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SAR TEST REPORT

Applicant Name: SAMSUNG Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea

Date of Issue: Feb. 14, 2022 Test Report No.: HCT-SR-2202-FC002 Test Site: HCT CO., LTD.

FCC ID:

A3LSMM236B

Equipment Type:	Mobile Phone
Application Type	Class II Permissive Change
FCC Rule Part(s):	CFR §2.1093
Model Name:	SM-M236B/DS
Date of Test:	Feb. 11, 2022 ~Feb. 14, 2022

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested By

Yun-Ho, Choi Test Engineer SAR Team Certification Division

Reviewed By

Yun-jeang, Heo Technical Manager SAR Team Certification Division

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REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	Feb. 14, 2022	Initial Release

This test results were applied only to the test methods required by the standard.

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.



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1. Test Regulations

The tests documented in this report were performed in accordance with FCC CFR § 2.1093, IEEE 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure KDB procedures:

- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D06 Hot Spot SAR v02r01
- FCC KDB Publication 447498 D01 General SAR Guidance v06
- FCC KDB Publication 648474 D04 Handset SAR v01r03
- FCC KDB Publication 616217 D04 v01r02 (Proximity Sensor)
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- FCC KDB Publication 690783 D01 SAR Listings on Grants v01r03
- FCC KDB Publication 971168 D01 Power Meas License Digital Systems v03r01



2. Test Location

2.1 Test Laboratory

Company Name	HCT Co., Ltd.
Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si,Gyeonggi-do, 17383 KOREA
Telephone	031-645-6300
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2.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Karaa	National Radio Research Agency (Designation No. KR0032)
Korea	KOLAS (Testing No. KT197)

3. Information of the EUT

3.1 General Information of the EUT

Model Name	SM-M236B/DS
Equipment Type	Mobile Phone
FCC ID	A3LSMM236B
Application Type	Class II Permissive Change
Applicant	SAMSUNG Electronics Co., Ltd.



4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview										
Band & Mode	Operating Mode	Operating Mode Tx Frequency								
GSM850	/oice / Data 824.2 Mtz~ 848.8 Mtz									
GSM1900	Voice / Data	oice / Data 1 850.2 MHz~ 1 909.8 MHz								
UMTS Band 5	Voice / Data	826.4 MHz~ 846.6 MHz								
UMTS Band 4	Voice / Data	1 712.4 MHz~ 1 752.6 MHz								
UMTS Band 2	Voice / Data	1 852.4 MHz~ 1 907.6 MHz								
LTE Band 2 (PCS)	Voice / Data	1 850.7 MHz~ 1 909.3 MHz								
LTE Band 4 (AWS)	Voice / Data	1 710.7 MHz~ 1 754.3 MHz								
LTE Band 5 (Cell)	Voice / Data	824.7 MHz~ 848.3 MHz								
LTE Band 12	Voice / Data	699.7 MHz~ 715.3 MHz								
LTE Band 17	Voice / Data	706.5 MHz~ 713.5 MHz								
LTE Band 26	Voice / Data	/oice / Data 814.7 MHz~ 848.3 MHz								
LTE TDD Band 41	Voice / Data									
LTE Band 66 (AWS)	Voice / Data	1 710.7 MHz ~ 1 779.3 MHz								
NR Band n66	Voice / Data	1 712.5 MHz ~ 1 777.5 MHz								
U-NII-1	Voice / Data	5 180 MHz ~ 5 240 MHz								
U-NII-2A	Voice / Data	5 260 MHz ~ 5 320 MHz								
U-NII-2C	Voice / Data	5 500 MHz ~ 5 720 MHz								
U-NII-3	Voice / Data	5 745 MHz ~ 5 825 MHz								
2.4 GHz WLAN	Voice / Data	2 412 MHz ~ 2 472 MHz								
Bluetooth / LE 5.0	Data	2 402 MHz ~ 2 480 MHz								
NFC	Data	13.56 MHz								
Device Description										
	Mode		Serial Number							
	UMTS B4 Phablet,		VA31813M							
Device Serial Numbers	LTE B66 Phablet		VA31825M							
Device Serial Numbers		ed that the devices tested have the termination operational to the termination operation o								



4.2 Nominal and Maximum Output Power Specifications

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

A. 2G GSM850/1900

Mode/Band	Antenna	Power	Voice (dBm)	age GN 8m)	ISK	Burst Average 8-PSK (dBm)					
Mode/Band	Antenna	Mode	1 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot
GSM/GPRS/EDGE850	Main 1	Maximum	34.5	34.5	32	31	28.5	28	26	24	23
GSM/GPRS/EDGE850		Nominal	33.5	33.5	31	30	27.5	27	25	23	22
GSM/GPRS/EDGE1900	Main 2	Maximum	31	31	30	28	26	27	26	23.5	22.5
GSIW/GPRS/EDGE1900		Nominal	30	30	29	27	25	26	25	22.5	21.5

B. UMTS Modes

				M	odulated A	verage (in dl	Bm)
Band	Antenna	Power	Mode	3GPP RMC	HSDPA	HSUPA	DC- HSDPA
				Rel 99	3GPP REV.5	3GPP REV.6	3GPP REV.8
		Max Power	Maximum	24.5	24	22	23
			Nominal	23.5	23	21	22
		RCV-ON Mode	Maximum	22.5	22	20.5	21
UMTS		RCV-ON WIDde	Nominal	21.5	21	19.5	20
Band 2	Main 2	Llatanat Mada	Maximum	22	21	20	21
(1900 MHz)	Main 2	Hotspot Mode	Nominal	21	20	19	20
(Earlack Mode	Maximum	22	21	20	21
		Earjack Mode	Nominal	21	20	19	20
		Grip Sensor Mode	Maximum	22	21	20	21
		Grip Sensor Mode	Nominal	21	20	19	20
		Max Power	Maximum	24.5	24	24	23
		Max Power	Nominal	23.5	23	23	22
		RCV-ON Mode	Maximum	22.5	22	22	21
UMTS			Nominal	21.5	21	21	20
Band 4	Main 2	Llatanat Mada	Maximum	22.5	22	22	21
(1700 MHz)	Iviali i Z	Hotspot Mode	Nominal	21.5	21	21	20
(1700 miz)		Earjack Mode	Maximum	22.5	22	22	21
		Earjack WOULE	Nominal	21.5	21	21	20
		Crip Songer Mede	Maximum	22.5	22	22	21
		Grip Sensor Mode	Nominal	21.5	21	21	20
UMTS	Main 1	Max Power	Maximum	25	24	24.5	24
Band 5		IVIAX FOWER	Nominal	24	23	23.5	23



