

TEST REPORT



Report No. : KES-SR250013 Page **1** / **58** KES Co., Ltd. #3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Republic of Korea Tel : +82-31-425-6200, Fax : +82-31-341-3838

1. Client

- Name : Sena Technologies Co., Ltd.
- o Address : 19, Heolleung-ro, 569-gil, Gangnam-gu, Seoul, Republic of Korea

2. Sample Description

- Product item : Wireless Communication Systems
- FCC ID : S7A-SP175
- Model name : BMW Motorrad ConnectedRide COM P1
- Multiple Model Name : N/A
- Manufacturer etc. : Sena Technologies Co., Ltd.

3. Date of test : 2025.01.24

- 4. Location of Test : ☑ Permanent Testing Lab □ On Site Testing
 - Address : #3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Republic of Korea
- 5. Test method used : CFR §2.1093

6. Test result : PASS

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This laboratory is not accredited for the test results marked *. This test report is not related to KOLAS accreditation.

Affirmation	Tested by		Technical Manager		
Ammaion	Name : Ye-dam, Ahn	(Signature)	Name : Wi-han, Jeong	(Signature)	

2025 . 02. 27.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
2025.02.27	KES-SR250013	Initial

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Use of uncertainty of measurement for decisions on conformity (decision rule):

■ No decision rule is specified by the standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty("simple acceptance" decision rule, previously known as "accuracy method").

□ Other (to be specified, for example when required by the standard or client)



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1. General Information

Applicant:	Sena Technologies Co.,	Ltd.			
Applicant address:	19, Heolleung-ro, 569-gil, Gangnam-gu, Seoul, Republic of Korea				
Test site:	KES Co., Ltd.				
Test site address:	#3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu,				
	Anyang-si, Gyeonggi-do,	14057, Republic of Korea			
Test Facility	FCC Accreditation Desig	nation No.: KR0100, Registra	ation No.: 4769B		
FCC rule part(s):	CFR §2.1093				
FCC ID:	S7A-SP175				
Test device serial No.:	Production	Pre-production	Engineering		

1.1. Highest SAR Summary

EUT Type	Wireless Communicatior	Nireless Communication Systems					
Brand Name(Applicant)	Sena Technologies Co.,	Ltd.					
Model Name	BMW Motorrad Connect	edRide COM P1					
Additional Model Name	N/A						
Antenna Type	PCB Pattern Antenna for MESH (with Max gain: 0.56 dBi) / PCB Pattern Antenna for BT1 (with Max gain: 0.56 dBi) / Chip Antenna for BT2 (with Max gain: 0.50 dBi)						
EUT Stage	Identical Prototype						
Equipment Class	Band & Mode	TX Frequency	1g Head (W/Kg)	1g Body (W/Kg)	10g Hands (W/Kg)		
DSS	Bluetooth(QCC) 1Mbps	2 402 ~ 2 480 MHz	0.50	N/A	N/A		
Simultaneou	s SAR per 690783 D01v0	01r03	0.89	N/A	N/A		

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 6 of this report;

1.2. Device Overview

Band & Mode	Operating Modes	Tx Frequency
Bluetooth(QCC)	Data	2 402 ~ 2 480 Mz
Bluetooth(AiroHa)	Data	2 402 ~ 2 480 Mz
MESH	Data	2 410 ~ 2 475 Mz

1.3. Power Reduction for SAR

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



1.4. Nominal and Maximum Output Power Specifications

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.

Maximum Output Power

David / Mada		Modulated Average – Single Tx Chain (dBm)			
Band / Mode	Channel	12	19	25	
	Maximum	15.00	15.00	14.50	
MESH	Nominal	14.00	14.00	13.50	

Devel (Mede		Modulated Average – Single Tx Chain (dBm)			
Band / Mode	Channel	0	39	78	
	Maximum	17.00	17.00	17.00	
Bluetooth (QCC) BDR	Nominal	16.00	16.00	16.00	

Dand / Mada		Modulated Average – Single Tx Chain (dBm)			
Band / Mode	Channel	0	39	78	
	Maximum	1.50	1.50	3.00	
Bluetooth (QCC) EDR	Nominal	0.50	0.50	2.00	

Dand / Mada		Modulated	Modulated Average – Single Tx Chain (dBm)				
Band / Mode	Channel	0	20	39			
	Maximum	0.00	0.00	2.00			
Bluetooth (QCC) LE	Nominal	-1.00	-1.00	1.00			

Dand / Mada		Modulated	Modulated Average – Single Tx Chain (dBm)			
Band / Mode	Channel	0	39	78		
	Maximum	7.00	7.00	6.50		
Bluetooth (AiroHa) BDR	Nominal	6.00	6.00	5.50		

David (Mada		Modulated	Modulated Average – Single Tx Chain (dBm)			
Band / Mode	Channel	0	39	78		
Bluetooth (AiroHa) EDR	Maximum	1.50	1.50	0.50		
	Nominal	0.50	0.50	-0.50		

Dand (Mada		Modulated	Modulated Average – Single Tx Chain (dBm)				
Band / Mode	Channel	0	20	39			
Bluetooth (AiroHa) LE	Maximum	3.00	2.50	2.00			
	Nominal	2.00	1.50	1.00			



1.5. Simultaneous Transmission Capabilities

This device contains MESH and Bluetooth that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v06 4.3.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is \leq 1.6W/kg. When standalone SAR is not required to be measured per FCC KDB 447498 D01v06 4.3.2 b), the following equation must be used to estimate the standalone 1-g SAR and 10g SAR for simultaneous transmission assessment involving that transmitter.

 $[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] \cdot [\sqrt{f_{(GHz)}/x}] W/kg, for test separation distances <math>\leq 50 \text{ mm};$

Frequency	Maximum Allowed Power	Separation Distance	Estimated 1g SAR
[MHz]	[mW]	[mm]	[W/kg]
2 402	5.01	20	0.052
2 445	31.62	20	0.330
	Frequency [雁] 2 402 2 445	FrequencyMaximum Allowed Power[Mb][mW]2 4025.012 44531.62	Maximum Allowed PowerSeparation Distance[Mb][mW][mm]2 4025.01202 44531.6220

where $x =$	7.5 for	1-g SAR	and $x =$	18.75 for	10-g SAR.
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Simultaneous Transmission Summation Scenario – 1g SAR								
	Bluetooth(QCC)	Bluetooth(AiroHa)	MESH	∑ 1-g SAR				
Band / Mode	SAR	Estimated SAR	Estimated SAR					
	[W/kg]	[W/kg]	[W/kg]	[W/kg]				
Simultaneous SAR	0.504	0.052	0.330	0.886				

1.6. DUT Antenna Locations

The DUT antenna locations are included in the filing.

1.7. Near Field Communications (NFC) Antenna

This DUT does not support NFC function.



1.8. SAR Test Configurations and Exclusions

Per FCC KDB 447498 D01v06, the 1g SAR exclusion threshold for distances < 50 mm is defined by the following equation:

 $\frac{Max Power of Channel (mW)}{Test Separation Dist (mm)} * \sqrt{Frequency(GHz)} \le 3.0$

Mode	Equation	Result	SAR Exclusion Threshold	Required SAR
Bluetooth(QCC) BDR	[(50.12/20)*√2.441]	3.915	3.0	0
Bluetooth(AiroHa) BDR	[(5.01/20)*√2.402]	0.388	3.0	Х
MESH	[(31.62/20)*√2.445]	2.472	3.0	Х

1.9. Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 447498 D01v06 (General RF Exposure Guidance)
- FCC KDB Publication 865664 D01v01r04 (SAR Measurement 100 MHz to 6 GHz)
- FCC KDB Publication 865664 D02v01r02 (RF Exposure Reporting)
- FCC KDB Publication 690783 D01v01r03 (SAR Listings on Grants)
- October 2016 TCBC workshop Notes (DUT Holder perturbations)
- April 2019 TCBC workshop Notes (Tissue Simulating Liquids (TSL))

1.10. Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. 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. The serial numbers used for each test are indicated alongside the results in Section 9.



2. Introduction

The FCC and Innovation, Science, and Economic Development 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 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, 3KHz to 300 GHz and Health Canada RF Exposure Guidelines Safety Code 6. 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 the Specific Absorption Rate (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 International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," Report No. Vol 74. 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.

2.1. SAR definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 2-1)

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

Equation 2-1 SAR Mathematical Equation

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

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

Where: σ = conductivity of the tissue (S/m)

 ρ = mass density of the tissue (kg/m³)

E = rms electrical 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 relation 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.



2.2. SAR Measurement Setup

A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE). An isotropic Field probe optimized and calibrated for the targeted measurement. Data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server. 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. The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning. A computer running WinXP, Win7 or Win10 and the DASY5 software. Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc. The phantom, the device holder and other accessories according to the targeted measurement.





3. Dosimetric Assessment

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

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) and IEC/IEEE 1528-2013.

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.



Figure 4-1 Sample

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) and IEEE 1528-2013. 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.

Frequency Maximum Area Scan Resolution (mm) ($\Delta x_{mm}, \Delta x_{mm}$)	Maximum Area Scan	Maximum Area Scan Maximum Zoom Scan		Maximum Zoom Scan Spatial Resolution (mm)			
	Resolution (mm)	Uniform Grid	Graded Grid		Volume (mm) (x,y,z)		
			$\Delta z_{\text{norm}}(n)$	$\Delta z_{axon}\{1\}^*$	Δr(n>1)*		
s 2 GHz	\$15	≤8	55	54	$\leq 1.5^{+}\Delta z_{room}(n-1)$	2 30	
2-3 GHz	≤12	55	\$5	54	≤1.5*∆z _{room} (n-1)	≥ 30	
3-4 GHz	≤12	\$5	≤4	\$3	≤1.5*∆z _{rosen} (n-1)	≥ 28	
4-5 GHz	≤10	≤4	≤3	≤ 2.5	≤ 1.5*∆z ₁₀₀₀ (n-1)	≥ 25	
5-6 GHz	s 10	s 4	≤2	\$2	$\leq 1.5^* \Delta z_{10000}(n-1)$	≥ 22	

Table 4-1 Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*



4. TEST CONFIGURATION POSITIONS

4.1. Device Holder

This device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity ϵ = 3 and loss tangent δ = 0.02.

4.2. Positioning for Testing

Based on FCC guidance and expected exposure conditions, the device was positioned with the outside of the device touching the flat phantom and such that the location of maximum SAR was captured during SAR testing. The SAR test setup photograph is included in Appendix F.





5. **RF Exposure Limits**

In order for users to be aware of the head operating requirements for meeting RF exposure compliance, Operating instruction and cautions statements are included in the user's manual.

5.1. 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 employmentrelated; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

5.2. 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 applicable to situations in which persons are exposed as a consequence of their 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.

Human Exposure Limits							
	Uncontrolled Environment General Population (W/kg) or (mW/g)	Controlled Environment Occupational (W/kg) or (mW/g)					
Peak Spatial Average SAR Head	1.6	8.0					
Whole Body SAR	0.08	0.4					
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20					

Table 5-1 SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

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.



6. FCC Measurement Procedures

Power measurements for licensed transmitters are 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.

Per KDB Publication 447498 D01v06, testing of other required channels within the operating mode of a frequency band is not required when the reported 1g of 10g SAR for the mid-band or highest output power channel is:

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

6.2. Procedures Used to Establish RF signal for SAR

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR. Devices under test are 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 is 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 deviates by more than 5%, the SAR test and drift measurements are repeated.

As required by §§ 2.1091(d)(2) and 2.1093(d)(5), RF exposure compliance must be determined at the maximum average power level according to source-based time-averaging requirements to determine compliance for general population exposure conditions. Unless it is specified differently in the published RF exposure KDB procedures, these requirements also apply to test reduction and test exclusion considerations. Time-averaged maximum conducted output power applies to SAR and, as required by § 2.1091(c), time-averaged effective radiated power applies to MPE. When an antenna port is not available on the device to support conducted power measurement, such as for FRS (Part 95) devices and certain Part 15 transmitters with built-in integral antennas, the maximum output power and tolerance allowed for production units should be used to determine RF exposure test exclusion and compliance.



7. RF Conducted Power

7.1. MESH Conducted Power

Band	Freq. (₩2)	Ch.	Conducted Power (dBm)	Conducted Power (nW)
MESH	2 410	12	13.92	24.66
	2 445	19	13.95	24.83
	2 475	25	13.28	21.28

Table 7-1 MESH Conducted Power

Note: The bolded channel at which the conducted Power was measured at the highest was recorded.





7.2. Bluetooth(QCC) Conducted Power

			Frequency	Conduct	ed Power
Mode	Data Rate	Ch. 0 0 39 78 0 39 78 0 39 78 0 39 78 0 39 78 0 39 78 0 39 78 0 0 39	[MHz]	[dB m]	[mW]
		0	2 402	15.82	38.19
	1 Mbps	39	2 441	15.93	39.17
		78	2 480	15.90	38.90
		0	2 402	-0.07	0.98
	2 Mbps	39	2 441	-0.04	0.99
Bluetooth		78	2 480	1.89	1.55
(QCC)		0	2 402	0.07	1.02
	3 Mbps	39	2 441	0.10	1.02
		78	2 480	2.02	1.59
		0	2 402	-1.22	0.76
	LE 1 Mbps	19	2 442	-1.10	0.78
		39	2 480	0.87	1.22

Table 7-2 Bluetooth(QCC) Conducted Power

Note: The bolded channel at which the conducted Power was measured at the highest was recorded.



Figure 7-2 Bluetooth(QCC) Transmission Plot

Equation 7-2 Bluetooth(QCC) Duty Cycle Calculation Duty Cycle of this device is $_{76.7\%}$ Duty Cycle[%] = (Pulse / Period) X 100 = (2.8623 / 3.7319) X 100 = $_{76.7\%}$



7.3. Bluetooth(AiroHa) Conducted Power

			Frequency	Conducted Power		
Mode	Data Rate	Ch.	[MHz]	[dB m]	[mW]	
		0	2 402	6.11	4.08	
	1 Mbps	39	2 441	6.04	4.02	
		78	2 480	5.29	3.38	
		0	2 402	0.07	1.02	
	2 Mbps	39	2 441	0.01	1.00	
Bluetooth		78	2 480	-0.70	0.85	
(AiroHa)	3 Mbps	0	2 402	0.21	1.05	
		39	2 441	0.15	1.04	
		78	2 480	-0.57	0.88	
		0	2 402	1.80	1.51	
	LE 1 Mbps	19	2 442	1.74	1.49	
		39	2 480	1.03	1.27	

Table 7-3 Bluetooth(AiroHa) Conducted Power

Note: The bolded channel at which the conducted Power was measured at the highest was recorded.



8. Tissue & System Verification

8.1. Tissue Verification

Tissue Type	Measured Frequency (MHz)	Tissue Temp (°C)	Measured Conductivity (σ)	Measured Permittivity (ε _r)	Target Conductivity (σ)	Target Permittivity (ε _r)	Conductivity Deviation (%)	Permittivity Deviation (%)	Test Date		
HSL2450	2 450	0 21.2	1.819	39.790	1.80	39.2	1.06	1.51	2025.01.24		
11022400	2 441		1.808	39.866	1.79	39.2	0.89	1.66	_0_0.0		

Table 8-1 Measured Tissue Properties

Tissue Verification Notes:

- 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 Publication 865664 D01v01r04 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.
- 2. Per April 2019 TCBC Workshop Notes, effective February 19, 2019, FCC has permitted the use of single headtissue simulating liquid specified in IEC 62209-1 for all SAR tests.



8.2. System Verification

Prior to SAR assessment, the system is verified to \pm 10 % of the SAR measurement on the reference dipole at the time of calibration by the calibration facility.

Table 8-2 S	system	Verification	Results -	1	g
-------------	--------	--------------	-----------	---	---

SAR System #	Test Date	Tissue Frequency (쌘)	Amb. Temp (℃)	Liquid Temp (°C)	Input Power (⊮)	Dipole SN	Probe SN	1W Target SAR-1 g (W/kg)	Measured SAR-1 g (W/kg)	Normalized to 1W SAR-1 g (W/kg)	Deviation (%)
1	2025.01.24	2 450	22.0	21.2	100	1075	7708	52.90	5.03	50.30	- 4.91



Figure 8-1 System Verification Setup Diagram

Figure 8-2 System Verification Setup Photo

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9. SAR Data Summary

9.1. Standalone Head SAR Data

									44 0/11					
	Device		Freque	ncy				Maximum	Measured	Scaling	Scaling	Power	Measured	Reported
Plot No.	Serial Number	Device Side	MHz	Ch.	Mode	Test Position	Spacing (㎝)	Allowed Power [dBm]	Conducted Power [dBm]	Factor (Duty Cycle)	Factor (Power)	Drift [dB]	SAR 1 g (W/kg)	SAR 1 g (W/kg)
	SAR1	Ant.1	2 441	39	1 Mbps	Top Side	2	17.0	15.93	1.304	1.279	0.05	0.027	0.044
	SAR1	Ant.1	2 441	39	1 Mbps	Bottom Side	2	17.0	15.93	1.304	1.279	0.08	0.024	0.040
3	SAR1	Ant.1	2 441	39	1 Mbps	Front Side	2	17.0	15.93	1.304	1.279	0.09	0.302	0.504
	SAR1	Ant.1	2 441	39	1 Mbps	Rear Side	2	17.0	15.93	1.304	1.279	0.14	0.196	0.327
	SAR1	Ant.1	2 441	39	1 Mbps	Right Side	2	17.0	15.93	1.304	1.279	0.02	0.153	0.255
	SAR1	Ant.1	2 441	39	1 Mbps	Left Side	2	17.0	15.93	1.304	1.279	0.03	0.166	0.277
ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure / General Population								Head 1.6 W/kg (⊪₩/g) Averaged over 1 gram						

Table 9-1 Bluetooth(QCC) Head SAR

9.2. SAR Test Notes

General Notes:

- 1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
- 2. Batteries are fully charged at the beginning of the SAR measurements.
- 3. Liquid tissue depth was at least 15.0 cm for all frequencies.
- 4. 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.
- 5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
- 6. Device was tested using a fixed spacing for head testing. A separation distance of 20 mm for MESH and Bluetooth were considered because the manufacturer has determined that a helmet that could support this separation distance would be on the market.
- 7. Per FCC KDB 447498 D01v06, SAR Testing was performed on the Flat Phantom for normal use for head. Additional SAR Testing was performed on the location closest to the Antenna of similar configuration to demonstrate compliance.

