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Appendix B - DAE & Probe Calibration Certificate

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





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Cartificate No. DAE4-1336 Aug20

	CERTIFICATE		
Object	DAE4 - SD 000 D0	04 BM - SN: 1336	
Calibration procedure(s)	QA CAL-06.v30 Calibration proced	QA CAL-06.v30 Calibration procedure for the data acquisition electrons	
Calibration date:	August 13, 2020		
The measurements and the unce	rtainties with confidence pro	hal standards, which realize the physical unit bability are given on the following pages and facility: environment temperature (22 ± 3)°C	d are part of the certificate.
Calibration Equipment used (M&)	A.C. Company		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Primary Standards	A.C. Company	Cal Date (Certificate No.) 03-Sep-19 (No.25949)	Scheduled Calibration Sep-20
Primary Standards Keithley Multimeter Type 2001 Secondary Standards	ID # SN: 0810278	03-Sep-19 (No.25949) Check Date (in house)	Sep-20 Scheduled Check
Calibration Equipment used (M& Primary Standards Keithley Multimeter Type 2001 Secondary Standards Auto DAE Calibration Unit Calibrator Box V2.1	ID # SN: 0810278	03-Sep-19 (No.25949)	Sep-20
Primary Standards Keithley Mullimeter Type 2001 Secondary Standards Auto DAE Calibration Unit	ID # SN: 0810278 ID # SE UWS 053 AA 1001 SE UMS 006 AA 1002	03-Sep-19 (No.25949) Check Date (in house) 09-Jan-20 (in house check) 09-Jan-20 (in house check)	Sep-20 Scheduled Check In house check: Jan-21 In house check: Jan-21
Primary Standards Keithley Mullimeter Type 2001 Secondary Standards Auto DAE Calibration Unit	ID # SN: 0810278 ID # SE UWS 053 AA 1001	03-Sep-19 (No.25949) Check Date (in house) 09-Jan-20 (in house check)	Sep-20 Scheduled Check In house check: Jan-21
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Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates

Glossary

DAE Connector angle data acquisition electronics

information used in DASY system to align probe sensor X to the robot

coordinate system.

Methods Applied and Interpretation of Parameters

- DC Voltage Measurement: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- Connector angle: The angle of the connector is assessed measuring the angle mechanically by a tool inserted, Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - DC Voltage Measurement Linearity: Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - Common mode sensitivity: Influence of a positive or negative common mode voltage on the differential measurement.
 - Channel separation: Influence of a voltage on the neighbor channels not subject to an input voltage.
 - AD Converter Values with inputs shorted: Values on the internal AD converter corresponding to zero input voltage
 - Input Offset Measurement: Output voltage and statistical results over a large number of zero voltage measurements.
 - Input Offset Current: Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - Input resistance: Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - Low Battery Alarm Voltage: Typical value for information. Below this voltage, a battery alarm signal is generated.
 - Power consumption: Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal

tuli range = -100...+300 mV full range = -1.....+3mV High Range: 1LSB = 6.1 µV , Low Range: 1LSB = 61nV

DASY measurement parameters; Auto Zero Time: 3 sec; Measuring time; 3 sec

Calibration Factors	X	Υ	Z
High Range	403.373 ± 0.02% (k=2)	403.675 ± 0.02% (k=2)	403.157 ± 0.02% (k=2)
Low Range	3.95195 ± 1.50% (k=2)	3.98791 ± 1.50% (k=2)	3.99627 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	339.0°±1°

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Appendix (Additional assessments outside the scope of SCS0108)

High Range	Reading (µV)	Difference (μV)	Error (%)
Channel X + Input	200038.51	1.81	0.00
Channel X + Input	20007.18	1.22	0.01
Channel X - Input	-20005.20	0.72	-0.00
Channel Y + Input	200036.89	0.39	0.00
Channel Y + Input	20004.92	-0.88	-0.00
Channel Y - Input	-20007.27	-1.25	0.01
Channel Z + Input	200038 49	2.22	0.00
Channel Z + Input	20006.13	0.32	0.00
Channel Z - Input	-20007.34	-1.29	0.01

Low Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	2001.38	-0.01	-0.00
Channel X + Input	201.37	-0.04	-0.02
Channel X - Input	-198.55	-0.02	0.01
Channel Y + Input	2001.32	0.01	0.00
Channel Y + Input	200.36	-0.97	-0.48
Channel Y - Input	-199.71	-1.04	0.52
Channel Z + Input	2001.21	+0.06	-0.00
Channel Z + Input	200.65	-0,64	-0.32
Channel Z - Input	-199.52	-0.85	0.43
	A CONTRACTOR OF THE PARTY OF TH		

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	5.14	4.45
	- 200	-4.22	-5.45
Channel Y	200	-4.29	-4.17
	- 200	2.35	2.01
Channel Z	200	22.38	22.64
	- 200	-24.85	-24.58

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec: Measuring time: 3 sec

	Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X	200		4.88	-1.29
Channel Y	200	8.14		6.18
Channel Z	200	8.43	6.05	-

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4. AD-Converter Values with inputs shorted

	High Range (LSB)	Low Range (LSB)
Channel X	15663	16348
Channel Y	15906	15692
Channel Z	15844	14523

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (µV)
Channel X	0.78	+0.03	1.45	0,34
Channel Y	-0.66	-2.18	1.28	0.41
Channel Z	-0.43	-1.19	0,51	0.34

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for Information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)	
Supply (+ Vcc)	+7.9	
Supply (- Vcc)	-7.6	

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14.
Supply (- Vcc)	-0.01	-8	-9

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SGS-TW (Auden) Client

Accreditation No.: SCS 0108

Certificate No: DAE4-547 Mar20

CALIBRATION CERTIFICATE DAE4 - SD 000 D04 BM - SN: 547 Object QA CAL-06.v30 Calibration procedure(s) Calibration procedure for the data acquisition electronics (DAE) March 17, 2020 Calibration date: 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 humidity < 70%. Calibration Equipment used (M&TE critical for calibration) Scheduled Calibration Cal Date (Certificate No.) ID# Primary Standards Sep-20 Keithley Multimeter Type 2001 SN: 0810278 03-Sep-19 (No:25949) Scheduled Check ID # Check Date (in house) Secondary Standards In house check: Jan-21 Auto DAE Calibration Unit SE UWS 053 AA 1001 09-Jan-20 (in house check) In house check: Jan-21 SE UMS 006 AA 1002 09-Jan-20 (in house check) Calibrator Box V2.1 Name Function Laboratory Technician Adrian Gehring Calibrated by: Deputy Manager Sven Kühn Approved by: Issued: March 17, 2020

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 - Channel separation: Influence of a voltage on the neighbor channels not subject to an input voltage.
 - AD Converter Values with inputs shorted: Values on the internal AD converter corresponding to zero input voltage
 - Input Offset Measurement. Output voltage and statistical results over a large number of zero voltage measurements.
 - Input Offset Current: Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - Input resistance: Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - Low Battery Alarm Voltage: Typical value for information. Below this voltage, a battery alarm signal is generated.
 - Power consumption: Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal High Range: 1LSB = full range = -100...+300 mV full range = -1.....+3mV 6.1µV , Low Range: 1LSB = 61nV , DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Υ	Z
High Range	403.278 ± 0.02% (k=2)	403.179 ± 0.02% (k=2)	402.830 ± 0.02% (k=2)
Low Range	3,95688 ± 1.50% (k=2)	3,90777 ± 1.50% (k=2)	3.96411 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	91.5°±1°

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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage I inegrity

High Range	Reading (µV)	Difference (μV)	Error (%)
Channel X + Input	199995.01	0.39	0.00
Channel X + Input	20004.46	2.22	0.01
Channel X - Input	-19996.11	4.80	-0.02
Channel Y + Input	199994.74	-0.27	-0.00
Channel Y + Input	20000.81	-1.32	-0.01
Channel Y - Input	-20002.22	-1.19	0.01
Channel Z + Input	199996.62	2.14	0.00
Channel Z + Input	20003.74	1.72	0.01
Channel Z - Input	-19998.94	2.27	-0.01

Low Range	Reading (µV)	Difference (μV)	Error (%)
Channel X + Input	2003.02	1.37	0.07
Channel X + Input	202.40	0.52	0.26
Channel X - Input	-197.81	0.27	-0.14
Channel Y + Input	2002.86	1.28	0.06
Channel Y + Input	201.87	0.04	0.02
Channel Y - Input	-198.64	-0.54	0.27
Channel Z + Input	2002.13	0.62	0.03
Channel Z + Input	200.85	-0.82	-0.41
Channel Z - Input	-199.40	-1.23	0.62

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-3.58	-4.73
	- 200	5.85	4,21
Channel Y	200	-0.25	-0.89
	- 200	0.38	-0,39
Channel Z	200	5.47	5.10
	- 200	-8.07	-8.21

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (µV)	Channel Z (μV)
Channel X	200	-9	3.40	-1,88
Channel Y	200	9.97	4.	4.19
Channel Z	200	5.21	8.10	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16359	14869
Channel Y	16462	15382
Channel Z	16084	17197

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (µV)
Channel X	-0.39	-1.31	0.90	0.34
Channel Y	0.25	-0.76	1.38	0.41
Channel Z	0.73	-0.73	3.00	0.74

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

Certificate No: DAE4-547_Mar20

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SGS-TW (Auden)

Cartificate No. EX3-7466 Feb20

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:7466

Calibration procedure(s) QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5.

QA CAL-25.V7

Calibration procedure for dosimetric E-field probes

February 4, 2020 Collimation date

This calibration confifcate documents the traceability to national standards, which realize the physical units of measurements (3f) 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 hum dity < 70%

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	(D	Cat Date (Certificate No.)	Scheduled Calibration
Pewer meter NRP	SN 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Pewer sensor NRP-Z91	SN: 103246	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dll Attenuator	SN: 85277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SV: 600	27-Dsc-12 (No. DAE4-660_Dec19)	Dec-20
Reference Probe ESSDV2	SN: 3013	31-Dag-19 (No. ES3-3015_Deg19)	Dec-20
Secondary Standards	io	Check Date (in house)	Scheduled Check
Power meter E44198	SN: GB41293874	06-Apr-16 (ir: house chock Jun-18)	In house obnek. Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	35N: 000110210	06-Apr-16 (in house check Jun-18)	In house check Jun-20
RF generator HF 86480	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oc:-20
etwork Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house cheek, Odiszo

Name Function Sgrature Laboratory Technician Cinibrated by: Leif Klysner Katja Pokovic Technical Manager Approved by issued. February 5, 2020 This calibration certificate shall not be reproduced except in full without written approval of the laboratory

Certificate No: EX3-7466_Peb20

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Accordination No.: SCS 0108

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Glossary:

tissue simulating liquid TSL NORMx,y,z sensitivity in free space sensitivity in TSL / NORMx,y z diode compression point ConvF DCP CF

crest factor (1/duty_cycle) of the RF signal modulation dependent linearization parameters A.B.C.D

Polarization p g rotation around probe ax s

Polarization 9 A rotation around an axis that is in the plane normal to probe axis (at measurement center).

i.e., 9 = 0 is normal to probe axis

information used in DASY system to align probe sensor X to the robot coordinate system Connector Angle

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommenced Practice on Determining the Peak Spatial-Averaged Specific." Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement

Technicues", June 2013
IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wire eas communication devices used in close proximity to the human body (frequency range of 30 MHz to 5 GHz)", March 2010
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 9 = 0 (f \leq 900 MHz in TEM-cel: f \geq 1300 MHz; R22 waveguide). NORMx, y, z are only intermediate values, i.e., the uncertainties of NORMx, y, z does not affect the Ef-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 (no uncertainty required). DCP does not depend on frequency nor media.

FAR: 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 < 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to 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 \pm 50 MHz to \pm *00 MHz

Spherical isotropy (3D deviation from isotropy): In a field of low gracients 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 lip (on probe axis). No tolerance required

Connector Angle: The angle is assessed using the information gained by determining the NORMx inc uncertainty requirec).

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EX3DV4- SN 7466

February 4, 2020

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

Basic Calibration Parameters

	SensorX	Sensor Y	Sensor Z	Unc (k=2)
Norm (uV/(V/m) ²) ^A	0.46	C.40	0.62	± 10.1 %
DCP (mV) ^M	100.3	89.6	96.0	

UID	Communication System Name		dB	dB hv	c	dB	mV	dev.	Max Une ^E (k=2)
Ü	CW	X	0.00	0.00	1.00	0.00	173.9	± 3.0 %	£ 4.7 %
*	1.577	Y	0.00	0.00	1.00		164.0		
		Z	0.00	0.00	1.00		157.0	111	
10352-	Pulse Waveform (200Hz, 10%)	X	20.00	87.13	17,81	10.00	60.0	1 3.8 %	1.9.6 9
AAA.		V	1.61	62,02	8.56		60.0	1	
		2	20.00	92.18	20,82		60.0	and the same of	
10353-	Pulse Waveform (200Hz, 20%)	X	20.00	90.08	17,93	6.99	80.0	± 2.3 %	± 11.6 %
AAA	This that he was not a set as	Y	1.19	62.90	7.59	100	80.0		
	The state of the s	2	20.00	96.30	21.75		80.0		
-0354- Pulse Way	Pulse Waveform (200Hz, 40%)	X	20.00	109.66	26.46	3.88	95.C	± 1.8 %	± 9.6 %
	The state of the s	Y	C.40	60,00	4 63	100	95.C		
22.77		Z	20,00	109,98	26,87	- of 1000	05.C	Non-Amphia de	1000
10355-	Pulse Waveform (200Hz 60%)	X	0.41	160.00	76.67	2,22	120.0	土 1.7 %	± 9.6 5
AAA	D. C. L. C.	Y	0.03	153.34	21.86		120.0		
		Z	20.00	152.64	44.34		120.0		
10387-	QPSK Waveform, 1 MHz	X	0.49	60.8C	6.99	0.00	150.0	± 4.0 %	± 9.6 %
AAA	Tark are an addition of a low to	Y	10,00	70.0C	7.00	37.4	150.0		
Chi Co		Z	4,54	83 46	18.12		150.0		
10388-	QPSK Waveform, 10 MHz	×	3.07	7571	19,99	0.00	150.0	生1.8%	2.9.6
AAA		Y	1.93	67 62	15.00	har and	150.0		
			3.18	75.10	19.75		150.0		-
10396-	64-QAM Waveform, 100 kHz	X.	4.05	80.38	24.13	3.01	150.0	生1.0%	± 9.6 '
AAA	-0.000000000000000000000000000000000000	Y	2.11	67.08	17.78		150.0		100
89.30		2	2.98	72.30	21.02	the land	150.0		
10399-	64-QAM Waveform, 40 MHz	×	3,77	69.45	17.42	0.00	150.0	222%	200
AAA	1	Y	3.28	66.72	15.70	CATA	150.0	1	40.14.70
	A Company of the Control of the Cont	7.	3.83	69.07	17.33		150.0		14.50
10414-	WLAN CODF, 64-QAM, 40M-12	×	4.89	66.83	16.50	0,00	150.0	±4,2 %	+ 3.6
AAA	Andrew Conference Conference	Y.	4.69	66.09	15.91		150.0		17.4
Cana			5.00	66.30	16,36		150.0		

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%.

