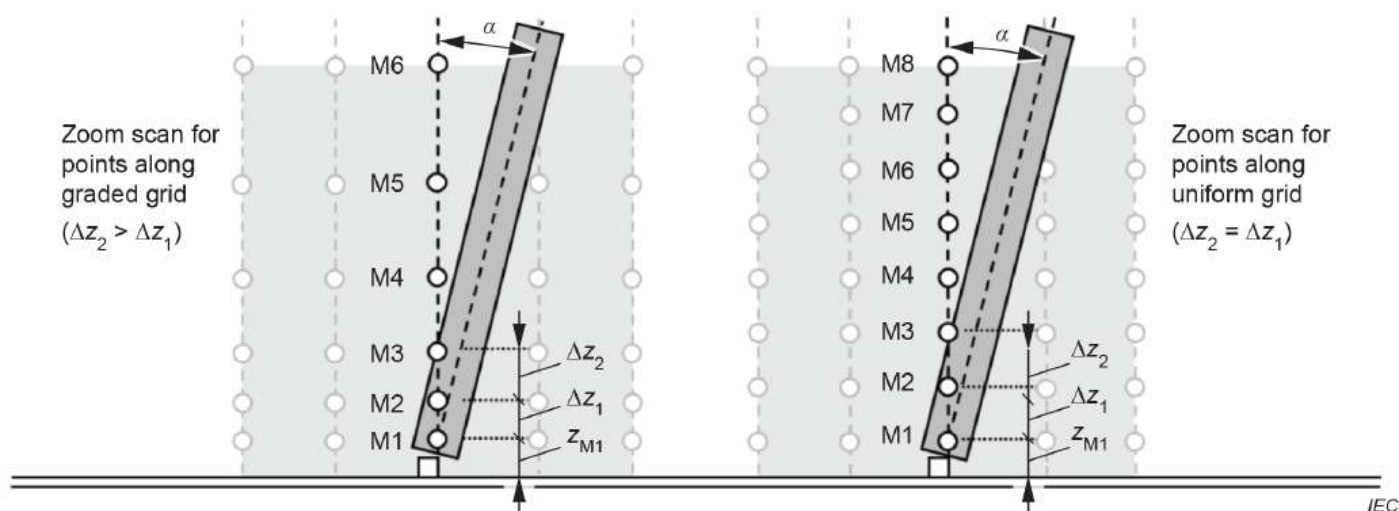


Figure 3.2 Orientation of the probe with respect to the line normal to the phantom surface, shown at two different locations

Note(s):

1. M1 to M8 are example measurement points used for extrapolation to the surface. The maximum of the angle α between the evaluation axis and the surface normal line is given in Table 4.2. The distance z_{M1} is from the phantom shell to the first measurement point M1, and its maximum value is given in Table 3.2. The distances Δz_i ($i = 1, 2, 3, \dots$) are the distances from measurement points M_i to M_{i-1} . For uniform grids, Δz_i are equal. For graded grids, $\Delta z_{i+1} > \Delta z_i$. $R_z = \Delta z_{i+1}/\Delta z_i$ is a ratio with a maximum value given in Table 4.2. The z direction corresponds to the vertical direction, the x direction is horizontal and the y direction is horizontal into the page.
2. The evaluation of the zoom scan is typically done by the post-processor by interpolation and extrapolation and without reconstruction of the field. More focused induced SAR distributions (e.g., for more localized sources such as capacitively coupled sources) require a more dense grid such that the same integration and extrapolation algorithms can be used for the same assessment uncertainty.
3. The minimum ratio of 30 % is derived from the plane wave penetration depth at 6 GHz.

If one or both of the above criteria are not met, the zoom scan measurement shall be repeated using a finer resolution while keeping the other zoom scan parameters compatible with Table 4.2. New horizontal and vertical grid steps shall be determined from the measured SAR distribution so that the above criteria are met. Compliance with the above two criteria shall be demonstrated for the new measured zoom scan. The size of the higher resolution zoom scan and other parameters of Table 4.2 shall apply. The closest point to the phantom shell shall be 2 mm or less for graded grids and the grading factor shall be 1.5 or less.

Uncertainties due to field distortion between the media boundary and the dielectric enclosure of the probe should also be minimized, which is achieved if the distance between the phantom surface and physical tip of the probe is larger than the probe tip diameter. Other methods may utilize correction procedures to compensate for boundary effects that enable high precision measurements closer than half the probe tip diameter. For all measurement points, the angle of the probe normal to the flat phantom surface shall be less than 5° . If this cannot be achieved, an additional uncertainty evaluation according to 7.2.2.6 of IEC 62209-2 2010/AMD1 2019 is required.

Parameter	DUT transmit frequency being tested	
	$f \leq 3$ GHz	$3 \text{ GHz} < f \leq 6$ GHz
Maximum distance between the closest measured points and the phantom surface (z_{M1} in Figure 14 and Table 2, in mm)	5	$\delta \ln(2)/2^a$
Maximum angle between the probe axis and the flat phantom surface normal (α in Figure 14)	5°	5°
Maximum spacing between measured points in the x- and y-directions (Δx and Δy , in mm)	8	$24/f^{b,c}$
For uniform grids: Maximum spacing between measured points in the direction normal to the phantom shell (Δz_1 in Figure 14, in mm)	5	$10/(f - 1)$
For graded grids: Maximum spacing between the two closest measured points in the direction normal to the phantom shell (Δz_1 in Figure 14, in mm)	4	$12/f$
For graded grids: Maximum incremental increase in the spacing between measured points in the direction normal to the phantom shell ($R_z = \Delta z_2/\Delta z_1$ in Figure 14)	1,5	1,5
Minimum edge length of the zoom scan volume in the x- and y-directions (L_z in 7.2.5.3, in mm)	30	22
Minimum edge length of the zoom scan volume in the direction normal to the phantom shell (L_h in 7.2.5.3, in mm)	30	22
Tolerance in the probe angle	1°	1°
^a δ is the penetration depth for a plane-wave incident normally on a planar half-space. ^b This is the maximum spacing allowed, which may not work for all circumstances. ^c f is the frequency in GHz.		

Table 3.2 Zoom Scan Resolutions per IEC 62209-2 2010/AMD1 2019

4. TEST CONFIGURATION POSITIONS

4.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$.

4.2 Generic device

The SAR evaluation shall be performed for all surfaces of the DUT that are accessible during intended use, as indicated in Figure 5.1. The separation distance in testing shall correspond to the intended use distance as specified in the user instructions provided by the manufacturer. If the intended use is not specified, all surfaces of the DUT shall be tested directly against the flat phantom.

The surface of the generic device (or the surface of the carry accessory holding the DUT) pointing towards the flat phantom shall be parallel to the surface of the phantom.

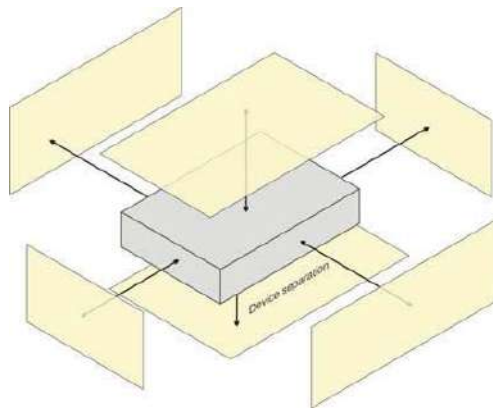


Figure 4.1 Test positions for a generic device

5. RF EXPOSURE LIMITS

Uncontrolled Environment:

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environment:

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). In general, occupational/controlled exposure limits are employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 5.1.SAR Human Exposure Specified in ANSI/IEEE C95.1-1992

	HUMAN EXPOSURE LIMITS	
	General Public Exposure (W/kg) or (mW/g)	Occupational Exposure (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Brain)	1.60	8.00
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.40
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.00	20.0

1. 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.
2. The Spatial Average value of the SAR averaged over the whole body.
3. 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).

6. FCC MEASUREMENT PROCEDURES

Power measurements were performed using a base station simulator under digital average power.

6.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as reported SAR. The highest reported SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

6.2 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01.

The device was placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test were evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device was tested throughout the SAR test at maximum output power, the SAR measurement system measures a "point SAR" at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviated by more than 5%, the SAR test and drift measurements were repeated.