Bluetooth Notes:

 Per FCC KDB Publication 447498 D01v06, if the reported (Scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > 1/2 dB, instead of the middle channel, the highest output power channel was used.



10. SAR Measurement Uncertainty

A	b	, i i i i i i i i i i i i i i i i i i i	c	d	e=f(d, k)	f	a	h=c x f/e	l=c x a/e	k
	~			-		Ci	g Ci		. e x g/ e	
source of uncertainty	Ref	ι	Inc.	Prob	Div	(1 a)	(10, m)	Uncortainty	Uncortainty	Vi
source of uncertainty	iten.	÷	: %	Dist.	Div.	(19)	(10 g)	+ % (1 g)	+ % (10 a)	VI
Measurement system errors								± /0, (1 g)	± %, (10 g)	
	0411		<u>CE</u>	N	2.000	4	1	2.225	2 225	
Probe calibration	0.4.1.1	C.	.05	IN N	2.000	1	1	3.325	3.325	
Probe Linearity and detection	0.4.1.2		1.0	IN	1.000		1	1.00	1.00	
limit	8.4.1.3	4	4.7	R	1.732	1	1	2.71	2.71	∞
Broadband signal	8.4.1.4	:	3.0	Ν	2.000	1	1	1.50	1.50	∞
Probe isotropy	8.4.1.5	-	7.6	R	1.732	1	1	4.39	4.39	∞
Other probe and data acquisition errors	8.4.1.6	(0.3	Ν	1.000	1	1	0.30	0.30	∞
RF ambient and noise	8.4.1.7		1.8	Ν	1.000	1	1	1.80	1.80	00
Probe positioning errors	8.4.1.8	0	.25	Ν	1.000	0.67	0.67	0.17	0.17	-
Data processing errors	8.4.1.9	().3	N	1.000	1	1	0.30	0.30	∞
Phantom and device (DUT or	validation an	tenna) errors								
Measurement of phantom conductivity(σ)	8.4.2.1	1	.90	N	1.000	0.78	0.71	1.48	1.35	∞
Temperature effects (medium)	8.4.2.2	2.01	1.87	R	1.732	0.23	0.78	0.27	0.91	∞
Shell permittivity	8.4.2.3	1	4.0	R	1.732	0.5	0.5	4.04	4.04	∞
Distance between the radiating element of the DUT and the phantom medium	8.4.2.4	2	2.0	Ν	1.000	2	2	4.00	4.00	œ
Repeatability of positioning the DUT or source against the phantom	8.4.2.5	1.6	1.6	N	1.000	1	1	1.60	1.60	88
Device holder effects	8.4.2.6	2.5	2.0	Ν	1.000	1	1	2.50	2.00	-
Effect of operating mode on probe sensitivity DUT	8.4.2.7		2.4	R	1.732	1	1	1.39	1.39	œ
Time-average SAR	8.4.2.8	(0.0	R	1.732	1	1	0.00	0.00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Variation in SAR due to drift in output of DUT data	8.4.2.9		5.0	Ν	1.732	1	1	2.89	2.89	-
Corrections to the SAR result	(if applied)									
Phantom deviation from target (ɛˈ,ơ)	8.4.3.1		1.9	Ν	1.000	1	0.84	1.90	1.60	-
SAR scaling	8.4.3.2	(0.0	R	1.732	1	1	0.00	0.00	-
Combined standard uncertainty, u(ΔSAR)				RSS				10.10	10.00	Veff
Expanded uncertainty, U (95% Confidence Interval)				<i>k</i> = 2				20.20	20.00	

Table 10-1 Uncertainty of SAR equipment for measurement Head 0.3 GHz to 3 GHz



11. Equipment List

Equipment	Manufacturer	Model	Serial No.	Cal. Date	Next Cal. Date	Cal. Interval
SAR Chamber	Dymstec	N/A	N/A	N/A	N/A	N/A
Thermo-Hygrostat	㈜한국문터스	HK-030-AU1	1506231	N/A	N/A	N/A
Staubli Robot Unit	Staubli	TX60L	F15/5Y7QA1/A/01	N/A	N/A	N/A
Electro Optical Converter	SPEAG	EOC60	1096	N/A	N/A	N/A
SAM Twin Phantom V4.0C	SPEAG	TP-1138	1138	N/A	N/A	N/A
Device Holder	SPEAG	Mounting Device Upgrade	SD 000 H99 AA	N/A	N/A	N/A
Data Acquisition Electronics	SPEAG	DAE4	911	2024-03-14	2025-03-14	1 Year
E-Field Probe	SPEAG	EX3DV4	7708	2024-02-22	2025-02-22	1 Year
Dipole Antenna	SPEAG	D2450V2	1075	2024-02-19	2026-02-19	2 Years
RF Signal Generator	ANRITSU	68369B	992113	2025-01-10	2026-01-10	1 Year
BROA dB AND HIGH POWER AMPLIFIER	EMPOWER	1138	1030	2024-06-11	2025-06-11	1 Year
DUAL DIRECTIONAL COUPLER	HP	11692D	1212A03523	2024-06-11	2025-06-11	1 Year
EPM Series Power Meter	HP	E4419B	GB40202055	2025-01-10	2026-01-10	1 Year
E-Series AVG Power Sensor	Agilent	E9300H	MY41495967	2025-01-10	2026-01-10	1 Year
E-Series AVG Power Sensor	Agilent	E9300H	US39215405	2025-01-10	2026-01-10	1 Year
POWER METER	ANRITSU	ML2495A	1438001	2025-01-10	2026-01-10	1 Year
Pulse Power Sensor	ANRITSU	MA2411B	1339205	2025-01-10	2026-01-10	1 Year
Attenuator	HP	8491B	22234	2025-01-10	2026-01-10	1 Year
Attenuator	MINI- CIRCUITS	UNAT-10+	VUU38501715	2025-01-10	2026-01-10	1 Year
Low Pass Filter	FILTRON	F-LPCA- KOO1410	1408004S	2025-01-10	2026-01-10	1 Year
Low Pass Filter	FILTRON	F-LPCA- KOO1420	1408008S	2025-01-10	2026-01-10	1 Year
DIELECTRIC ASSESSMENT KIT	SPEAG	DAKS-3.5	1046	2024-04-15	2025-04-15	1 Year
Network Analyzer	HP	8720C	3124A01008	2024-06-11	2025-06-11	1 Year
HYGRO-THERMOMETER	DAEKWANG	811CE	NONE	2024-06-13	2025-06-13	1 Year
DIGITAL THERMOMETER	NONE	TP101	191105	2025-01-16	2026-01-16	1 Year
Spectrum Analyzer	R&S	FSV 30	101389	2024-04-16	2025-04-16	1 Year

Note:

CBT (Calibration Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a 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 calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

2. All equipment was used solely within its calibration period.





12. Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very 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 in possible biological effects 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 various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.





13. 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 radio frequency 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 radio frequency 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. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques. [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency 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. 1 -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 300 MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.

[13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, 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, Computermathematick, 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 Highfrequency: 10 kHz-300 GHz, Jan. 1995.

[19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hoschschule Zürich, Dosimetric Evaluation of the Cellular Phone.

[20] IEC 62209-1, Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz), July 2016.

[21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication 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, 2015



[23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07

[24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01

[25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-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] Anexo à Resolução No. 533, de 10 de Septembro de 2009.

[30] 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. SAR Plots for System Verification

The plots for system verification with largest deviation for each SAR system combination are shown as follows.





Test Laboratory: KES Co., Ltd.

Date: 2025-01-24

System Verification for 2450 MHz

DUT: Dipole D2450V2-SN: 1075

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1 Medium: HSL2450 Medium parameters used: f = 2450 MHz; $\sigma = 1.819$ S/m; $\epsilon_r = 39.79$; $\rho = 1000$ kg/m³ Ambient Temperature 22.0 °C; Liquid Temperature 21.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7708; ConvF(7.8, 8.1, 8.29) @ 2450 MHz; Calibrated: 2024-02-22

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn911; Calibrated: 2024-03-14

- Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: TP-1138; Serial: N/A

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100 mW/Area Scan (61x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm Maximum value of SAR (interpolated) = 8.44 W/kg

Pin=100 mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 70.90 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 10.2 W/kg SAR(1 g) = 5.03 W/kg; SAR(10 g) = 2.35 W/kg Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 49.2% Maximum value of SAR (measured) = 8.36 W/kg





Appendix B. SAR Plots for SAR Measurement

The plots for SAR measurement are shown as follows.



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Test Laboratory: KES Co., Ltd.

Date: 2025-01-24

P03_Bluetooth_BDR 1Mbps_Front Side_2 cm_Ch.39_Ant.1

DUT: BMW Motorrad ConnectedRide COM P1

Communication System: UID 0, Bluetooth BDR/EDR (0); Frequency: 2441 MHz;Duty Cycle: 1:1 Medium: HSL2450 Medium parameters used: f = 2441 MHz; $\sigma = 1.808$ S/m; $\epsilon_r = 39.866$; $\rho = 1000$ kg/m³ Ambient Temperature 22.0 °C; Liquid Temperature 21.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7708; ConvF(7.8, 8.1, 8.29) @ 2441 MHz; Calibrated: 2024-02-22

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn911; Calibrated: 2024-03-14
- Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: TP-1138;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (61x61x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm Maximum value of SAR (interpolated) = 0.408 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 15.23 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.589 W/kg
SAR(1 g) = 0.302 W/kg; SAR(10 g) = 0.152 W/kg
Smallest distance from peaks to all points 3 dB below = 12.2 mm
Ratio of SAR at M2 to SAR at M1 = 51.2%
Maximum value of SAR (measured) = 0.474 W/kg





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Appendix C. Probe & Dipole Antenna Calibration Certificates

The SPEAG calibration certificates are shown as follows.

The Swiss Accreditation Si Multilateral Agreement for	reditation Service (SAS) ervice is one of the signa the recognition of calibra	tories to the EA tion certificates	Accreditation No.: SCS 0108
Client KES Gyeonggl-do, F	Republic of Korea	Certificate No.	EX-7708_Feb24
CALIBRATION C	CERTIFICATE		
Object	EX3DV4 - SN:7	7708	
Calibration procedure(s)	QA CAL-01.v10 QA CAL-25.v8 Calibration proc	0, QA CAL-12.v10, QA CAL-14.v7	, QA CAL-23.v6, 95
Calibration date	February 22, 20	024	
All calibrations have been or Calibration Equipment used	M&TE critical for calibratio	ratory facility: environment temperature (22± n)	 ℃ and humidity < 70%.
All calibrations have been co Calibration Equipment used Primary Standards	ID	n) Cal Date (Certificate No.)	3) °C and humidity < 70%.
All calibrations have been co Calibration Equipment used Primary Standards Power meter NRP2 Power meter NRP2	ID SN: 104778	n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805)	3) °C and humidity < 70%. Scheduled Calibration Mar-24
All calibrations have been or Calibration Equipment used Primary Standards Power meter NRP2 Power sensor NRP-291 OCP DAK-3.5 (weighted)	ID SN: 104778 SN: 104244 SN: 104244	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804)	3) °C and humidity < 70%. Scheduled Calibration Mar-24 Mar-24
All calibrations have been or Calibration Equipment used Primary Standards Power meter NRP2 Power sansor NRP-291 OCP DAK-35 (weighted) OCP DAK-12	ID SN: 104778 SN: 104778 SN: 103244 SN: 1249 SN: 1016	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 05-Oct-23 (OCP-DAK3.5-1249_Oct23) 05-Oct-23 (OCP-DAK3.5-1249_Oct23)	3) °C and humidity < 70%. Scheduled Calibration Mar-24 Mar-24 Oct-24
All calibrations have been or Calibration Equipment used Primary Standards Power meter NRP2 Power sansor NRP-291 OCP DAK-35 (weighted) OCP DAK-12 Reference 20 dB Attenuator	ID SN: 104778 SN: 104778 SN: 103244 SN: 1249 SN: 1016 SN: CC2552 (20x)	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 05-Oct-23 (OCP-DAK3.5-1249_Oct23) 05-Oct-23 (OCP-DAK12-1016_Oct23) 30-Mar-23 (No. 217-03804)	3)*C and humidity < 70%. Scheduled Calibration Mar-24 Mar-24 Oct-24 Oct-24 Mar-24
All calibrations have been or Calibration Equipment used Primary Standards Power meter NRP2 Power sansor NRP-291 OCP DAK-35 (weighted) OCP DAK-12 Reference 20 dB Attenuator DAE4	ID SN: 104778 SN: 104778 SN: 103244 SN: 1249 SN: 1016 SN: CC2552 (20x) SN: 660	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 05-Oct-23 (OCP-DAK12-1016_Oct23) 05-Oct-23 (OCP-DAK12-1016_Oct23) 30-Mar-23 (No. 217-03809) 16-Mar-23 (No. 2A56-660 Mar23)	3) °C and humidity < 70%. Scheduled Calibration Mar-24 Mar-24 Oct-24 Oct-24 Mar-24 Mar-24
All calibrations have been or Calibration Equipment used Primary Standards Power meter NRP2 Power sensor NRP-291 OCP DAK-3.5 (weighted) OCP DAK-12 Reference 20 dB Attenuator DAE4 Reference Probe EX3DV4	ID SN: 104778 SN: 104778 SN: 103244 SN: 1016 SN: CC2552 (20x) SN: 660 SN: 7349	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 05-Oct-23 (OCP-DAK12-1016_Oct23) 30-Mar-23 (No. 217-03809) 16-Mar-23 (No. 217-03809) 16-Mar-23 (No. 247-03809) 03-Nov-23 (No. 243-7349_Nov23)	3)*C and humidity < 70%. Scheduled Calibration Mar-24 Oct-24 Oct-24 Oct-24 Mar-24 Mar-24 Mar-24 Nov-24
All calibrations have been or Calibration Equipment used Primary Standards Power sensor NRP2 Power sensor NRP-291 OCP DAK-3.5 (weighted) OCP DAK-12 Reference 20 dB Attenuator DAE4 Reference Probe EX3DV4 Secondary Standards	ID SN: 104778 SN: 104778 SN: 104778 SN: 103244 SN: 1249 SN: 1249 SN: 1016 SN: CC2552 (20x) SN: 660 SN: 7349	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 05-Oct-23 (OCP-DAK15-1249_Oct23) 05-Oct-23 (OCP-DAK15-1249_Oct23) 30-Mar-23 (No. 217-03809) 16-Mar-23 (No. 217-03809) 16-Mar-23 (No. DAE4-680_Mar23) 03-Nov-23 (No. EX3-7349_Nov23)	3) °C and humidity < 70%. Scheduled Calibration Mar:24 Mar:24 Oct:24 Oct:24 Oct:24 Mar:24 Mar:24 Mar:24 Mar:24 Mar:24 Nov-24
All calibrations have been or Calibration Equipment used Primary Standards Power meter NRP2 Power sensor NRP-291 OCP DAK-3.5 (weighted) OCP DAK-12 Reference 20 dB Attenuator DAE4 Reference Probe EX3DV4 Secondary Standards Power meter E44198	ID SN: 104778 SN: 104778 SN: 104778 SN: 103244 SN: 1249 SN: 1249 SN: 1249 SN: 02552 (20x) SN: 660 SN: 7349 ID SN: GB41293974	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 05-Oct-23 (OCP-DAK3.5-1249_Oct23) 05-Oct-23 (OCP-DAK3.5-1249_Oct23) 30-Mar-23 (No. 217-03809) 16-Mar-23 (No. 217-03809) 16-Mar-23 (No. 217-03809) Check Date (in house) 06-Acc 15 (in house)	3) °C and humidity < 70%. Scheduled Calibration Mar-24 Mar-24 Oct-24 Oct-24 Oct-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Scheduled Check
All calibrations have been or Calibration Equipment used Primary Standards Power meter NRP2 Power sensor NRP-291 OCP DAK-3.5 (weighted) OCP DAK-12 Reference 20 dB Attenuator DAE4 Reference Probe EX3DV4 Secondary Standards Power meter E4419B Power sensor E4412A	ID SN: 104778 SN: 104778 SN: 104778 SN: 103244 SN: 1249 SN: 1016 SN: CC2552 (20x) SN: 660 SN: 7349 ID SN: GB41293874 SN: MY41490087	atory facility: environment temperature (22 ± n) Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 05-Oct-23 (OCP-DAK3.5-1249_Oct23) 05-Oct-23 (OCP-DAK3.5-1249_Oct23) 30-Mar-23 (No. 217-03809) 16-Mar-23 (No. 217-03809) 16-Mar-23 (No. 217-03809) Check Date (in house) O6-Apr-16 (in house check Jun-22) O6-Apr-16 (in house check Jun-22)	3) °C and humidity < 70%. Scheduled Calibration Mar-24 Mar-24 Oct-24 Oct-24 Oct-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Scheduled Check In house check: Jun-24 In house check: Jun-24
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Schweizerischer Kallbrierdienst Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

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

Glossary

TSL	fissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	creat factor (1/duty cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization ϕ	φ rotation around probe axis
Polarization 8	rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., θ = 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:

- a) 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.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization θ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,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.
- DCPx,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
 Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,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 ≤ 800MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800MHz. 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 NORMx.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 NORMx (no uncertainty required).