Gerticate No: EX3-7466_Fn520

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The uncertainties of North X.Y.Z ito not affect the E¹-field uncertainty inside TSL (see Pages 5, 5 and 11),
Numerical linearization parameter, uncertainty not required.
Uncertainty is determined using the max, deviation from Invanimene applying rectangular distribution and is expressed for the square of the



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EX3DV4- SN:7468

Other Probe Parameters

February 4, 2020

Triangular

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

	C1 IF	C2 fF	V-1	ms.V ⁻²	ms.V	T3 ms	T4	75 V-1	Тө
X	33.8	251,26	36,12	5.96	0.00	5.06	1.89	0.00	1.01
Y	29.4	228.86	38.26	3.29	0.17	5.04	0.00	0.25	1.01
7	45.4	352.36	38.52	10.93	0.08	5,10	0.00	0.40	1.01

Sensor Arrangement	
Connector Angle (")	
Mechanical Surface Detection Mode	

Connector Angle (")	-4.9
Mechanical Surface Detection Mode	enabled
Optica: 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 min
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Senser Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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Fobruary 4, 2020 EX3DV4- SN 7466

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^e	Relative Permittivity	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^B	Depth ^Q (mm)	Unc (k=2)
80C	42.7	0.88	10.84	10.84	10.84	0.00	1.00	± 13.3 %
750	41.9	0.89	10.56	10.56	10.56	0.42	0.92	±-20%
835	41.5	0,90	10.32	10.32	10.32	0.20	1.38	± 12.0 %
900	41.5	0.97	10.10	16.10	10.10	0,29	1.09	± 12.0 %
1450	40.5	1.20	9.31	9.31	9,31	0.42	0.80	£ 12.0 %
1750	40.1	1.37	8.94	8.94	8.94	0.27	0.89	± 12.0 %
1900	40.0	1.40	8.56	8.56	3.56	0.29	0.86	± 12.0 %
2000	40,0	1.40	8.50	8.50	8.50	0.35	0.86	± 12.0 %
2300	39.5	1.67	8.08	8.08	8.08	0,32	0.90	± 12.0 %
2450	39.2	1.80	7.85	7.85	7.85	0.36	0.90	± 12.0 %
2600	39.5	1.96	7.53	7.53	7.53	035	0.92	± 12.0 %
3300	38.2	2.71	7,03	7.03	7.03	0.30	1 30	± 13.1 %
3600	37.9	291	6.96	6.96	6.96	0.30	1.30	± 13.1 %
3700	37.7	3 12	7.00	7.00	7.0C	0.30	1.30	± 13.1 %
3900	37,5	3.32	3.73	6.73	6.73	0.40	1.50	± 13,19
4100	37,2	3.53	5,57	6.57	6.57	0.40	1.50	± 13,1 %
4200	27.1	3.63	B.30	6.33	6.30	0,35	1/50	± 13.1 9
4400	36.9	3.84	6.27	6.27	6.27	0.40	1.60	± 13.1 %
4600	36.7	4.04	6.24	6,24	6.24	0.45	1.60	±13.19
4800	56.4	4.25	6.18	6.18	6.18	0.40	1.80	±13.19
4950	36.3	4,40	5.97	5,97	5.97	0.40	1.80	±13.1.9
5200	36.0	4,66	5.60	5.60	5.60	0.40	1.80	±13.1 9
5300	359	4.76	5.45	5.45	5.45	C.40	1,80	± 13,1 9
5600	35 5	5.07	4.98	4.98	4 98	0.40	1.80	± 13.1 9
5800	35.3	8.27	5.04	5.04	5.04	0.40	1.80	±13.1 9

Frequency validity above 3C0 MHz of ± 100 MHz only applies for DA3Y v4.4 and higher (see Page 2), obset it is restricted to ± 50 MHz. The uncartainty is the RSS of the ConvF uncertainty at celebration 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 33, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessments at 35 MHz is ±50 MHz. Above 5 GHz frequency validity can be absorbed to a 110 MHz.

At frequencies below 3 GHz, the validity of issue parameters (a and c) can be reliabled 15 ± 10% ifficult companisation formula to applied to measured SAR values. At frequencies above 3 GHz, the validity of issue parameters (a and d) is restricted to ± 5%. The uncertainty at the RSS of the ConvF uncertainty for indicated farget listue parameters.

Applicably are determined during cultivation. SPEAC warrents that the remaining deviation due to the boundary effect after companisation is always less than ± 1% for requencies below 3 GHz and below ± 2% for frequencies between 3-8 GHz at any distance larger from the boundary.

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February 4 2020 EX30V4- SN:7466

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

Calibration Parameter Determined in Body Tissue Simulating Media

r (MHz) ^{ti}	Relative Pennittivity	Conductivity (S/m)	ConvF X	ConvF Y	ConvFZ	Alpha ^G	Depth ^Q (mm)	Unc (k=2)
600	56.1	0.95	10.77	10.77	10.77	0.00	1.00	± 13.3 %
750	55.5	0.96	10.30	10.30	10.30	0.36	0.94	± 12.0 %
835	55.2	0.97	9.96	9.96	9.96	0.27	1.11	± 12.0 %
900	55.0	1.05	9.84	9.84	9.84	0.43	0.80	± 12.0 %
1750	53.4	1.49	8.62	8.62	8.62	0.36	0.86	± 12.0 %
1900	53.3	1.52	8.16	8.16	8,16	0.27	1.05	± 12.0 %
2000	53.3	1,52	8,10	8.10	8.10	0.23	1.13	± 12.0 %
2300	52.9	1.81	8.05	8.05	8.05	0.27	1.20	± 12.0 %
2450	52.7	1 95	7.81	7.81	7.81	0.37	0.94	±12.0%
2800	52.5	2.16	7.64	7.64	7.84	0.42	0.90	± 12.0 %
3300	51.6	3.08	6.72	6.72	6.72	0.40	1.35	± 13.1 %
3500	51.3	3.31	6.64	6.64	6.64	0.45	1 25	± 13,1 %
3700	51.0	3.55	6.58	6.58	6,58	0.40	1,35	± 13.1 %
3900	51.2	3.78	В.03	6.03	6,03	0.45	1.70	± 13.1 %
4100	50.5	4.01	8.05	6.05	6,05	0.45	1.70	± 13.1 %
4200	50,4	4.13	6.00	6.00	6,00	0.45	1,80	± 13:1%
4400	50.1	4.37	5.92	5.92	5.92	0,45	1.80	± 13,1 %
4600	49.8	4.60	5.54	5,54	5,54	0.50	1.90	±13.1%
4800	49.6	4.83	5.49	5.49	5.49	0.50	1.90	±13.1%
4950	49.4	5.01	5.30	5.30	5.30	0,50	1.90	± 13,1 %
5200	490	5.30	5.00	5.00	5.00	0.50	1.90	± 13.1 %
5300	48 9	5,42	4.85	4,85	4 85	0.50	1.90	±13.19
5600	48.5	5.77	4.28	4.28	4.28	0.50	1.90	± 13.1 %
5800	48.2	6.00	4.36	4.36	4.36	C.50	1.90	± 13.1 %

Frequency validity above 3C0 MHz or a 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it in restricted to 5.50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is 5.10, 25.40, 50 and 70 MHz for ConvF assessed at 13 MHz is 4.9 MHz. Above 5 GHz frequency validity of ConvF assessed at 13 MHz is 9.19 MHz. Above 5 GHz frequency validity are extended to 5.110 MHz. A trequencies below 3 GHz, the validity of lissue parameters (is and ii) can be relaxed to 5.10% if liquid companisation formula is applied to measured 3AR values. At frequencies above 3 GHz, the validity of tissue parameters (is and ii) is restricted to 5.5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters. If at the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and ballow ±2% for frequencies belowed 3-6 GHz at any distance larger than half the orobe tip diameter from the boundary.

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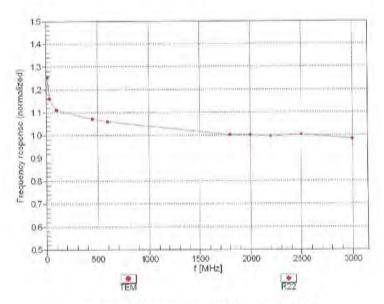
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February 4, 2020

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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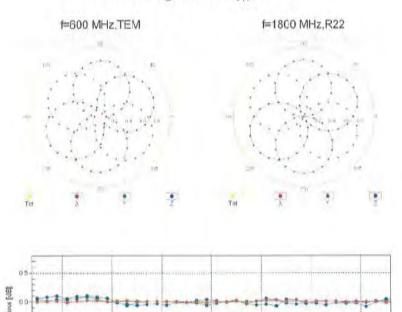


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Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$



Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

25 00 MHz



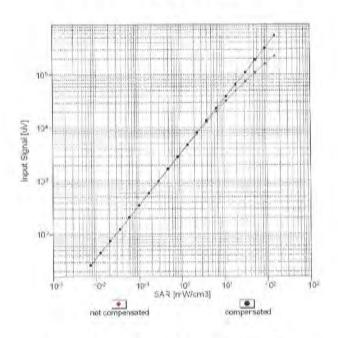
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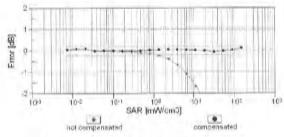
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February 4, 2020

Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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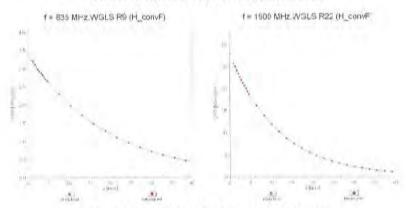


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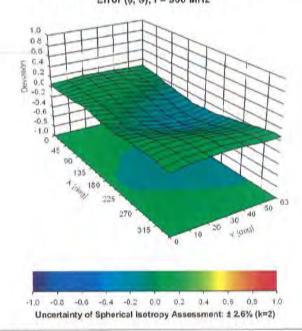
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Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (6, 9), f = 900 MHz



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Appendix: Calibration Parameters above 6GHz

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^G	Relative Permittivity	Conductivity (S/m)	ConvF X	Convf Y	ConvF Z	Alpha	Depth ^o (mm)	Unc (k=2)
6500	34.5	6.70	5.75	5.75	5.75	0.14	2.60	± '86%
7000	33.9	6.85	5.85	5,95	5.95	0.18	1,30	± -8.6 %
8000	32.7	7,84	6.22	6.22	6.22	0.40	1.20	± 18.6 %
9000	31.5	9.08	5.72	5.72	5.72	0.50	1.80	1 18.6 %

Caribration procedure for frequencies above 6 GHz is pending accreditation. Frequency validity above 6GHz is ± 700 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. At the quarter is the converted to the co

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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc* (k=2)
1	40.00	CW	CW	0.00	£4.79
0010	CAA	SAR Validation (Square, 100ms; 10ms)	Test	10.00	±9.63
0011	CAB	LMTS-FDD (WCDMA)	WCDMA	2.91	±9.63
0012	CAB	IEEE 802 116 WIF1 2.4 GHz (DSSS 1 Mbps)	WLAN	1.87	±9.6 %
0013	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	±9.5 9
0021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 9
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	0.57	£9.69
10024	DAC	CPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6,56	£ 9.6 9
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	19.69
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	19.69
10027	DAC	CPRS-FDD (TDMA, GMSK, TN D-1-2)	GSM	4.80	E 9.6 3
10028	DAC	GPRS-FDD (TDMA GMSK, TN 0-1-2-3)	GSM	3.65	± 9.6 %
10029	DAC	EDGE-FDD (TDMA 8PSK, TN 0-1-2)	GSM	7.78	± 0.6 %
10030	CAA	IEEE 302,15 1 Bluetooth (GFSK, DH1)	Bluetoo:h	5.30	± 9.6 9
10031	CAA	IEEE 302.15 1 Bluetooth (GFSK, DH3)	Bluetooth	1,87	± 9.6 %
10032	CAA	IEEE 802.15 1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 9
10033	CAA	IEEE 802 15 1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 9
0034	CAA	IEE 802.15.1 Blueloot: (PI/4-DQPSK, DH3)	Bluetooth	4.53	19.63
0035	CAA	IEE = 802.15 1 Bluetooth (PI/4-DQPSK, DH5)	Bluefooth	3.83	
0036	CAA	IEEE 802.15.1 Bluelooth (8-DPSK, DH1)	Bluetooth	3.01	± 9.6 %
10037	CAA	IFF - 802 15 1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	£ 9.6 9
10038	CAA	JEL - 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4,10	£ 9,6 9
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2300	4.57	
10042	CAB	IS-54 / IS-136 FDD (TOMA/FOM, Pt/4-DQPSK, Halfrate)	AMPS		£9.63
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	7.78	± 9.63
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 9
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DEST	10.79	±9.69
0056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Meps)	TD-SCDMA		
10058	DAC	E DGE-FDD (TDNA, 8PSK, TN 0-1-2-3)	GSM	11.01	± 9.6 %
0059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)		6.52	19.69
0000	CAB	IEEE 802,11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.12	± 9.6 %
0061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbos)	WLAN	2.63	±9,6%
10002	CAC	IEEE 802.11a/r WiFi 5 GHz (OFDM 6 Mbgs)	WLAN	3.60	1989
0063	CAC	IEEE 802 11a/r Will 15 GHz (OFDM 9 Mbps)		8.68	±9.6%
0064	CAC	ILLE 802, 1a/r WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	±9.6%
10065	CAC	IEEE 802. 1a/r WIFI & GHz (OFDM, 12 Mcps)	WLAN	9.09	±96%
0066	CAC	IEEE 802. 14/P WIFI 6 GHz (OFDM, 16 MEPS)	WLAN	9.00	± 9.6 %
00007	CAC	IEEE 802. 1a/r Wiri 5 GHz (OFDM 36 Mtps)	WLAN	9.28	± 9.6 %
00068	CAG		WLAN	10.12	±9.6 %
0269	CAC	IEEE 802, 1a/h WiFi 5 GHz (OFDM, 48 Mbps) IEEE 802, 1a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.24	± €.6 %
0308	CAB	IEEE 802 - 1 a WIFE 2 4 CU 4 (DECK ISTER A CARE)	WLAN	10.66	= 9.6 %
0371	CAB	IFFE 802,11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	0.03	= 5.6 %
0372	CAB	IEEE 802,11g WiFi 2.4 GHz (DSSS/DFDM, 12 Mtps)	WLAN	9.62	= 0.6 %
0074	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.54	= 9.6 %
0375	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/DFDM, 24 Mbps)	WLAN	10.30	± 6.6 %
0376	CAB	[FFI 802 11g WiFi 2 4 GHz (DSSS/DFDM, 36 Mbps)	WLAN	10.77	= 6.6 %
0376	CAB	IEEE 802 11g WiFi 2,4 GHz (DSSS/OFDM, 43 Mhps)	WLAN	10.94	= 5.6 %
		IEEE 802 11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	= 9.6 %
0081	CAB	GDMA2000 (1xRTT, RC3)	CDMA2000	3.97	= 9.6 %
0090	DAG	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullratin)	AMPS	4.77	= 9.6 %
0390	GAB	GPRS-FOD (TDMA, GMSK, TN 0-4)	GSM	6.56	= 9.6 %
		UMTS-FOD (HSDPA)	WCDMA	3.98	= 9.6 %
0008	CAB	UMTS-FD0 (HSUPA, Subtest 2)	WCDMA	3.98	= 9.6 %
0099	DAC	EDGE-FOD (TDMA, 8PSK, TN 0-4)	GSM	9.55	= 9.6 %
0100	GAE	LTE-FOD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	= 9.6 %
0101	CA	LTE-FOD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	= 9.6 %
0102	CAE	LTE-FOD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	= 9.6 %
0103	CAG	LTE-TOD (BC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9,29	· ± 4.6 %
0104	CAG	LTE-TO0 (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
0105	CAG	LTE-TOD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
8010	CAG	LTE-FOD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %

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			The state of the s	1000	-
0109	CAG	LT - FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	±9.6 %
0110	CAG	LTE FDD (SC-FDMA, 10(% RR 5 MHz, QPSK)	LTE-FDO	5.78	± 9.6 %
0111	CAG	(TE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDO	6.44	±93%
0112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.56	£9.5 %
3113	CAG	LTE FDD (5C F JMA, 100% RB, 5 MHz, 64-QAN)	LTE-FDD	6.62	土自.5 %
0114	CAC	IEEE 832.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	+ 0.5 %
0115	CAC	IEEE 832 1 in (HT Greunfield, 81 Mbps, 18-QAM)	WLAN	8.46	# B. B. W
Q11B	CAC	IEEE 832.11n (HT Greenfield, 135 Mbps, 34-GAM)	WLAN	8.15	#98 W
0117	CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
0118	CAC	IEEE 802.11n (HT Mxed, 81 Mbps, 16-QAM)	WLAN	8.59	±9.6 %
0119	CAC	JEEE 802 TIn (HT Mixed, 135 Mbps, 64-QAVI)	W.AN	8.13	±9.6 %
0.40	CAE	LTE FDD (SC FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDC	6.49	±9.6 %
0.41	CAE	LTE-FDD (SC-FDMA, 100% HB, 15 MHz, 64-QAM)	LTE-FDC	5.73	19.6 %
0/42	CAF	LTF-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	635	±9.6 %
0143	CAE	TL FDD (SC FDMA, '00% RB, 3 MHz, 16 GAM)	LTL-FDD	6 65	±9.6 %
0144	CAE	TE-FDD (3C-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	576	± 9.6 %
0145	CAF	LTE-FDD (SC-FDMA 100% RIB, 1.4 MHz, QF9K)	LTE-FDD	6.41	±96 %
0146	CAF	TE-FDD (SC-FDMA 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.72	196 %
0147	CAF	_TE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) _TE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±98%
0149	CAE	TE-FDE (SC-FDMA, 50% RB, 20 MHz, 16-GAM)	LTE-FDD	6.60	± 9.5.%
0150	CAG	TE-TDC (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TD0	9.28	195%
0152	CAG	LTE-TOD (SC-FDMA, 50% RB, 20 MHz, 10-QAM)	LTE-TOD	9.92	±9.6 %
0153	CAG	LTE-TDC (SC-FDMA, 50% RB, 20 MHz, E4-QAM)	L "E-TOD	10.05	±9.6 %
0154	CAG	LTE-FDE (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FOD	5.75	±9.6 %
0155	CAG	LTE-FDC (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FOD	6.43	±9.6 %
0156	CAG	LTE FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	L*E-FDD	5.79	±96 ×
0157	CAG	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	L E-FOD	6.49	±962
0158	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	1963
0159	CAG	LTL-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	196 %
0160	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FOD	5.82	1963
0101	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz 16-QAM)	LTE-FOD	6.43	1963
0162	CAL	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FOD	8.58	1967
0166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LYE-FOD	5.46	土 任 相 岁
0167	CAF	LTE-FDD (SC FDMA, 50% Rft, 1.4 MHz, 15-QAM)	LTE-FOD	6.21	2 0.6 %
0100	CAF	LTE-FDD (SC-FDMA, 50% RB, 1,4 MHz, 64-QAM)	LTE-FO0	6.79	49.69
0103	CAE	LTE-FOD (\$C-FDMA, 1 RB, 20 MHz, GPSK) LTE-FOD (\$C-FDMA, 1 RB, 20 MHz, 16-QAM)	LYE-FOD	5.73	1969
0170	CAE	LTE-FDD (SG-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	4 0.6 %
01.71	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	# 9.5 9
0172	CAG	LTF-TDD (SC-FDMA, 1 RB, 20 MHz, QFSK)	LTE-TOD	9.21	4 9.6 %
0173	CAG	LTE-TOD (SC-FDMA, 1 RB, 20 MHz, 6-Q4M)	LTE-TDD	9.43	£9.6 %
0174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QFSK)	LTE-TOD	10.25	± 9.6 %
0175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QFSK)	LTE-FOD	5.72	2.06
0175	CAG	LTF-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	1969
0177	GA.	LTE FOD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FOD	6.73	1969
0178	CAG	LTE-FDD (SC-FDMA, 1 RB, : MHz, 16-QAM)	LTE-FDD	6.52	+963
0179	CAG	LTF-FOD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FOD	€.50	19.03
OTRO	CAG	LTE FOD (SC-FDMA, 1 RB, 5 MHz, 64-CAM)	LTE-FDD	5.72	± 9,6 °
0181	CAE	LTE-FOD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	6.52	1.8.6 %
0182	CAL	LTE-FOD (3C-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.50	19.6
6810	AAD	LTE-FOR (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	5.73	± 9.6
1018A	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK) LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-PD0	6.51	= 0.8
0185	GAF		LTE-FD0	6.50	≥ 9.6
10186	AA= CAF	L F-FDD (SC-FDMA, 1 RB, 3 MHz., 64-QAM) L E-FDD (SC-FDMA, 1 RB, 1.4 MHz., QPS-5)	LTE-FDD	5.73	= 9.6
0187	CAF	LTE-FDD (SC-FDMA, 1 RE, 1 4 MHz, 16-QAM)	LTE-FOD	6.52	= 9.6
	AAF	LTF-FDD (SC-FDMA, 1 RE, 4 MHz, 64-QAM)	LTE-FOD	6.50	= 9.6
0180	CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	= 9.6
0194	CAC	IEEE 802 11n (HT Greenlield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6
10196	CAC	IEEE 802.11s (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6
10166	GAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 °
10197	GAC	IEEE 802 110 (HT Mixed, 39 Mbps, 16-CAM)	WLAN	8.13	± 9.6
10198	GAC	IEEE 802. 1n (HT Mixed, 65 Mbps, 64-CAM)	WLAN	B:27	±9.6
1C219	CAC	IEEE BOZ. 1n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	±9.61

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Onless otherwise stated the results shown in this test report reter only to the sample(s) leader and such sample(s) leader and sample(s) leader and such sample(s) leader and such sample(s) leader and such sample(s) leader and sample(s) le Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



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the core for Trade (1-1-2-2)	February 4, 2020

10220	CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-GAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-CAM)	WLAN	8,27	± 9,6 %
10222	CAC	JEEE B02.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAC	JEEE 902.115 (HT Mixed, 90 Mbps, 16-QAM)	WLAN	5.48	19.6 %
10224	CAC	III.EE 302.11h (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	19.6 %
1C225	CAB	UMTS-FDD (HSFA+)	WCDMA	5.97	± 9.6 %
C226	CAB	LTE-TDD (SC-FCMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TOO	9.49	± 9.6 %
0227	CAB	LTE-TDD (SC-FCMA, 1 RB, 1.4 MHz, 64-QAM)	LTE- DD	10.26	£ 9.6 %
10228	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)		3.22	± 9.6 %
10229	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TOD	3,48	± 9.6 %
10230	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TOD	10.25	± 9.6 %
0231	CAD	LTE-TOD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.10	± 9.6 %
0232	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TOD	9,48	# 9.6 %
0233	CAG	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10/25	£ 9.6 %
0234	CAG	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	t 9.6 %
0235	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	t 9.6 %
0236	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TOO	10.25	£ 9.6 %
0237	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-105	9.21	±9.6%
0238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-CAM)	LTE-TDO	9.48	£ 9.6 %
0239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, B4-CAM)	LTE-TDO	10.25	± 9.6 %
0240	CAF	LTE-TOD (SC-FDMA, 1 RE, 15 MHz, QPSK)	LTE-TOO	9.21	± 9.6 %
0241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDO	9.82	
0242	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TOO	9.66	± 9.6 %
0243	CAB	L 1-TDD (SC-FDMA, 50% RB, 1.4 MHz, GPSK)	LTE-TOO	9.66	± 9.6 %
0244	CAD	L E-TDD (SC-FDMA, 50% RB, 3 MHz, 16 QAM)			± 9.6 %
0245	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDO	10.06	= 9.6 %
0246	CAD	LTE-TOP (SC-FDMA, 50% R3, 3 MHz, QPSK)	LTE-TDD	10.06	= 9.6 %
0247	CAG	L E-TO0 (SC-FDMA, 50% R3, 5 MHz, 16-QAM)	LTE-TOD	9.30	= 5.6 %
0248	CAG	LTE-TOD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TOD	9.91	= 9.6 %
0249	CAG	LTE-TOD (SC-FDMA, 50% RB, 5 MHz, QFSK)	LTE-TOD	10.00	= 9.6 %
0250	CAG	LTE-T30 (3C-FDMA, 50% RB, 5 MHz, CFSK) LTE-T30 (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.29	= 9.6 %
0251	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
0252	CAG		LTI-TOD	10.17	= fl.6 %
0253	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TD0	9.24	= 9.6 %
0254	CAP	LTF-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TD0	9.90	± 9.6 %
0255	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TOD	10.14	± 8.6 %
0255		LTE-TDD (3C-FDMA, 30% RB, 15 MHz, QPSK)	LTE-TOD	9.20	± 9.6 %
0257	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
025/		LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10,08	± 9,6 %
	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, GPSK)	LTE-TDD	9,34	±9.6 %
0259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 15-QAM)	LTE-TOD	9.98	± 9.6 %
0260	CAD	LTF-TDD (SC-FDMA, 100% RB, E MHz, 34-CAM)	LTE-TOD	9.97	1.9.6 %
0261	CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TOD	9.24	196%
0262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TOD	9.83	±9.6%
0263	CAG	LTE-TOD (SC-FDMA, 100% RB, 5 MHz, 34-CAM)	LTE-TOD	10.16	19.6%
0264	CAG	LTE-TDD (SC-FDMA, 100% RB, £ MHz, QPSK)	LTE-TOD	9.23	19.6%
0265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz 16-QAM)	LTE-TOD	9.92	±9.6 %
0266	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz 84-QAM)	LTE-TOD	10.07	# 9.6 %
0267	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QFSK)	LTE-TOD	9.30	196%
0268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz 16-QAM)	LTE-TOD	10.06	± 9.6 %
0269	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz 64-QAM)	LTE-TDD	10.13	±9.6 %
0270	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz- QPSK)	LTE-TOD	9.58	± 9.6 %
1274	CAB	UMTS-FDD (HEUPA, Subtest 5, 3GPP Rei8,10)	WCDMA	4.87	± 9.6 %
0275	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	2 9.6 %
1277	CAA	PHS (QPSK)	PHS	11.81	196%
1278	CAA	PHS (QPSK, 3W 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
1279	CAA	PHS (QPSK, 3W 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
3290	AAB	CDMA2000, RC1, SO65, Full Rate	CDMA2000	3.91	± 9.6 %
0291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
0292	AAB	CDMA200C, RC3, SOS2, Full Rate	CDMA2000	3.39	± 9.6 %
0293	AAB	CDMA200C, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
0295	AAB	GDMA2000, RC1, SO3, 1/8th Rate 25 r.	CDMA2000	12.49	± 0.6 %
0297	AAD	LTE-FDC (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	±9.6 %
0298	AAD	LTE-FDE (8C-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
		LTE-FDC (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	THE RESTRICTION OF THE PARTY OF	17. F 45.	p. 10 at 10 to 100 to