C. LTE Modes

		Modulated Average (in dBm)											
LTE Band	Antenna	Max P	ower	Hotspot	Mode	Grip-	ON	Ear Jack active					
		Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal				
LTE Band 2	Main 2	24.5	23.5	22.5	21.5	22.5	21.5	22.5	21.5				
LTE Band 4	Main 2	24.5	23.5	20	19	20	19	20	19				
LTE Band 5	Main 1	25.3	24.3	23.3	22.3	23.3	22.3	23.3	22.3				
LTE Band 12	Main 1	25	24										
LTE Band 17	Main 1	25	24										
LTE Band 26	Main 1	25	24	24	23	24	23	24	23				
LTE Band 41	Main 2	24.5	23.5	22.5	21.5	22.5	21.5	22.5	21.5				
LTE Band 66	Main 2	24.5	23.5	20	19	20	19	20	19				

D. 5G NR SUB 6

			Modulated Average (in dBm)											
NR Band	Antenna	Max Power		Hotspot Mode		Grip-ON		Ear Jack active						
		Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal					
n66	Main 2	24	23	21.5	20.5	21.5	20.5	21.5	20.5					



4.3 Maximum 2.4 GHz, 5 GHz WIFI output power

	a		b	b g		n						ac		
Mode	6~18	24~5 4	1~11	6~36	48~54	MCS0 ~3	MCS2 ~3	MCS4 ~5	MCS6~7	MCS0 ~3	MCS4	MCS	MCS6 ~8	MC S9
	Mbps	Mbps	Mbps	Mbps 17	Mbps							5		0,5
2.4GH z WIFI			18 (12ch : 8, 13ch : 2)	17 (11c h: 16 12ch : 8 13ch : 2)	16 (12ch : 8, 13ch : 2)	17 (11ch : 15 12ch : 8 13ch : 2)	17 (11ch : 15 12ch : 8 13ch : 2)	16 (11ch : 15, 12ch : 8 13ch : 2)	15 (12ch : 8, 13ch :2)					
5GHz WIFI (20MH z BW)	17 (36, 40ch : 13 48, 52, 60ch : 16 64ch : 16.5)	14 (36, 40ch : 13)				17 (36, 40ch : 13 48ch : 16 52, 60ch : 16.5)	16 (36, 40ch : 13)	14 (36, 40ch : 13)		16 (36,40 ch : 13)	14 (36,,40 ch : 13)	13		-
5GHz WIFI (40MH z BW)		15 (38ch : 12, 62ch : 11, 102ch : 13)		n : 12, : 11,	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		12							
5GHz WIFI (80MH z BW)										3 n : 11)		11		

(Upper Tolerance: target -1.5dB ~ +1.0 dB)



4.3.1 RCV activated 2.4 GHz, 5 GHz WIFI output power

Mode	Band			IEE	E 802.11(in dBm)		
Wode	Danu	RCV State	а	b	g	n	ac
2.4GHz WIFI	2.45GHz	Active		13 (12ch : 8, 13ch : 2)	13 (12ch : 8,13ch : 2)	13 (12ch : 8, 13ch : 2)	
	5.2GHz						
5GHz WIFI	5.3GHz	A otivo	10			12	12
(20MHz BW)	5.5GHz	Active	12			12	12
	5.8GHz						
	5.2GHz						
5GHz WIFI (40MHz BW)	5.3GHz	Active				12 (38ch : 11)	12
(4010112 800)	5.5GHz	Active					(38ch : 11)
	5.8GHz						
	5.2GHz						
5GHz WIFI (80MHz BW)	5.3GHz	Active					11
	5.5GHz	ACTIVE					11
	5.8GHz						

(Upper Tolerance: target -1.5dB ~ +1.0 dB)

4.4 Maximum Bluetooth Power

Mode / Band		Modulated Average (dBm)
Plustooth (PP)	Maximum	16.0
Bluetooth (BR)	Nominal	15.0
Plusteeth (EDD)	Maximum	13.0
Bluetooth (EDR)	Nominal	12.0
Bluetooth LE	Maximum	5.5
Bluetooth LE	Nominal	4.5



4.5 DUT Antenna Locations

The overall dimensions of this device are > 9 X 5 cm. A diagram showing device antenna can be found in SAR_setup_photos. Since the diagonal dimension of this device is > 160 mm and < 200 mm, it is considered a "phablet".

This model allows users to exchange data or media files with other Bluetooth enabled devices using Bluetooth, which means they can connect to other Bluetooth enabled devices via Bluetooth tethering. Therefore, SAR test was performed for additional simultaneous transmissions.

	ě						
Antenna	Mode	Rear	Front	Left	Right	Bottom	Тор
Main 1 ANT	GSM/GPRS/EDGE 850	Yes	Yes	Yes	Yes	Yes	No
Main 2 ANT	GSM/GPRS/EDGE 1900	Yes	Yes	Yes	No	Yes	No
Main 1 ANT	UMTS Band 5	Yes	Yes	Yes	Yes	Yes	No
Main 2 ANT	UMTS Band 4	Yes	Yes	Yes	No	Yes	No
Main 2 ANT	UMTS Band 2	Yes	Yes	Yes	No	Yes	No
Main 2 ANT	LTE Band 2 (PCS)	Yes	Yes	Yes	No	Yes	No
Main 2 ANT	LTE Band 4 (AWS)	Yes	Yes	Yes	No	Yes	No
Main 1 ANT	LTE Band 5 (Cell)	Yes	Yes	Yes	Yes	Yes	No
Main 1 ANT	LTE Band 12	Yes	Yes	Yes	Yes	Yes	No
Main 1 ANT	LTE Band 17	Yes	Yes	Yes	Yes	Yes	No
Main 1 ANT	LTE Band 26 (Cell)	Yes	Yes	Yes	Yes	Yes	No
Main 2 ANT	LTE TDD Band 41	Yes	Yes	Yes	No	Yes	No
Main 2 ANT	LTE Band 66 (AWS)	Yes	Yes	Yes	No	Yes	No
Main 2 ANT	NR Band n66	Yes	Yes	Yes	No	Yes	No
Sub2 ANT	2.4 GHz WLAN	Yes	Yes	Yes	No	No	Yes
Sub2 ANT	5 GHz WLAN	Yes	Yes	Yes	No	No	Yes
Sub2 ANT	Bluetooth	Yes	Yes	Yes	No	No	Yes

Head and Bluetooth Tethering SAR were evaluated for BT BR tethering applications.

Particular EUT edges were not required to be evaluated for Bluetooth Tethering and Hotspot SAR if the edges were > 25 mm from the transmitting antenna according to FCC KDB 941225 D06v02r01 on page 2. The distance between the transmit antennas and the edges of the device are included in the filing.

- Note: All test configurations are based on front view position.