7. RF CONDUCTED POWERS

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

7.1 Nominal and Maximum Output Power Spec and Conducted Powers (WLAN 2.4 GHz)

Band (GHz)	Mode	Ch	Modulated Average[dBm]	
			Maximum	Nominal
2.4	802.11b	1-11	16.10	15.10
	802.11g	1-11	11.20	10.20
	802.11n (HT20)	1-11	10.70	9.70
	802.11n (HT40)	3-9	8.00	7.00

Table 7.1.1 Nominal and Maximum Output Power Spec

Mode	Freq. (MHz)	Channel	IEEE 802.11 (2.4 GHz) Conducted Power[dBm]
802.11b	2 412	1	15.50
	2 437	6	15.02
	2 462	11	16.02
	2 412	1	9.96
802.11g	2 437	6	11.04
	2 462	11	11.10
	2 412	1	9.31
802.11n (HT20)	2 437	6	9.27
	2 462	11	10.68
	2 422	3	7.92
802.11n (HT40)	2 437	6	6.08
	2 452	9	7.28

Table 7.1.2 IEEE 802.11 Average RF Power

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, duo to an even number of channels, both channels were measured.
- Output Power and SAR is not required for 802.11 g/n HT20/ac VHT20 channels when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjust SAR is ≤ 1.2 W/kg.
- The underlined data rate and channel above were tested for SAR.

The average output powers of this device were tested by below configuration.

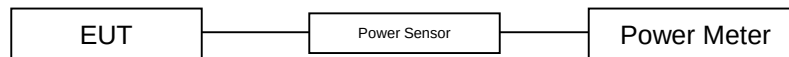


Figure 7.1.1 Power Measurement Setup

8. SYSTEM VERIFICATION

8.1 Tissue Verification

MEASURED TISSUE PARAMETERS										
Date(s)	Tissue Type	Ambient Temp.[°C]	Liquid Temp.[°C]	Measured Frequency [MHz]	Target Dielectric Constant, ϵ_r	Target Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ_r	Measured Conductivity, σ (S/m)	Er Deviation [%]	σ Deviation [%]
Oct. 29. 2025	2 450 Head	21.7	21.6	2 450.0	39.200	1.800	39.178	1.810	-0.06	0.56
				2 412.0	39.265	1.766	39.226	1.774	-0.10	0.43
				2 437.0	39.222	1.788	39.183	1.797	-0.10	0.48
				2 462.0	39.184	1.813	39.178	1.820	-0.02	0.40

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB 865664 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

Measurement Procedure for Tissue verification::

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the sample which was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- 3) The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity, for example from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r'\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

where Y is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

8.2 Test System Verification

Prior to assessment, the system is verified to the $\pm 10\%$ of the specifications at using the SAR Dipole kit(s). (Graphic Plots Attached)

Table 8.2.1 System Verification Results (1g)

SYSTEM DIPOLE VERIFICATION TARGET & MEASURED												
SAR System #	Freq. [MHz]	SAR Dipole kits	Date(s)	Tissue Type	Ambient Temp. [°C]	Liquid Temp. [°C]	Probe S/N	Input Power (mW)	1 W Target SAR _{1g} (W/kg)	Measured SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation [%]
B	2 450	D2450V2, SN: 726	Oct. 29. 2025	Head	21.7	21.6	3933	100	52.20	5.16	53.60	-1.15

Note(s):

1. System Verification was measured with input 100 mW and normalized to 1W.
2. Full system validation status and results can be found in Appendix D.

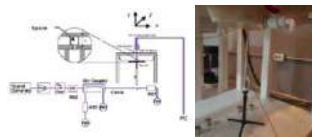


Figure 8.1 Dipole Verification Test Setup Diagram & Photo

9. SAR TEST RESULTS

9.1 Body SAR Results

Table 9.1.1 DTS Body SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plot S #
MHz	Ch														
2 462.0	11	802.11b	16.10	16.02	0.180	0 mm [Top #1]	FCC #1	0.083	1	98.5	0.070	1.019	1.015	0.072	
2 462.0	11	802.11b	16.10	16.02	0.160	0 mm [Top #2]	FCC #1	0.159	1	98.5	0.154	1.019	1.015	0.159	
2 462.0	11	802.11b	16.10	16.02	0.140	0 mm [Front]	FCC #1	0.280	1	98.5	0.288	1.019	1.015	0.298	
2 462.0	11	802.11b	16.10	16.02	0.170	0 mm [Rear]	FCC #1	0.511	1	98.5	0.532	1.019	1.015	0.550	
2 462.0	11	802.11b	16.10	16.02	-0.190	0 mm [Right]	FCC #1	0.467	1	98.5	0.543	1.019	1.015	0.564	A1
2 462.0	11	802.11b	16.10	16.02	0.150	0 mm [Left]	FCC #1	0.282	1	98.5	0.294	1.019	1.015	0.305	
ANSI / IEEE C95.1-1992- SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								Body 1.6 W/kg (mW/g) averaged over 1 gram							

9.2 SAR Test Notes

General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 447498 D01v06.
- Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
- SAR measurements were performed using the DASY5 automated system. The procedure for spatial peak SAR evaluation has been implemented according to the IEEE 1528 standard. During a maximum search, global and local maxima searches are automatically performed in 2-D after each area scan measurement. The algorithm will find the global maximum and all local maxima within 2 dB of the global maxima for all SAR distributions. All local maxima within 2 dB of the global maximum were searched and passed for the Zoom Scan measurement.

WLAN Notes:

1. The initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output and the adjust SAR is ≤ 1.2 W/kg.
3. When the maximum reported 1g averaged SAR ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor to determine compliance.

10. SAR MEASUREMENT VARIABILITY

10.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

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

10.2 Measurement Uncertainty

The measured SAR was < 1.5 W/kg for 1g and < 3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04 was not required.

11. EQUIPMENT LIST

Table 11.1 Test Equipment Calibration

	Type	Manufacturer	Model	Cal.Date	Next.Cal.Date	S/N
☒	SEMITEC Engineering	SEMITEC	N/A	N/A	N/A	Shield Room
☒	Robot	SPEAG	TX60L	N/A	N/A	F14/5VR2A1/A/01
☒	Robot Controller	SPEAG	CS8C	N/A	N/A	F14/5VR2A1/C/01
☒	Joystick	SPEAG	N/A	N/A	N/A	D21142605A
☒	Intel Xeon W-2 253 3.70 GHz Windows 11 Professional	N/A	N/A	N/A	N/A	N/A
☒	Probe Alignment Unit LB	N/A	N/A	N/A	N/A	SE UKS 030 AA
☒	Device Holder	SPEAG	SD000H01KA	N/A	N/A	N/A
☒	Twin SAM Phantom	SPEAG	QD000P40CD	N/A	N/A	1783
☒	Data Acquisition Electronics	SPEAG	DAE4V1	2025-04-23	2026-04-23	1485
☒	Dosimetric E-Field Probe	SPEAG	EX3DV4	2025-09-22	2026-09-22	3933
☒	2 450MHz SAR Dipole	SPEAG	D2450V2	2025-04-15	2027-04-15	726
☒	Signal Generator	Agilent	E4438C	2025-05-28	2026-05-28	US41461520
☒	High Power RF Amplifier	EMPOWER	BBS3Q8CCJ	2025-05-30	2026-05-30	1005
☒	Power Meter	H/P	EPM-442A	2024-11-26	2025-11-26	GB37170267
☒	Power Meter	Anritsu	ML2488B	2024-11-27	2025-11-27	0846003
☒	Power Sensor	Anritsu	MA2472D	2024-11-27	2025-11-27	0845419
☒	Power Sensor	H/P	8481A	2024-11-29	2025-11-29	2702A65976
☒	Power Sensor	H/P	8481A	2024-11-29	2025-11-29	2702A61707
☒	Directional Coupler	H/P	772D	2024-11-25	2025-11-25	2839A00902
☒	Low Pass Filter 3.0 GHz	MICROLAB	LA-30N	2025-05-28	2026-05-28	2
☒	Attenuators(10 dB)	WEINSCHEL	23-10-34	2024-11-25	2025-11-25	BP4387
☒	Attenuators	Saluki	3.5TS2-3dB-26.5G	2025-05-29	2026-05-29	21090703
☒	Dielectric Probe kit	SPEAG	DAK-3.5	2025-07-07	2026-07-07	1046
☒		SPEAG	R140	2025-07-17	2026-07-17	0101213

NOTE(S):

1. The E-field probe was calibrated by SPEAG, by temperature measurement procedure. Dipole Verification measurement is performed by Dt&C before each test. The brain and muscle simulating material are calibrated by Dt&C using the dielectric probe system and network analyzer to determine the conductivity and permittivity (dielectric constant) of the brain and muscle-equivalent material. Each equipment item was used solely within its respective calibration period.