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	AAD	LITE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDC	6.60	±93%
10300	AAA	IEEE 832 166 WINAX (29:13, 5ms, 10MHz, QPSK, PUSC)	WIMAX	12.03	±9.5 %
10302	AAA	IEEE 802.16e WIVAX (29:13, 5ms. 10MHz, QPSK, PJSC, 3 CTRL	WIMAX	12.57	19,8%
VES NO	227	symbols)	WIMAX	12.52	±9.6 %
10303	AAA	FFF 802.166 WWAX (31:15, 5ms, 10MHz, 04QAM, PUSC)	WIMAX	11.88	±9.6 %
10304	AAA	ELE 802 166 WIMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)			
10305	AAA	EEE 852 166 WIMAX (31(15, 10ms, 16M-12, 64QAM PUSC, 15 symbols)	WIMAX	15.24	±9.6 %
10306	AAA	EEE 802 18e WIMAX (25:18, 10ms, 10M-12, 64QAM PUSC, 18 symbols)	WMAX	14.67	± 9.6 %
10307	AAA	EEE 802 16e WIMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	WIMAX	14,49	±9.6 %
10308	AAA	ELL 802 16e WIMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WIMAX	14,46	198 %
10309	AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18	WINAX	14.58	±9.6 %
10310	AAA	symbols) IEEE 805.15e WIMAX (29:18, 10ms, 10MHz, OPSK, 4MC 2x3, 18	WINAX	14.57	±9.6 %
10011	AAD	symbols) LTE-FDC (SC-FDMA, 100% RB 15 MHz, QPSK)	L E-FDD	6.06	±96%
1D311	AAD		IDEN	10.61	±96 K
10313	AAA	DEN 1/3	ICEN	13.48	±96 %
10314	AAA	IDEN 1:6		1.71	±96 %
10316	AAB	IEEE 802.116 WiFi 2 4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	WLAN		
10316	AAB	IEEE 802.11g WIFI 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	#96%
0317	AAC	IFFE 802 11a WiFi 5 GHz (DFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	196%
0352	AAA	Pulss Waveform (203Hz, 10%)	Genera	10.00	196%
0353	AAA	Pulse Waveform (200Hz, 20%)	Ganero	6.99	± 9.6 %
\0354	AAA	Pulse Waveform (200Hz, 40%)	Genera	3,98	1963
10355	AAA	Pulse Waveform (200Hz, 60%)	Genera	2,22	1969
0356	AAA	Pulse Waveform (200Hz, 80%)	Genero	0.97	± 9.6 %
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	19.69
10388	AAA	QPSK Waveform, 10 MHz	Gerenc	6.22	19.65
	AAA	64-QAM Waveform, 100 kHz	Gereric	6.27	± 9.6 %
10398	AAA	64-QAM Waveform, 4C MHz	Gereric	6.27	±9.6 %
10399		DA-CIAM W SVEIGHT, AC IVELS	WLAN	8.37	±9.69
10400	AAD	IFFE 802.11sc WiFi (20MHz, 64-OAM, 99p: duly cycle)		8.60	196
0401	CAN	ILLEE 802 11ac WIFI (40MHz, 64-QAM, 99pc duty cycle)	WLAN		
10402	CAA	IEEE 502 11sc WiFi (80MHz, 64-QAM, 99pc duly cycle)	WLAN	8.53	± 9.6 %
10403	AAB	CDMA2COC (1xEV-DO, Rev. 0)	CDMA2000	3.76	± 9.6 %
10404	EAA	CDMA2CGC (1xEV-DO, Rev. A)	CDMA2000	2.77	1969
1040E	LVV3	CDMA2000, RC3, SD32, SDH0, Full Rate	CDMA2000	5.22	19.63
10410	AAS	LTE/TOD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub*rame=2,3,4.7,8,9, Sub*rame Cont≅4)	LTE-TOD	7.82	± 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 9
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (3SSS, 1 Mbps, 99pc duty cycle)	WLAN	1.54	19.6
10416	AAA	IEEE 802 11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	19.61
10417	AAB	IEEE 802 11a/h WiFi & GHz (OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	= 9.6°
	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle	WLAN	8 14	= 0.6°
104 10	LALES.				Acres de la constante de la co
1,112,100	AAA	Long preambule) IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short resumbula)	WLAN	8.19	= 9.6 €
10419	AAA	IEEE 802-11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 9fine duty cycle Short preumbule)		1117 7 7 1	110 7.74
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-Ol/DM, 6 Mbps, 99nc duty cycle Short presentule) IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	=9.6
10419 10422 10423	AAB AAB	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presumbule) IEEE 802 11n (HT Greenfield, 7.2 Mbps, BPSK) IEEE 802 11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN WLAN	8.32 8.47	± 9.6
10419 10422 10423 10424	AAB AAB AAB	ILEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presunctule) IEEE 802 11n (HT Greenfield, 7.2 Mbps, BPSK) IEEE 802 11n (HT Greenfield, 43.3 Mbps, 16-QAM) IEEE 802,11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN WLAN WLAN	8.32 8.47 8,40	= 9.6 ± 9.6
10419 10422 10423 10424 10425	AAB AAB AAB AAB	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presumbule) IEEE 802 11s (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802 11s (HT Greenfield, 43,3 Mbps, 16-QAM) IEEE 802,11s (HT Greenfield, 72 2 Mbps, 64-QAM) IEEE 802,11s (HT Greenfield, 75 Mbps, BPSK)	WLAN WLAN WLAN WLAN	8.32 8.47 8.40 8.41	±9.6 ±9.6 ±9.6
10419 10422 10423 10424 10425 10426	AAB AAB AAB AAB AAB	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presentsule) IEEE 802.11n (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-GAM) IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-GAM) IEEE 802.11n (HT Greenfield, 15 Mbps, BFSK) IEEE 802.11n (HT Greenfield, 50 Mbps, 16-GAM)	WLAN WLAN WLAN WLAN WLAN	8.32 8.47 8.40 8.41 8.45	±9.6 ±9.6 ±9.6 ±9.6
10422 10423 10424 10425 10426 10427	AAB AAB AAB AAB AAB	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presumcule) IEEE 802 11n (HT Greenfield, 7.2 Mbps, BPSK) IEEE 802 11n (HT Greenfield, 43.3 Mbps, 16-QAM) IEEE 802 11n (HT Greenfield, 72.2 Mbps, 64-QAM) IEEE 802 11n (HT Greenfield, 15 Mbps, BFSK) IEEE 802 11n (HT Greenfield, 50 Mbps, 16-QAM) IEEE 802 11n (HT Greenfield, 50 Mbps, 16-QAM)	WLAN WLAN WLAN WLAN WLAN WLAN	8.32 8.47 8.40 8.41 8.45 8.41	= 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10419 10422 10423 10424 10426 10426 10427 10430	AAA AAB AAB AAB AAB AAB	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presumbule) IEEE 802 11s (HT Greenfield, 7, 2 Mbps, BPSK) IEEE 802 11s (HT Greenfield, 43, 3 Mbps, 16-GAM) IEEE 802, 11s (HT Greenfield, 72 z Mbps, 64-GAM) IEEE 802, 11s (HT Greenfield, 15 Mbps, BFSK) IEEE 802, 11s (HT Greenfield, 90 Mbps, 16-GAM) IEEE 802, 11s (HT Greenfield, 50 Mbps, B4-DAM) IEEE 802, 11s (HT Greenfield, 150 Mbps, B4-DAM)	WLAN WLAN WLAN WLAN WLAN WLAN LTE-FDD	8.32 8.47 8.40 8.41 8.45 8.41 8.28	= 5.6 ± 9.6 ± 9.6 ± 9.8 ± 9.8 ± 9.6
10419 10422 10423 10424 10426 10426 10427 10430 10421	AAA AAB AAB AAB AAB AAB AAD	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presentsule) IEEE 802 11n (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802 11n (HT Greenfield, 43 3 Mbps, 16-GAM) IEEE 802 11n (HT Greenfield, 22 2 Mbps, 64-GAM) IEEE 802 11n (HT Greenfield, 50 Mbps, BFSK) IEEE 802 11n (HT Greenfield, 50 Mbps, 16-GAM) IEEE 802 11n (HT Greenfield, 50 Mbps, 84-QAM) IEEE 802 11n (HT Greenfield, 150 Mbps, 84-QAM) IEEE 700 (OFDMA, 5 MHz, E-TM, 3,1)	WLAN WLAN WLAN WLAN WLAN WLAN LTE-FDD LTE-FDD	8.32 8.47 8.40 8.41 8.45 8.41 8.28 8.38	± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10419 10422 10423 10424 10425 10426 10427 10430 10421 10432	AAB AAB AAB AAB AAB AAB AAD AAD	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presentsule) IEEE 802,11n (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802,11n (HT Greenfield, 43.3 Mbps, 16-QAM) IEEE 802,11n (HT Greenfield, 72.2 Mbps, 64-QAM) IEEE 802,11n (HT Greenfield, 15 Mbps, BFSK) IEEE 802,11n (HT Greenfield, 90 Mbps, 16-QAM) IEEE 802,11n (HT Greenfield, 150 Mbps, 84-QAM) IEEE FDD (OFDMA, 5 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1)	WLAN WLAN WLAN WLAN WLAN WLAN LTE-FDD LTE-FDD	8.32 8.47 8.40 8.41 8.45 8.41 8.28 8.38	± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10419 10419 10422 10423 10424 10426 10426 10427 10430 10421 10432 10433	AAA AAB AAB AAB AAB AAB AAD	ILEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presumbule) ILEE 802 11s (HT Greenfield, 7, 2 Mbps, BPSK) ILEE 802 11s (HT Greenfield, 43, 3 Mbps, 16-GAM) ILEE 802, 11s (HT Greenfield, 72 z Mbps, 64-GAM) ILEE 802, 11s (HT Greenfield, 15 Mbps, BFSK) ILEE 802, 11s (HT Greenfield, 50 Mbps, 16-GAM) ILEE 802, 11s (HT Greenfield, 50 Mbps, B4-DAM) ILEE FDD (OFDMA, 5 MHz, E-TM 3, 1) ILTE-FDD (OFDMA, 16 MHz, E-TM 3, 1) ILTE-FDD (OFDMA, 16 MHz, E-TM 3, 1) ILTE-FDD (OFDMA, 16 MHz, E-TM 3, 1)	WLAN WLAN WLAN WLAN WLAN WLAN LTE-FDD LTE-FDD LTE-FDD	8.32 8.47 8.40 8.41 8.45 8.41 8.28 8.38 8.34	= 5.6 ± 5.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10419 10422 10423 10424 10425 10426 10427 10420 10421 10432 10433	AAA AAB AAB AAB AAB AAB AAD AAD AAC	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presentsule) IEEE 802,11n (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802,11n (HT Greenfield, 43.3 Mbps, 16-QAM) IEEE 802,11n (HT Greenfield, 72.2 Mbps, 64-QAM) IEEE 802,11n (HT Greenfield, 15 Mbps, BFSK) IEEE 802,11n (HT Greenfield, 90 Mbps, 16-QAM) IEEE 802,11n (HT Greenfield, 150 Mbps, 84-QAM) IEEE FDD (OFDMA, 5 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1)	WLAN WLAN WLAN WLAN WLAN WLAN LTE-FDD LTE-FDD	8.32 8.47 8.40 8.41 8.45 8.41 8.28 8.38 8.34 8.34	= 5.6 ± 5.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10419 10422 10423 10424 10425 10426 10427 10430 10431 10432	AAB AAB AAB AAB AAB AAB AAD AAD	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presentsule) IEEE 802 11n (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802 11n (HT Greenfield, 43.3 Mbps, 16-GAM) IEEE 802 11n (HT Greenfield, 72.2 Mbps, 64-GAM) IEEE 802 11n (HT Greenfield, 15 Mbps, BFSK) IEEE 802 11n (HT Greenfield, 15 Mbps, BFSK) IEEE 802 11n (HT Greenfield, 150 Mbps, 16-GAM) IEEE 802 11n (HT Greenfield, 150 Mbps, 18-DAM) LTE-FDD (OFDMA, 5 MHz, E-TM, 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM, 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM, 3.1) LTE-FDD (OFDMA, 16 MHz, B-TM, 3.1) LTE-FDD (OFDMA, 16 MHz, B-TM, 3.1)	WLAN WLAN WLAN WLAN WLAN WLAN LTE-FDD LTE-FDD LTE-FDD	8.32 8.47 8.40 8.41 8.45 8.41 8.28 8.38 8.34	= 5.6 ± 5.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10419 10422 10423 10424 10426 10426 10427 10430 10421 10432 10433 10454 10455	AAA AAB AAB AAB AAB AAD AAD AAC AAC AAC	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presumbule) IEEE 802 11s (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802 11s (HT Greenfield, 33,3 Mbps, 16-GAM) IEEE 802,11s (HT Greenfield, 72 z Mbps, 64-GAM) IEEE 802,11s (HT Greenfield, 15 Mbps, BFSK) IEEE 802,11s (HT Greenfield, 50 Mbps, 16-GAM) IEEE 802,11s (HT Greenfield, 50 Mbps, 16-GAM) IEEE 802,11s (HT Greenfield, 150 Mbps, B4-DAM) IEEE 802,11s (HT Greenfield, 150 Mbps, B4-DAM) IEEE FDD (OFDMA, 5 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1) UV-CDMA (BS Test Model 1, 84 DPCH) LTE-TDD (SC-FDMA, 17 RB, 20 MHz, QFSK, UL Sutframe 2.3.4,7,6,9)	WILAN WILAN WILAN WILAN WILAN WILAN LTE-FDD LTE-FDD LTE-FDD LTE-FDD WCDMA LTE-TDD	8.32 8.47 8.40 8.41 8.45 8.31 8.38 8.34 8.34 8.60 7.82	25.6 ±5.6
10422 10423 10424 10426 10426 10427 10430 10421 10432 10433 10444 10455	AAA AAB AAB AAB AAB AAB AAD AAD AAC AAC AAA AAF	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presentsule) IEEE 802 11s (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802 11s (HT Greenfield, 43.3 Mbps, 16-GAM) IEEE 802,11s (HT Greenfield, 52.2 Mbps, 64-GAM) IEEE 802,11s (HT Greenfield, 55 Mbps, BFSK) IEEE 802,11s (HT Greenfield, 50 Mbps, 15-GAM) IEEE 802,11s (HT Greenfield, 150 Mbps, 84-DAM) IEEE 802,11s (HT Greenfield, 150 Mbps, 84-DAM) IEEE 70D (OFDMA, 5 MHz, E-TM, 3,1) LTE-FDD (OFDMA, 15 MHz, E-TM, 3,1) LTE-FDD (OFDMA, 15 MHz, E-TM, 3,1) LTE-FDD (OFDMA, 20 MHz, E-TM, 3,1) LTE-FDD (OFDMA, 18 MHz, E-TM, 3,1) Cipping 44%)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN LTE-FDD	8.32 8.47 8.40 8.41 8.45 8.38 8.34 8.34 8.60 7.82	= \$.6° = \$.6° ± \$.6°
10419 10422 10423 10424 10426 10426 10427 10430 10421 10432 10433 10454 10455	AAA AAB AAB AAB AAB AAD AAD AAC AAC AAC	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99nc duty cycle Short presumbule) IEEE 802 11s (HT Greenfield, 7,2 Mbps, BPSK) IEEE 802 11s (HT Greenfield, 33,3 Mbps, 16-GAM) IEEE 802,11s (HT Greenfield, 72 z Mbps, 64-GAM) IEEE 802,11s (HT Greenfield, 15 Mbps, BFSK) IEEE 802,11s (HT Greenfield, 50 Mbps, 16-GAM) IEEE 802,11s (HT Greenfield, 50 Mbps, 16-GAM) IEEE 802,11s (HT Greenfield, 150 Mbps, B4-DAM) IEEE 802,11s (HT Greenfield, 150 Mbps, B4-DAM) IEEE FDD (OFDMA, 5 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1) LTE-FDD (OFDMA, 16 MHz, E-TM 3.1) UV-CDMA (BS Test Model 1, 84 DPCH) LTE-TDD (SC-FDMA, 17 RB, 20 MHz, QFSK, UL Sutframe 2.3.4,7,6,9)	WILAN WILAN WILAN WILAN WILAN WILAN LTE-FDD LTE-FDD LTE-FDD LTE-FDD WCDMA LTE-TDD	8.32 8.47 8.40 8.41 8.45 8.31 8.38 8.34 8.34 8.60 7.82	25.6 ±5.6