5. Test Consideration for C2PC

The C2PC of this model has no change in characteristics other than the sensor Triggering distance for the Rear and Bottom surfaces of Main Antenna. Therefore, based on the original model SAR report[No:HCT-SR-2201-FC015], the phablet SAR test for changes and the power reduction verification test for Grip senor were performed.

Since the SAR measurement result of the C2PC change approval is lower than the Highest Reported SAR result of the original report, The maximum reported SAR result and simultaneous transmission analysis remain unchanged.

Detailed changes to this model are described in the technical document.

5.1 Test Positions due to Proximity Sensor.

This device uses a sensor to reduce output powers in extremity (hand-held) use conditions.

When the sensor detects a user is touching the device on or near to the antenna the device reduces the maximum allowed output power However, the proximity sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, an additional exposure condition is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level.

FCC KDB 616217 D04 v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional exposure conditions. The smallest separation distance determined by the sensor triggering and sensor coverage for each applicable edge, minus 1 mm. was used as the test separation distance for SAR testing. Sensor triggering distance summary data is included in below table.

5.2 Power reduction verification.

Per the May 2017 TCBC Workshop notes, demonstration of proper functioning of the power reduction mechanism is required to support the corresponding SAR Configurations.

5.2.1 Distance Verification Procedure.

Procedures for determining proximity sensor triggering distances

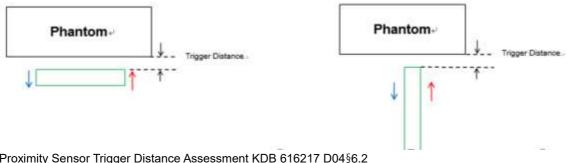
(KDB 616217D04v01r02§6.2)

The distance verification procedure was performed according to the following procedure:

- 1. A base station simulator was used to establish an RF connection and to monitor the power levels. The device being tested was placed below the relevant section of the phantom with the relevant side or edge of the device facing toward the phantom.
- 2. The device was moved toward and away from the phantom to determine the distance at which the mechanism triggers and the output power is reduced per KDB Publication 616217 D04v01r02 .Each applicable test position was evaluated. The distance were conformed to be the same or larger (more conservative) than the minimum distances provided by the manufacturer.
- 3. Step 1 and 2 were repeated for the relevant modes, as appropriate
- 4. Steps1 through 3 were repeated for all distance-based power reduction mechanisms.



For detailed measurement conducted power results, please refer to original Report



Proximity Sensor Trigger Distance Assessment KDB 616217 D04§6.2

LEGEND



Direction of DUT travel for determination of power reduction triggering point Direction of DUT travel for determination of full power resumption triggering point

Main Ant

		Triggering Distance									
	R	ear	Bottom								
Tissue simulating liquid	Moving toward phantom [mm]	Moving away from phantom [mm]	Moving toward phantom [mm]	Moving away from phantom [mm]							
835MHz Tissue	10	11	4	5							
1800MHz Tissue	10	11	4	5							
1900MHz Tissue	10	11	4	5							
2600MHz Tissue	10	11	4	5							

Distance Measurement verification for Proximity sensor

Mode				Distanc	ce to DUT (Output pow	/er (dBm)			
MODE	15[mm]	14[mm]	13[mm]	12[mm]	11[mm]	10[mm]	9[mm]	8[mm]	7[mm]	6[mm]
WCDMA B2	23.60	23.70	23.69	23.54	23.66	20.59	20.69	20.38	20.57	20.55
WCDMA B4	23.39	23.22	23.36	23.33	23.30	21.44	21.53	21.17	21.32	21.44
LTE Band 2	24.40	24.26	24.22	24.21	24.17	21.80	21.73	21.84	21.69	21.62
LTE Band 4	24.34	24.28	24.30	24.47	24.24	19.75	19.65	19.57	19.56	19.62
LTE Band 5	24.83	24.93	24.84	24.80	25.04	23.03	23.21	23.02	23.05	23.20
LTE Band 26	24.69	24.60	24.54	24.58	24.58	23.78	23.71	23.72	23.64	23.75
LTE Band 41	23.99	24.13	24.17	24.19	24.23	21.93	21.76	21.85	21.71	21.86
LTE Band 66	24.13	24.10	24.21	24.10	24.23	19.70	19.89	19.92	19.83	19.94
NR Band 66	22.70	22.61	22.65	22.60	22.60	21.42	21.37	21.36	21.38	21.42

Rear side - EUT Moving toward (trigger) to the Phantom

Rear side - EUT Moving away (Release) from the Phantom

Mode				Distance	e to DUT O	utput pow	er (dBm)			
Mode	7[mm]	8[mm]	9[mm]	10[mm]	11[mm]	12[mm]	13[mm]	14[mm]	15[mm]	16[mm]
WCDMA B2	20.51	20.53	20.64	20.57	20.42	23.63	23.48	23.72	23.50	23.58
WCDMA B4	21.34	21.32	21.37	21.51	21.43	23.27	23.16	23.34	23.26	23.20
LTE Band 2	21.81	21.62	21.77	21.76	21.83	24.28	24.42	24.51	24.33	24.25
LTE Band 4	19.53	19.55	19.56	19.53	19.76	24.12	24.26	24.23	24.43	24.30
LTE Band 5	22.96	22.97	22.97	22.99	23.06	24.95	24.83	24.99	24.81	24.82
LTE Band 26	23.61	23.75	23.81	23.87	23.73	24.69	24.61	24.66	24.73	24.76
LTE Band 41	21.78	21.83	21.65	21.79	21.79	24.22	24.19	24.07	24.16	24.17
LTE Band 66	19.71	19.72	19.90	19.95	19.87	24.34	24.31	24.38	24.23	24.36
NR Band 66	21.36	21.50	21.43	21.61	21.61	22.62	22.67	22.63	22.61	22.76

Based on the most conservative measured triggering distance of 10mm, additional Phablet SAR measurements were required at 9mm from rear side for the above modes.