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EX3DV4 - SN:7708

February 22, 2024

Parameters of Probe: EX3DV4 - SN:7708

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k = 2)
Norm (µV/(V/m) ²) A	0.64	0.65	0.66	±10.1%
DCP (mV) B	105.7	106.1	107.4	±4,7%

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dBõV	С	D dB	VR mV	Max dev.	Max Unc ^E k = 2
0	CW	X	0.00	0.00	1.00	0.00	132.1	±2.5%	±4.7%
	Deck Ser	Y	0.00	0.00	1.00	1000255	146.9	12220003	
		Z	0.00	0.00	1.00		138.5	1 C	
10352	Pulse Waveform (200Hz, 10%)	X	1.54	60.69	6.55	10.00	60.0	±2.7%	±9.6%
	1.00 M 54 04 04 04 04 04 04 04 04 04 04 04 05 05 04 05 05 05 05 05 05 05 05 05 05 05 05 05	Y	1.57	60.83	6.40		60.0		
	1012-4012-401-00	Z	1.56	60.83	6.53		60.0	1	
10353	Pulse Waveform (200Hz, 20%)	X	0.79	60.00	5.05	6.99	80.0	±2.4%	±9.6%
	0 ° 6	Y	22.00	74.00	9.00		80.0		
		Z	0.84	60.00	5.08		80.0		
10354	Pulse Waveform (200Hz, 40%)	X	0.18	137.59	0.42	3.98	95.0	+2.6%	±9.6%
		Y	0.01	122.29	0.40	0.035270	95.0	100000	022845247
		Z	0.47	60.00	4.00	i	95.0	l	
10355	Pulse Waveform (200Hz, 60%)	X	0.39	60.00	2.71	2.22	120.0	+1.5%	+9.6%
		Y	14.49	62.06	2.49		120.0		
		Z	12.04	156.29	7.64	1	120.0		
10387	QPSK Waveform, 1 MHz	X	0.59	63.57	12.48	1.00	150.0	±4.1%	±9.6%
	53 C	Y	0.49	61.18	10.66		150.0	1.11111	222-222
		Z	0.62	64.09	12.60		150.0		
10388	QPSK Waveform, 10 MHz	X	1.37	65.65	13.94	0.00	150.0	±1.4%	±9.6%
		Y	1.20	63.77	12.72	2.202.20	150.0	10028030	1000000
		Z	1.39	65.80	14.01		150.0		
10396	64-QAM Waveform, 100 kHz	X	1.59	63.53	15.50	3.01	150.0	±1.1%	±9.6%
		Y	1.59	63.32	15.19		150.0		
		Z	1.74	64.74	15.78		150.0		
0399	64-QAM Waveform, 40 MHz	X	2.84	66.12	15.02	0.00	150.0	±1.8%	+9.6%
		Y	2.70	65.24	14.44	1033000	150.0	1.525302	120402
		Z	2.86	66.23	15.04		150.0		
10414	WLAN CCDF, 64-QAM, 40 MHz	X	3.81	65.71	15.15	0.00	150.0	±3.3%	+9.6%
		Y	3.87	65.85	15.12	1.200.00	150.0	1000185	10000
		2	3.86	65.82	15.18		150.0		

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.

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EX3DV4 - SN:7708

February 22, 2024

Parameters of Probe: EX3DV4 - SN:7708

Sensor Model Parameters

	C1 fF	C2 fF	ν ^α ν ⁻¹	T1 msV ⁻²	T2 ms V ⁻¹	T3 ms	T4 V-2	T5 V ⁻¹	T6
x	10.3	73.92	33.00	2.03	0.00	4.90	0.21	0.00	1.00
y	10.4	75.29	33.24	3.41	0.00	4,90	0.38	0.00	1.00
z	10.8	76.46	32.40	4.58	0.00	4.90	0.61	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	-13.2°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 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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EX3DV4 - SN:7708

February 22, 2024

Parameters of Probe: EX3DV4 - SN:7708

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity [#]	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k = 2)
2450	39.2	1.80	7.80	8.10	8.29	0,30	1.27	±11.0%
3500	37.9	2.91	6,91	7.18	7.40	0,35	1.27	±13.1%
3700	37.7	3.12	6.79	7.05	7.29	0.35	1.27	±13.1%
4600	36.7	4.04	6.18	6.46	6.66	0.36	1.27	±13.1%
4800	36.4	4.25	6.08	6.39	6.59	0.36	1.27	±13.1%
4950	36.3	4.40	5.80	6.08	6.23	0.40	1.36	±13.1%
5200	36.0	4.66	5.89	6.19	6.37	0.33	1.60	±13.1%
5300	35.9	4.76	5.73	6.00	6.16	0.38	1.55	±13.1%
5500	35,6	4.96	5.22	5.51	5.66	0.40	1,61	±13.1%
5600	35.5	5.07	5.07	5.31	5.39	0.40	1.67	±13.1%
5800	35.3	5.27	5.16	5.38	5.42	0.39	1.78	±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 BS 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 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.⁵ The probes are calibrated using fissue simulating liquids (TSL) that deviate for *z* and *a* 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.⁶

^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.

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EX3DV4 - SN:7708

February 22, 2024

Parameters of Probe: EX3DV4 - SN:7708

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k = 2)
6500	34.5	6:07	5.24	5.62	5.70	0.20	2.00	±18.6%

^C Frequency validity at 5.5 GHz is -600/+700 MHz, and ±700 MHz at or above 7 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 issue simulating liquids (TSL) that deviate for z and or by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.
 ^B 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 hall the probe to clameter from the boundary.

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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
0	1.00	GW	CW	0.00	±4.7
10:010	CAB	SAR Validation (Square, 100 ms, 10 ms)	Test	10.00	±9.6
10011	CAG	UMTS-FDD (WCDMA)	WCDMA	2.91	±9.6
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	±9.6
10013	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	±9.6
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	±9.6
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	G5M	9.57	±9.6
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	±9.6
10025	DAC	EDGE FDD (TDMA, 8PSK, TN 0)	GSM	12.62	±9.6
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9,55	±9.6
10:027	DAC	GPRS-FDD (TDMA, GMSK, TN ()-1-2)	GSM	4.80	±9.6
10.028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	±9.6
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	±9.6
10:030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	±9.6
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Buetooth	1.87	±9.6
10032	CAA,	IEEE 802 15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	±9,6
10033	CAA	IEEE 802.15.1 Bluetoath (PI/4-DQPSK, DH1)	Bluetooth	7.74	±9.6
10034	CAA	IEEE 802.15.1 Blustooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	±9.6
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	±9.6
10036	CAA	IEEE 802.15,1 Bluetooth (8-DPSK, DH1)	Bluetoath	8.01	±9.6
10.037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	±9.6
10.038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	±9.8
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	±9.6
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrete)	AMPS	7.78	±9.6
10044	CAA	IS-91/EIA/TIA-553 FOD (FDMA, FM)	AMPS	0.00	±9.6
10048	GAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	19.6
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	±9.6
10.056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mops)	TD-SCDMA	11.01	+9.6
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	±9.6
10059	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	+9.6
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	+9.6
10061	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS. 11 Mbps)	WLAN	3.60	±9.6
10062	CAE	IEEE 802.11a/h WiFI 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	±9.6
10063	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	+9.6
10.064	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	19.6
10065	CAE	IEEE 802.11a/h W/FI 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	+9.6
10066	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	+9.6
10,067	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 38 Mbps)	WLAN	10.12	+9.6
10068	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	+9.6
10069	CAE	IEEE 802.11a/h WIFI 5 GHz (OFOM, 54 Mbps)	WLAN	10.56	+9.6
10071	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	±9.6
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.82	±9.6
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	±9.6
10074	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	+9.6
10075	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	±9.6
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	±9.6
10077	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	±9.6
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	±9.6
10.082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, Pl/4-DQPSK, Fulrate)	AMPS	4.77	±9.6
10090	DAG	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	±9.6
10097	CAC	UMTS-FDD (HSDPA)	WCOMA	3.98	+9.6
10098	CAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	:96
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±9.6
10100	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	±9.6
10101	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	19.6
10102	CAF	LTE-FOD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDO	6.60	+9.6
10109	CAH	LTE-TOD (SC-FDMA, 100% R8, 20MHz, QPSK)	LTE-TDD	9.29	+9.6
10104	CAH	LTE-TDO (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TOD	9.97	+9.6
10105	CAH	LTE-TOD (SC-FDMA, 100% RB, 20 MHz, 84-QAM)	LTE-TOD	10.01	-9.6
10108	CAH	LTE-FDD (SC-FOMA, 100% R8, 10 MHz, QPSK)	LTE-FDD	1.80	19.6
10109	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FOD	6.43	+9.6
10110	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	+9.6
10111	CAH	LTE FDD (SC FDMA, 100% RB, 5MHz, 16-QAM)	LTE-FOD	6.44	+9.6
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0112 0	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 84-QAM)	LTE-FDD	6.59	±9.6
0113 0	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDO	6.62	±9.6
0114 0	CAE	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	19.6
115 (CAE	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	±9.6
116 0	CAE	IEEE 802.11n (HT Greenfield, 135 Mops, 64-QAM)	WLAN	8.15	19.6
117 0	CAE	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	±9.6
118 (CAE	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	19.6
119 0	CAE	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	±9.6
140 0	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	±9.6
141 0	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 84-QAM)	LTE-FDD	6.53	±9.6
142 (CAF	LTE-FDD (SC-FDMA, 100% RB, 3MHz, QPSK)	LTE-FDD	5.73	:9.6
143 0	CAF	LTE-FDD (SC-FDMA, 100% RB, 3MHz, 16-QAM)	LTE-FDD	6.35	±9.6
144 0	CAF	LTE-FDD (SC-FDMA, 100% RB, 3MHz, 64-QAM)	LTE-FDD	6.65	±9.6
145 0	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FOD	5.76	±9.6
146 (CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-DAM)	LTE-FOD -	6,41	±9.6
147 0	CAG	LTE-FOD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FOD	6.72	±9.6
149 0	CAF	LTE-FDD (SC-FDMA, 50% R8, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
150 0	CAF	LTE-FDD (SC-FDMA, 50% R8, 20 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
151 0	CAH	LTE-TOD (SC-FDMA, 50% R8, 20 MHz, QPSK)	LTE-TOD	9.28	±9.8
152 0	CAH	LTE-TOD (SC-FDMA, 50% R8, 20 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
153 (CAH	LTE-TDD (SC-FDMA, 50% R8, 20 MHz, 64-QAM)	LTE-TDD	10.05	±9.6
154 0	CAH	LTE-FDD (SC-FDMA, 50% R8, 10 MHz, QPSK)	LTE-FDD	5.75	+9.6
155 (CAH	LTE-FDD (SC-FDMA, 50% R8, 10 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
156 0	CAH	LTE-FDD (SC-FDMA, 50% R8, 5 MHz, QPSK)	LTE-FOD	5.79	±9.6
157 (CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	29.6
158 0	CAH	LTE FDD (SC-FDMA, 50% RB, 10 MHz, 84-QAM)	ITE-FDD	6.62	+9.8
159 0	CAH	LTE-FDD (SC-FDMA, 50% R8, 5 MHz, 64-QAM)	LTE-FDD	6.56	+9.6
0160 0	CAF	LTE-FDD (SC-FDMA, 50% R8, 15 MHz, OPSK)	LTE-FDD	5.82	+9.6
0161 0	CAF	LTE-FDD (SC-FDMA, 50% R8, 15 MHz, 16-QAM)	LTE-FDD	6.43	+9.6
0162 0	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	+9.6
166 0	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, OPSK)	LTE-EDD	5.45	+9.6
0167 0	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-DAM)	LTE-FDD	6.21	+9.6
0168 0	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	+9.6
0169 0	CAF	LTE-FDD (SC-FDMA, 1 RB, 20MHz, QPSK)	LTE-FDD	5.73	+9.6
0170 0	CAF	LTE-FDD (SC-FDMA, 1 BB, 20MHz, 18-DAM)	ITE-EDD	6.52	+9.6
171 /	AAF.	LTE-FDD (SC-FDMA, 1 RB, 20MHz, 64-DAM)	ITE-FDD	6.49	+9.6
172 0	HAC	LTE-TDD (SC-FDMA, 1 RB, 20MHz, QPSK)	LTE-TDD	9.21	19.6
0173 0	HAC	LTE-TDD (SC-FDMA, 1 R8, 20 MHz, 16-OAM)	LTE-TOD	9.48	+9.6
174 0	CAH	LTE-TDD (SC-FDMA, 1 RB, 20MHz, 64-OAM)	LTE-TDD	10.25	+9.6
0175 0	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, OPSK)	LTE-FDD	5.72	+9.6
0176 C	HAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHy, 16-OAM)	LTE-EDD	6.62	19.6
177 C	LAC	LTE-FDD (SC-FDMA, 1 RB, 5MHz, OPSK)	LTE-FDD	5.73	+9.6
1178 C	CAH	LTE-FOD (SC-FDMA, 1 BB, 5MHz, 16-OAM)	175-500	6.62	-9.6
1179 0	AH	LTE-FDD (SC-FDMA 1 BB 10 MHz 64-QAM)	LTE-FDO	6.50	+9.6
1180 C	AH	LTE-FDD (SC-FDMA, 1 BB, 5MHz, 54-QAM)	LTE-FDD	6.50	+9.6
181 0	SAF	LTE FDD ISC-FDMA 1 BB 15MHz OPSKI	LTE-EDD	6.72	+9.8
182 0	A.F	LTE-FDD /SC-FDMA 1 RR 15MHz 16-OAM	ITE-FDD	6.52	8.0±
183 A	AE	LTE-FDD (SC-FDMA, 1 RB, 15MHz 64-DAM)	175-500	6.50	+9.6
184 C	AF	LTE-FDD (SC-FDMA, 1 RB, 3MHz, OPSK)	LTE-FDD	5.73	+9.6
185 0	AF	LTE-FDD (SC-FDMA, 1 RB, 3MHz, 16-DAM)	ITE-EDO	8.51	+0.6
186 A	VAF	LTE-FDD (SC-FDMA, 1 RB, 3MHz, 64-OAM)	175-500	6.50	10.0
187 0	AG	LTE-FDD (SC-FDMA, 1 BB, 1.4 MHz, OPSK)	LTE-EDD	5.73	+9.6
188 0	CAG	LTE-FDD (SC-FDMA, 1 BB, 1.4 MHz 16-DAM)	LITE-EDD	6.50	10.0
189 A	MG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-DAM)	LITE-EDD	6.60	10.0
193 0	AE	IEEE 802 11n (HT Greenfield, 6 5 Minus, 8PSK)	WIAN	8.09	10.0
194 0	AE	IEEE 802.11n (HT Greenfield, 39 Mbos, 16-OAM)	WIAN	8.12	19.6
195 0	AF	EEE 802 11n (HT Greenfield, 65 Mixe, 64-OAM)	WI AN	8.91	19.5
196 C	AE	IEEE 802.11n (HT Mixed, 6.5 Mbos, BPSK)	WLAN	8.10	198
197 0	AE	IEEE 802.11n (HT Mixed, 39 Mbps, 16 QAMI	WEAN	8.12	196
198 C	AE	IEEE 802.11n (HT Mxed, 65 Mbps, 64-QAM)	WE AN	8.97	19.6
219 0	AE	IEEE 802 11n OFT Mixed, 7.2 Mbos, BPSK)	WLAN	8.02	+9.6
220 0	AF	IEEE 802 11n (HT Mixed 43 3 Mine 16 DAM)	Mit Ali	8.13	10.0
221 0	IAE	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-OAM)	WE AN	8.12	10.0
222 0	AE	IEEE 802.11n (HT Mixed, 15 Mpos, BPSK)	UD AN	8.06	10.0
223 0	AF	IEEE 802 11n (HT Mixed SOMPOR 16-OAM)	DUL AAL	2.48	20.0
224 0	AF	IEEE 802 11n IHT Mixed 150 Mixes 84 (OAM)	THURSE INC.	0.40	29.0
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0225	CAG	UMTS-FDD (HSPA+)	WCDMA	5.97	±9.6
0.226	GAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	8.49	±9.6
0227	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6
9228	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TOD	9.22	±9.6
0229	CAE	LTE-TDD (SC-FDMA, 1 RB, 3MHz, 16-QAM)	LTE-TDD	9.48	±9.6
0230	CAE	LTE-TDD (SC-FDMA, 1 RB, 3MHz, 64-QAM)	LTE-TDD	10.25	±9:6
0231	CAE	LTE-TDD (SC-FDMA, 1 RB, 3MHz, QPSK)	LTE-TOD	9.19	±9.6
0232	CAH	LTE-TDD (SC-FDMA, 1 RB, 5MHz, 16-QAM)	LTE-TOD	9.48	±9.6
3233	CAH	LTE-TDD (SC-FDMA, 1 RB, 5MHz, 64-QAM)	LTE-TDD	10.25	±9.6
0234	CAH	LTE-TDD (SC-FDWA, 1 RB, 5 MHz, GPSK)	LTE-TOD	9.21	±9.6
0235	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TOD	9.48	±9.6
236	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TOD	10.25	±9.6
237	CAH	LTE-TDD (SC-FDMA, 1 R8, 10 MHz, QPSK)	LTE-TOD	9.21	±9.6
238	CAG	LTE-TDD (SC-FDMA, 1 R8, 15 MHz, 16 QAM)	LTE-TOD	9.48	±9.6
239	CAG	LTE-TDD (SC-FDMA, 1 R8, 15 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
1240	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	±9.6
1241	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 18-QAM)	LTE-TDD	9.82	+9.6
242	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TOD	9.86	+9.6
243	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	+9.6
244	CAE	LTE-TDD (SC-FDMA, 50% R8, 3 MHz, 18-QAM)	LTE-TDD	10.06	+9.6
245	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.05	+9.6 + 9.4
246	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	+9.6
247	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-OAM)	LTE-TOD	6.61	±0.0
248	CAH	LTE-TDD (SC-FDMA, 50% RB, 5MHz, 64-OAM)	ITE-TOD	10.00	+0.6
249	CAH	LTE-TOD (SC-EDMA 50% BB 5MHz OPSK)	LTE-TOD	0.00	10.0
250	CAH	LTE-TOD (SC-EDMA 50% PB 10MHz 15 CAM)	ITE TOD	0.81	10.0
251	CAH	TE-TOD (SC-EDMA 50% BB 10 MHz 24 OAM)	LIE TOD	5.01	10.0
28.9	CAH	TE TOD ISC FDMA 50% BB 10MHz (OPG/M)	LIETDD	10.17	10.61
253	CAG	ITE TOD (SC-EDAM SOS DD 15MH) 18 OAM	LIE-IDD	9.24	23.0
254	CAG	TTE TOD (SC FDMA, SPE NB, 10 MPZ, 10-GAM)	LIE-TOD	9.90	£9.8
355	CAG	LTE TOD (20 FDMA, 30% HB, 15 MHZ, 56 GAM)	TIE-IDD	10.14	±9.8
200	CAC	LTE TOD (SC PDMA, SUS HB, ISMHZ, GPSK)	LTE-TDD	9.20	19.6
200	CAC.	LTE-TOD (SC-FDMA, 100% HB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	±9.5
223/	CAC	LTE-TUW (SC-PUMA, 100% HB, 1.4 MHZ, 64-QAW)	LIE-TOO	10.08	±9.6
258	045	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDO	9.34	±9.6
259	GAE	LTE-TDD (SG-FDMA, 100% FB, 3MHz, 16-QAM)	LTE-TDO	9.98	±9.6
260	GAE	LTE-TDD (SC-FDMA, 100% RB, 3MHz, 64-QAM)	LTE-TDO	9.97	±9.6
261	GAE	LTE-TDD (SC-FDMA, 100% R8, 3 MHz, OPSK)	LTE-TDD	9,24	±9.6
262	CAH	LTE-TDD (SC-FDMA, 100% RB, 5MHz, 16-QAM)	LTE-TDO	9.83	±9.6
263	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	±9.6
264	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, OPSK)	LTE-TDD	9.23	±9.6
265	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
266	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10,07	±9.6
267	CAH	LTE-TOD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	±9.5
268	CAG	LTE-TOD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	±9.6
868	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10,13	+9.6
270	CAG.	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	±9.6
274	CAC	UMTS-FDO (HSUPA, Subtest 5. 3GPP Rel8.10)	WCDMA	4.87	±9.6
275	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.95	±9.6
277	CAA	PH5 (QPSK)	PHS	11.81	±9.6
278	CAA	PHS (QPSK, BW 884 MHz, Roloff 0.5)	PHS	11.81	+9.6
279	CAA	PHS (QPSK, BW 884 MHz, Roloff 0.38)	PHS	12.18	+9.6
062	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	±9.6
291	BAA	CDMA2000, RC3, SO55, Full Rate	COMA2000	3.46	+9.6
292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	+9.6
293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	+9.6
295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 tr.	CDMA2000	12.49	+9.6
287	AAE	LTE-FOD (SC-FDMA, 50% RB, 20MHz, QPSK)	LTE-FOD	5.81	+9.6
98	AAE	LTE-FDD ISC-FDMA, 50% RB, 3 MHz, QPSKI	LTE-FDD	5.72	+9.6
99	AAE	LTE-FDD (SC FDMA, 50% RB, 3 MHz, 16-OAM)	LTE-FDD	6.39	+9.6
100	AAE	LTE-FDD (SC-FDMA, 50% RB, 3MHz, 64-DAM)	LTE-FDO	6.60	200
101	AAA	IEEE 802 16e WIMAX (29:18 5ms, 10 MHz, OPSK, PURC)	WIMAY	12.00	10.0
102	AAA	IEEE 802 16e WIMAX (29.18, 5ms, 10 Miler, OPSK, PUSC, 3 CTEL suminant	WiMAY	12.03	10.0
303	AAA	IEEE 802 16e WMAX (31:15.5ms 10 MHz 640 AM PURC)	WIMAY	12.3/	19.0
304	AAA	IFFE 802 16# WIMAX (29:18 5ms 10 MHz 640AM BLISC)	WIMPA WIMPA	36-31	19.6
05	444	IEEE 802 16a WIMAX (31.15, 10 me, 10 MHz, 540 AM, 60 KC, 15 mms - 11	WINDA	11.00	19.6
tine	444	IEEE 802 18a WAAAX (29-18, 10 ms, 10 MHz, 540AM, FUGG, 13 Sympols)	WINAA	10.24	19.6
and its	menter.	in the second strength (caller, 10 ma, 10 mHz, 040AM, PUSC, 18 symbols)	WIMAX	14.87	±9.6