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Fabruary 4, 2020

10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDVA	7.59	± 9.6 %
10453	AAD	Validation (Square, 10ms, 1ms)	Test	10.00	± 9.6 %
10456	AAB	IEEE 802.11ac WIF (160VHz, 64-CAM, Dept duty cycle)	WLAN	8.63	± 9.6 9
10457	AAA	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAA	CDMA2000 (1xEV-DC, Rev. B, 2 parriers)	CDMA2000	6.55	±9.6 %
10459	AAA	CDMA2000 (1xEV-DC, Rev. B, 3 cerriers)			
10460	AAA	UMTS-FDD (WCDMA, AMR)	CDMA2000	8,25	29.69
10461	AAB	LIFE TOD (OC FOLM 4.25 - 4.44 - COS - 4.44	WCDMA	2.39	± 9.69
12.72	. 000	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TOD	7.82	± 9.6 %
10462	AAB	LTE-TDD (SC-FDMA, 1 R5, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.30	= 6.6 %
10463	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 84-QAM; UL Subframe=2,5,4,7,8.9)	LTE-TOD	8.56	≥ 6.69
10464	AAC	L TE-TOD (SC-FDMA, 1 RE, 3 MHz, QPSK, UL Subframe=2,3,4,7,8.9)	LTE-TOD	7.82	= 9.6 9
10465	AAC	LTE-TOD (SC-FDMA, 1 RE, 3 MHz, 16-QAM, UL	LTE-TOD	8.32	= 11.6 %
0466	AAC	Subframe=2,3,4,7,8.9) LTE-TOD (SG-FDMA, 1 RE, 3 MHz, 64-GAM, UL	LTE-TOO	8,57	a 9.6 9
10467	AAF	Subframe=2,3,4,7,8 9) LTE-TOD (SC-FDMA, 1 RE, 5 MHz, QPSK, UL	LTE-TOD	7.82	± 9.6 %
10468	AAF	Sub*rame=2,3,4,7,8.9) LTE-TOD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL	LTE-TOD	8.32	±9.6%
10469	AAF	Sub/rame=2,3,4,7,8,9)			24.5
30.100	12,75.3/6	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subtame=2,3,4,7,8,9)	LTE-TDD	8.56	# 9.6.9
10470	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub'rarre=2,3,4,7,8,9)	LTE-TDD	7.82	1969
0471	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8,32	19.69
0472	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.57	± 9.6 9
0473	AAE	LTE-TDD (SC-FDVA, 1 RB, 15 MHz, OPSK, UL Subtrame=2,3,4,7,8,9)	LTE-TOD	7.82	19.69
0474	AAL	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subtrame=2 3,4,7,8,9)	LTE-TOD	8.32	±969
0475	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL, Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	± 9.6 %
0477	AAF	LTE-TOD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8,32	£ 9,6 %
0478	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-DAN, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.57	# 9,6 %
0479	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK_UL	LITE-TOD	7,74	2 9,6 %
0480	AAB	Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL.	LTE-TDD	8.18	± 9.6 %
0481	AAB	Subtrame=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL	LTE-TOD	8.45	± 9.6 %
0482	AAC	Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL	LTE-TOD	7,71	± 9.6 %
0483	AAC	Subtrame=2,3,4,7,8,9) LTE-TDB (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL	LTE-TOD	6.39	19.69
0484	AAC	Subframe=2,3,4,7 8,9) LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL	LYE-YOO	6.47	+9.69
0485	AAF	Subframe=2,3,4,7 8,9) LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL	LTE-TDD	7.59	19:69
0486	AAF	Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL	LTE-TOD	8.38	19.67
0487	AAF	Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL		1 1	17.00
ex do	300	Subframe=2,3,4,7 8,9)	LTE-TDD	8.00	19.6%
0488	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7 8,9)	LTE-TOD	2.70	19.69
0489	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2.3,4,7.8,9)	LTE-TOD	8,31	± 9.6 %
0490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 84-QAM, UL Subframe=2.3,4,7.8.9)	LTE-TOD	6.54	19.69

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600 A 100 A	1 465	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL	LTE-TDC	7.74	±9.6 %
10491	AAE	SubFame=2,3,4,7,8,9)	Last Control Control	1797	-10.00
10492	AAE	_TE-TDD (SC-FDMA: 50% RB, 15 MHz, 16-QAM, UL 3ubframe=2,3,4,7,8,9)	LTE-TOC	84"	±9,6 %
10493	AAE	TE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL	LTE-TOG	8 55	19.6 %
10494	AAF	3ubframe=2.5.4.7.8,9) TE-TDD (\$C-FDMA, 50% RB, 20 MHz, OPSK, UL	LTE-TOD	774	± 9.0 %
10405	AAF	Subframe=2,3,4,7,8,9) _TE-TDC (SC-FDMA, 50% RB, 20 MHz, "6 QAM, UL	LTE-TOO.	8.37	±9.6 %
10496	AAF	Subflame=2,5,4,7,8,9) LTE-TDC (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL	LTE-TDD	0.54	± 9,6 %
10497	AAB	St.bframe=2,3,4,7,8,3) LTE-TDC (SC-FDMA, 100% RB. 1.4 MHz, QPSK, UL.	LIETOD	7.6?	±9.6 %
0498	AAB	Subframe=2.3.4,7.6,3). LTE-TOD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL.	LTE-TOD	8.40	± 9.6 %
0499	AAB	Subframe = 2,3,4,7,8,0) LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL	LTE-TOD	8.68	±96 %
0500	AAC	Subtrame=2,3,4,7,8,9) LTE/TDD (SC-FDMA, 100% RB, 3 MHz, GFSK, UL	LTE-TOD	7.67	±96 %
	11/2	Subframe=2,3,4,7 8,9)	LTE-TOD	8.44	±96%
10501	AAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-GAM, UL Subframe=2,3,4,7,8,9)	Turn Light		+++
10502	VVC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64 QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.52	±96%
10503	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2.3.4.7.8.9)	LTE-TOD	7.72	196%
10504	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 NHz, 16-QAM, UL Subtrame=2,3,4,7,8,9)	LTE TOO	8.31	1 9.6 %
10505	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz; 64-QAM, UL	LTE-TOB	0.54	1.0.6 %
10508	MAF	Subframe=2,3,4,7,8,9) LTE-TOD (SC-FDMA, 100% RB. 10 MHz, QPSK, UL	CTE-TOD	7.74	± 0.6 %
10507	AAF	Subframe=2,3,4,7,8,9) LTE_TDD (SC-FDMA, 105% RB: 10 MHz, 15-QAM, UL	LTG-TOD	8.35	± 9.6 %
10508	AAF	Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 103% RB. 10 MHz, 64-QAM, UL.	LTE-TOD	8.55	±9.6%
10500	AAE	Subtame=2,3,4,7,8,9) LTE-TOD (SC-FDMA, 103% RB. 15 MHz QPSK, UL	LTE-100	7.99	# 9.6 %
10510	AAE	Subtrame=2.3,4.7,8,9) LTE-TOD (SC-FDMA, 100% RB, 16 MHz, 16-QAM, UL	LTE-TOD	8.49	1969
10511	AAE	Subrama 2.3,4.7,8,9) LTE-TOD (3C-FDMA, 100% RB, 15 MHz, 64-QAM, UL	LTE-TOD	8.51	1909
	AA	Subramis=2,3.4,7,8,9) LTE-TOD (SC-FDMA, 100% RB, 20 MHz, OPSK, UL	LTE-TOD	7.74	± 9,6 %
10512	1000	Subframa=2,3,4,7,8 9)	2-7-7-1	1	7.55
10513	AA-	LTE-TDD (3G-FDMA, 100% RB, 20 MHz, 16-QAV, UL Subframe=2,3,4,7,8 9)	LTE-TOD	8.42	±9.65
10514	AA=	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subtrame=2,3,4,7,8.9)	LTE-TOO	8,45	= 8.6 9
10515	AAA	IEEE 802.116 WIFI 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	WLAN	1.58	= 8.6 %
10516	AAA.	IEEE 802 116 WiFi 2.4 GHz (DSSS, 5.5 Mtps, 99pc duty cycle)	WLAN	1.57	= 5.63
10517	AAA	IEEE 802.11b WiFi 2.4 CHz (DSSS, 11 Mbps, 9lipc duty cycle)	WLAN	* .58	= 9.6 9
10518	AAB	IEEE 802.11a/r WiFi 5 GHz (OFDM: 9 Mbps, 99pc duty cycle)	WLAN	8.23	± 9.6 °
10519	AAB	IEEE 802.11a/r WiFi 5 GHz (OFDM: 12 Mbps, 99pc duty cycle)	WLAN	8.39	± 9,6 *
10520	AAB	TELE 802.11a/F WiFi 5 GHz (OFDM 13 Mbps, 99pc duty cycle)	WLAN	8.12	± 9.6 5
10521	AAB	IEEE 802.11a/r WiFi 5 GHz (OFDM 24 Mtps, 99pc duty cycle)	WLAN	7.97	± 9.6 °
10522	AAB	IEEE 802: 1a/F WiFi 5 GHz (OFDM 36 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6 °
10523	AAB	IEEE 802: 1a/h WiFi 5 GHz (OFDM 43 Mbps, 99pc duty cycle)	WLAN	B.CB	± 9.6
10524	AAB	IEEE 802; 1a/h WiFi & GHz (OFDM 54 Mbps, 99pc duty cycle)	WLAN	8.27	± 9.6 5
10525	AAB	IEEE 802: 1ac WiFi (20MHz, MCS0, 99pc July cycle)	WLAN	6.36	£ 9.6
		IEEE 802. 1ac WIFI (20MHz, MCS1, 98pc duty cycle)	WLAN	8.42	£ 9.6
10526	AAB		WLAN	8:21	± 9.6
1.0527	AAB	IEE 802 1ac WiFi (20MHz, MCS2, 99pc duty cycle)			
1C52B	AAB	IEEE 802.11acWiFI (20MHz, MCS3, 99pc duty cycle)	WLAN	8,36	£ 9.6
10529	AAB	IEEE 802.: Lac WiF. (20MHz, MGS4, 99pc duty cycle)	WLAN	8.36	£ 9.6
10531	AAB	IEEE 802.11ac WIF (20MHz, MC86, 99pc duty cycle)	WLAN	8.43	£ 9.6
10532	AAB	IEE _ 802 11ac WIF (20MHz IVCS7, 99pc duty cycle)	WLAN	8,29	± 9.6
10533	AAB	IEEE 802 11ac W/F (20MHz, MC38, 59pc duty cycle)	WLAN	8.58	196