2. CBT(Callibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

12. MEASUREMENT UNCERTAINTIES

2 450 MHz

Error Description	Uncertainty value %	Probability Distribution	Divisor	(Ci) 1 g	(Ci) 10 g	Standard 1 g (%)	Standard 10 g (%)	Ci x U_i 1 g	Ci x U_i 10 g	vi 2 or Veff
Measurement System										
Probe calibration	11.0	Normal	2	1	1	5.50	5.50	5.50	5.50	∞
Probe Calibration Drift	1.7	Rectangular	$\sqrt{3}$	1	1	1.0	1.0	1.0	1.0	∞
Probe Linearity	4.7	Rectangular	$\sqrt{3}$	1	1	2.7	2.7	2.7	2.7	∞
Broadband Signal	2.8	Rectangular	$\sqrt{3}$	1	1	1.6	1.6	1.6	1.6	∞
Probe Isotropy	7.6	Rectangular	$\sqrt{3}$	1	1	4.4	4.4	4.4	4.4	∞
Other Probe+Electronic	0.8	Normal	1	1	1	0.8	0.8	0.8	0.8	∞
RF Ambient Conditions	1.8	Normal	1	1	1	1.8	1.8	1.8	1.8	∞
Probe Positioning	3.9	Normal	1	0.14	0.14	3.9	3.9	0.5	0.5	∞
Data Processing	1.2	Normal	1	1	1	1.2	1.2	1.2	1.2	∞
Phantom and Device										
Liquid conductivity (Target)	5.0	Rectangular	$\sqrt{3}$	0.64	0.43	2.89	2.89	1.85	1.24	∞
Liquid conductivity (Meas.)	3.2	Normal	1	0.78	0.71	3.20	3.20	2.50	2.27	∞
Liquid permittivity (Target)	5.0	Rectangular	$\sqrt{3}$	0.60	0.49	2.89	2.89	1.73	1.41	∞
Liquid permittivity (Meas.)	3.3	Normal	1	0.23	0.26	3.30	3.30	0.76	0.86	∞
Temp. unc. - Conductivity	2.0	Rectangular	$\sqrt{3}$	0.78	0.71	1.15	1.15	0.90	0.82	∞
Temp. unc. - Permittivity	2.0	Rectangular	$\sqrt{3}$	0.23	0.26	1.15	1.15	0.27	0.30	∞
Phantom Shell Permittivity	14.0	Rectangular	$\sqrt{3}$	0	0	8.1	8.1	0.0	0.0	∞
Distance DUT-TSL	2.0	Normal	1	2	2	2.0	2.0	4.0	4.0	∞
Device Positioning	2.3	Normal	1	1	1	2.3	2.3	2.3	2.3	∞
Device Holder	2.2	Normal	1	1	1	2.2	2.2	2.2	2.2	∞
DUT Modulation	2.4	Rectangular	$\sqrt{3}$	1	1	1.4	1.4	1.4	1.4	∞
Time-average SAR	1.7	Rectangular	$\sqrt{3}$	1	1	1.0	1.0	1.0	1.0	∞
DUT drift	2.5	Normal	1	1	1	2.5	2.5	2.5	2.5	∞
Validation Antenna	0.0	Normal	1	1	1	0.0	0.0	0.0	0.0	∞
Uncertainty in Accepted Power	0.0	Normal	1	1	1	0.0	0.0	0.0	0.0	∞
Correction to the SAR results										
Deviation to target	1.9	Normal	1	1	0.84	1.9	1.9	1.9	1.6	∞
SAR Scaling	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	0.0	0.0	∞
Combined Standard Uncertainty						11	11			∞
Expanded Uncertainty (k=2)						22	22			

$$U(1\text{ g}) = k \cdot u_c$$

$$= 2 \cdot 11\%$$

$$= 22\% \text{ (The confidence level is about 95 \% } k = 2)$$

$$U(10\text{ g}) = k \cdot u_c$$

$$= 2 \cdot 11\%$$

$$= 22\% \text{ (The confidence level is about 95 \% } k = 2)$$

13. CONCLUSION

Measurement Conclusion

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the FCC. These measurements are taken to simulate the RF effects exposure under the worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The tested device complies with the requirements in respect to all parameters subject to the test. The test results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are every complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role impossible biological effect are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease).

Because innumerable factors may interact to determine the specific biological outcome of an exposure to electromagnetic fields, any protection guide shall consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

14. REFERENCES

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radiofrequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.
- [3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radiofrequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.
- [5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2003, Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices.
- [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. -124.
- [9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [13] G. Hartsgrrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bio electromagnetics, Canada: 1987, pp. 29-36.
- [14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [15] W. Gander, Computer mathematick, Birkhaeuser, Basel, 1992.
- [16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.
- [17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.
- [18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.
- [19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.

- [20] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3 GHz), Feb. 2005.
- [21] Industry Canada RSS-102 Radio Frequency Exposure Compliance of Radio communication Apparatus (All Frequency Bands) Issue 5, March 2015.
- [22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2009
- [23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225,D01-D07
- [24] SAR Measurement procedures for IEEE 802.11a/b/g KDB Publication 248227 D01v02
- [25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474D02-D04
- [26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04
- [27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02
- [28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02
- [29] 615223 D01 802 16e WI-Max SAR Guidance v01, Nov. 13, 2009
- [30] Anexo à Resolução No. 533, de 10 de September de 2009.
- [31] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body(frequency range of 30 MHz to 6 GHz), Mar. 2010.

APPENDIX A. – Probe Calibration Data

**Calibration Laboratory of
Schmid & Partner
Engineering AG**

Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client

Dt&C

Gyeonggi-do, Republic of Korea

Certificate No.

EX-3933_Sep25**CALIBRATION CERTIFICATE**

Object EX3DV4 - SN:3933

Calibration procedure(s) QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6,
QA CAL-25.v8
Calibration procedure for dosimetric E-field probes

Calibration date September 22, 2025

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Calibration Date (Certificate No.)	Sched. Cal.
Power Sensor R&S NRP-33T	SN: 100967	30-Apr-25 (No. 1020-300791789)	Apr-26
N-type mismatch combination	SN: L1119	26-Mar-25 (No. 217-04292)	Mar-26
OCP DAK-12	SN: 1016	16-Sept-25 (No. OCP-DAK12-1016_Sep25)	Sep-26
OCP DAK-3.5	SN: 1249	16-Sept-25 (No. OCP-DAK3.5-1249_Sep25)	Sep-26
Reference Probe EX3DV4	SN: 7349	10-Jan-25 (No. EX3-7349_Jan25)	Jan-26
DAE4	SN: 1301	07-Nov-24 (No. DAE4-1301_Nov24)	Nov-25

Secondary Standards	ID	Check Date (in house)	Sched. Check
ACAP 2020 Setup 1	SN: L1404	30-Sept-24 (No. Report_ACAP2020E-Cave_20240930s)	Sep-25
OCP DAK-12	SN: 1029	27-Feb-25 (No. OCP-DAK12-1029_Feb25)	Feb-26
OCP DAK-3.5	SN: 1336	09-Dec-24 (No. OCP-DAK3.5-1336_Dec24)	Dec-25

	Name	Function	Signature
Calibrated by	Joanna Lleshaj	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			
Issued: September 23, 2025			

Certificate No: EX-3933_Sep25

Page 1 of 21

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices – Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

EX3DV4 - SN:3933

September 22, 2025

Parameters of Probe: EX3DV4 - SN:3933**Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k = 2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.60	0.64	0.63	$\pm 10.1\%$
DCP (mV) ^B	110.5	110.3	110.6	$\pm 4.7\%$

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Max Unc ^E k = 2
0	Continuous Wave	X	0.00	0.00	1.00	0.00	142.7	$\pm 1.1\%$	$\pm 4.7\%$
		Y	0.00	0.00	1.00		124.7		
		Z	0.00	0.00	1.00		146.3		
10352	Pulse (D=10%, T=5 ms)	X	0.25	59.50	14.31	10.00	23.0	$\pm 2.1\%$	$\pm 9.6\%$
		Y	0.87	69.98	17.45		24.0		
		Z	0.58	69.94	18.04		24.0		
10353	Pulse (D=20%, T=5 ms)	X	0.23	62.51	14.35	6.99	46.0	$\pm 1.7\%$	$\pm 9.6\%$
		Y	0.82	72.99	17.49		48.0		
		Z	0.54	72.95	18.09		48.0		
10354	Pulse (D=40%, T=5 ms)	X	0.21	65.52	14.38	3.98	93.0	$\pm 1.5\%$	$\pm 9.6\%$
		Y	0.77	76.00	17.52		95.0		
		Z	0.50	75.96	18.15		95.0		
10355	Pulse (D=60%, T=5 ms)	X	0.20	67.29	14.41	2.22	139.0	$\pm 1.5\%$	$\pm 9.6\%$
		Y	0.74	77.76	17.55		142.0		
		Z	0.48	77.72	18.18		143.0		
10387	Random (BW=1 MHz, MOD=QPSK)	X	0.01	80.59	15.55	0.34	106.0	$\pm 1.2\%$	$\pm 9.6\%$
		Y	0.01	74.88	18.97		109.0		
		Z	0.00	74.84	19.67		109.0		
10388	Random (BW=10 MHz, MOD=QPSK)	X	0.58	64.29	13.64	0.00	112.0	$\pm 2.6\%$	$\pm 9.6\%$
		Y	1.60	74.77	17.15		115.0		
		Z	1.63	74.72	17.22		116.0		
10396	Random (BW=100 kHz, MOD=64QAM)	X	0.00	63.23	16.86	1.62	80.0	$\pm 3.2\%$	$\pm 9.6\%$
		Y	0.01	82.22	19.78		83.0		
		Z	0.02	73.67	21.06		83.0		
10399	Random (BW=40 MHz, MOD=64QAM)	X	1.58	63.23	12.70	0.00	103.0	$\pm 4.1\%$	$\pm 9.6\%$
		Y	3.82	73.71	17.04		106.0		
		Z	3.81	73.67	17.07		107.0		
10414	Random (BW=40 MHz, HIGH PAR)	X	1.95	60.97	12.60	0.00	74.0	$\pm 1.9\%$	$\pm 9.6\%$
		Y	4.59	71.44	17.04		77.0		
		Z	4.72	71.40	17.07		77.0		