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10307	AAA	IEEE 802 16e WIMAX (29:18, 10 ms. 10 MHz, QPSK, PUSC, 16 symbols)	WMAX	14.49	19.6
10308	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, 16QAM, PUSC)	WIMAX	14.46	19.6
10309	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, 16QAM, AMC 2x3, 18 symbols)	XAMAW	14.58	±9.6
10310	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, QPSK, AMC 2x3, 18 symbols)	WIMAX	14.57	19.6
10311	AAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	±9.6
0313	AAA	IDEN 1:3	IDEN	10.51	±9.6
0.314	AAA	IDEN 1.6	IDEN	13.48	±9.6
0315	AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	WLAN	1.71	19.6
10316	AAB	IEEE 802.11g WIFI 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	±9.8
10317	AAE	IEEE 802.11a WIFI 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8,36	29.6
0352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	±9.6
0353	AAA	Pulse Wavelorm (200Hz, 20%)	Generic	6.99	±9.5
0354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	19.6
0355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	19.6
10.356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	19.6
0387	AAA	GPSK Waveform, 1 MHz	Generic	5,10	±9.6
0388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	±9.6
0.396	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	±9.0
0399	AAA,	64-QAM Waveform, 40 MHz	Generic	6,27	±9.6
0.400	AAF	IEEE 802.11ab WiFi (20 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.37	±9.6
0401	AAF	IEEE 802.11ac WIFI (40 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.60	±9.6
0402	AAF	IEEE 802.11ac WIFI (80 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.53	±9.6
0403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	±9.6
0.404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	±9.6
0.406	AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	COMA2000	5.22	±9.6
0410	AAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	LTE-TOO	7.82	+9.6
0414	AAA	WLAN CCDF, 64-QAM, 40 MHz	Generic	8.54	±9.6
0.415	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	WLAN	1.54	=9.6
0416	AAA	IEEE 802.11g WIFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	+9.6
0417	AAD	IEEE 802.11a/h WiFi 5.GHz (OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	+9.6
3418	AAA	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	WLAN	8.14	+9.6
0419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 96pc duty cycle, Short preambule)	WLAN	8.19	+9.6
0.422	AAD	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	+9.6
0.423	AAD	IEEE 802 11n (HT Greenfield, 43.3 Mbps. 16-QAM)	WLAN	8.47	±9.6
0.424	AAD	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	+9.6
0.425	AAD	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	±9.6
0426	AAD	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	±9.6
0427	AAD	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	=9.6
0430	AAE	LTE-FDD (OFDMA, 5MHz, E-TM 3.1)	LTE-FDD	8.28	+9.6
0431	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	±9.6
0432	AAD	LTE-FDD (OFDMA, 15MHz, E-TM 3.1)	LTE-FDD	8.34	+9.6
0.433	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	+9.6
0.434	AAB	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	+9.6
0.435	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2.3.4.7.8.9)	LTE-TDD	7.82	+9.6
3447	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	+9.6
0448	A,AE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Glippin 44%)	LTE-FDO	7.53	+9.6
1449	AAD	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	±9.6
0450	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	+9.6
9451	AAB	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	+9.6
453	AAE	Validation (Square, 10 ms, 1 ms)	Test	10.00	+9.6
456	AAD	IEEE 802.11ac WIFI (160 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.63	+9.6
457	AAB	UM15-FDD (DC-HSDPA)	WCDMA	6.62	+9.6
458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	+9.6
459	A,A,A	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	=9.6
460	AAB	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	+9.6
461	AAC	LTE-TOD (SC-FDMA, 1 RB, 1.4 MHz, OPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subtrame=2.3,4,7,8,9)	LTE-TDD	8.30	19.6
463	AAC	LTE-TOD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe+2,3,4,7,8,9)	LTE-TOD	8.56	19.6
464	DAA	LTE-TOD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2.3,4,7,8,9)	LTE-TOD	7.82	±9.6
465	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-DAM, UL Subhame=2,3,4,7,8,9)	LTE-TOD	8.32	19.6
466	AAD	LTE-TDD (SC-FDMA, 1 RB, 3MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDO	0.57	19.6
467	EAA	LTE-TOD (SC-FDMA, 1 RB, 5MHz, QPSK, UL Subtrame=2,3,4,7,8,9)	LTE-TDO	7,82	+9.6
468	AAG	LTE-TOD (SC-FDMA, 1 RB, 5MHz, 15-QAM, UL Subframe=2.3.4.7.8.9)	LTE-TDO	8.32	49.6
469	AAG	LTE-TOD (SC-FDMA, 1 RB, 5MHz, 64-QAM, UL Subframe=2.3.4.7.6.9)	LTE-TDD	8.58	+0.6
470	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2.3,4,7,8,9)	LTE-TDD	7.82	+9.6
471	AAG	LTE-TDD (SC-FDMA, 1 R8, 10 MHz, 16 GAM, UL Subframe+2.3.4.7.8.9)	LTE-TDD	8.92	+0.6
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0.472	AAG	LTE-TDD (SC-FDMA, 1 RB, 10MHz, 64-QAM, UL Subframe=2.3.4.7.8.9)	LTE-TOD	8.57	±9.6
0473	AAF	LTE-TDD (SC-FDMA, 1 RB, 15MHz, QPSK, UL Subframe=2.3.4.7.8.9)	LTE-TOO	7.82	±9.0
0.474	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16 QAM, UL Subtrame=2.3.4.7.8.9)	LTE-TOD	8.32	+9.6
475	AAF	LTE-TDD (SC-FDMA, 1 R8, 15MHz, 64-DAM, UL Subtrames 2.3.4.7.8.9)	LTE-TOO	8.57	A.R.+
477	AAG	LTE-TDD (SC-FDMA_1 RR_20MRr_16-DAM_UL_Subframe-2.3.4.7.8.9)	LTE-TOO	8.32	+9.6
478	AAG	TTE-TDD /SC-EDMA 1 BB 20MHz E4-OAM LL Subtrame-23478.0	ITE-TOO	8.57	10.6
479	440	LTE-TDD /SC-EDMA 50% BB 1 4MHz ODSK 111 Subtrame 23.4.78 BI	175,700	7.74	+0.0
480	0.00	TTE TDD (SC EDWA 60% DD 14480+ 15 CAM UL Subleme 22472.0)	LIE TOO	0.10	10.0
400	A 6/	LTE TOD /OC CDAM, DO'S PD, 14 MPZ, 10 GPM, DL OUDITATIONZ, 3,4,7,8,8]	LIE-TOD	0.10	28/0
401	440	LTE TOD (OU FUMA, 50% RD, 1.4 MRZ, 54-GAM, UL SUDREREAZ,3,4,7,8,9)	LIE-TOD	8.40	##/0
10%	AND	LTE-TDU (SG-PDMA, 50% HE, 3MHZ, GPSK, UL SUBMITTER2,3,4,7,8,9)	LIE-TUD	7.71	19.0
483	AAD	LTE-TDU (SC-FDMA, 50% HB, 3 MHZ, 16-QAM, UL Sobhame=2,3,4,7,8,9)	LTE-TDD	8.39	±9.6
484	JAAU	LTE-TDD (SC-FDMA, 50% HB, 3 MHz, 64-QAM, UL Subtrame=2,3,4,7,8,9)	LTE-TDD	8,47	±9.5
485	AAG	LTE-TDD (SC-FDMA, 50% RB, 5MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.59	±9.6
486	AAG.	LTE-TDD (SC-FDMA, 50% R8, 5 MHz, 16-QAM, UL Subtrame=2.3,4,7,8,9)	LTE-TDD	8.38	19.6
487	AAG	LTE-TDD (SC-FDMA, 50% R8, 5 MHz, 64-QAM, UL Subframe=2:3,4,7,8,9)	LTE-TDD	8.60	±9.6
488	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.70	±9.6
489	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subtrame=2,3,4,7,8,9)	LTE-TDD	8.31	±9.6
490	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe+2,3,4,7,8,9)	LTE-TOD	8.54	19.6
491	AAF	LTE-TDD (SC-FDMA, 59% R8, 15MHz, QPSK, UL Subframe=2.3,4,7,8,9)	LTE-TOD	7.74	19.6
492	AAF.	LTE-TDD (SC-FDMA, 50% R8, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.41	+9.6
493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2.3.4,7.8.9)	LTE-TDD	8.55	19.8
494	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, OPSK, LE, Subframew9,3.4.7 8 %)	LTE-TOO	7.74	+9.6
496	AAG	LTE-TOD (SC-FDMA 50% BR 20 MHz 16 CAM LL Subtrame-2.2.4.7.6.2)	LTE-TDD	9.97	10.0
305	AAG	TE-TOD (SC-EDMA 50% DR 20MHz 84 DAM US Subleme 2.3.4.7.6.9)	UTE TOO	0.37	10.0
490	AAC	LTC TOD ICC EDAM 1000 DD 1 ANU- ODDV 10 C SUBTRITINE, 3,9,7,8,9	LIE-TOD	8.04	19.0
407	440	TTE TOD IOC FORM, 100% PD 1 1101, 15 OH1 15 D 11 10 P	LIEIDU	1.07	±9.6
490	AND A	LTE-TOD (SC-FDMA, 100% RB, 1.4 MHz, 15-QAM, UL Subframe=2,3,4,7,8,9)	LIE-TDD	8,40	±9.6
e9à	MAG.	LTE-TDD (SC-FDMA, 100% HB, 1.4 MHz, 64-QAM, UL Subhame=2,3,4,7,8,9)	LTE-TDD	8.68	±9.6
500	AAD	LTE-TDO (SC-FDMA, 100% RB, 3MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.67	±9.6
501	AAD	LTE-TDD (SC-FDMA, 100% RB, 3MHz, 16-QAM, UL Subframe=2.3,4,7,8,9)	LTE-TDD	B.44	±9.6
502	AAD	LTE-TDD (SC-FDMA, 100% RB, 3MHz, 64-QAM, UL Subirame+2,3,4,7,8,9)	LTE-TDD	8.52	±9.6
50.3	AAG	LTE-TDD (SC-FDMA, 100% RB, 5MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.72	±9.6
504	AAG	LTE-TDD (SC-FDMA, 100% RB, 5MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	±9.6
505	AAG	LTE-TDD (SC-FDMA, 100% R8, 5 MHz, 64-QAM, UL Subtrame=2.3.4,7,8,9)	LTE-TDD	8.54	±9.6
506	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2.3,4,7,8,9)	LTE-TDD	7.74	±9.6
507	AAG	LTE-TDD (SC-FDMA, 100% R8, 10 MHz, 16-QAM, UL Subframe=2.3.4,7.8.9)	LTE-TOD	8.36	49.6
508	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2.3.4.7.8.9)	LTE-TOD	8.55	+9.6
509	AAF	LTE-TOD (SC-FOMA, 100% RB, 15 MHz, OPSK, UL Subframe=2.3.4.7.8.9)	LTE-TDD	7.99	+9.6
510	AAF	LTE-TOD (SC-FDMA, 100% RB, 15 MHz, 16-OAM, LIL Subtrame-2 3.4.7.8.9)	175-700	8.40	+9.6
511	AAF	LTE-TOD ISC-FDMA, 100% R8, 15 MHz, 64-OAM, LIL Subtramew2 3 4 7 8 90	LTE-TOD	8.51	+9.6
512	AAG	TE-TDD (SC FOMA 100% BR 20 MHz OPSK 11 Subtrame-2.3.4.7.8.9)	LITE TOD	7.74	19-0
613	AAG	TE TOD ISC FDMA 100% BB 20 Mile 16 (DAM 11 Subtrana 23 4 7 8 0)	175.700	8.40	18.0
514	AAG	TE-TOD (SC-EDMA 100% DB 2044b) 84 CAM 11 Subhama 3.3.4.7.8.9	LTE-TOO	0.42	19.0
618	444	IEEE 000 11b WEI 0 1 000 00000 0 0000 0 0000 0 0 0000000	LIE-IDD	8.45	39.6
010	7007	TEEE SU2.110 WIFI 2.4 GHz (USSS, 2 Mbps, sept duty cycle)	WLAN	1.58	±9,6
910	000	IDEE 802.110 WIFI 2.4 GH2 (DSSS, 5.5 Mbps, 99pc duty cycle)	WLAN	1,57	±9.6
11/	AAA	IEEE 802.11b WFI 2.4 GHZ (USSS, 11 Mbps, 99pc duty cycle)	WLAN	1.58	±9.6
118	DAA	RECE BUZ 11&PI WIFI 5 GHz (OFDM, 9 Maps, 99pc duty cycle)	WLAN	8.23	±9.6
19	AAD	Itcht: 802.11a/h WIFI 5 GHz (DFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.39	±9.6
050	AAD	IEEE 802.11a/h WIFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8,12	±9.6
521	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	WLAN	7.97	±9.6
22	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
123	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.08	19.6
24	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.27	±9.6
25	AAD	IEEE 802.11ac WFI (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.36	±9.6
26	AAD	IEEE 802.11ab WIFI (20 MHz, MCS1, 99pc duty cycle)	WLAN	B.42	19.6
127	AAD	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.21	49.6
85	AAD	IEEE 802.11ac WiFi (20 MHz, MCS3, 99oc duty cycle)	WLAN	8.36	+9.6
29	AAD	IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.36	+9.6
31	AAD	IEEE 802.11ac WIFI (20 MHz, MCS6, 99pc duty cycle)	WLAN	849	10.0
32	AAD	IEEE 802.11ac WIFI (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.20	-0.0
33	AAD	IEEE 802.11ac WIFI (20 MHz MCS8, 99oc duty currie)	Wi Ahr	0.69	29.0
194	440	IFFE BOD LLAC WIE (AD MAR MC SD BOAR 4 IN SUMM)	MA AN	8.38	59.0
200	445	IEEE 000 1144 INELIADADE ANOTA ONA CALL AND A	WLAN	8.45	±9.6
100	840	IEEE 008.1146 WE (40 MP), MC31, 3900 OUTY CYDE)	WLAN	8.45	±9.6
2.20	AAC	IEEE OVE THE WITH WUMPE, MUSE, SHED OUT CYCR)	WLAN	8.32	±9.6
137	AAD .	HELE BUZ 114C WH (40 MHz, MGS3, 98pc duty cycle)	WLAN	8.44	19.6
38	AAD	IEEE 802,11ac WIFI (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.54	±9,6
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0541	AAD	IEEE 802.11ac WiFi (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.46	±9.6
0542	AAD	IEEE 802.11ac WiFI (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.65	49.6
0543	AAD	IEEE 802.11ac WiFi (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.65	±9.6
0544	AAD	IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.47	±9.6
545	AAD	IEEE 802.11ac WIFI (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
546	AAD	IEEE 802.11ac WiFi (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.35	±9.6
547	AAD	IEEE 802.11ac WIFI (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.49	±9.6
548	AAD	IEEE 802.11ac WIFI (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.37	±9.6
550	AAD	IEEE 802.11ac WIFi (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.38	±9.6
551	AAD	IEEE 802.11ac WIFI (80 MHz, MCS7, 99pc duty cycle)	WEAN	8.50	±9.6
552	AAD	IEEE 802.11ac WFi (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.42	±9.6
553	AAD	IEEE 802.11ac WFI (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.45	±9.6
564	AAE	IEEE 802.11ac WFI (160 MHz, MCS0, 99pc duty cycle)	WEAN	8.48	±9.6
555	AAE	IEEE 802.11ac WIFI (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
556	AAE	IEEE 802.11ac WFI (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.50	±9.6
557	AAE	IEEE 802.11ac WIFI (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.52	±9,6
558	AAE	IEEE 802.11ac WIFI (160 MHz, MCS4, 59pc duty cycle)	WLAN	8.61	±9,6
560	AAE	IEEE 802.11ac WIFI (160 MHz, MCS6, 99pc duty cycle)	WLAN	8,73	±9.6
561	AAE	IEEE 802.11ac WIFI (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.56	±9.6
562	AAE	IEEE 802.11ac WiFi (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.69	±9.8
683	AAE	IEEE 802.11ac WIFI (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.77	±9,6
64	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.25	±9.6
565	A,A,A	IEEE 802.11g WFI 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
966	AAA	IEEE 802.11g WFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.13	±9.6
967	A,A,A	IEEE 802.11g WFI 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	WLAN	8.00	±9.6
568	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.37	±9.6
69	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFOM, 48 Mbps, 99pc duty cycle)	WLAN	8.10	±9.6
570	AAA.	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.30	±9.6
71	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	WLAN	1.99	±9-6
72	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	WLAN .	1.99	±9.6
73	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
74	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	WI.AN	1.98	± 9.6
75	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mops, 90pc duty cycle)	WLAN	8.59	±9,6
78	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mops, 90pc duty cycle)	WLAN	8.60	±9.6
577.	AAA	IEEE 802.11g WIFi 2.4 GHz (DSSS-OFDM, 12 Mops, 90pc duty cycle)	WLAN	8.70	±9.6
578	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
579	AAA	IEEE 802.11g WIFi 2.4 GHz (DSSS-OFDM, 24 Mops, 90pc duty cycle)	WLAN	8.36	±9.6
80	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
581	A,A,A	IEEE 802.11g WIFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
82	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.87	±9.6
63	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
84	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.90	±9.6
85	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
86	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
87	AAD	IEEE 802:11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.96	±9.6
88	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8,76	±9.6
69	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
90	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
51	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS0, 90pc duty cycle)	WLAN	8.63	±9.6
92	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
93	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS2, 90pc duty cycle)	WLAN	8.64	±9.6
94	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
95	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS4, 90pc duty cycle)	WLAN	B.74	±9.6
95	AAD	IEEE 802.11n (HT Mixed; 20 MHz, MCSS, 90pc duty cycle)	WLAN	8.71	±9.6
97	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS6, 90pc duty cycle)	WLAN	8.72	±9.6
38	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS7, 90pc duty cycle)	WLAN	8.50	±9.6
99	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS0, 90pc duty cycle)	WLAN.	8.79	±9.6
00	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS1, 90pc duty cycle)	WLAN	8.88	±9.6
01	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS2, 90pc duty cycle)	WLAN	8.82	±9.6
62	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS3, 90pc duty cycle)	WLAN:	8.94	±9.6
03	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS4, 90pc duty cycle)	WLAN	9.03	±9.6
04	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS5, 90pc duty cycle)	WLAN	8.76	±9.6
05	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS6, 90pc duty cycle)	WLAN	8.97	±9.6
06	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9:6
07	AAD	IEEE 802.11ac WIFI (20 MHz, MCS0, 90pc duty cycle)	WLAN	8.64	±9.6
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1105	- Marcal	Assessment and an Assessment larger	Caston	DAD (dD)	Uncli k = 2
UID	HOV	Communication System Name	Group	9401 (00)	40.8
10609	AAD	TEEE 802.11ac WFF (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.37	28.0
10610	A,A,D	TEEE 802.11 BC WIFI (20 MH2, MUS3, 90pc duty cycle)	WUAN	0.70	19.0
10611	AAG	IEEE 802.11ac WIFI (20 MHz, MCS4, 80pc duty cyce)	WLPON	9.70	28.0
10612	AAD	IEEE 802.11ac WIFI (20 MHz, MCS5, 90pc duty cycle)	WLAN	0.04	29.0
10613	AAD	IEEE 802.11ac WiFi (20 MHz, MCS6, 90pc duty cycle)	WLAN	0.94	39.0
10614	AAD	IEEE 802.11ac WFI (20 MHz, MCIS7, 90pc duty cycle)	WLAN	8.09	28.0
10615	AAD	IEEE 802.11ac WIFI (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.62	29.6
10616	AAD	IEEE 802.11 ac WFr (40 MHz, MCS0, 90pc duty cycle)	WLAN	8,82	±9.6
10617	AAD	IEEE 802.11ac WIFI (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.81	+9.6
10618	AAD	IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.58	19.6
10619	AAD	IEEE 802.11ac WIFI (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.86	±9.6
10-620	AAD	IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.87	±9.6
10:621	AAD	IEEE 802.11ac WiFI (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10622	AAD	IEEE 802.11ac WIFI (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.68	±9.6
10623	AAD	IEEE 802.11ac WiFi (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10-624	AAD	IEEE 802.11ac WiFi (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.96	±9.6
10.625	AAD	IEEE 802.11ac WIFI (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.96	±9.6
10626	AAD	IEEE 802 11ac WIFI (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	19.6
10627	AAD.	IEEE 802 11ac WiFi (80 MHz, MCS1, 90cc duty cycle)	WLAN	8.88	±9.5
10628	AAD	IEEE 802 11ac WIEI (80 MHz, MCS2, 90cc duty cycle)	WLAN	8.71	:9.6
10629	AAD	(FEE 802 11ac WIEI (80 MHz, MCS3, 90cc duty cycle)	WLAN	8.85	19.6
10690	AAD	IEEE 802 11ac WIEI (80 MHz MOS4 90nc duty cycle)	WLAN	8.72	+9.5
10.691	AAD	IEEE 802 11ac WE ISOMHY MCS5 60cc duty cyclat	WI AN	8.81	+9.6
10031	AAD	IEEE BOOLLAS WIE (BOARD, MODO, POP BUD VIE)	947.65	8.74	19.6
10032	AAD	IEEE 602 store WIEL(80 Must WCC7 Core duty cycle)	MIL AN	0.14	10.0
10033	nnu	IEEE dog 1180 WH (downer, woor, sope dog cycle)	HILDING CONTRACT	0.03	10.6
10634	AAD	TEEE 802.11mc WiFI (80 MHz, MGS8, 90pc duty cycle)	THE AN	0.00	29.0
10635	AAD	IEEE 802.11ac WIFI (80 MHz, WGSB, 90pc duty cycle)	WLAN	0.01	2.9.0
10636	AAE	IEEE 802.11ac WiFi (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.63	23/0
10637	AAE	IEEE 802.11ac WIFI (160 MHz, MCS1, 90pc duty cycle)	WILAN	8.79	29,0
10638	AAE	IEEE 802.11ac WiFI (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.80	E9.0
10639	AAE	IEEE 802.11ac WiFi (160 MHz, MCS3, 90pc duty cycle)	WLAN	6.65	±9.6
10640	AAE	IEEE 802.11ac WIFI (160 MHz, MCS4, 90pc duty cycle)	WLAN	8.98	±9.6
10641	AAE	IEEE 802.11ac WiFi (160 MHz, MCSS, 90pc duty cycle)	WLAN	9.06	±9.6
10642	AAE	IEEE 802.11ac WiFi (160 MHz, MCS6, 90pc duty cycle)	WLAN	9.06	±9.6
10643	AAE	IEEE 802.11ac WiFi (160 MHz, MCS7, 90pc duty cycle)	WEAN	8.89	19:6
10644	AAE	IEEE 802.11ac WiFi (160 MHz, MCS8, 90pc duty cycle)	WLAN	9.05	±9.6
10645	AAE.	IEEE 802.11ac WiFi (160 MHz, MCS9, 90pc duty cycle)	WLAN.	9.11	±9.6
10646	AAH	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subtrame=2.7)	LTE-TDD	11.96	±9.6
10647	AAG	LTE-TOD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10648	AAA	COMA2008 (1x Advanced)	CDMA2000	3.45	±9.6
10652	AAF	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	±9.6
10653	AAF	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	±9.6
10654	AAF	TE-TOD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TOD	6.96	±9.6
10655	AAE	TE-TOD (OEDMA, 20 MHz, E-TM 3 1, Cinning 44%)	LTE-TDD	7.21	=9.6
10658	AAR	Pulse Waveform (200Hz 10%)	Tierr	10.00	+9.6
10650	BAA	Dulas Waveloum (2004a, 1974)	Tant	6.99	+9.6
10009	0.00	Duine Washing (2001a, 20%)	Toot	3.98	+9.6
10000	DPUN	Pulse Waveform (2001z, 40%)	Tast	0.00	20.0
10001	DAAD .	Public Wavefurn (20012, 00%)	Tast	0.44	20.0
10002	MAD	Puise waveform (200Fiz, 6076)	Jusi Divisioniti	0.07	29,0
106/0	AAA	IEEE 000 May 200 MUS MCCIL 00co d a contra	Bibeloom	0.00	20.0
106/1	AAU	TEEE 802.11ax (20 MHz, MUS0, 90pc duty cycle)	WLAN.	9.09	18/0
10672	AAG	HEEE GUZ, 1 Tax (20 MMZ, MGS1, BODD GUTy CYCR)	WLAN	8.5/	29.0
10673	AAG	IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.78	23/0
10674	AAC	IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	=9.6
10675	AAC	IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.90	±9.6
10676	AAC	IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	WLAN	8,77	±9.6
10677	AAC	IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.73	±9.6
10678	AAC	IEEE 802.11as (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.75	±9.6
10679	AAC	IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.89	±9.6
10680	AAC	IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	WEAN.	8.80	±9.6
10681	AAC	IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	WLAN	8.62	±9.6
10682	AAC	IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	WLAN	8.83	±9.6
10683	AAC	IEEE 802.11ax (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10684	AAC	IEEE 802.11ax (20 MHz, MCS1, 99pc duty cycle)	WEAN	8.26	39.6
10685	AAC	IEEE 802.11ax (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	29.6
10686	AAC	IEEE 802.11ax (20 MHz, MCS3, 99pc duty cycle)	WLAN	8.28	±9.6
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10887 AAC IEEE 802.11ax (20 MHz, MCS4, 99pc duty cycle) W 10888 AAC IEEE 802.11ax (20 MHz, MCS5, 99pc duty cycle) W 10888 AAC IEEE 802.11ax (20 MHz, MCS6, 99pc duty cycle) W 10890 AAC IEEE 802.11ax (20 MHz, MCS6, 99pc duty cycle) W 10890 AAC IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle) W 10691 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle) W 10692 AAC IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle) W 10693 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 10694 AAC IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle) W 10695 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 10696 AAC IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle) W 10697 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 10698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 10699 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W	LAN LAN LAN LAN LAN LAN LAN LAN LAN LAN	8.45 8.29 8.55 8.29 8.25 8.25 8.25 8.25 8.25 8.57 8.78 8.91	196 195 196 196 198 198
0688 AAC IEEE 802.11ax (20 MHz, MCS6, 96pc duty cycle) W 0689 AAC IEEE 802.11ax (20 MHz, MCS6, 96pc duty cycle) W 0690 AAC IEEE 802.11ax (20 MHz, MCS7, 95pc duty cycle) W 0690 AAC IEEE 802.11ax (20 MHz, MCS7, 95pc duty cycle) W 0690 AAC IEEE 802.11ax (20 MHz, MCS9, 95pc duty cycle) W 0691 AAC IEEE 802.11ax (20 MHz, MCS9, 95pc duty cycle) W 0692 AAC IEEE 802.11ax (20 MHz, MCS10, 95pc duty cycle) W 0693 AAC IEEE 802.11ax (20 MHz, MCS11, 95pc duty cycle) W 0694 AAC IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) W 0695 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0700<	LAN LAN LAN LAN LAN LAN LAN LAN LAN LAN	8.29 8.55 8.29 8.25 8.25 8.25 8.25 8.57 8.78 8.91	195 196 196 198 198 198
0689 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duly cycle) W 0690 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duly cycle) W 0691 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duly cycle) W 0691 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duly cycle) W 0691 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duly cycle) W 0692 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duly cycle) W 0693 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duly cycle) W 0694 AAC IEEE 802.11ax (20 MHz, MCS10, 90pc duly cycle) W 0695 AAC IEEE 802.11ax (20 MHz, MCS1, 90pc duly cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS2, 90pc duly cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duly cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS4, 90pc duly cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duly cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS6, 90pc duly cycle) W 0701	LAN LAN LAN LAN LAN LAN LAN LAN LAN LAN	8.55 8.29 8.25 8.25 8.57 8.57 8.78 8.91	19.6 19.6 19.8 19.6
0890 AAC IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle) W 0691 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle) W 0692 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle) W 0693 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 0693 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 0694 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 0694 AAC IEEE 802.11ax (20 MHz, MCS1, 99pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701	LAN LAN LAN LAN LAN LAN LAN LAN LAN	8.29 8.25 8.29 8.25 8.57 8.78 8.78 8.91	19.6 19.8 19.6
0691 AAC IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle) W 0692 AAC IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle) W 0693 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 0694 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 0695 AAC IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle) W 0695 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0702	LAN LAN LAN LAN LAN LAN LAN LAN	8.25 8.29 8.25 8.57 8.78 8.91	±9.6 ±9.6
0692 AAC IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle) W 0693 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 0694 AAC IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle) W 0695 AAC IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0699 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0702	ILAN ILAN ILAN ILAN ILAN ILAN ILAN	8.29 8.25 8.67 8.78 8.91	19.6
0693 AAC IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle) W 0694 AAC IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle) W 0695 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0699 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0699 AAC IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0704<	ILAN ILAN ILAN ILAN ILAN ILAN	8.25 8.57 8.78 8.91	100
0694 AAC IEEE 802.11ax (20 MHz, MCS11, 98pc duty cycle) W 0695 AAC IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0704 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W	ILAN ILAN ILAN ILAN	8.67 8.78 8.91	2.9.3
0695 AAC IEEE 802.11ax (40 MHz, MCS0, 90pc duty cycle) W 0696 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W 0704 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W	ILAN ILAN ILAN ILAN	8.78 8.91	±9.6
0699E AAC IEEE 802.11ax (40 MHz, MCS1.90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS2.90pc duty cycle) W 0697 AAC IEEE 802.11ax (40 MHz, MCS2.90pc duty cycle) W 0698 AAC IEEE 802.11ax (40 MHz, MCS3.90pc duty cycle) W 0699 AAC IEEE 802.11ax (40 MHz, MCS4.90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5.90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5.90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5.90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5.90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS5.90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS5.90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS5.90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS9.90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS9.90pc duty cycle) W	ILAN ILAN ILAN	8.91	±9.6
0897 AAC IEEE 802.11as (40 MHz, MCS2, 90pc duty cycle) W 0698 AAC IEEE 802.11as (40 MHz, MCS3, 90pc duty cycle) W 0699 AAC IEEE 802.11as (40 MHz, MCS3, 90pc duty cycle) W 0700 AAC IEEE 802.11as (40 MHz, MCS5, 90pc duty cycle) W 0700 AAC IEEE 802.11as (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11as (40 MHz, MCS6, 90pc duty cycle) W 0702 AAC IEEE 802.11as (40 MHz, MCS6, 90pc duty cycle) W 0702 AAC IEEE 802.11as (40 MHz, MCS8, 90pc duty cycle) W 0702 AAC IEEE 802.11as (40 MHz, MCS8, 90pc duty cycle) W 0703 AAC IEEE 802.11as (40 MHz, MCS9, 90pc duty cycle) W 0704 AAC IEEE 802.11as (40 MHz, MCS9, 90pc duty cycle) W	ILAN ILAN		£9.6
DB98 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0699 AAC IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W 0704 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W	ILAN	8.51	±9.6
AAC IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle) W 0700 AAC IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0704 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W		8.89	±9.6
0700 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0701 AAC IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0704 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W	(LAN)	8.82	±9.6
0701 AAC IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS7, 90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0704 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W	LAN	8,73	19.6
OTO2 AAC IEEE 802.11ax (40 MHz, MCS7.90pc duty cycle) W 0702 AAC IEEE 802.11ax (40 MHz, MCS7.90pc duty cycle) W 0703 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W 0704 AAC IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle) W	I.AN	8.86	19.6
7/03 AAC IEEE 802 11ax (40 MHz, MCS8, 90pc duly cycle) W 7/04 AAC IEEE 802 11ax (40 MHz, MCS8, 90pc duly cycle) W	ILAN .	8.70	19.6
0704 AAC IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle) W	LAN	8.82	+9.6
Urun And Teee over Little (no meas, sub-auty cybe)	II AN	0.56	19.6
A 105 A 60 UEEE 803 11 (40 ML) NO 210 COre duty avria)	/LAN	8.60	19.6
0700 AMG TEEE SC2.1103 (90 MHz, MCS10, Superbuly cycle) 44	I AN	8.66	196
0706 AAG IEEE SU2.11ax (40 MHz, MUS11, SUDD DUTY CYCle)	(LAN)	8.93	108
AND AND REELEDUCTIER (40 MPT, MUOU, SAPE SUB VOID)	/I AN	8 55	+9.5
0705 AAA, IEEE SU2.11ax (40 MHZ, MUS1, Style Outy cycle) W	n AN	8.99	196
0709 AAC IEEE 802.11ax (40 MHz, MCB2, 56pc duty cycle) VV	L AN	8.00	100
0710 AAG IEEE 802.11ax (40 MHz, MCS3, 99pc duty cycle) vv	(LAN)	8.30	10.0
0711 AAG IEEE 802,11ax (40 MHz, MG34, 99pc duty cycle) vv	(LAN)	0.05	10.8
0712 AAG IEEE 802.11ax (40 MHz, MGSb, 99pc duty cycle) W	LAN	0.07	10.0
0713 AAG IEEE 802.11ax (40 MHz, MCS6, 99pc duty cycle) W	/LAN	0.30	10.8
0714 AAG IEEE 802.11ax (40 MHz, MGS7, vepc duty cycle) vv	LAN.	0.45	23/0
0715 AAC IEEE 802.11ax (40 MHz, MCS8, 99pc duty cycle) W	LAN	0.90	19.0
0716 AAC IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle) W	/LAN	8.30	±9.5
0717 AAC IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle) W	LAN	8.48	19.0
0718 AAC IEEE 802.11ax (40 MHz, MCS11, 99pc duty cycle) W	LAN	0.29	10.0
0719 AAC IEEE 802.11ax (80 MHz, MCS0, 90pc duty cycle) W	ILAN .	8.81	±9.0
0720 AAC IEEE 802.11ax (80 MHz, MCS1, 90pc duty cycle) W	ILAN .	8.87	19.9
0721 AAC IEEE 802.11ax (80 MHz, MCS2, 90pc duty cycle) W	ILAN	8./9	±9.0
0722 AAC IEEE 802.11ax (80 MHz, MCS3, 90pc duty cycle) W	ILAN .	8.55	±9.6
0723 AAC IEEE 802.11ax (80 MHz, MCS4, 90pc duty cycle) W	rLAN .	8./0	29.6
0724 AAC IEEE 802.11ax (80 MHz. MCS5, 90pc duty cycle) W	rlan .	8.90	\$9.6
0725 AAC IEEE 802.11ax (80 MHz, MCS8, 90pc duty cycle) W	nlan .	8.74	\$9.6
0726 AAC IEEE 802.11ax (80 MHz, MCS7, 90pc duty cycle) W	/LAN	8.72	29.6
0727 AAC IEEE 802.11ax (80 MHz, MCS8, 90pc duty cycle) W	n,an	8.66	#9.6
0728 AAC IEEE 802.11ax (80 MHz, MCS9, 90pc duty cycle) W	VLAN	8.65	±9.6
0729 AAC IEEE 802.11ax (80 MHz, MCS10, 90pc duty cycle) W	/LAN	8.64	±9.6
0.730 AAC IEEE 802.11ax (80 MHz, MCS11, 90pc duty cycle) W	VLAN	8.67	29.6
0731 AAC IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle) W	VLAN	8.42	±9.6
0732 AAC IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle) W	VLAN .	8;46	±9.6
0733 AAC IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle) W	/LAN	8.40	±9.6
0734 AAC IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle) W	(LAN	8.25	±9.6
0.735 AAC IEEE 802.11ax (80 MHz, MCS4, 98pc duty cycle) W	/LAN	8.33	±9.6
0736 AAC IEEE 802.11ax (80 MHz, MCS5, 99pc duty cycle) W	/LAN	8.27	±9.6
0737 AAC IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle) W	MLAN .	8.36	±9.6
0.738 AAC IEEE 802.11ax (80 MHz, MCS7. 99pc duty cycle) W	ILAN .	8.42	±9.6
0.739 AAC IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle) W	rlan .	8.29	±9.6
0740 AAC IEEE 802.11ax (80 MHz, MCS9, 99pc duty cycle) W	ILAN .	8.48	±9.6
0741 AAC IEEE 802.11ax (80 MHz, MCS10, 99pc duty cycle) W	ILAN .	8,40	29.6
0742 AAC IEEE 802.11ax (80 MHz, MCS11, 99pc duty cycle) W	n.an	8.43	:9.6
0743 AAC IEEE 802.11ax (160 MHz, MCS0, 90pc duty cycle) W	ILAN .	8.94	±9.6
0744 AAC IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle) W	(LAN	9.16	±9.6
0745 AAC IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle) W	MLAN .	8.93	±9.6
0748 AAC IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle) W	N_AN	9.11	±9.6
0747 AAC IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) W	VLAN	9.04	±9.6
0.748 AAC IEEE 802.11ax (160 MHz, MCS5, 90pc duty cycle) W	VLAN	8.93	±9.6
0.749 AAC IEEE 802.11ax (160 MHz, MCS6, 90pc duty cycle) W	/LAN	8.90	19.6
0.750 AAC IEEE 802.11ax (160 MHz, MCS7, 90pc duty cycle) W	VLAN	8.79	19.6
0751 AAC IEEE 802.11ax (160 MHz, MCS8, 90pc duty cycle) W	VLAN .	8.82	±9.6
0752 AAC IEEE 602.11ax (160 MHz, MCS9, 90pc duty cycle) W	the second se	0.04	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^E k = 2$
10753	AAC	IEEE 802 11ax (160 MHz. MCS10, 90pc duty cycle)	WLAN	9.00	±9.6
10754	AAC	IFFF 802 11ax (160 MHz, MCS11, 90pc duty cycle)	WLAN	8.94	±9.6
10755	AAC	IFEE 802 11ax (160 MHz, MCS0, 99cc duty cycle)	WLAN	8.64	±9.6
10766	AAC	IFFE 802 11ax (160MHz MCS1, 98oc duly cycle)	WLAN	8.77	±9.6
10757	AAC	IEEE 802 11 av (180 MHz MCS2 99cc dr.dv cycle)	WLAN	8.77	19.6
10758	AAC	IEEE 802 15av (160 MHz MCS3, 99nc duty cycle)	WLAN	8.69	19.6
10750	AAC	IEEE 600 thay (180 MHz MCS4 99nz duty runin)	WLAN	8.58	±9.6
10780	650	IEEE 802 11ax (160 MHz MCS5 99ac duty cycle)	WLAN	8.49	±9.6
10700	AAC	IEEE 802 11as (160 MHz MCS6 99nd dry cycle)	WLAN	8.58	±9.6
10761	AAC	IEEE BOD 11ax (100 Mint, MIDDA, Japa Daly Crain)	WEAN	8.49	+9.6
10706	AAC	IEEE 802 they (160 MHz, MCSR, 99pc duty cycle)	WLAN	8.53	±9.6
10702	AAC	IEEE BOD 11ex (160 MHz, MCS0, SSpc daty cycla)	WLAN	8.54	±9.6
10704	0.60	IEEE BUC TTAL (TODWINE, MODE, Pape duty cycle)	WLAN	8.54	±9.6
10765	440	IEEE byz. I lak (100 MPz, MCB10, bobc duby cych)	WIAN	8.51	+9.6
10765	1440	TELE BUZ 11dk (100 MPZ, MGB11, BBp Could cycle)	50 NR FR1 TOD	2.99	+9.6
10/6/	AAG	SO ND ICO OFFINI I DD IONIUS OPEN (SHUS)	5G NR FR1 TOD	8.01	+9.6
10768	AAE	SCHOLOD OF MALL DD 15 MUL ODDY 15 MUL	50 NE FRI TOD	8.01	+9.6
10769	AAD	SGINE (CP-OFUM, 1 HB, 13 MHZ, GP3K, 15 MHZ)	NO NO EDI TOD	8.01	19.6
10770	AAE	5G NR (CP-OFDM, 1 HB, 20 MHZ, QPSK, 15 KHZ)	EG NO EDI TOD	8.02	+9.5
10775	AAD	SG NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 HHz)	SG NA PRI TOD	30.0	19.0
10772	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15kHz)	SG NH FH1 100	0.23	19.0
10773	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15kHz)	50 NR FR1 TOD	0.03	10.0
10774	AAE	56 NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	DG NR FR1 TOD	8.02	\$9.0
10775	AAF	53 NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FH1 TDD	8.31	19.6
10776	AAE	5G NR (CP-OFDM, 50% RB, 10 MHz, OPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10,777	AAC	53 NR (CP-OFDM, 50% RB, 15 MHz, OPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10778	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	50 NR FR1 TDD	8.34	±9.6
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, OPSK, 15 kHz)	5G NR FR1 TDD	8.42	±9.6
10780	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10781	AAF	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10782	AAE	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	±9.6
10783	AAG	5G NR (CP-OFDM, 100% RB, 5MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.31	±9.6
10784	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G-NR FR1 TDD	8.29	±9.6
10785	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8,40	±9.6
10785	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	±9.6
10787	AAD	50 NR (CP-OFDM, 100% RB, 25 MHz, OPSK, 15 kHz)	5G NR FR1 TDD	8.44	±9.6
10788	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	50 NR FR1 TDD	8.39	±9.6
10789	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.37	29.6
10790	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, OPSK, 15 kHz)	5G NR FR1 TDO	8.39	±9.6
10791	AAG	5G NR (CP-OFDM, 1 RB, 5MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	±9.6
10792	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, OPSK, 30 kHz)	5G NR FR1 TDD	7.92	±9.6
10793	AAD	50 NR (CP-OEDM 1 BB 15 MHz OPSK 30 kHz)	5G NR FR1 TDD	7.95	±9.6
10794	444	IG NR (CP-OFOM 1 BR 20MHz OPSK 30kHz)	5G NR FR1 TDD	7.82	+9.6
10705	640	53 NB /CE/OEDM 1 BB 25MHz OPSK 30kHz1	5G NR FR1 TDD	7.84	+9.6
10100	AAE	KO NO /CO.OEDM 1 BR 10 MHz OPSK 30 kHz	5G NR FR1 TOD	7.82	+9.6
10790	AAE	EG NE (CE CEDM 1 BE 40 MM+ OPSK 10 MH)	SG NR FRI TOD	8.01	+9.6
10702	AAF	50 NR (CR.OFOM 1 BR 50 MHz OPSK 30 kHz)	50 NR FRI TOD	7.89	+9.6
10700	AAC	KG NR /CP/OEDM 1 BR ROMHY OPSX 304HV	5G NR FRT TOD	7.93	+9.6
10,000	AAC	SG NR (CR.OFDM, 1 RR SOMH+ OPSY SOMH+)	5G NR FRI TOD	7.89	+9.8
10801	MAP	SO NO ICO CEDINI I DO COMPA, GEORIZO CON AVENZI	50 NR FRI TOD	7.87	+9.6
10802	AND	POINT (OF OF OM, I NO. 20 MINE, OF ON, 30 MINE)	50 ND CD1 TOD	7.09	10.0
10803	AAP	DO NO (CO-CODM, 1 NO, 100 MINZ, CIPCH, 2004)	50 NO ED+ 700	8.24	10.6
10805	AAE	DO NEL (UP-OFUM, DUN-PB, 10 MPZ, UPBK, 30 MPZ)	EC NO ED+ TOD	8.97	19.0
10806	AAD	DG NM (CH-CPDM, 50% HB, 15 MMZ, CPSK, 300HZ)	SG NO EDI YOD	8.9.5	19.0
10809	AAE	States (GP OFDM, S0% HB, 30 MHZ, GPSK, 30 MPZ)	EQ NO EDI TOD	0.04	10.0
10810	AAF	55 MH (CP-OFOM, 50% H8, 40 MH2, CPSK, 30 KH2)	DG NR PRI TOD	6.34	19.0
10812	AAF	DG NH (UP-OFDM, DO% HB, COMM2, UPSK, 30NH2)	50 NR PRI 100	0.00	10.0
10817	AAG	SGINK (CP-OFDM, 100% RB, 5MHz, CPSK, 30kHz)	SQ AR FRI TUU	0.00	15.0
10818	AAE	5G NH (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	56 NR FRT 100	6.34	19.6
10819	AAD	SG NR (CP-OFDM, 100% RB, 15 MHz, GPSK, 30 KHz)	5G NR FRT TDD	8.33	19.6
10820	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	±9.6
10821	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QP5K, 30 kHz)	5G NR FR1 TOD	8.41	19.6
10822	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	8,41	19.8
10823	AAF	5G NR (CP-OFDM, 100% R8, 40 MHz, QPSK, 30 kHz)	50 NR FR1 100	8.36	±9.6
10824	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	±9.6
10825	AAF	5G NR (CP-OFDM, 100% R8, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	1.0.6
10827	AAF	5G NR (CP-OFDM, 100% RB, 80 MHz, OPSK, 30 kHz)	5G NR FR1 TOD	8.42	±9.0
10828	AAE	50 NR (CP-OEDM, 100% RR, 90 MHz, OPSK, 30 kHz)	5G NR FR1 TDD	8.43	1.64