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10534	AAB	IEEE 802.11ac WiFi (40MHz: MCS0, 99pc duty cycle)	WLAN	8.45	1 19.6 9
10535	AAB	IEEE 802 11sc WiFI (40MHz, MCS1, 99pc duty cycle)	WLAN	8.45	2 9.6 9
10536	AAB	IEEE 502.11ac WiFI (40MHz, MCS2, 99pc duty cycle)	WLAN	8.32	± 9.6 9
10537	AAB	IEEE 902.11ac WiFI (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	± 9.6 9
10538	AAB	IEEE 302,11ac WiFi (40MHz, MCS4, 99pc duty cycle)	WLAN	8.54	± 9.6 5
10540	AAB	IEEE 302,11ac WiFi (40MHz, MCS6, 99pc duty cycle)	WLAN	8.39	± 9.6
10541	AAB	IEEE 302.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	WLAN	8.46	± 9.6 9
IC542	AAB	IEEE 302.11ac WiFi (40MHz, MCSE, 99pc duty cycle)	WLAN	8.65	£ 9.6 °
10543	AAB	IEEE 302.11ac WiFi (40MHz, MCSS, 99pc duty cycle)	WLAN	9.65	± 9.6
10544	AAB	IEEE 802.11ac WiF (80MHz, MCSC, 99pc duty cycle)	WLAN	3.47	± 9.6 5
10545	AAB	IEEE 802 11ac WiF (80MHz, MC51, 99pc duty cycle)	WLAN	8.55	± 9.6 9
10546	AAB	IEEE 802 11ac WIF (80MHz, MC52, 99pc duty cycle)	WLAN	8,35	
0547	AAB	IEL : 802 11ac WIF (80MHz, MC33, 99pc duty cycle)	WLAN	1.49	± 9.6 5
0548	AAB	IEEE 802.11au WiF (80MHz, MC34, 99pc duty cycle)	WLAN	3.37	£ 9.6 5
0550	AAB	IEEE 802,11ac Wif (80MHz, MCSE, 99pc duty cycle)	WLAN		± 9.6 °
0551	AAB	IEEE 802.11ac WiF. (80MHz, MCS7, 99pc duty cycle)		3.38	£ 9.6 5
0562	AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	WLAN	3,50	£ 9.6 9
0553	AAB		WLAN	8,42	± 9.6
0554	AAG	IEEE 802.11ac WiF (80MHz, MCS9, 99pc duty cycle)	WLAN	3.45	± 9.6 °
0555	AAG	IEEE 802.11ac WIFI (*60MHz, MCS0, 99ps duty cycle)	WLAN	3,48	t 9,6 °
0556		IEEE 802.11ac WIFI (*60MHz; MCS1, 99pc duty cyrle)	WLAN	8,47	± 9.6 5
0557	AAC	IEEE 802.11ac WIFI (*60MHz, MCS2, 99pc duty cycle)	WLAN	8,50	± 9,6 9
0558		IEEE 802.11ac WiFi (160MHz, MC83, 99pc duty cycle)	WLAN	8.52	± 9.6 9
	CAA	IEEE 802 11ac WiFi (160MHz, MCS4, 99pc duty cycle)	WLAN	8.61	± 9.6 9
0560	AAC	IEEE 802.11ac WiFI (160MHz, MCS6, 99pc duty cycle)	WLAN	8.73	±9.6 9
0561	AAC	IEEE 802, 1ac WiFi (160MHz, MCS7, 99pc duty cycle)	WLAN	8.56	# 9.6 9
0562	AAC	IFFF 802, 1ac WiFI (160MHz, MCS8, 99pc duty cycle)	WLAN	8.69	± 9.6 °
0563	AAC	IEEE 802. 1ac WiFI (160MHz, MCS9, 99pc duty cycle)	WLAN	8.77	± 9.6 5
0584	AAA	IEEE 802. 1g WiFi 2.4 GHz (DSSS-OFDM 9 Mbps, 99pc cuty cycle)	WLAN	8.25	± £.6.9
0565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty, cycle)	WLAN	B.45	± €,6 %
0566	AAA	IEEE 802, 1g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.13	= 6.6 %
0567	AAA	IEEE 802-11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mtps, 99pc duty cycle)	WLAN	8.00	= 5.6 %
0568	AAA	IEEE 802-11g WIFI 2,4 GHz (DSSS-OFDM, 38 Mbps, 99pc duty cycle)	WLAN	8.37	= 5.69
0569	AAA	IEEE 802 11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.10	= 9.6 9
0570	AAA	IEEE 602,11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.20	= 9.6 %
0571	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 30pc duty cycle)	WLAN	1.09	= 0.6 9
0572	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	WLAN	1.09	- 8.63
0573	AAA	IEEE 802.116 WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	WLAN	1.98	=9.65
0574	AAA	IEEE 802 11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	WLAN	1.98	= 9.6 9
0575	AAA	IEEE 602.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty	WLAN	8.59	c-9.65
0576	AAA	cycle) IEEE 802.11g W/Fi 2.4 GHz (D88S-OFDM, 9 Mbps, 90pc duty	WLAN	8.60	± 9.6 °
0577	AAA	Cycle) IEEE 802,11g WiFl 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pg duty	WLAN	8:70	1 8.0 9
0578	AAA	cycle) 1EEE 802,11g WiFi 2.4 GHz (DSSS-DFDM, 13 Mbps, 90pg duty	WLAN	8.49	± 9.6 9
0579	AAA	cycle) IEEE 802,11g WIFI 2.4 GHz (DSSS-DFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.36	±9.69
0580	AAA	IEEE 802.11g WIF) 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	19.69
0581	AAA	IEEE 502 11g WIF) 2.4 GHz (DSSB-OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8 35	± 9.6 9
0582	AAA	IEEE 802,11g WIF) 2.4 GHz (OSSS-OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.63
0583	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	± 9.6 9
	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	#9.69
	L-70/0E3				
0584 0585	AAB	IEEE 802.11s/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	1969

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	-		17567287 77	20.00	10 W W W
0587	AAB	IEEE 872.11a.h W FL5 GHz (OFDM, 24 Mbps, 90ps duly sycle)	WLAN	8.36	# D.G %
0588	AAB	LLE 872.11a,h WFL5 GHz (OFDM, 30 Mbps, 90pc duly cycle)	WLAN	8.76	# 9.6 %
0589	AAB	IEEE 832 11a/h W F15 GH2 (OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8,36	± 0.6 %
6590	AAB	EEE 802.11a/h WFI 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	+96%
0591	AAB	FEF 852.11n (HT M xed, 28MHz, MCSO, 90pc duty cycle)	WLAN	8.63	±9.6 %
0592	AAB	EEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6 %
0593	AAB	EEE 802.11n (HT Mixed, 20MHz, MGS2, 90pc cuty cycle)	WLAN	8.64	±9.6 %
0594	AAB	EEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc cuty cycle)	WLAN	8.74	19.6 %
0595	AAB	EEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc cuty cycle)	WLAN	874	±9.6 %
0596	AAB	ELE 802 11n (HT Mixed, 20MHz, MCS5, 90pc cuty cycle)	WLAN	871	±9.6 %
OhOr	AAB	EEE 802 11rr (HT Mixing, 20MHz, MCS6, 90pc cuty cycle)	WLAN	8 72	±9.6 %
0598	AAB	IEEE B02,11n (HT Mixed, 20MHz, MQS7, 90pc duty cycle)	WLAN	8 50	49.6 %
0599	AAB	III II 802 11n (HT Mixed, 40MHz, MCS0, 90pc duty sycle)	WLAN	8.79	±9.6 %
0600	MAB	IEEE 802.11n (H.) Mixed, 40MHz. MCS1, 90pc duty cycle)	WLAN	8.88	±9.6 %
1080	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	WLAN	0.82	±96%
0602	AAB	IEEE 802 11n (HT Mixed, 40MHz, MCS3, 90ps duty cycle)	WLAN	8.94	±96 X
D603	AAB	IE -E 805 11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	WLAN	9.03	#96%
0604	AAB	IEEE 802.TTn (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	WLAN	8.76	±963
0605	AAB	(EEE 802.11n (HT Mixed, 45MHz, MCS6, 90pc duty cycle)	WLAN	8.97	1963
0600	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 9ftps duty cycle)	WLAN	8.82	1967
0607	AAB	IEEE 802 11ac WIFI (20MHz, MCS0, 90ps duty cycle)	WLAN	8.64	±96%
0508	AAB	IEEE 802.11ac WIF (20MHz, MCS1, 90p.; duly cycle)	WLAN	8.77	±96%
0609	AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 96pp duly cycle)	WLAN	8.57	±965
0610	AAB	TELE 802 11ac WiFi (20MHz, MC\$3, 90ps duty cycle)	WLAN	8.78	1969
0611	AAB	IEEE 802 11ac WiFi (20MHz, MCS4, 90pc duty cycle)	WLAN		19.69
0612	AAB	IEEE 802 11nc WF (20MHz, MCS5, 90pt duty cycle)	WLAN	8,77	
0613	AAB	If I I 802 11au WFI (20MHz, MCS0, 90pc duty cycle)	WLAN	8.94	1963
0611	AAB	IEEE 802 11ac W.Fi (20MHz, MCS7 90pc duty cycle)	WLAN	8.59	19.63
0615	AAB	IEEE 802.11ac WIFI (20MFiz, MCS8, 90pc duty cycle)	WLAN	8.82	2063
0615	AAB	IEEE 802.11mc WIFI (40MHz, MCS0, 90pc duty cycle)	WLAN	8.81	19.63
0617	AAB	IEEE 802.11ac WIFI (40MHz, MCS1, 90pc duty cycle)	WLAN	8.53	19.63
0515	AAB	IEEE 802 11ac WIFT (40MHz, MCS2 90pc duty cycle)	WLAN	8.83	#863
0617	AAB	IEEE 802.11ac WIFI (40MHz, MCS3.30pc duty sycle) IEEE 802.11ac WIFI (40MHz, MCS4.30pc duty sycle)	WLAN	8.87	1967
0/323	AAB		WLAN	8.77	±967
0021	AAB	JELE 602 11ac WiFi (40MHz, MCS5, 93pc duty sycle)	WLAN	8.68	29.69
0422	AAB	IEEE 802.11ac Wifii (40MHz, MCS6, 93pc duty syste)	WLAN	0.82	2 9.6 9
0523	AAB	IEEE 502 Tire Will (40MHz, MCS7, 93pc duty sycle)	WLAN	8.98	1969
0524	AAB	IEEE 802.11ec WiFi (40MHz, MC58, 90pc duty tycle)	WLAN	8.96	19.63
0525	AAB	IEEE 802 11ec WIFI (40MHz, MCSD, 90pc dury pycle)	WLAN	£.83	19.63
0828	AAB	IEEE 602 11ac WiFI (HOMHz, MCSO, 90pc duty cycle)	WLAN	6.88	+9.6
0027	EAA	TEEE 802.11ac WFI (80MHz, MCS1, 90pc duty cycle) TEEE 802.11ac WFI (80MHz, MCS2, 90pc duty cycle)	WLAN	E.71	1969
D528 D529	EAA	IEEE 802 (1ac W Fr (80MH2, MCS2, 90)c duty byse)	WLAN	8.85	1865
	AAB	IEEE 802 11ac W Fi (POMH2, MCS4, 90pc duty cycle)	WLAN	8.72	19.63
0630	EAA	IEEE 802 11ac W F1 (80MHz, MCS5, Bopc duty cycle)	WLAN	8.81	1969
0632	AAA	IEEE 802 11ac W.F.I (80MHz, MCSS, 90pc duly cycle)	WLAN	8.74	= 0.6
			WLAN	8.83	- 0.6
0633	AAB	IEEE 802.11ac W.F.I (£0MF.z, MCS7, 90pc duty cycle) IEEE 802.11ac WiFi (£0MF.z, MCS8, 80pc duty cycle)	WLAN	8,300	- 1 B
0634		ILEE 802 11ac WIFI (80MHz, MCS9, 90po duty cycle)	WLAN	8.81	= 6.6 3
0635	AAG	IEEE 802 11ac WiFI (160MHz, MCS0, 90pc duty cycle)	WLAN	8.83	± €.63
0636	AAC	IEEE 802 11ac WiFi (160MHz, MCS), 9Cpc duty cycle)	WLAN	8.79	± €.6
0638	AAC	ILEE 802.11ac WiFt (180MHz, MCS1, 3cpc obty cycle)	WLAN	8.86	± F.6
10839	AAC	IEEE 802 11ac WiFi (160MHz, MCS3, 90pc duty cycle)	WLAN	8.85	+081
10639	AAC	JEEE 802 11ac WiF1 (160MHz, MCS4, 90pc duty cycle)	WLAN	8.58	±9.8
10641	AAG	IFFE 802 11ac WiFI (160MHz, MCS5, 90pc duty cycle)	WLAN	9.00	±9.61
10642	AAC	IEEE 802 11ac WiFI (160MHz, MCS6, 90pc duty cycle)	WLAN	9.06	±9.6
10643	AAC	IEEE ROZ LING WALL (BOMHE MCSZ, 90ng duly cycle)	WLAN	8.69	±9.6
10044	AAC	IEEE 802.11acWiFI (180MHz, MCS7, 90pc duly cycle) IEEE 802.11acWiFI (180MHz, MCS8, 90pc duly cycle)	WLAN	9.05	t 9.6
10645	AAC	II FE 802 11ac WiFi (*50MHz, MCS9, 90pc duty cycle)	WLAN	9.11	£ 9.6
10646	AAG	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	± 9.6
10646	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2.7)	LTE-TOD	11.96	£ 9.6
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3,45	19.6
10652	AAL	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1. Clipping 44%;	LTE-TOD	6.91	± 9.6
	1 (0/0)	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Glipping 44%)	LTE-TOD	7.42	± 9.6