Note: For details on UID parameters see Appendix

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).^B Linearization parameter uncertainty for maximum specified field strength.^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4 - SN:3933

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Parameters of Probe: EX3DV4 - SN:3933

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms V^{-2}$	T2 $ms V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
x	8.8	62.96	32.71	5.92	0.00	4.90	0.71	0.00	1.00
y	9.0	64.21	32.55	5.34	0.00	4.98	0.93	0.00	1.00
z	10.3	73.43	32.72	5.02	0.00	4.91	0.72	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	-64.6°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	12 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.

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Parameters of Probe: EX3DV4 - SN:3933**Calibration Parameter Determined in HSL**

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
13	55.0	0.75	18.33	16.96	17.19	0.00	1.25	±13.3%
750	41.9	0.89	10.29	9.59	9.27	0.37	1.27	±11.0%
835	41.5	0.90	9.93	9.26	8.95	0.37	1.27	±11.0%
900	41.5	0.97	9.80	9.13	8.83	0.37	1.27	±11.0%
1750	40.1	1.37	8.53	7.95	7.68	0.36	1.27	±11.0%
1900	40.0	1.40	7.92	7.38	7.14	0.35	1.27	±11.0%
2300	39.5	1.67	7.77	7.24	7.00	0.35	1.27	±11.0%
2450	39.2	1.80	7.37	6.87	6.64	0.35	1.27	±11.0%
2600	39.0	1.96	7.56	7.05	6.81	0.35	1.27	±11.0%
3500	37.9	2.91	6.88	6.41	6.20	0.33	1.27	±13.1%
3700	37.7	3.12	6.81	6.35	6.14	0.33	1.27	±13.1%
5200	36.0	4.66	5.62	5.23	5.06	0.30	1.27	±13.1%
5300	35.9	4.76	5.50	5.13	4.96	0.29	1.27	±13.1%
5500	35.6	4.96	5.13	4.78	4.62	0.28	1.27	±13.1%
5600	35.5	5.07	5.08	4.73	4.58	0.27	1.27	±13.1%
5800	35.3	5.27	5.03	4.68	4.53	0.25	1.27	±13.1%

^C Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–8 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10% if SAR correction is applied.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.

^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

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Parameters of Probe: EX3DV4 - SN:3933**Calibration Parameter Determined in HSL**

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
6500	34.5	6.07	5.46	5.08	4.91	0.20	1.27	±18.6%

^C Frequency validity is -600/+700 MHz at 6.5 GHz, ±700 MHz at or above 7 GHz, and ±150 MHz at 9.85 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

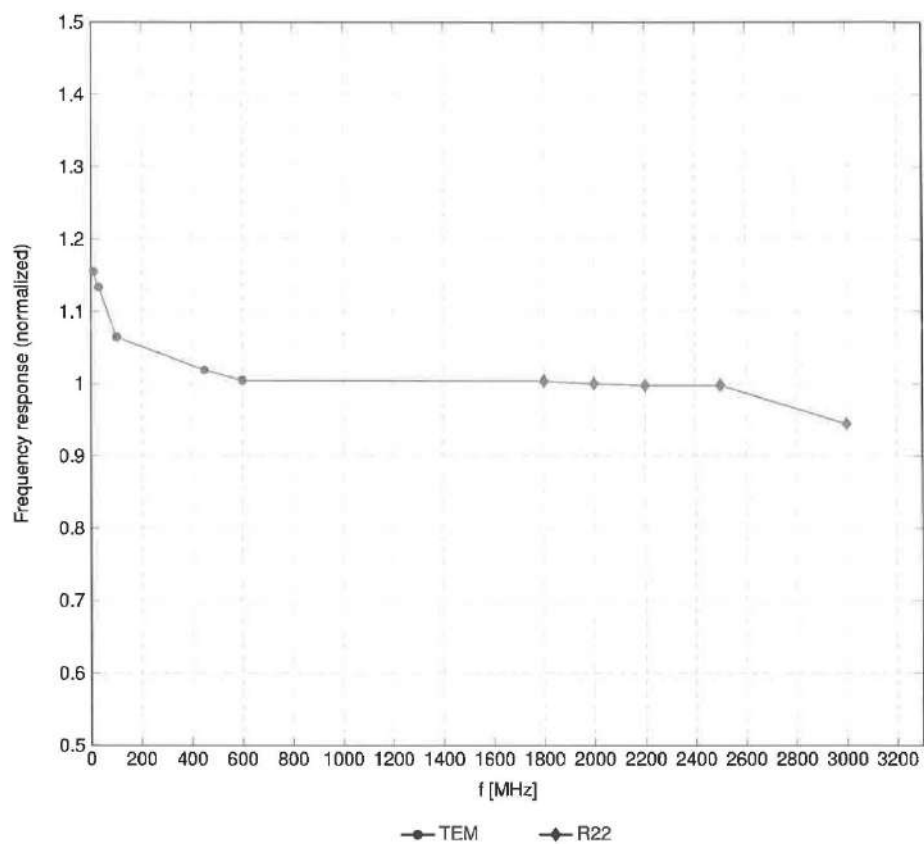
^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

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Frequency Response of E-Field

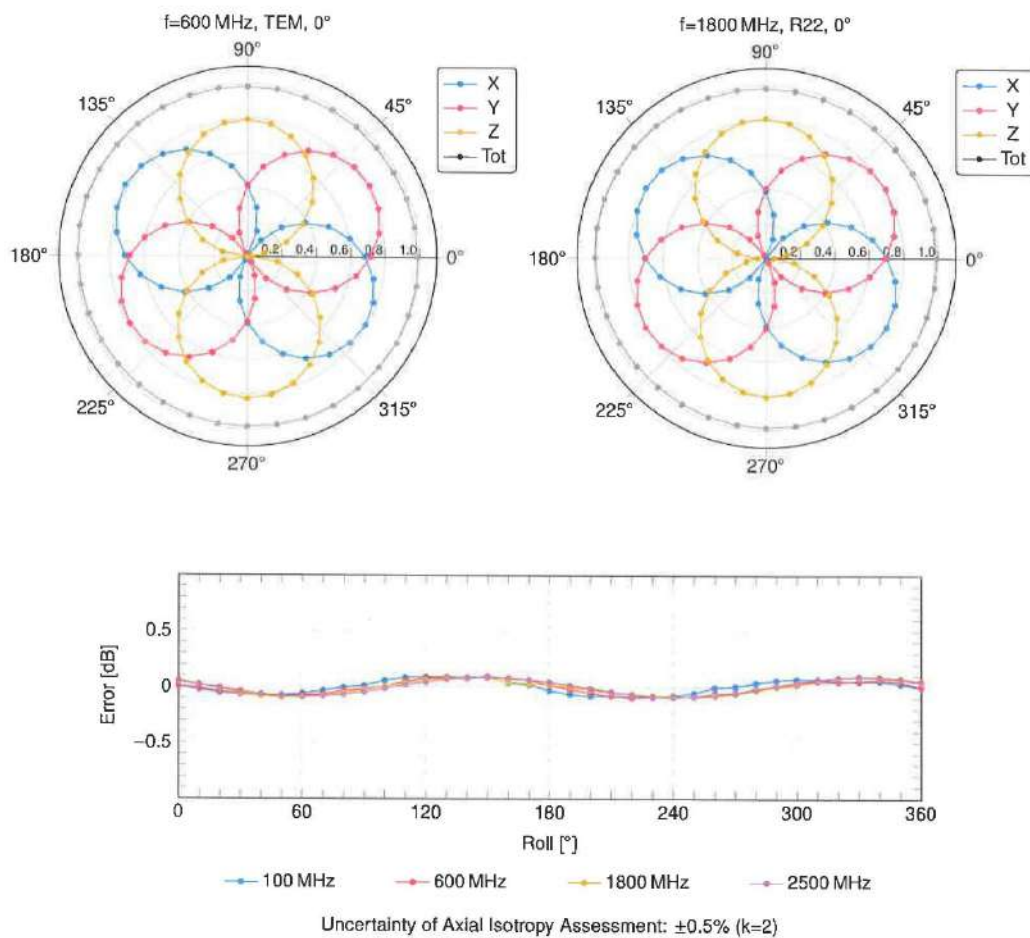
(TEM-Cell:ifl110 EXX, Waveguide:R22)

Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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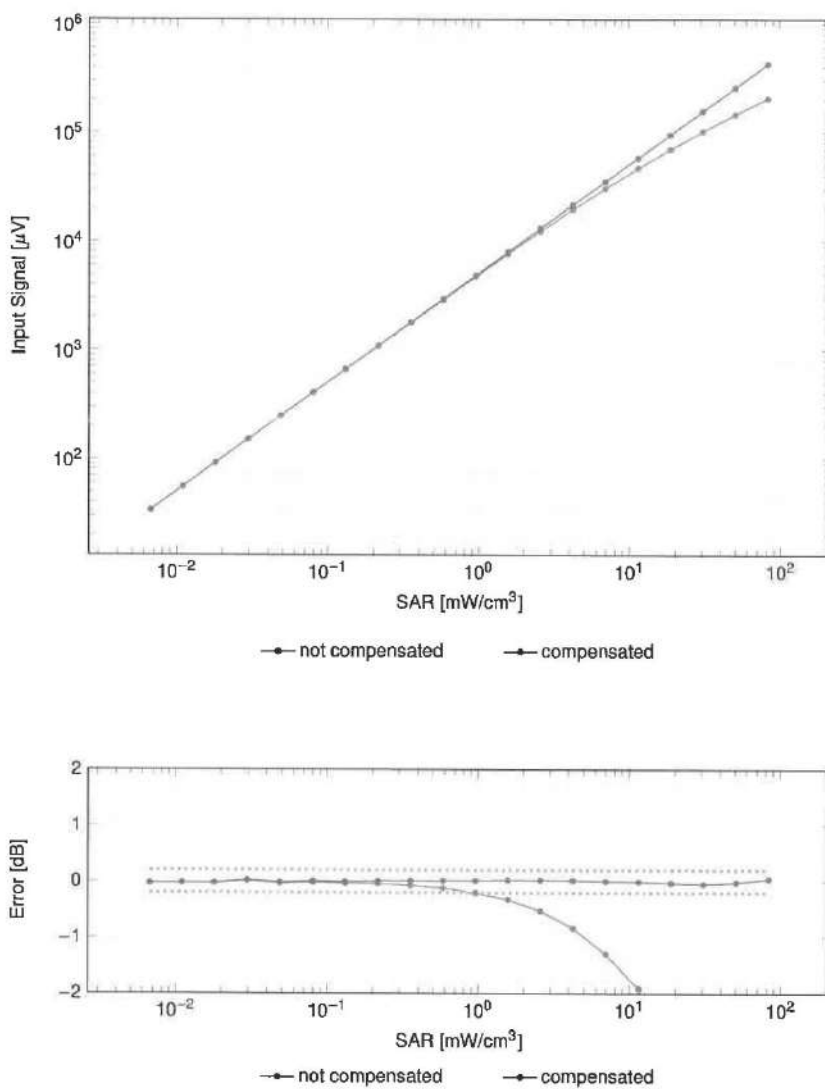
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Receiving Pattern (ϕ), $\theta = 0^\circ$



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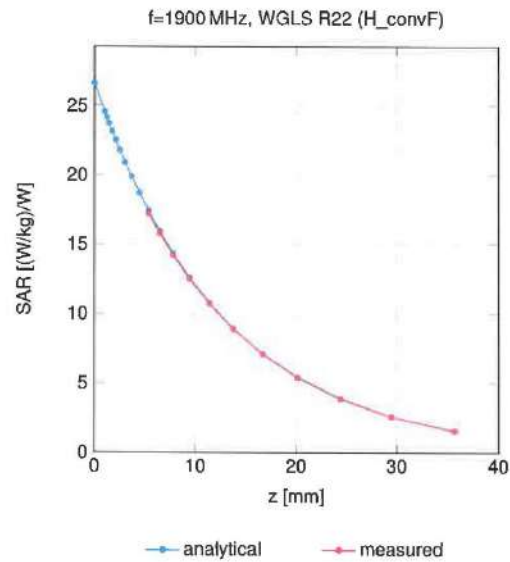
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Dynamic Range $f(\text{SAR}_{\text{HSL}})$ (TEM cell, $f_{\text{eval}} = 1900\text{MHz}$)Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

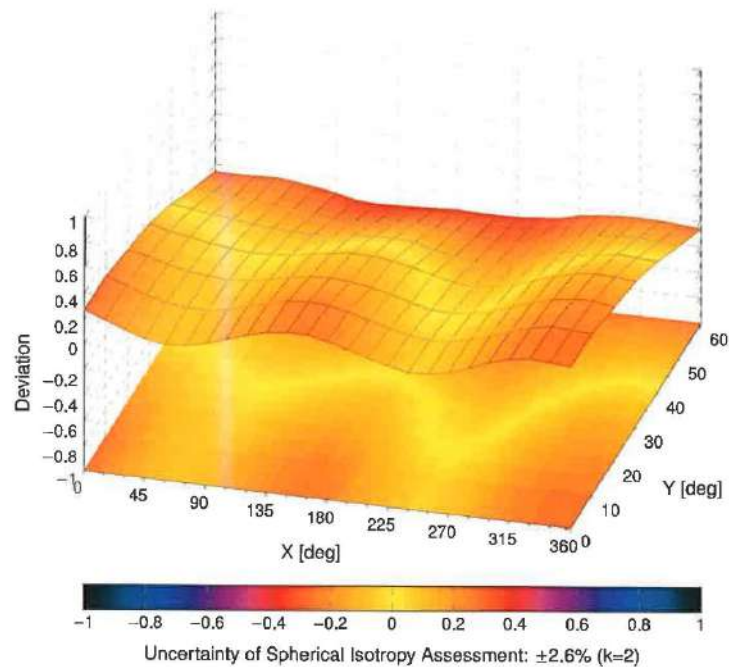
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Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), f = 900 MHz