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0829	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	±9.6
0830	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7,63	±9.6
0831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 T00	7.73	±9.6
0832	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, GPSK, 60 kHz)	5G NR FR1 TDD	7,74	±9.6
0.833	AAD	50 NB (CP-OEDM, 1 BB 25 MHz, OPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
0.000	AAE	SO NB (CD.OEDM 1 SR 30MH> OPSK 60MH)	5G NR FR1 TDD	7.75	±9.6
0835	AAE	EQ.MP.(CP.OFDM, 1 PP. JOMUS, OPSK 80494	5G NR FR1 TDD	7.70	+9.6
0830	AAF	TO NO (OP OF DW, 1 PO CONU. OP ON, OP OF CONU.)	5G NB FB1 TDD	7.66	+9.6
0835	AAE	SGINH (CP-OPUM, 1 HB, SUMME, GPSK, SUMME)	50 MB FB1 T00	7.68	+9.6
0837	AAF	SGINH (CHOPUM, 1 HB, BOMHZ, GPGK, BOMHZ)	5/2 NR FR1 TDD	7.70	+9.6
0838	AAF	5G NH (CP-OFDM, T HB, 80 MHZ, GPSK, 80 KHZ)	50 MD 501 TD0	2.67	-9.6
0.640	AAE	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 KHz)	50 MR FR1 100	2.21	-0.6
0.841	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	36 NR PR1 100	13-3	20,0
0843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NH FH1 TUD	8.49	23.0
0.844	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
0846	AAE	5G NR (CP-OFDM, 50% R8, 30 MHz, GPSK, 60 kHz)	5G NR FR1 TDD	8,41	±9.6
0.854	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
0855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
0856	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TOD	8.37	±9.6
0857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TOD	8.35	±9.6
0858	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QP5K, 60 kHz)	5G NR FR1 TDD	8,36	±9.6
0859	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, OPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
0.860	AAE	5G NR (CP-OEDM, 100% RB, 50 MHz, OPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
0.851	AAF	50 NB ICP.OEDM 100% BB 60 MHz OPSK 60 KHz)	5G NR FR1 TDD	8.40	±9.6
0.000	100	DO NO 100 OFDAX 100% DD 20 MU- OBOV 20 MU-	5G NR FR1 TDD	8.41	+9.5
0003	AAF	SO HD CD CODM, 1003 HD, 00 MHZ, CPSK, 00 KHZ	SO NO EP+ TOD	\$ 37	+9.8
0.064	AAt	SO NR (UP-OPDR, 100% HB, SUMPZ, UPSR, SUKPZ)	50 NR FR T00	8.41	=0.0
10.865	AAF	5G NH (CP-OFDM, 100% HB, 100 MHZ, GPSK, 60 KHZ)	50 NR FR1 T00	6.69	10.0
10.865	AAF	5G NR (DFT-6-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	DG NA PATITUD	0.00	2,0.0
10868	AAF	5G NR (DFT-8-OFDM, 100% R8, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	29.0
10.869	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10870	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	±9.6
10871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 18QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	56 NR FR2 TDD	6.52	±9.6
10873	AAE	5G NR (DFT-8-OFDM, 1 RB, 100 MHz, 54QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10874	AAE	5G NR (DFT-s-OFDM, 100% R8, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10.875	AAE	50 NB (CP.OEDM 1 BB 100 MHz OPSK 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10.876	AAE	50 NB (CD.OEDM 100% BS 100MHz OPSK 120kHz)	5G NR FR2 T0D	8.39	+9.6
10070	AAF	TO NO COLORA & DO TOTALLA SECTION COLORA	SO NE FR2 TOD	7.95	+9.6
108/7	AAE	TO NO 100 OFDIA 1000 DB 10016 10014 10014	SC NR ER2 TOD	8.41	+9.6
108/8	AAE	SO NR (CP-OPDM, 100% RB, 100 MRZ, 16GAM, 120 MRZ)	50 NR 52 TDD	8.10	+0.6
10879	AAE	SG NH (GP-OFDM, 1 HB, 100 MHz, 640AM, 120 KHz)	EC ND CD2 TD0	0.16	+9.6
10.880	AAE	5G NH (CP-OFDM, 100% HB, 100MPZ, 64GAM, 120 KHZ)	SG NR FRE TOO	6.96	10.0
10.881	AAE	50 NR (DFT-9-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NH FH2 1DD	0.70	19.0
10882	AAE	SG NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NH FH2 TOO	5.96	±9.6
10883	AAE	5G NR (DFTs-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	19.5
10884	AAE	5G NR (DFT-6-OFDM, 180% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	+9.6
10885	AAE	5G NR (DFT-s-OFDM, 1 R8, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10886	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10887	AAE	5G NR (CP-OFDM, 1 R8, 50 MHz; OPSK, 120 kHz)	5G NR FR2 TOD	7.78	±9.6
10888	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TOD	8.95	±9.6
10889	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.6
10890	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	±9.6
0891	AAF	5G NB ICP OFDM 1 BB 50 MHz 640AM 120 kHz)	5G NR FR2 TOD	8.13	19.6
10899	AAE	SG NB ICP-OEDM 100% BB 50 MH+ 540AM 120 kH21	50 NR FR2 TOD	8.41	+9.6
10897	AAD	AS NR IDET & DEDM 1 BR SMHE OPEK SOUND	SG NR FR1 TOD	5.66	+9.6
10.808	AAD	SO NE IDET LOEDA 1 BE 10MUS OPER 10UUS	56 NR 581 TOD	5.67	+9.6
10838	RAD	SO HID (NET + CED4 + DD + EALLY (DDC 304U4)	50 NR EP+ TOD	5.67	+9.6
09999	MAB	CONTRACTOR OF THE TOWNY, OF SALES	BONDED: TOD	5.49	2.04
10,900	AAC.	DO MA (DETECTION, 1 HS, 20 MHZ, GESK, 30 MHZ)	20 NO 201 700	5.00	+0.4
0901	AAB	SU WH (UF F6-UFUM, 1 HH, 25 MHZ, QPSK, 30 KHZ)	CONCERNING TO THE	5.00	28/0
0902	AAC	SGINR (DFT-S-OFDM, 1 HB, 30 MHZ, QPSK, 30 NHZ)	DG NM PHT TDD	0.00	29.0
10903	AAD	5G NH (DFT E-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	SG NR.PH1 TDD	2.00	29.6
10904	AAC	5G NR (DFT-s-OFDM, 1 R8, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±8.6
10905	AAD	5G NR (DFTs-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.88	±9.6
10906	AAD	5G NR (DFFs-DFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	主9.6
10907	AAE	5G NR (DFT-s-QFDM, 50% RB, 5 MHz, QP5K, 30 kHz)	5G NR FR1 TDD	5.78	±9.6
10908	AAC	5G NR (DFT:s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	治9.6
10000	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	±9.6
10909	a contract to the second			0.00	