Mode	Distance to DUT Output power (dBm)										
Mode	9[mm]	8[mm]	7[mm]	6[mm]	5[mm]	4[mm]	3[mm]	2[mm]	1[mm]	0[mm]	
WCDMA B2	23.51	23.45	23.48	23.53	23.69	20.62	20.59	20.54	20.52	20.55	
WCDMA B4	23.43	23.34	23.24	23.36	23.36	21.33	21.48	21.40	21.35	21.44	
LTE Band 2	24.20	24.30	24.27	24.19	24.39	21.67	21.79	21.82	21.75	21.61	
LTE Band 4	24.40	24.37	24.35	24.38	24.26	19.78	19.79	19.60	19.62	19.69	
LTE Band 5	24.83	24.95	24.91	24.73	24.94	23.14	23.02	23.05	23.10	23.03	
LTE Band 26	24.63	24.64	24.67	24.54	24.66	23.66	23.68	23.91	23.80	23.75	
LTE Band 41	24.02	24.11	24.19	24.19	24.13	21.79	21.96	21.89	21.95	21.96	
LTE Band 66	24.24	24.23	24.23	24.12	24.29	19.99	19.94	19.82	19.82	19.84	
NR Band 66	22.84	22.56	22.64	22.62	22.63	21.39	21.41	21.40	21.51	21.57	

Bottom side - EUT Moving toward (trigger) to the Phantom

Bottom side - EUT Moving away (Release) from the Phantom

Mode				Distance	e to DUT O	utput powe	er (dBm)			
Mode	1[mm]	2[mm]	3[mm]	4[mm]	5[mm]	6[mm]	7[mm]	8[mm]	9[mm]	10[mm]
WCDMA B2	20.45	20.56	20.50	20.52	20.64	23.54	23.65	23.50	23.42	23.47
WCDMA B4	21.25	21.39	21.34	21.42	21.44	23.24	23.31	23.32	23.39	23.36
LTE Band 2	21.76	21.77	21.88	21.55	21.64	24.29	24.40	24.34	24.44	24.38
LTE Band 4	19.66	19.63	19.78	19.46	19.75	24.34	24.35	24.32	24.22	24.27
LTE Band 5	23.07	23.04	23.02	22.96	23.01	24.80	24.74	24.68	25.02	24.85
LTE Band 26	23.61	23.85	23.71	23.90	23.73	24.40	24.62	24.62	24.63	24.56
LTE Band 41	21.79	21.67	21.79	21.88	21.95	24.28	24.13	24.24	24.08	24.08
LTE Band 66	19.89	19.76	19.66	19.88	19.74	24.31	24.13	24.14	24.15	24.09
NR Band 66	21.33	21.29	21.39	21.30	21.46	22.58	22.70	22.73	22.68	22.71

Based on the most conservative measured triggering distance of 4mm, additional Phablet SAR measurements were required at 3mm from bottom side for the above modes

5.2.3 Proximity Sensor Coverage for SAR measurements

(KDB 616217 D04v01r02§6.3)

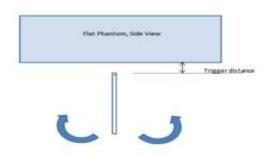
As there is no spatial offset between the antenna and the proximity sensor element, proximity sensor coverage did not need to be assessed.



5.2.4 Proximity Sensor Tilt Angle Assessment

(KDB 616217 D04v01r02 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Bottom side parallel to the base of the flat phantom for each band. The DUT was rotated about Bottom side for angles up to \pm 45°. If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up \pm 45°.



Proximity sensor tilt angle assessment (Bottom side) KDB 616217 §6.4 Summary of Tablet Tilt Angle influence to Proximity Sensor Triggering (Bottom side)

	Minimum distance	Power reduction status										
Tissue	At which power reduction was maintained over-45°	-45°	-40 °	-30°	-20 °	-10°	0°	10°	20 °	30 °	40 °	45°
835 MHz Tissue	4mm	On	On	On	On	On	On	On	On	On	On	On
1800 MHz Tissue	4mm	On	On	On	On	On	On	On	On	On	On	On
1900 MHz Tissue	4mm	On	On	On	On	On	On	On	On	On	On	On
2600 MHz Tissue	4mm	On	On	On	On	On	On	On	On	On	On	On

5.2.5 Resulting test positions for Phablet SAR measurements

Wireless technologies	Position	§6.2 Triggering Distance [mm]	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Phablet SAR [mm]
WWAN (WCDMA B2/B4	Rear	10	N/A	N/A	9
/LTEB2/B4/B5/B26/B41/B66 /NR n66)	Bottom	4	N/A	N/A	3

Note: FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device when being used in phablet use conditions



6. RF Exposure Limits

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT Occupational (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Partial Body)	1.6	8.0
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.4
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.0	20.0

NOTES:

- * The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
- ** The Spatial Average value of the SAR averaged over the whole-body.
- *** The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e.as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.



7. System Verification

7.1Tissue Verification

The body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity.

	Table for Head Tissue Verification										
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε		
			1710	1.326	41.524	1.348	40.144	-1.63	3.44		
02/11/2022	20.9	1800H	1750	1.364	41.360	1.371	40.080	-0.51	3.19		
			1800	1.414	41.112	1.400	40.000	1.00	2.78		
			1710	1.293	40.250	1.348	40.144	-4.08	0.26		
02/14/2022	21.5	1800H	1750	1.332	40.174	1.371	40.080	-2.84	0.23		
			1800	1.377	40.053	1.400	40.000	-1.64	0.13		

7.2 System Verification

- Input Power: 50 mW

Freq.	Date	Probe (S/N)	Dipole (S/N)	Liquid		Liquid Temp.	U U	50mW Measured SAR _{10g}	1 W Normalized SAR _{10g}	Deviation	Limit
[MHz]					[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
1 800	02/11/2022	7681	2d015	Head	20.9	20.9	20.0	0.982	19.64	- 1.80	± 10
1 800	02/14/2022	7370	20015	Head	21.5	21.5	20.0	1.04	20.8	+ 4.00	± 10

7.3 System Verification Procedure

SAR measurement was prior to assessment, the system is verified to the \pm 10 % of the specifications at each frequency Band by using the system verification kit. (Graphic Plots Attached)

- Cabling the system, using the verification kit equipment.
- Generate about 50 mW Input level from the signal generator to the Dipole Antenna.
- Dipole antenna was placed below the flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

Note;

SAR Verification was performed according to the FCC KDB 865664 D01v01r04.



8. SAR Test Data Summary The conducted power applied to the SAR measurement of C2PC was applied by referring to the original report.

8.1 Phablet SAR Measurement Results

For consideration of the Phable SAR measurement case of C2PC, the measurement results of the original SAR report were referenced.