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10654	AAD	LTE-TOD (OFDMA, 15 MHz, F-TM 3.1, Clipping 44%) LTE-TOD (OFDMA, 2) MHz, E-TM 3.1, Clipping 44%)	LTE-TCD	6.96	± 9.6 %
10658	AAA	Fulse Waveforn (200Hz, 10%)	LTE-TED	7.21	2.9.6 %
10659	AAA	Fulse Waveform (200Hz, 20%)	Tout	10.00	± 9.6 %
10660	AAA	Fulse Wavetorm (200Hz, <0%)	Tout	3.98	± 9.6 %
10661	AAA	Fulse Waveform (200Hz, 60%)	Test		± 9.6 %
10662	AAA	Pulse Wavetorn (200Hz, 50%)	Test	0.97	±9.6 %
10670	AAA	Bluetooth Low Energy	Bluetpoth	2.19	± 9.6 %
10871	AAA	IEEE BC2.11ax (20MHz, MCS0, SOpc duty cycle)	WLAN	9.09	± 9.6 % ± 9.6 %
10672	AAA	IEEE 802 178x (20MHz, MCS1, 90pc duty cycle)	WLAN	8.57	± 9.6 %
10673	AAA	IF EL 902.118x (20MHz, MCS2, 90pc duty cycle)	WLAN	B.78	± 9.6 %
10674	AAA	IEEE 902.11px (20MHz, MCS3, 90pc duty cycle)	WLAN	8.74	± 9.6 %
10675	AAA	IEEE 302.11nx (20MHz, MCS4, 90pc duly cycle)	WLAN	8.90	± 9.€ %
10676	AAA	IEEE 302.11ax (20MHz, MCS5, 90pc duty cycle)	WLAN	8.77	± 9.€ %
10877	AAA	TEEL 302,11 ax (20MHz, MCS6, 90pc duty cycle)	WLAN	8.73	± 9.€ %
10078	AAA	IEEE 302.11ax (20MHz, MCS7, 90pc duty cycle)	WLAN	8.78	±9€%
10679 -	AAA	IEEE 302 11ax (20MHz, MCS8, 50pc duty cycle)	WLAN	6.89	£ 9.6 %
10680	AAA	IEEE 302.11ax (20MHz, MCS9, 90pc duty cycle)	WLAN	9.80	± 9.6 %
10681	AAA	IEEE 802.11ax (20MHz, MCS1), 90pc duty cycle)	WLAN	9.62	± 9.6 %
10002	AAA	IEEE 302.11ax (20MFz, MCS11, 9Cpc duty cycle)	WLAN	8.83	19.6%
10683	AAA	IEEE 802 11ex (20MHz, MCS0 60pc dury syste)	WLAN	8.62	± 9.6 %
10584	AAA	IEE = 802.11ax (20MHz, MCS1, 99pc duty dyde)	WLAN	8,26	± 9.6 %
10665	AAA	JEEE 802:11ax (20MHz, MCS2, 99pa duty syste)	WLAN	3.33	£ 9.6 %
10686	AAA	IEEE 802 11ax (20MHz, MCS3, 99pc duty cycle)	WLAN	3.28	± 9.6 %
10667	AAA	IEEE 802:11ax (20MHz, MCS4_99pc duty cycle)	WLAN	3,45	£ 9.6 %
10668	AAA	IEEE 802.11ax (20MHz, MCS5_99pc duty cycle)	WLAN	3.29	£ 9.6 %
10669	AAA	JEEE 802.11ax (20MHz, MCS6, 99pc duty cycle)	WLAN	8.55	± 9.6 %
10690	AAA	JEEE 802.11ax (20MHz, MCS7, 90pc duly cycle)	WLAN	3.29	£ 9.6 %
10691	AAA	JEEE 802.11ax (20MHz, MC\$8, 99pc duty cycle)	WLAN	8,25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99pc duty cycle)	WLAN	8.29	± 9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc duty cycle)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc duty cycle)	WLAN	8.57	£ 9.6 %
10695	AAA	IEEE 802 1ax (40MHz, MCSO, 90pc duty syste)	WIAN	8.78	± 9.6 %
10696	AAA	IEEE 802, 1ax (40MHz, MCS1, 90pc duty cycle)	WLAN	8.91	± 9.6 %
10697	AAA	JEEE 802, 1ax (40MHz, MCS2, 90pc duty cycle)	WLAN	8.61	± 9.6 %
10898	AAA	IEEE 802. Tax (40MHz, MCS3, 90pc duty cycle)	WLAN	8,69	± 9.6 %
10889	AAA	IEEE 802 11ax (40MHz, MCS4, 90pc duty cycle)	WLAN	8.62	± 9.6 %
10700	AAA	IEEE 802 11ax (40MHz, MCS5, 90pc duty cycle)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802 11ax (40MHz, MCS6, 90pc duty cycle)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802, 11ax (40MHz, MCS7, 90pc duty cycle)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802 11ax (40MHz, MCS8, 90pc duty cycle)	WLAN	8.62	± 9.6 %
10704	AAA	II I I 802, 1ax (40MHz, MCS9, 90pc duty cycle)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (43MHz, MCS10, 90pc duty cycle)	WLAN	8.69	* P.6 %
10706	AAA	IEEE 802.11ax (40MHz, MCS11, 90pc duty cycle)	WLAN	8.66	= 9.6 %
10707	AAA	IFEE 802.11ax (40MHz, MCS0, 99pc duty cycle)	WLAN	6.32	= 9.6 %
10708	AAA	IEEE 802.11ax (43MHz, MCS1, 99pc duty cycle)	WLAN	6.55	= 9.6 %
0709	AAA	IEEE 802.11ax (40MHz, MCS2, 99pc duty cycle)	WLAN	0.33	= 9.6 %
10710	AAA	IEEE 802,11ax (40MHz, MCS3, 99pc duty cycle)	WLAN	6.29	= 5.6 %
10711		IFEE 802 11ax (40MHz, MCS4, 99pc duty cycle)	WLAN	8.30	= 1.6 %
10712	AAA	IEEE 802.11ax (49MHz, MCS5, 99pc duty cycle)	WLAN	8.67	= 5.6 %
10713	AAA	IEEE 802 11ax (40MHz, MCS6, 99pt duty cycle)	WLAN	8.33	= 9.6 %
107.15	AAA	IEEE 802.11ax (40MHz, MCS7, 99pc duty cycle) IEEE 802.11ax (40MHz, MCS8, 99pc duty cycle)	WLAN	8.26	= 6.6 %
0716	AAA	IEEE 802.11ax (40MHz, MCS8, 99pc duty cycle)	WLAN	8.45	= 8.6 %
10717	AAA	IEEE 802.11ax (40MHz, MCS10, 99pc duty cycle)	WLAN	8.30	= 9.6 %
0718	AAA	IEEE 802 11ax (40MHz, MCS11, 99pc duty cycle)	WLAN	6.48	≥ 9.6 %
10719	AAA	IEEE 802.11ax (80MHz, MCS0, 90pc duty cycle)	WLAN	8.24	= 9.6 %
0720	AAA	IEEE 802.11ax (80MHz, MCS1, 90pc duty cycle)	WLAN	8.81	- 11.6 %
10721	AAA	IFEE 802.11ax (80MHz, MCS2, 90p.; duty cycle)	VILAN	8.87	±16%
10722	AAA	IEEE 602.11ax (80MHz, MCS3, 90p; duty cycle)		8.76	± 9.6 %
0723	AAA	IEEE 802.11ax (80MHz, MCS4, 90p; duty cycle)	WLAN	8.55	+ 9.6 %
0724	AAA	IEEE 802 11ax (80MHz, MCS5, 90pc duty cycle)	WLAN	8.70	19.6%
	AAA	ILLL 802.11ax (80MHz, MCS6, 90p; duty dycia)	WLAN	8.90	± 9.6 %
10725					

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3727	AAA	IEEE 802 1 ax (80MHz, MCS8, 90pc duty cycle)	WLAN	8.86	19.6%
0728	AAA	IEEE 802 1 ax (80MHz, MCS9, 90pc duty cycle)	WLAN	8.66	19.6%
0726	AAA	IEEE 802 1 ax (30MHz, MCS10, 90pc duty cycle)	WLAN	8.64	±9.6%
073C	AAA	IEEE 802 11ax (80MHz, MCS*1, 90pc duty cycle)	WLAN	8.67	±93%
0731	AAA	IEEE 802 (1ax (30MHz, MCS0, 09ac duty cycle)	W_AN	8.42	29.5%
10732	AAA	IEEE 802.11ax (30MHz, MCS1, 99pc duty cycle)	WLAN	8.4€	±9.3%
10733	AAA	IEEE 802 1 Jax (SOMHz, MCS2, 990c duty cycle)	W_AN	8.40	±9.5%
10734	AAA	IEEE 802 11ax (80MHz, MCS3, 99pc duty cycle)	W_AN	8.25	± 9.8 %
10735	AAA	IEEE BD2.11aix (BOMHz, MCS4, 99pc duty cycler)	WLAN	8.35	±9.5 %
10736	AAA	II FF 802, 11ax (80MHz, MCS5, 99pc duty cycle)	WLAN	8.27	±9.6 %
10737	AAA	IEEE BD2 TTAK (ROMH2, MCS6, 99pc duty cycle)	WLAN	8.36	±9.6 %
10738	AAA	IEEE 832.11ax (80M-12, MCS7, 90pc duty cycle)	WLAN	8.42	±9.6 %
10739	AAA	IEEE 832.11ac (BCM-I2, MCS8, 99pc duty cycle)	WLAN	8.29	±9.6 %
10740	AAA	ILLE 832.11ax (8CMHz, MCS9, 99pc duty cycle)	WLAN	8.46	19.6 %
074	AAA	IEEE 802 11ax (8CM+12, MCS10 199c dury cycle)	WLAN	8.40	±9.6 %
10742	AAA	IEEE 802 11ax (6CMHz, MCS11 99pc duty cycle)	WLAN	8.43	±9.6 %
	AAA	FEE 802 11ax (160MHz, MC311 99)c duty cycle)	WLAN	8.94	± 9.6 %
10743		LLL 802 11ax (160MHz, MCS1, 90pc duty cycle)	WLAN	9 16	198%
10744	AAA	EEE 802 11ax (160MHz, MCS2, 90pc duty cycle)	WLAN	8.93	±96%
10745	AAA	EEE 802,11ax (160MHz, MCS2, stope duly cycle) EEE 802,11ax (160MHz, MCS3, 90pc duly cycle)	WLAN	9 11	±9.5 %
10746			WLAN	9.04	± 9.8.%
10747	AAA	FEE 802.11ax (160MHz, MCS4, 90pc duty cycle)	WLAN	8 93	±9.6 %
10748	AAA	EEE 802 11ax (160MHz, MCS5, 90pc duty cycle) EEE 802 11ax (160MHz, MCS6, 90pc duty cycle)	WLAN	8.90	±9.6 %
10749	AAA		WLAN	8.79	±9.6 %
10750	AAA	EEE 802.11ex (160MHz, MC\$7, 90pc duty cycle)	WLAN	B.B2	±9.6 %
10751	AAA	IFFE 802:11ax (160MHz, MCS8, 90pc duty cycle)		8.81	±9.6 %
10752	AAA	IETF 802 11ax (160MHz, MCS9, 90pc duty cycle)	WLAN	9.00	±96 %
10753	AAA	IEEE 802.11ax (160MHz, MCS10, 90pc duty cycle)	WLAN	8.94	±96%
10754	AAA	IEEE 802.11ax (160MHz, MCS11, 90pc duty cycle)			
10765	AAA	IE FE 802.11ax (160MHz, MCS0, S9pc duty cycle)	WLAN	8.64	#96 %
10756	AAA	IE E 802 11ax (160MHz, MCS1, S9pc duty cycle)	WLAN	B.77	#96%
10767	AAA	IEEE 802 11ax (160MHz, MCS2, £9pc duty cycle)	WLAN	B.77	±96%
1D758	AAA	IFFE 802 11ax (160MHz, MCS3, E9pc duty cycle)	WLAN	8,69	196%
0759	AAA	HELE 802 11ax (160MHz, MCS4, 89pc duty cycle)	WLAN	8.68	190%
0760	AAA	IEEE 802,11ex (160MHz, MCS5, 99pc duty cycle)	WLAN	8.49	土食存货
10761	AAA	IEEE 802.11ax (160MHz, MCS6, 99pc duty cycle)	WLAN	8.58	± 9.6 %
0762	AAA	IET E 802.11ax (160MHz, MCS7, 99pc duty cycle)	WLAN	8,49	1 9.6 %
0763	AAA	TEEE 802 11 ax (160MHz, MCS8, 99pc duty cycle)	WLAN	8.53	106%
10764	AAA	IEEE 802.11ax (160MHz, MC38, 99pc duty cycle)	WLAN	8.54	4 9.6 %
10765	AAA	IEEE 802.11sx 160MHz, MC310, 99pc duty cycles	WLAN	8.54	+96%
10766	AAA	IEEE 802.11sx 160MHz, MCS11.99pc cuty cycley	WLAN	8.51	4 9.6 %
10767	AAB	56 NR (CP-CFDM, 1 RB, 5 MHz, QPS<, 15 kHz)	5G NR FR1 TOD	7,99	±9.6 %
10758	AAB	SG NR (CP-CFDM, 1 RB, 10 MHz QPSK, 15 kHz)	5G NR FR1	8.01	± 0.6 %
10763	AAB	SG NF (CP-CFDM, 1 RB, 15 MHz QPSK, -5 kHz)	5G NR FRI TOD 5G NR FRI	6.01	±9.6%
10773	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	TOD 5G NR FRI	6.02	196%
10772	AAB	56 NR (CF-0FDM, 1 RB, 30 MHz, QPSK, 15 kHz)	TDD 53 NR FR1	6.23	± 9.6 %
10773	AAB	5G NR (CF-OFDM, 1 RB. 40 MHz, QPSK, 15 kHz)	53 NR FR1	5.03	= 0.6 %
10774	AAB	56 NR (CE-OFDM, 1 RB, 50 MHz, OPSK, 15 kHz)	53 NR FR1	8,02	⇒ €.6 %
10776	SAA	50 NR (CP-OFDM, 50% RB, 10 MHz, OPSK, 15 KHz)	53 NR FR1 TDD	8.30	≘ 6.6 %
10778	EAA	5G NR (CP-0FDM, 50% RB, 20 MHz, DPSK, 15 kHz)	5G NR FRI	8.34	± E, G %
10780	VVB	56 NR (CP-01 DM, 50% RB, 30 MHz, GPSK, 16 HHz)	5G NR FR1 TDD	8.38	±9.6%
19781	AAB	5G NR (CP-OF)M, 50%, RB, 40 MHz, GP9K, 15 IHR)	SG NR FR1 TDD	8.28	±9.63

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10782	AAB	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10783	AAB	53 NR (CP-0FDM, 100% RB, 5 MHz, QPSK 15 kHz)	5G NR FR1 TD0	8.31	± 9.6 %
10784	AAB	53 NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	3.29	± 9.6 %
10785	AAB	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1	3.40	± 9.6 %
10786	AAB	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1	8.35	± 9.6 %
10767	AAB	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8,44	± 9.6 %
10788	AAB	5G NR (CP-OFDM, 100% RE, 30 MHz, QPSK, 15 kHz)	5G NR FR1	8.39	± 9.6 %
10789	AAB	5G NR (CP-OFDM, 1C0% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8,37	± 9.6 %
10790	AAB	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAB	5G NR (CP-OFDM, 1 RE, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	EAA	5G NR (CP-OFDM, 1 RE, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 %
10793	AAB	5G NR (CP-OFDM, 1 RE, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAB	5G NR (CP-OFDM, 1 RE, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	= 9.6 %
10795	AAB	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	53 NR FR1 TDD	7.84	= 9.6 %
10796	AAB	5G NR (CF-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	53 NR FR1 TDD	7.82	± 9.6 %
10797	AAB	5G NR (CF-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAB	5G NR (CF-CFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAB	5G NR (CP-CFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	7.93	± 9.6 %
10801	AAB	5G NR (CP-CFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	7.89	± 9.6 %
10802	AAB	5G NR (CP-CFDM, 1 RB, 90 MHz. QPSK, 30 kHz;	5G NR FR1 TOD	7.87	± 9.6 %
10803	AAB	5G NR (CP-CFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	7.93	± 9.6 %
10805	AAB	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	8.34	± 9.6 %
10806	AAB	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAB	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAB	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10812	AAB	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10817	AAB	5G NR (CP-OFDM, 100% RB. 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAB	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	AAB	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	6.33	± 9.6 %
10820	AAB	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	6.33	± 9.6 %
10821	AAB	SG NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10822	AAB	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±96%
10823	AAB	5G NR (CP-OFDM, *00% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1	8.35	±96%