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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
0		Continuous Wave	CW	0.00	±4.7
10010	CAB	Pulse (D=10%, T=100 ms)	Test	10.00	±9.6
10011	CAC	Rel. 99, RMC, QPSK, 5.0 MHz	WCDMA	2.91	±9.6
10012	CAB	DSSS, DQPSK, 1.0 Mbps, 92.5% DC	WLAN	1.87	±9.6
10013	CAB	OFDM, BPSK, 6.0 Mbps, 72.1% DC	WLAN	9.46	±9.6
10021	DAC	Voice, GMSK, 1 slot(s)	GSM	9.39	±9.6
10023	DAC	Data, GMSK, 1 slot(s)	GSM	9.57	±9.6
10024	DAC	Data, GMSK, 2 slot(s)	GSM	6.56	±9.6
10025	DAC	Data, 8PSK, 1 slot(s)	GSM	12.62	±9.6
10026	DAC	Data, 8PSK, 2 slot(s)	GSM	9.55	±9.6
10027	DAC	Data, GMSK, 3 slot(s)	GSM	4.80	±9.6
10028	DAC	Data, GMSK, 4 slot(s)	GSM	3.55	±9.6
10029	DAC	Data, 8PSK, 3 slot(s)	GSM	7.78	±9.6
10030	CAA	BR, DH1, GFSK	Bluetooth	5.30	±9.6
10031	CAA	BR, DH3, GFSK	Bluetooth	1.87	±9.6
10032	CAA	BR, DH5, GFSK	Bluetooth	1.16	±9.6
10033	CAA	EDR, DH1, pi/4-DQPSK	Bluetooth	7.74	±9.6
10034	CAA	EDR, DH3, pi/4-DQPSK	Bluetooth	4.53	±9.6
10035	CAA	EDR, DH5, pi/4-DQPSK	Bluetooth	3.83	±9.6
10036	CAA	EDR, DH1, 8-DPSK	Bluetooth	8.01	±9.6
10037	CAA	EDR, DH3, 8-DPSK	Bluetooth	4.77	±9.6
10038	CAA	EDR, DH5, 8-DPSK	Bluetooth	4.10	±9.6
10039	CAB	RC1, 1xRTT	CDMA2000	4.57	±9.6
10048	CAA	Full Slot, GFSK, 1 slot(s)	DECT	13.80	±9.6
10049	CAA	Double Slot, GFSK, 2 slot(s)	DECT	10.79	±9.6
10056	CAA	TD-SCDMA, QPSK, 1.6 MHz	TD-SCDMA	11.01	±9.6
10058	DAC	Data, 8PSK, 4 slot(s)	GSM	6.52	±9.6
10059	CAB	DSSS, DQPSK, 2.0 Mbps, 87.4% DC	WLAN	2.12	±9.6
10060	CAB	HR-DSSS, DQPSK, 5.5 Mbps, 72.7% DC	WLAN	2.83	±9.6
10061	CAB	HR-DSSS, DQPSK, 11.0 Mbps, 57.5% DC	WLAN	3.60	±9.6
10062	CAE	OFDM, BPSK, 6.0 Mbps, 89.1% DC	WLAN	8.68	±9.6
10063	CAE	OFDM, BPSK, 9.0 Mbps, 85.3% DC	WLAN	8.63	±9.6
10064	CAE	OFDM, QPSK, 12.0 Mbps, 82.0% DC	WLAN	9.09	±9.6
10065	CAE	OFDM, QPSK, 18.0 Mbps, 76.0% DC	WLAN	9.00	±9.6
10066	CAE	OFDM, 16QAM, 24.0 Mbps, 70.6% DC	WLAN	9.38	±9.6
10067	CAE	OFDM, 16QAM, 36.0 Mbps, 62.9% DC	WLAN	10.12	±9.6
10068	CAE	OFDM, 64QAM, 48.0 Mbps, 56.6% DC	WLAN	10.24	±9.6
10069	CAE	OFDM, 64QAM, 54.0 Mbps, 54.4% DC	WLAN	10.56	±9.6
10071	CAB	OFDM, BPSK, 9.0 Mbps, 65.1% DC	WLAN	9.83	±9.6
10072	CAB	OFDM, QPSK, 12.0 Mbps, 60.1% DC	WLAN	9.62	±9.6
10073	CAB	OFDM, QPSK, 18.0 Mbps, 53.1% DC	WLAN	9.94	±9.6
10074	CAB	OFDM, 16QAM, 24.0 Mbps, 48.5% DC	WLAN	10.30	±9.6
10075	CAB	OFDM, 16QAM, 36.0 Mbps, 42.9% DC	WLAN	10.77	±9.6
10076	CAB	OFDM, 64QAM, 48.0 Mbps, 39.5% DC	WLAN	10.94	±9.6
10077	CAB	OFDM, 64QAM, 54.0 Mbps, 38.5% DC	WLAN	11.00	±9.6
10081	CAB	RC3, 1xRTT	CDMA2000	3.97	±9.6
10097	CAC	Rel. 5 HSDPA, QPSK, 5.0 MHz	WCDMA	3.98	±9.6
10098	CAC	Rel. 6 HSDPA, Subset 2, QPSK, 5.0 MHz	WCDMA	3.98	±9.6
10100	CAF	20.0 MHz, QPSK, 100% RB	LTE-FDD	5.67	±9.6
10101	CAF	20.0 MHz, 16QAM, 100% RB	LTE-FDD	6.42	±9.6
10102	CAF	20.0 MHz, 64QAM, 100% RB	LTE-FDD	6.60	±9.6
10103	CAH	20.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.29	±9.6
10104	CAH	20.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.97	±9.6
10105	CAH	20.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.01	±9.6
10108	CAH	10.0 MHz, QPSK, 100% RB	LTE-FDD	5.80	±9.6
10109	CAH	10.0 MHz, 16QAM, 100% RB	LTE-FDD	6.43	±9.6
10110	CAH	5.0 MHz, QPSK, 100% RB	LTE-FDD	5.75	±9.6
10111	CAH	5.0 MHz, 16QAM, 100% RB	LTE-FDD	6.44	±9.6
10112	CAH	10.0 MHz, 64QAM, 100% RB	LTE-FDD	6.59	±9.6
10113	CAH	5.0 MHz, 64QAM, 100% RB	LTE-FDD	6.62	±9.6
10114	CAE	HT40 Greenfield, MCS0 (13.5 Mbps), 99.7% DC	WLAN	8.10	±9.6
10115	CAE	HT40 Greenfield, MCS4 (81.0 Mbps), 99.7% DC	WLAN	8.46	±9.6
10116	CAE	HT40 Greenfield, MCS7 (135.0 Mbps), 99.7% DC	WLAN	8.15	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10117	CAE	HT40 Mixed, MCS0 (13.5 Mbps), 99.7% DC	WLAN	8.07	±9.6
10118	CAE	HT40 Mixed, MCS4 (81.0 Mbps), 99.7% DC	WLAN	8.59	±9.6
10119	CAE	HT40 Mixed, MCS7 (135.0 Mbps), 99.7% DC	WLAN	8.13	±9.6
10140	CAF	15.0 MHz, 16QAM, 100% RB	LTE-FDD	6.49	±9.6
10141	CAF	15.0 MHz, 64QAM, 100% RB	LTE-FDD	6.53	±9.6
10142	CAF	3.0 MHz, QPSK, 100% RB	LTE-FDD	5.73	±9.6
10143	CAF	3.0 MHz, 16QAM, 100% RB	LTE-FDD	6.35	±9.6
10144	CAF	3.0 MHz, 64QAM, 100% RB	LTE-FDD	6.85	±9.6
10145	CAG	1.4 MHz, QPSK, 100% RB	LTE-FDD	5.76	±9.6
10146	CAG	1.4 MHz, 16QAM, 100% RB	LTE-FDD	6.41	±9.6
10147	CAG	1.4 MHz, 64QAM, 100% RB	LTE-FDD	6.72	±9.6
10149	CAF	20.0 MHz, 16QAM, 50% RB	LTE-FDD	6.42	±9.6
10150	CAF	20.0 MHz, 64QAM, 50% RB	LTE-FDD	6.60	±9.6
10151	CAH	20.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.28	±9.6
10152	CAH	20.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.92	±9.6
10153	CAH	20.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.05	±9.6
10154	CAH	10.0 MHz, QPSK, 50% RB	LTE-FDD	5.75	±9.6
10155	CAH	10.0 MHz, 16QAM, 50% RB	LTE-FDD	6.43	±9.6
10156	CAH	5.0 MHz, QPSK, 50% RB	LTE-FDD	5.79	±9.6
10157	CAH	5.0 MHz, 16QAM, 50% RB	LTE-FDD	6.49	±9.6
10158	CAH	10.0 MHz, 64QAM, 50% RB	LTE-FDD	6.82	±9.6
10159	CAH	5.0 MHz, 64QAM, 50% RB	LTE-FDD	6.56	±9.6
10160	CAF	15.0 MHz, QPSK, 50% RB	LTE-FDD	5.82	±9.6
10161	CAF	15.0 MHz, 16QAM, 50% RB	LTE-FDD	6.43	±9.6
10162	CAF	15.0 MHz, 64QAM, 50% RB	LTE-FDD	6.58	±9.6
10166	CAG	1.4 MHz, QPSK, 50% RB	LTE-FDD	5.46	±9.6
10167	CAG	1.4 MHz, 16QAM, 50% RB	LTE-FDD	6.21	±9.6
10168	CAG	1.4 MHz, 64QAM, 50% RB	LTE-FDD	6.79	±9.6
10169	CAF	20.0 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10170	CAF	20.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10171	AAF	20.0 MHz, 64QAM, 1 RB	LTE-FDD	6.49	±9.6
10172	CAH	20.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10173	CAH	20.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10174	CAH	20.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10175	CAH	10.0 MHz, QPSK, 1 RB	LTE-FDD	5.72	±9.6
10176	CAH	10.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10177	CAJ	5.0 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10178	CAH	5.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10179	CAH	10.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10180	CAH	5.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10181	CAF	15.0 MHz, QPSK, 1 RB	LTE-FDD	5.72	±9.6
10182	CAF	15.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10183	AAE	15.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10184	CAF	3.0 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10185	CAF	3.0 MHz, 16QAM, 1 RB	LTE-FDD	6.51	±9.6
10186	AAF	3.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10187	CAG	1.4 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10188	CAG	1.4 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10189	AAG	1.4 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10193	CAE	HT20 Greenfield, MCS0 (6.5 Mbps), 99.4% DC	WLAN	8.09	±9.6
10194	CAE	HT20 Greenfield, MCS4 (39.0 Mbps), 99.5% DC	WLAN	8.12	±9.6
10195	CAE	HT20 Greenfield, MCS7 (65.0 Mbps), 99.5% DC	WLAN	8.21	±9.6
10196	CAE	HT20 Mixed, MCS0 (6.5 Mbps), 99.4% DC	WLAN	8.10	±9.6
10197	CAE	HT20 Mixed, MCS4 (39.0 Mbps), 99.5% DC	WLAN	8.13	±9.6
10198	CAE	HT20 Mixed, MCS7 (65.0 Mbps), 99.5% DC	WLAN	8.27	±9.6
10219	CAE	HT20 Mixed, MCS0 (7.2 Mbps), 99.3% DC	WLAN	8.03	±9.6
10220	CAE	HT20 Mixed, MCS4 (43.3 Mbps), 99.4% DC	WLAN	8.13	±9.6
10221	CAE	HT20 Mixed, MCS7 (72.2 Mbps), 99.4% DC	WLAN	8.27	±9.6
10222	CAE	HT40 Mixed, MCS0 (15.0 Mbps), 99.7% DC	WLAN	8.06	±9.6
10223	CAE	HT40 Mixed, MCS4 (90.0 Mbps), 99.7% DC	WLAN	8.48	±9.6
10224	CAE	HT40 Mixed, MCS7 (150.0 Mbps), 99.7% DC	WLAN	8.08	±9.6
10225	CAC	Rel. 7 HSPA+, 16QAM, 5.0 MHz	WCDMA	5.97	±9.6
10226	CAC	1.4 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.49	±9.6
10227	CAC	1.4 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.26	±9.6
10228	CAC	1.4 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.22	±9.6
10229	CAE	3.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6