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UID	Rav	Communication System Name	Group	PAR (dB)	Uno ^E k =
10911	AAB	5G NR (DFTs-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
0912	AAC	5G NR (DFTs-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.8
0913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0914	AAC	5G NR (DFTs-OFDM, 50% RB, 50 MHz, QPSK, 30 KHz)	5G NR FR1 TDD	5.85	主象后
0.915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	50 NR FR1 TDD	5.83	±9.6
2916	AAD	5G NR (DFTs-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	土泉島
0917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
0918	AAE	5G NR (DFTs-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.88	±9.6
0919	AAC	5G NR (DF7:e-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	+9.6
0920	8AA	5G NR (DFT-s-OFDM, 100% R8, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
0921	AAC.	5G NR (DFT-e-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	±9.6
0923	AAC	5G NR (DFT s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0.924	AAD	5G NR (DFT-s-OFDM, 100% R8, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0925	AAC	5G NR (DFT s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	±9.6
0926	GAA	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0927	CAA	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
0928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
6929	AAD.	5G NR (DFTs-OFDM, 1 RB, 10MHz, QPSK, 15kHz)	5G NR FR1 FDD	5.52	19.6
0930	AAC	5G NR (DFTs-OFDM, 1 RB, 15MHz, QPSK, 15kHz)	5G NR FRI FDD	5.52	±9.6
0931	AAC	5G NR (DFTs-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	19.6
0932	AAC.	5G NR (DFTs-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
0933	AAC	5G NR (DFT-8-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
0934	AAC	5G NR (DFTs-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	19.6
0935	CAA	5G NR (DFTs-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
0936	AAD	5G NR (DFTs-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5,90	±9.6
0937	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	±9.6
0938	AAC	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
0939	AAC	SG NR (DFT-6-OFDM, 50% RB, 20 MHz, OPSK, 15 kHz)	5G NR FR1 FDD	5,82	19.5
0940	AAC	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	±9.6
0941	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5,83	±9.6
0942	AAC	5G NR (DFTs-OFDM, 50% RB, 40 MHz, OPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
0943	-AAD	5G NR (DFT-8-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.96	±9.6
0944	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	±9.6
0945	AAD	5G NR (DFT-8-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
0946	AAC	5G NR (DFT#-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
0947	AAC	5G NR (DFT+-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
0948	AAC	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
0949	AAC	5G NR (DFTs-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
0.950	AAC	5G NR (DFTs-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
0.951	AAD	5G NR (DFTs-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
0.952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	:9.6
0953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	±9.6
0.954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	29.6
0955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FD0	8,42	±9.6
0.956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 30kHz)	5G NR FR1 FDD	8,14	±9.6
0.957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	±9.6
0956	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8,61	±9.6
0959	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	±9.6
0.960	AAE	SG NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 15kHz)	50 NR FR1 TDD	9.32	19.6
0961	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9,36	±9.8
0.962	AAB	5G NR OL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±9.6
0963	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 T00	9.55	±9.6
0964	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	±9.6
0.965	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TOD	9.37	19.6
0.966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	±9,6
0967	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	±9.6
0.968	AAD	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	50 NR FR1 T00	9.49	19.6
0972	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, OPSK, 15 kHz)	5G NR FR1 TOD	11.59	±9.6
0973	AAD	5G NR (DFTs-OFDM, 1 RB, 100 MHz, OPSK, 30 kHz)	5G NR FR1 TDD	9,06	19.6
0974	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 258-QAM, 30 kHz)	5G NR FRI TOD	10,28	±9.6
0978	AAA	ULLA BOR	ULLA	1,16	±9.6
0979	AAA	ULLA HDR4	ULLA	8.58	±9.6
0680	AAA	ULLA HDRE	ULLA	10.32	±9.6
0981	AAA	ULLA HDRp4	ULLA	3.19	+9.6
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UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10983	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10984	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±9.6
10985	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	29.6
10986	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±9.6
10987	AAC	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	±9.6
10998	AAB	5G NR DL (CP-OFDM, TM 3 1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±9.6
10989	AAC	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	6G NR FR1 TDD	9.33	±9.6
10990	AAB	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	±9.6
11003	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	2.9.8
11.004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±9.6
11005	A.A.A.	5G NR DL (CP-OFDM, 7M 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	19.5
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	±9.6
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.46	19.6
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.51	+9.6
11009	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.76	19.6
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FRI FDD	8.95	3.9.6
11051	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.96	19.6
11012	AAA	50 NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.68	±9.6
11013	AAB	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	29.6
11014	AAB	IEEE 802.11be (320 MHz, MCS2, 99pc duty cycle)	WLAN	8.45	±9.6
11015	AAB	IEEE 802 11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11016	AAB	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WILAN	8.44	±9.6
11017	AAB	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAB	IEEE 802.11be (320 MHz, MCS6, 99pc duty cycle)	WLAN	8.40	± 9.6
11019	AAB	IEEE 802 11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAB	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11021	AAB	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.46	+9.6
11022	AAB	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±9.6
11023	AAB	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11024	AAB	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±9.6
11025	AAB	IEEE 802.11be (320 MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±9.6
11026	AAB	IEEE 802.11be (320 MHz, MCS0, 99pc duty cycle)	WLAN	8.39	±9.6