				U	MTS B	and 4 P	hablet	SAR	10g				
Freque	ency	Mode	Tune- Up Limit	Meas.	Power Drift	Test	Sensor	Duty	Distance	Meas. SAR	Scaling	Scaled SAR	Plot
MHz	Ch.	INDUE	(dB)	(dB)	(dB)	Position	Sensor	Cycle	(mm)	(W/kg)	Factor	(W/kg)	No.
1 732.4	1412	RMC	24.5	23.13	-0.16	Rear	OFF	1:1	9	0.337	1.371	0.462	-
1 732.4	1412	RMC	24.5	23.13	-0.15	Bottom	OFF	1:1	3	1.10	1.371	1.508	1
	ANSI	/ IEEE C95.	1 - 2005 -	 Safety 	Limit					Hand			
		Spa	atial Peak							4.0 W/kg			
	Uncont	rolled Expo	sure/ Gen	eral Pop	oulation				Ave	raged over 1	0 gram		

						LTE B	and 66	Phab	olet S	SAR	10g						
Frequ MHz	ency Ch.	Mode	Band Width	Tune- Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Sensor	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
1 770	132572	QPSK	20	24.5	23.97	-0.03	Rear	OFF	0	1	49	1:1	9	0.536	1.130	0.606	-
1 770	132572	QPSK	20	23.5	23.21	-0.10	Rear	OFF	1	50	25	1:1	9	0.434	1.069	0.464	-
1 770	132572	QPSK	20	24.5	23.97	0.11	Bottom	OFF	0	1	49	1:1	3	1.02	1.130	1.153	2
1 770	132572	QPSK	20	23.5	23.21	0.05	Bottom	OFF	1	50	25	1:1	3	0.738	1.069	0.789	-
			patial	Peak	-								Hand 4.0 W/ł	kg			
	Uncontro	olled Exp	osure/	Genera	и Рори	liation						Averag	ea over	10 gram	1		



9. Measurement Uncertainty

The measured SAR was <1.5 W/Kg for 1g SAR and <3.75 W/Kg For 10g SAR for all frequency Bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE1528-2013 was not required.



10. SAR Test Equipment

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F12/5K9GA1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F17/ 59CHA1/ C/ 01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F12/5K9GA1/A/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F17/ 59CHA1/ A/ 01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1206 0513	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	010963	N/A	N/A	N/A
TESTO	175-H1/Thermometer	40331939309	01/26/2021	Annual	01/26/2022
TESTO	175-H1/Thermometer	40331915309	01/04/2022	Annual	01/04/2023
SPEAG	DAE4	446	09/30/2021	Annual	09/30/2022
SPEAG	DAE4	504	02/19/2021	Annual	02/19/2022
SPEAG	E-Field Probe EX3DV4	7370	08/26/2021	Annual	08/26/2022
SPEAG	E-Field Probe EX3DV4	7681	12/14/2021	Annual	12/14/2022
SPEAG	Dipole D1800V2	2d015	07/30/2021	Annual	07/30/2022
Agilent	Power Meter E4419B	MY41291386	10/06/2021	Annual	10/06/2022
Agilent	Power Meter N1911A	MY45101406	07/08/2021	Annual	07/08/2022
Agilent	Power Sensor 8481A	SG1091286	10/06/2021	Annual	10/06/2022
Agilent	Power Sensor N1921A	MY55220026	08/05/2021	Annual	08/05/2022
SPEAG	DAKS 3.5	1038	03/17/2021	Annual	03/17/2022
SPEAG	DAKS_VNA R140	0141013	04/07/2021	Annual	04/07/2022
R&S	Wireless Communication Test Set CMW500	115733	04/15/2021	Annual	04/15/2022
Agilent	11636B/Power Divider	58698	02/26/2021	Annual	02/26/2022
Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
Agilent	SIGNAL GENERATOR N5182A	MY47070230	05/10/2021	Annual	05/10/2022
EMPOWER	RF Power Amplifier	1084	06/25/2021	Annual	06/25/2022
EMPOWER	RF Power Amplifier	1011	10/06/2021	Annual	10/06/2022
MICRO LAB	LP Filter / LA-15N	10453	10/06/2021	Annual	10/06/2022
MICRO LAB	LP Filter / LA-30N	-	10/06/2021	Annual	10/06/2022
MICRO LAB	LP Filter / LA-60N	32011	10/06/2021	Annual	10/06/2022
HP	Attenuator (3dB) 333340A	02427	09/06/2021	Annual	09/06/2022
HP	Attenuator (20dB) 8493C	09271	09/06/2021	Annual	09/17/2022
Aeroflex/Weinschel	Fixed Coaxial Attenuator (30 dB)	CE6106	11/11/2021	Annual	11/11/2022
Agilent	Directional Bridge 86205A	3140A03878	05/28/2021	Annual	05/28/2022
Agilent	MXA Signal Analyzer N9020A	MY50510407	10/20/2021	Annual	10/20/2022
Anritsu	Radio Communication Tester MT8821C	6262044720	12/20/2021	Annual	12/20/2022
Anritsu	Radio Communication Test Station MT8000A	6262036812	12/20/2021	Annual	12/20/2022
Agilent	WIRELESS COMMUNICATION E5515C	MY48360252	07/23/2021	Annual	07/23/2022

* The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.



11. Conclusion

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 - 2005.

These measurements were taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the abortion and distribution of electromagnetic energy in the body are very complex phenomena the depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.



12. References

[1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation, Aug. 1996.

[2] ANSI/IEEE C95.1 - 2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 kHz to 300 GHz, New York: IEEE, Sept. 1992

[3] ANSI/IEEE C 95.1 - 2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz, New York: IEEE, 2006

[4 ANSI/IEEE C95.3 - 2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: December 2002.

[5] IEEE Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice or Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body from Wireless Communications Devices

[6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.

[7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.

[8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 120-124.

[9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.

[10] Schmid& Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.

[11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Head Modeling at 900 Mz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.

[12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300 Mb, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.

[13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectro magnetics, Canada: 1987, pp. 29-36.

[14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.

[15] W. Gander, Computer mathematick, Birkhaeuser, Basel, 1992.

[16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recepies in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.

[17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

[18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10 kHz-300 GHz, Jan. 1995.

[19] Prof. Dr. Niels Kuster, ETH, EidgenØssischeTechnischeHoschschuleZòrich, Dosimetric Evaluation of the Cellular Phone.

[20] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation and procedures – Part 1:Procedure to determine the



specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz), July. 2016.

[21] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz) Mar. 2010.

[22] Industry Canada RSS-102 Radio Frequency Exposure Compliance of Radio Communication Apparatus (All Frequency Band) Issue 5, March 2015.

[23] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Rage from 3 kHz – 300 GHz, 2009

[24] FCC SAR Test procedures for 2G-3G Devices, Mobile Hotspot and UMPC Device KDB 941225 D01.

[25] SAR Measurement Guidance for IEEE 802.11 transmitters, KDB 248227 D01v02r02

[26] SAR Evaluation of Handsets with Multiple Transmitters and Antennas KDB 648474 D03, D04.

[27] SAR Evaluation for Laptop, Notebook, Netbook and Tablet computers KDB 616217 D04.

[28] SAR Measurement and Reporting Requirements for 100 MHz – 6 GHz, KDB 865664 D01, D02.

[29] FCC General RF Exposure Guidance and SAR procedures for Dongles, KDB 447498 D01,D02.