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10230	CAE	3.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10231	CAE	3.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.19	±9.6
10232	CAH	5.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10233	CAH	5.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10234	CAH	5.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10235	CAH	10.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10236	CAH	10.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10237	CAH	10.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10238	CAG	15.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10239	CAG	15.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10240	CAG	15.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10241	CAC	1.4 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.82	±9.6
10242	CAC	1.4 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.86	±9.6
10243	CAC	1.4 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.46	±9.6
10244	CAE	3.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.06	±9.6
10245	CAE	3.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.06	±9.6
10246	CAE	3.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.30	±9.6
10247	CAH	5.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.91	±9.6
10248	CAH	5.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.09	±9.6
10249	CAH	5.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.29	±9.6
10250	CAH	10.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.81	±9.6
10251	CAH	10.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.17	±9.6
10252	CAH	10.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.24	±9.6
10253	CAG	15.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.90	±9.6
10254	CAG	15.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.14	±9.6
10255	CAG	15.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.20	±9.6
10256	CAC	1.4 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.96	±9.6
10257	CAC	1.4 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.08	±9.6
10258	CAC	1.4 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.34	±9.6
10259	CAE	3.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.98	±9.6
10260	CAE	3.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.97	±9.6
10261	CAE	3.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.24	±9.6
10262	CAH	5.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.83	±9.6
10263	CAH	5.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.16	±9.6
10264	CAH	5.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.23	±9.6
10265	CAH	10.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.92	±9.6
10266	CAH	10.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.07	±9.6
10267	CAH	10.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.30	±9.6
10268	CAG	15.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.06	±9.6
10269	CAG	15.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.13	±9.6
10270	CAG	15.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.58	±9.6
10274	CAC	Rel. 6 HSUPA Subset 2, beta_d 0, QPSK, 5.0 MHz	WCDMA	4.87	±9.6
10275	CAC	Rel. 6 HSUPA Subset 2, beta_d 15, QPSK, 5.0 MHz	WCDMA	3.95	±9.6
10290	AAB	RC1, SO55, Full frame rate, 1xRTT	CDMA2000	3.91	±9.6
10291	AAB	RC3, SO55, Full frame rate, 1xRTT	CDMA2000	3.45	±9.6
10292	AAB	RC3, SO32, Full frame rate, SCH0 disabled, 1xRTT	CDMA2000	3.39	±9.6
10293	AAB	RC3, SO3, Full frame rate, 1xRTT	CDMA2000	3.50	±9.6
10295	AAB	RC3, SO3, 1/8 frame rate, 1xRTT	CDMA2000	12.49	±9.6
10297	AAE	20.0 MHz, QPSK, 50% RB	LTE-FDD	5.81	±9.6
10298	AAE	3.0 MHz, QPSK, 50% RB	LTE-FDD	5.72	±9.6
10299	AAE	3.0 MHz, 16QAM, 50% RB	LTE-FDD	6.39	±9.6
10300	AAE	3.0 MHz, 64QAM, 50% RB	LTE-FDD	6.60	±9.6
10301	AAA	PUSC, 29:18, QPSK, 5.0 ms, 18 TRAF SYM	WiMAX	12.03	±9.6
10302	AAA	PUSC, 29:18, QPSK, 5.0 ms, 15 TRAF SYM	WiMAX	12.57	±9.6
10303	AAA	PUSC, 31:15, 64QAM, 5.0 ms, 15 TRAF SYM	WiMAX	12.52	±9.6
10304	AAA	PUSC, 29:18, 64QAM, 5.0 ms, 18 TRAF SYM	WiMAX	11.86	±9.6
10305	AAA	PUSC, 31:15, 64QAM, 10.0 ms, 15 TRAF SYM	WiMAX	15.24	±9.6
10306	AAA	PUSC, 29:18, 64QAM, 10.0 ms, 18 TRAF SYM	WiMAX	14.67	±9.6
10307	AAA	PUSC, 29:18, QPSK, 10.0 ms, 18 TRAF SYM	WiMAX	14.49	±9.6
10308	AAA	PUSC, 29:18, 16QAM, 10.0 ms, 18 TRAF SYM	WiMAX	14.46	±9.6
10309	AAA	AMC 2x3, 29:18, 16QAM, 10.0 ms, 18 TRAF SYM	WiMAX	14.58	±9.6
10310	AAA	AMC 2x3, 29:18, QPSK, 10.0 ms, 18 TRAF SYM	WiMAX	14.57	±9.6
10311	AAE	15.0 MHz, QPSK, 100% RB	LTE-FDD	6.06	±9.6
10315	AAB	DSSS, DBPSK, 1.0 Mbps, 96.0% DC	WLAN	1.71	±9.6
10316	AAB	OFDM, BPSK, 6.0 Mbps, 95.9% DC	WLAN	8.36	±9.6
10317	AAE	OFDM, BPSK, 6.0 Mbps, 95.9% DC	WLAN	8.36	±9.6