^E Uncertainty is determined using the max, deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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constitution by the Swiss Accreditation Service (SAC) Accreditation No: SCS 0108 he wiss Accreditation Service is one of the signatories to the EA D2450V2-1075_Feb24 item KES Certificate No D2450V2-1075_Feb24 Zyeonggli-do, Republic of Kores Certificate No D2450V2-1075_Feb24 Zyeonggli-do, Republic Of Kores D2450V2-1075_Feb24 Certificate No D2450V2-1075_Feb24 Zyeonggli-do, Republic Of Kores D2450V2-5N:1075 Certificate No D2450V2-1075_Feb24 Zalibration procedure(s) QA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz calibration date: February 19, 2024 February 19, 2024 The calibration certificate Accuments the traceability to rational standards, which resize the physical units of measurements (s): he measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate all calibration Shave been conducted in the dosed latoratory facility.environment temperature (22 ± 3)°C and humality < 70%. cover meter NRP29 SN: 10324 30-Mar-23 (No. 217-0380) Mar-24 were serior NRP291 SN: 10324 30-Mar-23 (No. 217-0380) Mar-24 were serior NRP291 SN: 10324 30-Mar-23 (No. 217-0380) Mar-24 were serior	consideration yine basies Accorditation Service (SAC) Accreditation Nor: SCS 0108 he basies Accorditation Service is one of the signatories to the EA Database Accreditation Service is one of the signatories to the EA Item KES Certificate No D2450V2-1075_Feb24 System Second Hardon Service (SAC) D2450V2-1075_Feb24 D2450V2-1075_Feb24 Calibration procedure(s) D2450V2-SN:1075 D2450V2-SN:1075 Calibration procedure(s) QA CAL-05.V12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration crifficate documents the traceability to national standards, which resize the physical units of measurements (SI); he measurements and the uncetainties with confidence probability are given on the following page and are part of the certificate. alloration stave been conducted in the dosed laboratory facility: environment temperature (22 ± 3)*C and humidity < 70%. calibrations have been conducted in the dosed laboratory facility: environment temperature (22 ± 3)*C and humidity < 70%. calibrations fave been conducted in the dosed laboratory facility. Environment temperature (22 ± 3)*C and humidity < 70%. calibrations Save been conducted in the dosed laboratory facility. Environment temperature (22 ± 3)*C and humidity < 70%. calibrations Pape Shi 10324 30-Mar-24 (No. 217-0380-0305) Mar-24 were service NRP2 Shi 10324 30-Mar-24 (No. 217-0380-0305)	Schmid & Partner Engineering AG Jeughausstrasse 43, 8004 Zurici	y of h, Switzerland		S Schweizerischer Kalibrierdienst Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service
Clean Mark KES Gyeonggpi-do, Republic of Korea Certificate No. D2450V2-1075_Feb24. CALLEBRATION CERTIFICATE D2450V2 - SN: 1075 Celloration procedure(s) D2450V2 - SN: 1075 Calibration procedure(s) QA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Celloration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19, 2024 February 19, 2024 This calibration share been conducted in the dosed laboratory facility: environment temperature (22 ± 3)°C and humdity < 70%. Calibration Equipment used (M&TE critical for calibration) Scheduled Calibration Power moter NRP2 SN: 104778 30-Mar-23 (No. 217-03030/103005) Mar-24 Power moter NRP2 SN: 104778 30-Mar-23 (No. 217-03030) Mar-24 Power moter NRP2 SN: 104778 30-Mar-23 (No. 217-03030) Mar-24 Power sensor NRP-291 SN: 10424 30-Mar-23 (No. 217-03030) Mar-24 Power sensor NRP-291 SN: 104273 30-Mar-23 (No. 217-03030) Mar-24 Power sensor NRP-291 SN: 104273 30-Mar-23 (No. 217-03030) Mar-24 Power sensor NRP-291 SN: 10527 30-Mar-21 (No. 257-3304) Ma	Clean Kes Gyeonggid-do, Republic of Korea Certificate No. D2450V2-1075_Feb24 CALLEBRATION CERTIFICATE D2450V2 - SN: 1075 Certificate Mo. D2450V2 - SN: 1075 Calibration procedure(s) QA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Certificate Mo. Certificate Mo. Calibration ate: February 19; 2024 February 19; 2024 February 19; 2024 This calibration shave been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humdity < 70%. Certificate Mo. Scheduled Calibration All calibration Equipment used (MATE critical for calibration) Scheduled Calibration Mar-24 Mo. Mar-24 Mo. Syme manor NRP-291 SN: 103246 30 Mar-23 (No. 217-03304) Mar-24 Mo. Mar-24 Mo. Syme manor NRP-291 SN: 103246 30 Mar-23 (No. 217-03305) Mar-24 Mo. Mar-24 Mo. Syme manor NRP-291 SN: 103246 30 Mar-23 (No. 217-03305) Mar-24 Mo. Mar-24	Accredited by the Swiss Accreditat The Swiss Accreditation Service Multilateral Agreement for the re	ion Service (SAS) is one of the signatorie cognition of calibration	es to the EA certificates	Accreditation No.: SCS 0108
CALIBRATION CERTIFICATE Object D2450V2 - SN:1075 Calibration procedure(s) OA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19; 2024 This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (5). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. All calibration Equipment used (M&TE critical for calibration) Primary Standards Df Cal Date (Certificate No.) Scheduled Calibration Prover mater NRP2 SN: 103246 30-Mar-23 (No. 217-03304) Mar-24 Power sensor NRP-291 SN: 103246 30-Mar-23 (No. 217-03305) Mar-24 Power sensor NRP-291 SN: 103246 30-Mar-23 (No. 217-03305) Mar-24 Power sensor NRP-291 SN: 103246 30-Mar-23 (No. 217-03305) Mar-24 Power sensor NRP-291 SN: 103246 30-Mar-23 (No. 217-03305) Mar-24 Power sensor NRP-291 SN: 103246 30-Mar-23 (No. 217-03305) Mar-24 SN: 103246 30-Mar-23 (No. 217-03305) Mar-24 Mar-24 Power sensor NRP-291 SN: 103246 30-Mar-24 (No. 217-03305) Mar-24 </th <th>CALIBRATION CERTIFICATE Object D2450V2 - SN:1075 Calibration procedure(s) OA CAL-05:v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19, 2024 This calibration certificate documents the traceability to national standards, which reaize the physical units of measurements (SI). The measurements and the uncertaindex with conference 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 ± 3)*C and humidity < 70%. Calibration Equipment used (MATE critical for calibration) Ymmary Standards 10 # Ymmary Standards 10 # Ymer enter NP221 SN: 104778 SN: 104778 2040xr-23 (No. 217-03804) Ymer enter NP2231 SN: 103244 SN: 103246 30-44x-23 (No. 217-03805) Ymer enter NP2231 SN: 103246 SN: 10324 30-44x-23 (No. 217-03805) Ymer enter NP2231 SN: 103246 SN: 10324 30-44x-23 (No. 217-03805) Ymer enter H4195 SN: 1032473 SN: 1037 30-44x-23 (No. 217-03805) Ymer enter H4195 SN: 10372373 SN: 10473 30-4ax-23 (No. 217-0380403805</th> <th>Client KES Gyeonggi-do, Republ</th> <th>lic of Korea</th> <th>Certificate No</th> <th>D2450V2-1075_Feb24</th>	CALIBRATION CERTIFICATE Object D2450V2 - SN:1075 Calibration procedure(s) OA CAL-05:v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19, 2024 This calibration certificate documents the traceability to national standards, which reaize the physical units of measurements (SI). The measurements and the uncertaindex with conference 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 ± 3)*C and humidity < 70%. Calibration Equipment used (MATE critical for calibration) Ymmary Standards 10 # Ymmary Standards 10 # Ymer enter NP221 SN: 104778 SN: 104778 2040xr-23 (No. 217-03804) Ymer enter NP2231 SN: 103244 SN: 103246 30-44x-23 (No. 217-03805) Ymer enter NP2231 SN: 103246 SN: 10324 30-44x-23 (No. 217-03805) Ymer enter NP2231 SN: 103246 SN: 10324 30-44x-23 (No. 217-03805) Ymer enter H4195 SN: 1032473 SN: 1037 30-44x-23 (No. 217-03805) Ymer enter H4195 SN: 10372373 SN: 10473 30-4ax-23 (No. 217-0380403805	Client KES Gyeonggi-do, Republ	lic of Korea	Certificate No	D2450V2-1075_Feb24
Object D2450V2 - SN:1075 Calibration procedure(s) QA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19, 2024 This catbration certificate documents the traceability to national standards, which reatize 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 and the uncertainties with confidence probability are given on the following pages and are part of the certificate. All calibration Equipment used (M&TE critical for calibration) Scheduled Calibration Prover meter NP22 SN: 103244 Scheduled Calibration SN: 9103244 Scheduled Calibration Mar-24 Power sensor NRP-291 SN: 103244 Scheduled Calibration Mar-24 Power sensor NRP-291 SN: 103244 Scheduled Calibration Mar-24 Power sensor NRP-291 SN: 103244 Scheduled Calibration Mar-24 Power sensor NRP-291 SN: 103245 Mar-23 (No. 217-03804) Scheduled Calibration Mar-24 Power sensor NRP-291 SN: 103245 Mar-23 (No. 217-03804) Scheduled Calibration Mar-24 Power sensor NRP-291 SN: 103245 Mar-24 SCheduled Calibration Mar-24 Power sensor NRP-291 SN: 103245 Mar-24 SCheduled Calibration Mar-24 Power sensor NRP-291 SN: 103245 Mar-24 SChedule Check SN: 201 D3-Jan-24 (No. DK-4001, Jan-24 (No. DK-401, Jan	Object D2450V2 - SN: 1075 Calibration procedure(s) QA CAL-05, V12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19, 2024 Chine calibration date: February 19, 2024 This calibration share been conducted in the closed latoratory facility: environment temperature (22 ± 3)°C and humidity < 70%. Calibration Equipment used (M&TE critical for calibration) Primary Bandards 10 # Cal Date (Cerificate No.) Schedured Calibration Primary Bandards 10 # Calibration 30-Mar-23 (No. 217-03304/03305) Mar-24 Primary Bandards 10 # Calibration 30-Mar-23 (No. 217-03304/03305) Mar-24 Primary Bandards 10 # Calibration 30-Mar-23 (No. 217-03304/03305) Mar-24 Primary Bandards 10 # Calibration 30-Mar-23 (No. 217-03304/03305) Mar-24 Primary Bandards 10 # Calibration 217-0305) Mar-24 Primery Bandards 10 # Calibration 217-0305) Mar-24 Primery Bandards 10 # Calibration 217-0305) Mar-24 Swite States Swite States 30-Mar-23 (No. 217-03801) Mar-24 <	CALIBRATION C	ERTIFICATI		A LORI AND A
Calibration procedure(s) QA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19; 2024 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 calibration fave been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.	Calibration procedure(s) QA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz Calibration date: February 19: 2024 This calibration conflicate 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 calibration Equipment used (M&TE critical for calibration) Primary Standards 10 # Cal Date (Certificate No.) Scheduled Calibration Power meter NRP2 SN: 104778 30:4Aar-23 (No. 217-03804) Mar-24 Vower meter NRP2 SN: 103244 30:4Aar-23 (No. 217-03804) Mar-24 Vower meter NRP2 SN: 103244 30:4Aar-23 (No. 217-03804) Mar-24 Veterence 20 dB Attenuator SN: 510822 (08327) 30:4Aar-23 (No. 217-03804) Mar-24 Veterence 20 dB Attenuator SN: 51082 (08327) 30:4Aar-23 (No. 217-03804) Mar-24 Veterence Probe EX3DV4 SN: 601 30:-Jaar-24 (No. DAE-4601_Jan24) Jan-25 Secondary Standards ID # Check Date (in house) Scheduled Check Vower sensor NRP-815 SN: US37282783 07-0ct-15 (in house check Oct-22) In house check: Oct-24 Vareer meter E44198 SN: US37282783 07-0ct-15 (in house check Oct-22) <td< td=""><td>Object</td><td>D2450V2 - SN:10</td><td>075</td><td></td></td<>	Object	D2450V2 - SN:10	075	
Calibration date: February 19, 2024: 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 ± 3)*C and humdhy < 70%. Calibration Equipment used (M&TE critical for calibration) Priver meter NRP2 D # Cal Date (Certificate No.) Scheduled Calibration Power meter NRP2 pi SN: 104778 30-Mar-23 (No. 217-03804/03805) Mar-24 Power sensor NRP-291 SN: 104778 30-Mar-23 (No. 217-03804/03805) Mar-24 Reference 20 dB Attenuator SN: 103244 30-Mar-23 (No. 217-03804/0 Mar-24 Reference 20 dB Attenuator SN: 31082 (06327 30-Mar-23 (No. 217-03805) Mar-24 Reference Probe EX3DV4 SN: 3082 (06327 30-Mar-23 (No. EX3-7349_Nov23) Nov-24 DAE4 SN: US37252783 30-Oct-14 (In house check Oct-22) In house check: Oct-24 Power sensor NP P 8481A SN: US37252783 0-Oct-15 (In house check Oct-22) In house check: Oct-24 Power sensor NP P 8481A SN: 100972 15-Jun-15 (In house check Oct-22) In house check: Oct-24 <th>Calibration date: February 19, 2024: This calibration certificate documents the traceability to national standards, which reaize 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 ± 3)*C and humidity < 70%. Calibration Equipment used (M&TE critical for calibration) Yower meter NRP2 Dif 04 Cal Date (Certificate No.) Scheduled Calibration Yower sensor NRP-291 SN: 103244 30-Mar-23 (No. 217-03804/03805) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-23 (No. 217-03804) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-24 (No. 217-03805) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-23 (No. 217-03809) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-24 (No. D&ET-4001) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-24 (No. D&ET-4001) Mar-24 Yower sensor NRP-291 SN: 103246 30-Mar-24 (No. D&ET-4001, Jan-24 Jar-26 Yower meter E44196 SN: 601 30-Nor-24 (No. D&EE-4001, Jan-24 Jar-26 Yower sensor HP 8461A SN: W141003315</th> <th>Calibration procedure(s)</th> <th>QA CAL-05.v12 Calibration Proce</th> <th>edure for SAR Validation Source</th> <th>s between 0.7-3 GHz</th>	Calibration date: February 19, 2024: This calibration certificate documents the traceability to national standards, which reaize 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 ± 3)*C and humidity < 70%. Calibration Equipment used (M&TE critical for calibration) Yower meter NRP2 Dif 04 Cal Date (Certificate No.) Scheduled Calibration Yower sensor NRP-291 SN: 103244 30-Mar-23 (No. 217-03804/03805) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-23 (No. 217-03804) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-24 (No. 217-03805) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-23 (No. 217-03809) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-24 (No. D&ET-4001) Mar-24 Yower sensor NRP-291 SN: 103245 30-Mar-24 (No. D&ET-4001) Mar-24 Yower sensor NRP-291 SN: 103246 30-Mar-24 (No. D&ET-4001, Jan-24 Jar-26 Yower meter E44196 SN: 601 30-Nor-24 (No. D&EE-4001, Jan-24 Jar-26 Yower sensor HP 8461A SN: W141003315	Calibration procedure(s)	QA CAL-05.v12 Calibration Proce	edure for SAR Validation Source	s between 0.7-3 GHz
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 calibration Equipment used (M&TE critical for calibration) Primary Standards 10 # Cal Date (Certificate No.) Scheduled Calibration Power meter NRP2 SN: 104778 30-Mar-23 (No. 217-03804/03805) Mar-24 Power sensor NRP-291 SN: 104778 30-Mar-23 (No. 217-03804) Mar-24 Power sensor NRP-291 SN: 103244 30-Mar-23 (No. 217-03804) Mar-24 Power sensor NRP-291 SN: 103245 30-Mar-23 (No. 217-03804) Mar-24 Power sensor NRP-291 SN: 103245 30-Mar-23 (No. 217-03804) Mar-24 Reference 20 dB Attenuator SN: 81/3082 (06327 30-Mar-23 (No. 217-03810) Mar-24 Ake 5 SN: 7349 03-Jan-24 (No. DAE-4601_Jan24) Jan-25 Secondary Standards ID # Check Date (in house) Scheduked Check Power sensor HP 8481A SN: US37292783 07-Oct-15 (in house check Oct-22) In house check: Oct-24 Power sensor HP 8481A SN: US37292783 07-Oct-15 (in house check Oct-22)	This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncartainties with confidence probability are given on the following pages and are part of the certificate. All calibration Equipment used (M&TE critical for calibration) Primary Standards ID # Cal Date (Certificate No.) Scheduled Calibration Primary Standards ID # Cal Date (Certificate No.) Scheduled Calibration Power sensor NRP-291 SN: 10477B 30-Mar-23 (No. 217-0380403805) Mar-24 Power sensor NRP-291 SN: 103244 30-Mar-23 (No. 217-03805) Mar-24 Power sensor NRP-291 SN: 103244 30-Mar-23 (No. 217-03805) Mar-24 Secondary Standards SN: 103245 30-Mar-23 (No. 217-03809) Mar-24 Secondary Standards ID # Check Date (in house) Scheduled Check Vipe-N mismatch combination SN: 10820 (08327 30-Nor-23 (No. 217-03810) Mar-24 Vaver meter E44198 SN: 0839512475 30-Oct-14 (in house check Oct-22) In house check: Oct-24 New ensor MP 8481A SN: US37292783 07-Oct-15 (in house check Oct-22) In house check: Oct-24 View ensone MP 8481A SN: US41080477	Calibration date:	February 19, 202	4	a an and a contraint
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Power meter NRP2 SN: 104778 30-Mar-23 (No. 217-03804/03805) Mar-24 Power sensor NRP-Z91 SN: 103244 30-Mar-23 (No. 217-03804) Mar-24 Power sensor NRP-Z91 SN: 103245 30-Mar-23 (No. 217-03805) Mar-24 Reference 20 dB Attenuator SN: 810982 / 06327 30-Mar-23 (No. 217-03809) Mar-24 Type-N mismatch combination SN: 310982 / 06327 30-Mar-23 (No. 217-03809) Mar-24 SN: 501 30-Jan-24 (No. DAE4-601_Jan24) Jar-25 Secondary Standards ID # Check Date (in house) Scheduled Check Power sensor HP 8481A SN: US37292783 07-Oct-15 (in house check Oct-22) In house check: Oct-24 Power sensor HP 8481A SN: 100972 15-Jun-15 (in house check Oct-22) In house check: Oct-24 SN: 100972 15-Jun-15 (in house check Oct-22) In house check: Oct-24 SN: 100972 15-Jun-15 (in house check Oct-22) In house check: Oct-24 SN: 100972 SN: 100972 15-Jun-15 (in house check Oct-22) In house check: Oct-24	Power meter NRP2 SN: 104778 30-Mar-23 (No. 217-03804/03805) Mar-24 Power sensor NRP-291 SN: 103244 30-Mar-23 (No. 217-03804) Mar-24 Power sensor NRP-291 SN: 103245 30-Mar-23 (No. 217-03805) Mar-24 Reference 20 dB Attenuator SN: 99394 (20k) 30-Mar-23 (No. 217-03805) Mar-24 Reference 20 dB Attenuator SN: 99394 (20k) 30-Mar-23 (No. 217-03805) Mar-24 Reference 20 dB Attenuator SN: 99394 (20k) 30-Mar-23 (No. 217-03805) Mar-24 Reference Probe EX3DV4 SN: 510982 (06327 30-Mar-23 (No. 217-03810) Mar-24 SN: 601 30-Jan-24 (No. DAE4-601_Jan24) Jan-25 Secondary Standards ID # Check Date (in house) Scheduled Check Vewer meter E44198 SN: US37292783 07-Oct-15 (in house check Oct-22) In house check: Oct-24 In house check: Oct-24 Nower sensor HP 8481A SN: US37292783 07-Oct-15 (in house check Oct-22) In house check: Oct-24 SN: 10972 15-Jun-15 (in house check Oct-22) In house check: Oct-24 VF generator R&S SMT-06 SN: US41080477 31-Mar-14 (in house check Oct-22) In house check: Oct-24	All calibrations have been conduct Calibration Equipment used (M&TE	ainties with confidence p ed in the closed laborator E critical for calibration)	robability are given on the following pages ar y facility: environment temperature $(22 \pm 3)^n$	nd are part of the certificate. C and humidity < 70%.
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland

strasse 43, 8004 Zurich, Switzerland

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





Schweizerischer Kalibrierdienst Service suisse d'étaionnage Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) 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.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
 of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mha/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.5 ± 6 %	1.87 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	1111	

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.9 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.8 W/kg + 16.5 % (k=2)
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Appendix (Additional assessments outside the scope of SCS 0108) Antenna Parameters with Head TSL Impedance, transformed to feed point $52.0 \Omega + 5.5 J\Omega$ Return Loss - 24.8 dB General Antenna Parameters and Design Electrical Delay (one direction) 1.153 ns After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured. The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard. No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged. Additional EUT Data Manufactured by SPEAG

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DASY5 Validation Report for Head TSL

Date: 19.02.2024

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:1075

Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz; $\sigma = 1.87$ S/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.96, 7.96, 7.96) @ 2450 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- · Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 114.8 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 26.9 W/kg SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.27 W/kg Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 51.1% Maximum value of SAR (measured) = 21.1 W/kg





Impedance Measurement Plot for Head TSL





Appendix D. SAR Tissue Specifications

Measurement Procedure for Tissue verification:

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the tissue. The tissue 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 ε' can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\varepsilon_r\varepsilon_0}{\left[\ln(b/a)\right]^2} \int_a^b \int_a^b \int_0^a \cos\phi' \frac{\exp\left[-j\omega/(\mu_0\varepsilon_r\varepsilon_0)^{1/2}\right]}{r} d\phi' d\rho' d\rho$$

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 frequenc y, and $j = \sqrt{-1}$.

Frequency (MHz)	2 450
Tissue	Head
Ingredients (% by weight)	
Bactericide	-
DGBE	-
HEC	-
Nacl	0.1
Sucrose	-
Tween 20	45.0
Water	54.9

Table D-1 Composition of the Tissue Equivalent Matter - Head

Table D-2 Recommended Tissue Dielectric Parameters (IEC 1528-2013)

Frequency (MHz)	Relative permittivity (£',)	Conductivity (σ) (S/m)
300	45.3	0.87
450	43.5	0.87
750	41.9	0.89
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1500	40.4	1.23
1640	40.2	1.31
1750	40.1	1.37
1800	40.0	1.40
1900	40.0	1.40
2000	40.0	1.40
2100	39.8	1.49
2300	39.5	1.67
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40
3500	37.9	2.91
4000	37.4	3.43
4500	36.8	3.94
5000	36.2	4.45
5200	36.0	4.66
5400	35.8	4.86
5600	35.5	5.07
5800	35.3	5.27
6000	35.1	3.48





Figure D-1 Liquid Height for Head Position (ELI Phantom)

The End.