Appendix A. DUT Ant. Information & SETUP PHOTO

Please refer to test DUT Ant. Information & setup photo file no. as follows:

Report No.

HCT-SR-2202-FC002 -P



Appendix B. – SAR Test Plots



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.9 °C
Ambient Temperature:	20.9 °C
Test Date:	02/11/2022
Plot No.:	1

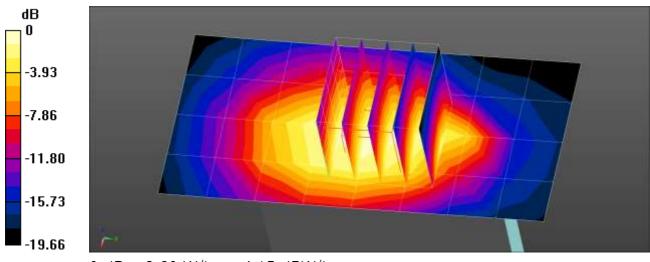
Communication System: UID 0, WCDMA Band 4 (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1 Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.344 S/m; ϵ_r = 41.428; ρ = 1000 kg/m³ Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 SN7681; ConvF(9.16, 9.16, 9.16) @ 1732.4 MHz; Calibrated: 2021-12-14
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2021-09-30
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

UMTS Band 4 Phablet Bottom 1412ch/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 2.60 W/kg

UMTS Band 4 Phablet Bottom 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm Reference Value = 47.68 V/m; Power Drift = -0.15dB Peak SAR (extrapolated) = 3.37 W/kg SAR(1 g) = 1.96 W/kg; SAR(10 g) = 1.1 W/kg Maximum value of SAR (measured) = 2.88 W/kg



0 dB = 2.60 W/kg = 4.15 dBW/kg



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.5 ℃
Ambient Temperature:	21.5 ℃
Test Date:	02/14/2022
Plot No.:	2

Communication System: UID 0, LTE Band 66 (0); Frequency: 1770 MHz; Duty Cycle: 1:1 Medium parameters used: f = 1770 MHz; σ = 1.35 S/m; ϵ_r = 40.078; ρ = 1000 kg/m³ Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 SN7370; ConvF(8.39, 8.39, 8.39) @ 1770 MHz; Calibrated: 2021-08-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

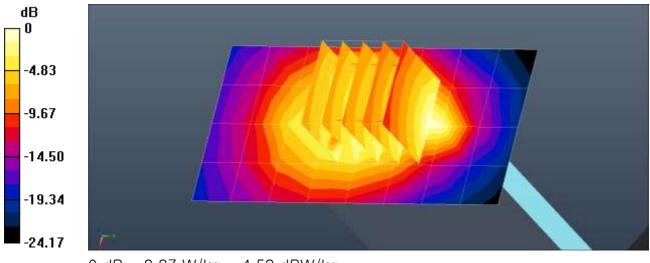
LTE Band 66 Phablet Bottom QPSK 20MHz 1RB 49offset 132572ch Max 3mm/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.87 W/kg

LTE Band 66 Phablet Bottom QPSK 20MHz 1RB 49offset 132572ch Max 3mm/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm Reference Value = 48.21 V/m; Power Drift = 0.11 dB Peak SAR (extrapolated) = 4.80 W/kg SAR(1 g) = 2.06 W/kg; SAR(10 g) = 1.02 W/kg

Maximum value of SAR (measured) = 3.42 W/kg



0 dB = 2.87 W/kg = 4.58 dBW/kg



Appendix C. – Dipole Verification Plots



Verification Data (1 800 Mtz Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.9 °C
Test Date:	02/11/2022

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2;

Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1 Medium parameters used: f = 1800 MHz; σ = 1.414 S/m; ϵ_r = 41.112; ρ = 1000 kg/m³ Phantom section: Flat Section

DASY5 Configuration:

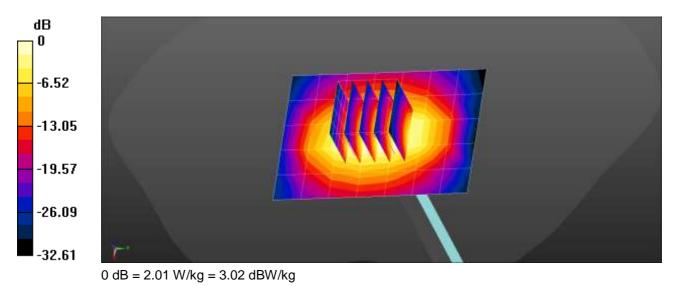
- Probe: EX3DV4 SN7681; ConvF(9.16, 9.16, 9.16) @ 1800 MHz; Calibrated: 2021-12-14
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2021-09-30
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1800MHz Head Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 2.01 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 47.04 V/m; Power Drift = -0.09 dB Peak SAR (extrapolated) = 3.38 W/kg SAR(1 g) = 1.86 W/kg; SAR(10 g) = 0.982 W/kg

Maximum value of SAR (measured) = 2.87 W/kg







Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.5 °C
Test Date:	02/14/2022

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2;

Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1 Medium parameters used: f = 1800 MHz; σ = 1.377 S/m; ϵ_r = 40.053; ρ = 1000 kg/m³ Phantom section: Flat Section

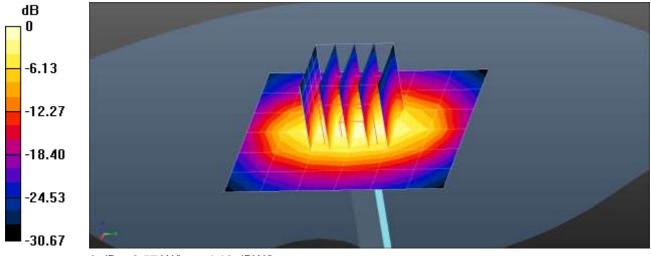
DASY5 Configuration:

- Probe: EX3DV4 SN7370; ConvF(8.39, 8.39, 8.39) @ 1800 MHz; Calibrated: 2021-08-26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1800MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 2.57 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 43.45 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 3.79 W/kg SAR(1 g) = 2.01 W/kg; SAR(10 g) = 1.04 W/kg Maximum value of SAR (measured) = 2.56 W/kg



0 dB = 2.57 W/kg = 4.10 dBW/kg



Appendix D. – SAR Tissue Characterization

The brain and muscle mixtures consist of a viscous gel using hydrox-ethyl cellulose (HEC) gelling agent and saline solution (see Table 3.1). Preservation with a bacteriacide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Harts grove.