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10352	AAA	Pulse (D=10%, T=5 ms)	Generic	10.00	±9.6
10353	AAA	Pulse (D=20%, T=5 ms)	Generic	6.99	±9.6
10354	AAA	Pulse (D=40%, T=5 ms)	Generic	3.98	±9.6
10355	AAA	Pulse (D=60%, T=5 ms)	Generic	2.22	±9.6
10356	AAA	Pulse (D=80%, T=5 ms)	Generic	0.97	±9.6
10387	AAA	Random (BW=1 MHz, MOD=QPSK)	Generic	5.10	±9.6
10388	AAA	Random (BW=10 MHz, MOD=QPSK)	Generic	5.22	±9.6
10396	AAA	Random (BW=100 kHz, MOD=64QAM)	Generic	6.27	±9.6
10399	AAA	Random (BW=40 MHz, MOD=64QAM)	Generic	6.27	±9.6
10400	AAF	VHT20, MCS5 (52.0 Mbps), 99.0% DC	WLAN	8.37	±9.6
10401	AAF	VHT40, MCS5 (108.0 Mbps), 96.7% DC	WLAN	8.60	±9.6
10402	AAF	VHT80, MCS5 (234.0 Mbps), 99.0% DC	WLAN	8.53	±9.6
10403	AAB	Rev. 0, 1xEV-DO	CDMA2000	3.76	±9.6
10404	AAB	Rev. A, 1xEV-DO	CDMA2000	3.77	±9.6
10406	AAB	RC3, SO32, Full frame rate, SCH0 enabled, 1xRTT	CDMA2000	5.22	±9.6
10410	AAH	10.0 MHz, QPSK, UL/DL CFG: 0, SSC: 4, 1 RB	LTE-TDD	7.82	±9.6
10414	AAA	Random (BW=40 MHz, HIGH PAR)	Generic	8.54	±9.6
10415	AAA	DSSS, DBPSK, 1.0 Mbps, 99.9% DC	WLAN	1.54	±9.6
10416	AAA	OFDM, BPSK, 6.0 Mbps, 99.9% DC	WLAN	8.23	±9.6
10417	AAD	OFDM, BPSK, 6.0 Mbps, 99.9% DC	WLAN	8.23	±9.6
10418	AAA	OFDM (LTF), BPSK, 6.0 Mbps, 99.8% DC	WLAN	8.14	±9.6
10419	AAA	OFDM (STF), BPSK, 6.0 Mbps, 99.8% DC	WLAN	8.19	±9.6
10422	AAD	HT20 Greenfield, MCS0 (7.2 Mbps), 99.3% DC	WLAN	8.32	±9.6
10423	AAD	HT20 Greenfield, MCS4 (43.3 Mbps), 99.3% DC	WLAN	8.47	±9.6
10424	AAD	HT20 Greenfield, MCS7 (72.2 Mbps), 99.3% DC	WLAN	8.40	±9.6
10425	AAD	HT40 Greenfield, MCS0 (15.0 Mbps), 99.2% DC	WLAN	8.41	±9.6
10426	AAD	HT40 Greenfield, MCS4 (90.0 Mbps), 99.2% DC	WLAN	8.45	±9.6
10427	AAD	HT40 Greenfield, MCS7 (150.0 Mbps), 99.2% DC	WLAN	8.41	±9.6
10430	AAE	5.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.28	±9.6
10431	AAE	10.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.38	±9.6
10432	AAD	15.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.34	±9.6
10433	AAD	20.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.34	±9.6
10434	AAB	BS Test Model 1, 64 DPCCH, 64QAM, 5.0 MHz (DL)	WCDMA	8.60	±9.6
10435	AAG	20.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10447	AAE	5.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.56	±9.6
10448	AAE	10.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.53	±9.6
10449	AAD	15.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.51	±9.6
10450	AAD	20.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.48	±9.6
10451	AAB	BS Test Model 1, 64 DPCCH, Clipping 44%, 64QAM, 5.0 MHz (DL)	WCDMA	7.59	±9.6
10456	AAD	VHT160, MCS5 (58.5 Mbps), 99.0% DC	WLAN	8.63	±9.6
10457	AAB	Rel. 5 DC-HSDPA, QPSK, 10.0 MHz	WCDMA	6.62	±9.6
10458	AAA	Rev. B, 2 carriers, 1xEV-DO	CDMA2000	6.55	±9.6
10459	AAA	Rev. B, 3 carriers, 1xEV-DO	CDMA2000	8.25	±9.6
10460	AAB	Rel. 99, AMR, QPSK, 5.0 MHz	WCDMA	2.39	±9.6
10461	AAC	1.4 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10462	AAC	1.4 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.30	±9.6
10463	AAC	1.4 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.56	±9.6
10464	AAD	3.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10465	AAD	3.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10466	AAD	3.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10467	AAG	5.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10468	AAG	5.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10469	AAG	5.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.56	±9.6
10470	AAG	10.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10471	AAG	10.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10472	AAG	10.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10473	AAF	15.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10474	AAF	15.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10475	AAF	15.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10477	AAG	20.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10478	AAG	20.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10479	AAC	1.4 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.74	±9.6
10480	AAC	1.4 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.18	±9.6
10481	AAC	1.4 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.45	±9.6
10482	AAD	3.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.71	±9.6
10483	AAD	3.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.39	±9.6

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10484	AAD	3.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.47	±9.6
10485	AAG	5.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.59	±9.6
10486	AAG	5.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.38	±9.6
10487	AAG	5.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.60	±9.6
10488	AAG	10.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.70	±9.6
10489	AAG	10.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.31	±9.6
10490	AAG	10.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.54	±9.6
10491	AAF	15.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.74	±9.6
10492	AAF	15.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.41	±9.6
10493	AAF	15.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.55	±9.6
10494	AAG	20.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.74	±9.6
10495	AAG	20.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.37	±9.6
10496	AAG	20.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.54	±9.6
10497	AAC	1.4 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	7.67	±9.6
10498	AAC	1.4 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.40	±9.6
10499	AAC	1.4 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.68	±9.6
10500	AAD	3.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	7.67	±9.6
10501	AAD	3.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.44	±9.6
10502	AAD	3.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.52	±9.6
10503	AAG	5.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	7.72	±9.6
10504	AAG	5.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.31	±9.6
10505	AAG	5.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.54	±9.6
10506	AAG	10.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	7.74	±9.6
10507	AAG	10.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.36	±9.6
10508	AAG	10.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.55	±9.6
10509	AAF	15.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	7.99	±9.6
10510	AAF	15.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.49	±9.6
10511	AAF	15.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.51	±9.6
10512	AAG	20.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	7.74	±9.6
10513	AAG	20.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.42	±9.6
10514	AAG	20.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 100% RB	LTE-TDD	8.45	±9.6
10515	AAA	DSSS, DQPSK, 2.0 Mbps, 99.0% DC	WLAN	1.58	±9.6
10516	AAA	HR-DSSS, DQPSK, 5.5 Mbps, 99.2% DC	WLAN	1.57	±9.6
10517	AAA	HR-DSSS, DQPSK, 11.0 Mbps, 99.0% DC	WLAN	1.58	±9.6
10518	AAD	OFDM, BPSK, 9.0 Mbps, 98.9% DC	WLAN	8.23	±9.6
10519	AAD	OFDM, QPSK, 12.0 Mbps, 99.0% DC	WLAN	8.39	±9.6
10520	AAD	OFDM, QPSK, 18.0 Mbps, 99.0% DC	WLAN	8.12	±9.6
10521	AAD	OFDM, 16QAM, 24.0 Mbps, 99.0% DC	WLAN	7.97	±9.6
10522	AAD	OFDM, 16QAM, 36.0 Mbps, 99.0% DC	WLAN	8.45	±9.6
10523	AAD	OFDM, 64QAM, 48.0 Mbps, 99.0% DC	WLAN	8.08	±9.6
10524	AAD	OFDM, 64QAM, 54.0 Mbps, 99.0% DC	WLAN	8.27	±9.6
10525	AAD	VHT20, MCS0 (6.5 Mbps), 98.9% DC	WLAN	8.36	±9.6
10526	AAD	VHT20, MCS1 (13.0 Mbps), 99.0% DC	WLAN	8.42	±9.6
10527	AAD	VHT20, MCS2 (19.5 Mbps), 99.0% DC	WLAN	8.21	±9.6
10528	AAD	VHT20, MCS3 (26.0 Mbps), 99.0% DC	WLAN	8.36	±9.6
10529	AAD	VHT20, MCS4 (39.0 Mbps), 99.0% DC	WLAN	8.36	±9.6
10531	AAD	VHT20, MCS6 (58.5 Mbps), 99.0% DC	WLAN	8.43	±9.6
10532	AAD	VHT20, MCS7 (65.0 Mbps), 99.0% DC	WLAN	8.29	±9.6
10533	AAD	VHT20, MCS8 (78.0 Mbps), 99.0% DC	WLAN	8.38	±9.6
10534	AAD	VHT40, MCS0 (13.5 Mbps), 98.9% DC	WLAN	8.45	±9.6
10535	AAD	VHT40, MCS1 (27.0 Mbps), 98.8% DC	WLAN	8.45	±9.6
10536	AAD	VHT40, MCS2 (40.5 Mbps), 98.8% DC	WLAN	8.32	±9.6
10537	AAD	VHT40, MCS3 (54.0 Mbps), 98.7% DC	WLAN	8.44	±9.6
10538	AAD	VHT40, MCS4 (81.0 Mbps), 98.5% DC	WLAN	8.54	±9.6
10540	AAD	VHT40, MCS6 (121.5 Mbps), 98.3% DC	WLAN	8.39	±9.6
10541	AAD	VHT40, MCS7 (135.0 Mbps), 98.3% DC	WLAN	8.46	±9.6
10542	AAD	VHT40, MCS8 (162.0 Mbps), 98.1% DC	WLAN	8.65	±9.6
10543	AAD	VHT40, MCS9 (180.0 Mbps), 98.0% DC	WLAN	8.65	±9.6
10544	AAD	VHT80, MCS0 (29.3 Mbps), 99.0% DC	WLAN	8.47	±9.6
10545	AAD	VHT80, MCS1 (58.5 Mbps), 99.0% DC	WLAN	8.55	±9.6
10546	AAD	VHT80, MCS2 (87.8 Mbps), 99.0% DC	WLAN	8.35	±9.6
10547	AAD	VHT80, MCS3 (117.0 Mbps), 99.0% DC	WLAN	8.49	±9.6
10548	AAD	VHT80, MCS4 (175.5 Mbps), 99.0% DC	WLAN	8.37	±9.6
10550	AAD	VHT80, MCS6 (263.3 Mbps), 99.0% DC	WLAN	8.38	±9.6
10551	AAD	VHT80, MCS7 (292.5 Mbps), 99.0% DC	WLAN	8.50	±9.6
10552	AAD	VHT80, MCS8 (351.0 Mbps), 99.0% DC	WLAN	8.42	±9.6