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10824	AAE	5G NR (CP-OFEM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1	8.39	19.5%
10825	LAAB	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	TDD 5G NR FR1	8.41	#9.3 %
10827	AAB	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	TOD 5G NR FR1	8,42	±9.5 %
10828	AAB	5C NR (CP-OFDM, 100% RB, 90 MFz, QPSK, 30 kHz)	5G NR FR1	8,43	±9.8 %
10829	AAB	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1	8.40	± 9.6 %
10830	AAB	5G NR (CP-O DM, 1 RB, 10 MHz, QPSK, 50 kHz)	5G NR FR1	7.63	±9.6 %
10831	AAB	3G NR (CP-OFDM, 1 HB, 15 MHz, QPSK, 60 kHz)	56 NR FR1	7 73	±9.6 %
10832	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR:	774	±9.6 %
10833	AAB	3G NR (CP-QFDN; 1 RB, 23 MHz, QPSK, 60 kHz)	5G NR FR	7.70	± 9.6 %
10834	AAB	5G NR (CP-OFDN, 1 RB, 3D MHz, CPSK, 60 kHz)	5G NR FR1	7.75	±96 %
0835	AAB	5G NR (CP-OFDM, 1 RB. 4D MHz, CPSK, 60 kHz)	5G NR FR1	7.70	±96 %
0836	AAB	SG NR (CP-OFDM, 1 RB 50 MHz, CPSK, 60 kHz)	5G NR FR1	7.66	196%
0837	AAB	5G NR (CP-OFDM, 1 RB 60 MHz QPSK, 60 kHz)	5G NR FR1	7.68	196%
0839	AAB	5G NR (CP-OFDM, 1 RB 80 MHz QPSK, 60 kHz)	5G NR FR1	7,70	196%
10840	AAB	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 KHz)	5G NR FR1	7.67	1 0.6 %
10841	AAB	56 NR (CP-CFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FRI	7.71	1 9.6 %
10843	AAB	5G NR (CP-CFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G VR FR1	8,49	± 9.6 %
10844	AAB	5G NR (CP-CFDM, 50% RB, 2C MHz, QPSK, 60 kHz)	5G NR FRI	6.34	±9.6%
10846	AAB	5G NH (CP-CFDM, 50% RB, 3C MHz, QPSK, 60 KHz)	53 NR FR1	6.41	± 9,6 %
10854	AAB	55 NF (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 KHz)	53 NR FR1	8,34	1 9,6 %
10855	EAA	5G NR (CP-OFDM, 100% RB, 15 MHz, QP8K, 60 KHz)	53 NR FR1	8.36	± 9.6 9
10856	EAA	5G NR (CF-OFDM, 100% RB, 20 MHz, QP3K, 80 KHz)	5G NR FR1	8.37	c 9.6 %
10857	AAB	56 NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 KHz)	TOD 5G NR FR1	8.35	= 9.6 9
10858	AAB	5G NR (CF-OFDM, 100%, RB, 30 MHz, OPSK, 60 kHz;	5G NR FR1	0.36	= 9.6 9
10869	AAB	56 NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 80 kHz)	5G NR FR1	8.34	± 9.6 %
10860	ÁAB	56 NR (CP-OF JM, 100% RE, 50 MHz, OPSK, 50 KHz)	5G NR FR1	8.41	±9.69
10861	AAB	5G NR (CP-OFDM, 100% RE, 60 MHz, QPSK, 50 KHz)	5G NR FR1	8,40	£9.69
10863	AAB	5G NR (CP-OFDM, 100% RE, 80 MHz, OPSK, 90 kHz)	EG NK FR1	8.41	₹ 9.0 %
10864	AAB	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	100 10 NR FR1 TD0	8,57	± 9:6 9
10865	AAB	53 NR (CP-OFDM, 100% RB, 100 MHz, OPSK, 60 kHz)	EG NR FE1	8.61	£ 9.6 9
10866	AAB	53 NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FE1	5.68	± 9.6 %
10868	AAB	53 NR (DET 5-OFCM, 100% RB, 100 MHz, QPSK, 30 kHz)	SG NR FR1	5.89	± 9.6 4
10869	MC	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2	5.75	± 9.E 5

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February 4, 2020

				1 400	dary 4, 202
10870	AAC	5G NR (DFT-s-O=DM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2	5.86	± 9.5 %
10871	AAC	50 NR (DIT s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR R2	5.75	± 9.6 %
10872	AAC	53 NR (DFT-s-OFDM, 100% RB, 100 MHz, 160AM, 120 kHz)	5G NR -R2 TDD	6.52	± 9.6 %
10873	AAC	53 NR (DFT-6-OFDM, 1 RB, 100 MHz, 640AM, 120 kHz)	5G NR FR2	8.61	±9.6 %
10874	AAC	53 NR (DFT-s-OFCM, 100% RB, 100 MHz, 64QAM, 120 kHz)	50 NR FR2	8,65	± 9.6 %
10875	AAC	5G NR (CP-OFDM, 1 RB, 100 MHz, GPSK, 120 kHz)	5G NR FR2	7.78	± 9.6 %
10876	AAC	59 NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	EGNR FH2 TD⊃	9,39	± 9.6 %
10877	AAC	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	EG NR FR2	7.95	£ 9.6 %
10878	AAC	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	EG NR FR2	3.41	£ 9.6 %
10879	AAC	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	EG NR FR2	8.12	± 9.6 %
10880	AAG	50 NR (CP-OFDM, 100% RE, 100 MHz, 84QAM, 120 kHz)	EG NR FR2	8.50	± 9.6 %
10881	AAC	5G NR (DLT:s-DFDM, 1 RB, 50 MHz, QPSK, 120 KHz)	5G NR FR2 TDD	5.78	± 9.6 %
10882	AAC	5G NR (DFT 8-DFDM, 130% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2	5.96	= €.6 %
10883	AAC	5G NR (DFT:s-OFDM, 1 RB, 50 MHz, 16QAN, 120 kHz)	5G NR FR2 TDD	6.57	= 1.8 %
10884	AAC	5G NR (DFT:s-OFDM, 130% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.63	€ 9.6 %
10385	AAC	5G NR (DET-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6,61	≥ 9.6 %
10386	AAC	5G NR (DET-8-OFDM, 190% RB, 5C MHz, 84QAM, 120 kHz)	5G NR FR2	6.65	≥ 9.6 %
10887	AAC	5G NR (CP-OFDM, 1 RE, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 51.6 %
10888	AAC	5G NF (CR-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2	8.35	1 9.6 %
10889	AAC	5G NF (CP-OFDM, 1 RB, 50 MHz, 16QAM, 126 kHz)	5G NR FR2	8.02	19.6%
10890	AAC	5G NH (CF-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2	8:40	1 9.6 %
10891	AAC	5G NR (CF-OFDM, 1 RB, 50 MHz, (4QAM, 120 kHz)	5G NR FR2	8.13	19.6%
10892	AAG	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2	8,41	196%

Discretancy is determined using the max, deviation from linear response applying rectangular distribution; and is expressed for the scalars of the

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





Schweizerischer Kalibrierdienst S Service suisse d'étalonnage C 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

SGS-TW (Auden)

Certificate No: EX3-3938_Feb20

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3938

QA CAL-01.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7 Calibration procedure(s)

Calibration procedure for dosimetric E-field probes

Calibration date: February 27, 2020

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 humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

(D	Cal Date (Certificate No.)	Scheduled Calibration
SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
SN: 660	27-Dec-19 (No. DAE4-660_Dec19)	Dec-20
SN: 3013	31-Dec-19 (No. ES3-3013_Dec19)	Dec-20
ID	Check Date (in house)	Scheduled Check
SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20
	SN: 104778 SN: 103244 SN: 103245 SN: 55277 (20x) SN: 660 SN: 3013 ID SN: GB41293874 SN: MY41498087 SN: 000110210 SN: US3642U01700	SN: 104778

Function Calibrated by: Leif Klysner Laboratory Technician Approved by: Katja Pokovic Technical Manager Issued: February 27, 2020 This calibration certificate shall not be reproduced except in full without written approval of the laboratory

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





Schweizerischer Kalibrierdienst 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:

tissue simulating liquid NORMx,y,z sensitivity in free space sensitivity in TSL / NORMx,y,z ConvF DCP diode compression point

crest factor (1/duty_cycle) of the RF signal CF A, B, C, D modulation dependent linearization parameters

Polarization @ o rotation around probe axis

Polarization 9 9 rotation around an axis that is in the plane normal to probe axis (at measurement center),

i.e. 9 = 0 is normal to probe axis

information used in DASY system to align probe sensor X to the robot coordinate system Connector Angle

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement
- Techniques", June 2013
 IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from handheld and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016 IEC 62209-2, "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)", March 2010 d) 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 9 = 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).
- $NORM(f)_{X,Y,Z} = NORM_{X,Y,Z} * frequency_response$ (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). 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
- 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 ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to 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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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) ²) ^A	0.51	0.57	0.33	±10.1 %
DCP (mV) ^B	103.2	100.0	108.2	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unct (k=2)
0	CW	X	0.0	0.0	1.0	0.00	165.0	55.0 ±2.5 %	±4.7 %
	1	Y	0.0	0.0	1.0		179.2		
		Z	0.0	0.0	1.0		176.1		

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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The uncertainties of Norm X,Y,Z do not affect the E2-field uncertainty inside TSL (see Page 5).

Numerical linearization parameter: uncertainty not required.

Uncertainty is determined using the max, deviation from linear response applying rectangular distribution and is expressed for the square of the



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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

Other Probe Parameters

Sensor Arrangement	Triangular			
Connector Angle (°)	-28.2			
Mechanical Surface Detection Mode	enabled			
Optical Surface Detection Mode	disable			
Probe Overall Length	337 mr			
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			
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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity F	Conductivity (S/m) F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	9.72	9.72	9.72	0.59	0.80	± 12.0 %
835	41.5	0.90	9,48	9.48	9.48	0.57	0.80	± 12.0 %
900	41.5	0.97	9.17	9.17	9.17	0.42	0.95	± 12.0 9
1450	40.5	1.20	8.72	8.72	8.72	0.45	0.80	± 12.0 9
1750	40.1	1,37	8.31	8.31	8.31	0,41	0.86	± 12.0 %
1900	40.0	1.40	8.07	8.07	8.07	0.36	0.86	± 12.0 9
2000	40.0	1,40	7.89	7.89	7.89	0.42	0.86	± 12.0 9
2300	39.5	1.67	7.81	7.81	7.81	0.41	0.86	± 12.0 9
2450	39.2	1.80	7.59	7.59	7.59	0.44	0.86	± 12.0 9
2600	39.0	1.96	7.44	7.44	7.44	0.42	0.86	± 12.0 9
3300	38.2	2.71	7.12	7,12	7.12	0.30	1,30	± 13.1 9
3500	37.9	2.91	7.00	7.00	7.00	0.30	1.30	± 13.1 9
3700	37.7	3.12	6.83	6.83	6.83	0.30	1.30	± 13.1 9
3900	37.5	3.32	6,55	6.55	6.55	0.35	1.60	± 13.1 9
4100	37.2	3.53	6.42	6.42	6.42	0.35	1.60	± 13.1 9
4200	37.1	3.63	6.28	6.28	6.28	0.35	1.60	± 13.1 9
4400	36.9	3.84	6,14	6.14	6.14	0.35	1.60	± 13.1 9
4600	36.7	4.04	6.10	6.10	6.10	0.40	1.60	± 13.1 9
4800	36.4	4.25	6.02	6.02	6.02	0.40	1.80	± 13.1 9
4950	36.3	4.40	5.86	5.86	5.86	0.40	1.80	± 13.1 9
5250	35.9	4.71	5.00	5.00	5.00	0.40	1.80	± 13.1 9
5600	35.5	5.07	4.70	4.70	4,70	0.40	1.80	± 13.1 9
5750	35.4	5.22	4.75	4.75	4.75	0.40	1.80	± 13.1 9

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

*At frequencies below 3 GHz, the validity of tissue parameters (r. and \(\text{o}\)) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (r. and \(\text{o}\)) is use parameters (r. and \(\text{o}\)) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

*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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diameter from the boundary

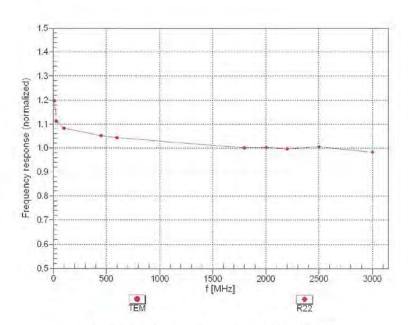


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Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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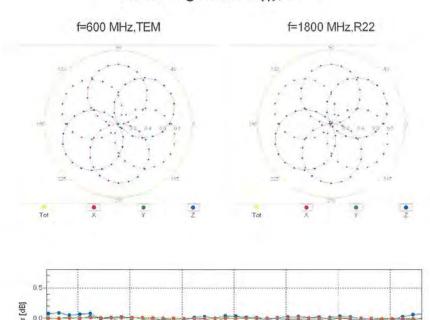


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Receiving Pattern (\$\phi\$), \$\partial = 0°



Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

600 MHz

Roll [°]

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100 MHz

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2500 MHz

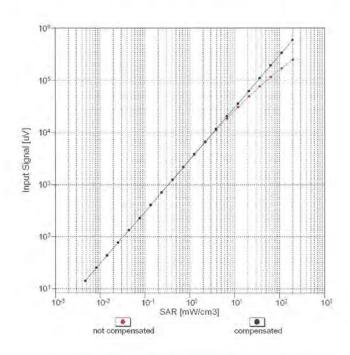


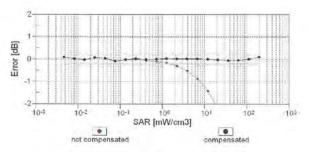
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Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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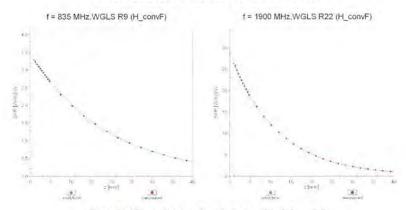


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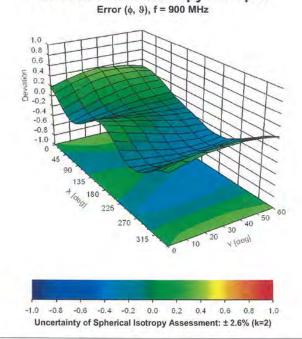
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Conversion Factor Assessment



Deviation from Isotropy in Liquid



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- End of report -

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