Ingredients						Freque	ncy (MHz)					
(% by weight)	75	50	83	35	17	'50	1 9	900	2 450 -	- 2 700	3500 -	5 800
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	41.1	51.7	40.45	53.06	52.6	68.8	54.9	70.17	71.88	73.2	65.52	78.66
Salt (NaCl)	1.4	0.9	1.45	0.94	0.4	0.2	0.18	0.39	0.16	0.1	0.0	0.0
Sugar	57.0	47.2	57.0	44.9	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
HEC	0.2	0	1.0	1.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Bactericide	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.97	0.0	17.24	10.67
DGBE	0.0	0.0	0.0	0.0	47	31	44.92	29.44	7.99	26.7	0.0	0.0
Diethylene glycol hexyl ether	-	-	-	-	-	-	-	-	-	-	-	-

Salt:	99 % Pure Sodium Chloride	Sugar:	98 % Pure Sucrose
Water:	De-ionized, 16M resistivity	HEC:	Hydroxyethyl Cellulose
DGBE:	99 % Di(ethylene glycol) bu	utyl ether,[2-(2-b	outoxyethoxy) ethanol]
Triton X-100(ultra-pure):	Polyethylene glycol mono[4-	(1,1,3,3-tetram)	ethylbutyl)phenyl] ether
	Composition of the Tissue Equi	volont Mottor	

Composition of the Tissue Equivalent Matter



Appendix E. – SAR System Validation

Per FCC KCB 865664 D02v01r02, SAR system validation status should be document to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in IEEE 1528-2013 and FCC KDB 865664 D01v01r04. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

SAR			Pro	be			Dielectric I	Parameters	CV	V Validatio	on	Modulat	tion Vali	dation
System No.	Probe	Probe Type	Calib	pration	Dipole	Date	Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
17	7681	EX3DV4	Head	1900	5d061	2021-12-27	40.1	1.42	PASS	PASS	PASS	GMSK	PASS	N/A
6	7370	EX3DV4	Head	1750	2d015	2021-09-10	40.1	1.41	PASS	PASS	PASS	N/A	N/A	N/A

SAR System Validation Summary – Extremity SAR Considerations

Note;

All measurement were performed using probes calibrated for CW signal only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04. SAR system were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to KDB 865664 D01v01r04.



Appendix F. – Probe Calibration Document



manageral self-commutation pairs	recognition of calibration ce	rtificates	
ALIBRATION		Cortificate No: 1	EX3-7370_Aug21
ALIBRATION	EX3DV4 - SN:737	0	
Calibration procedure(x)		CAL-14.v6, QA CAL-23.v5, QA ure for dosimetric E-field probes	CAL-25.v7
Calibration date:	August 26, 2021		SPECIEL COLUMN
	ucted in the closed laboratory	bability are given on the following pages and a facility: environment temperature (22 ± 3)*C a	
Primary Standards	10	Cal Date (Certificate No.)	Scheduled Calibration
Pawer meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
	SN: CC2552 (20k)	09-Apr-21 (No. 217-03343)	Apr-22
and have a record of the second second		23-Dec-20 (No. DAE4-660_Dec20)	Dec-21
DAE4	SN: 660		Dec.21
DAE4	SN: 680 SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	Dec-21
DAE4 Reference Probe ES3DV2			Dec-21 Scheduled Check
DAE4 Reference Probe ES3DV2 Secondary Standarda	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	
DAE4 Reference Probe ES3DV2 Secondary Standards Power meter E4419B	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20) Check Date (in house)	Scheduled Check In house check: Jun-22 In house check: Jun-22
DAE4 Reference Probe ES3DV2 Secondary Standards Power meter E44198 Power sensor E4412A Power sensor E4412A	SN: 3013 ID SN: GB41293674 SN: MY41499087 SN: 000110210	30-Dec-20 (No. ES3-3013_Dec20) Check Date (in house) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20)	Scheduled Check In house check: Jun-22 In house check: Jun-22 In house check: Jun-22
DAE4 Reference Probe ES30V2 Secondary Standards Power meter E44198 Power sensor E4412A Power sensor E4412A RF generator HP 8648C	SN: 3013 ID SN: 0841293674 SN: MY41499087 SN: 000110210 SN: US3642U01700	30-Dec-20 (No. ES3-3013_Dec20) Check Date (in house) D6-Apr-18 (in house check Jun-20) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20)	Scheduled Check In house check: Jun-22 In house check: Jun-22 In house check: Jun-22 In house check: Jun-22
DAE4 Reference Probe ES30V2 Secondary Standards Power meter E44198 Power sensor E4412A Power sensor E4412A RF generator HP 8648C	SN: 3013 ID SN: GB41293674 SN: MY41499087 SN: 000110210	30-Dec-20 (No. ES3-3013_Dec20) Check Date (in house) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20)	Scheduled Check In house check: Jun-22 In house check: Jun-22 In house check: Jun-22
DAE4 Reference Probe ES3DV2 Secondary Standards Power meter E44198 Power sensor E4412A Power sensor E4412A RF generator HP 8648C Network Analyzer E6358A	SN: 3013 ID SN: 0841293674 SN: MY41499087 SN: 000110210 SN: US3642U01700	30-Dec-20 (No. ES3-3013_Dec20) Check Date (in house) D6-Apr-18 (in house check Jun-20) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20) D6-Apr-16 (in house check Jun-20)	Scheduled Check In house check: Jun-22 In house check: Jun-22 In house check: Jun-22 In house check: Jun-22
Reference 20 dB Attenuator DAE4 Reference Probe ES3DV2 Secondary Standards Power meter E44198 Power sensor E4412A Power sensor E4412A RF generator HP 8648C Network Analyzer E6358A Calibrated by:	SN: 3013 ID SN: GB41293674 SN: MY41499087 SN: 000110210 SN: US3642U01700 SN: US3642U01700 SN: US41080477 Name	30-Dec-20 (No. ES3-3013_Dec20) Check Date (in house) D6-Apr-16 (in house check Jun-20) O6-Apr-16 (in house check Jun-20) O6-Apr-16 (in house check Jun-20) O4-Aug-99 (in house check Jun-20) 31-Mar-14 (in house check Oct-20) Function	Scheduled Check In house check: Jun-22 In house check: Oct-21



FCC ID: A3LSMM236B

Report No: HCT-SR-2202-FC002

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



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

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Accreditation No.: SCS 0108

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

Glossary:

Trail Trail	Set Control - Control - Andrew Control - Andrew
TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization @	φ rotation around probe axis
Polarization 8	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
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices -Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865654, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORMx, y,z: Assessed for E-field polarization 8 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz; R22 waveguide), NORMx, y,z are only intermediate values, i.e., the uncertainties of NORMx, y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z * frequency_response (see Frequency Response Chart). This linearization is
 implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included
 in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (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 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 ± 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:7370

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) ²) ^A	0.46	0.50	0.42	± 10.1 %
DCP (mV) ⁸	96.8	105.1	97.3	and a state of the second

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dBõV	С	D dB	VR mV	Max dev,	Max Unc ^E (k=2)	
0	CW	X	0.00	0.00	1.00	0.00	140.6	±2.7 %	± 4.7 %	
	- SMP	Y	0.00	0.00	1.00		140.1	20200150	2200002	
		Z	0.00	0.00	1.00		148.8	1		
10352-	Pulse Waveform (200Hz, 10%)	X	2.49	66.40	10.42	10.00	60.0	± 3.7 %	±9.6 %	
AAA		Y	2.85	66.97	10.69	100000	60.0			
		Z	2.90	67.81	11.13	-	60.0	1		
10353-	Pulse Waveform (200Hz, 20%)	X	1.82	66.41	9.62	6.99	80.0	±2.6% ±9	±9.6 %	
AAA.	5 2 0	Y	1.95	67.35	10.01		80.0			
		Z	2.38	68.98	10.74		80.0	1		
10354-	Pulse Waveform (200Hz, 40%)	X	6.79	78.90	12.99	3,98	95.0	±1.8%	±9.6 %	
AAA		Y	20.00	88.59	15.58		95.0	95.0	95.0	
		Z	20.00	87.78	15.40		95.0	1		
10355-	Pulse Waveform (200Hz, 60%)	X	20.00	92.15	16.65	2.22	120.0	±0.9.%	± 9.6 %	
AAA		Y	20.00	98.69	19.22		120.0	1		
	CONTRACTOR OF STREET	Z	20.00	94.60	17.59	in the second	120.0			
10387-	QPSK Waveform, 1 MHz	X	1.74	66.26	15.26	1.00	150.0	±1,8% ±9	±9.6 %	
AAA	140600-0000-0000-0000-0000-0000-0000-000	Y.	1.70	67.74	15.54		150.0			
		Z	1.68	66.29	15.0B	l	150.0			
10388-	QPSK Waveform, 10 MHz	X	2.30	68.13	15.94	0.00	150.0	± 1.0 %	±9.6 %	
AAA	100941-ACONDIGUESCICIAL MONOMENT	Y	2.21	68.38	16:02	Constant of the second s	160.0		10,829,534,513	
		Z	2.21	67.72	15.73		150.0	1		
10396-	64-QAM Waveform, 100 kHz	X	2.67	69.41	18.45	3.01	150.0	± 0.8 %	± 9.6 %	
AAA	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	Y	2.35	68.25	17.86	-0.939.0	150.0	00010000000	-387670	
		Z	2.50	68.84	18.22		150.0			
10399-	64-QAM Waveform, 40 MHz	X	3.59	67.24	15.93	0.00	150.0	± 0.7 %	±9.6 %	
AAA	Permittingstanten(0)(0)(0)(0)(0)	Y	3.39	66.88	15.65	SURVER .	150.0	1.520.020	2-88.00	
Accused	1	Z	3.53	67.05	15.82		150.0			
10414-	WLAN CCDF, 64-QAM, 40MHz	X	4.76	65.07	15.31	0.00	150.0	± 1.5 %	± 9.6 %	
AAA		Y.	4.67	85.59	15.43		150.0			
		Z	4.89	65.74	15.63		150.0			

Note: For details on UID parameters see Appendix

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

^A The undertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).
⁹ Numerical linearization parameter: uncertainty not required.
⁹ Uncertainty is determined using the max, deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7370

Sensor Model Parameters

	C1 fF	C2 fF	и V-1	T1 ms.V ^{-a}	T2 ms.V ⁻¹	T3 ms	T4 V ⁻¹	T5 V-1	Т6
X	46.3	348.00	35.90	8.25	0.00	4.97	1.29	0.13	1.01
Y	34.1	243.70	32.98	3.57	0.00	4.96	0.91	0.07	1.00
Z	41.6	311.97	35.78	6.40	0.00	4.98	1.36	0.07	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (")	-85.4
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7370

f (MHz) ^c	Relative Permittivity [#]	Conductivity (S/m) F	ConvF X	ConvF Y	ConvF Z	Alpha ⁰	Depth ^o (mm)	Unc (k=2)
750	41.9	0.89	10.07	10.07	10.07	0.48	0.80	± 12.0 %
835	41.5	0.90	9.94	9.94	9,94	0.45	0.80	± 12.0 %
900	41.5	0.97	9.67	9.67	9,67	0.42	0.80	± 12.0 %
1750	40.1	1.37	8.39	8.39	8.39	0.34	0.86	± 12.0 %
1900	40.0	1.40	8.15	8,15	8.15	0.34	0.86	± 12.0 %
2450	39.2	1.80	7.50	7.50	7.50	0.35	0.90	± 12.0 %
2600	39.0	1.96	7.42	7.42	7.42	0.38	0,90	± 12.0 %
3300	38.2	2.71	7.00	7.00	7.00	0.30	1.35	± 13.1 %
3500	37.9	2.91	6.80	6,80	6.80	0.40	1.35	± 13.1 %
3700	37.7	3.12	6.78	6.78	6.78	0.40	1.35	± 13.1 %
3900	37.5	3.32	6.40	6,40	6.40	0.35	1.50	± 13.1 %
4100	37.2	3.53	6.30	6.30	6.30	0.35	1.50	± 13.1 %
4400	36.9	3.84	6.05	6.05	6.05	0.40	1.60	± 13.1 %
4600	36.7	4.04	6,00	6.00	6.00	0.35	1.50	± 13.1 %
4800	36,4	4.25	5.95	5.95	5.95	0.40	1.80	± 13.1 %
4950	-36.3	4.40	5.70	5.70	5.70	0.40	1.80	± 13.1 %
5250	35.9	4.71	5,15	5.15	5.15	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.57	4.57	4.57	0.40	1.80	± 13,1 %
5750	35.4	5.22	4.75	4.75	4.75	0.40	1,80	± 13.1 %

Calibration Parameter Determined in Head Tissue Simulating Media

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 60 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is ± 9 MHz, and ConvF assessed at 13 MHz is 9-10 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.
^C At frequencies below 3 GHz, the validity of issue parameters (c and e) can be relaxed to ± 10% if Suid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of issue parameters (c and e) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target (tasue parameters.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7370

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity	Conductivity (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
6500	34.5	6.07	5.60	5.60	5.60	0.20	2.50	± 18.6 %

⁶ 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.
⁷ At frequencies 5-10 GHz, the validity of tissue parameters (s and o) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
⁸ AlphaDepth are determined during calibration. SPEAG warrants that the remaining deviation to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz; below ± 2% for frequencies between 3-8 GHz; and below ± 4% for frequencies between 6-10 GHz at any distance larger than half the probe tip diameter from the boundary.

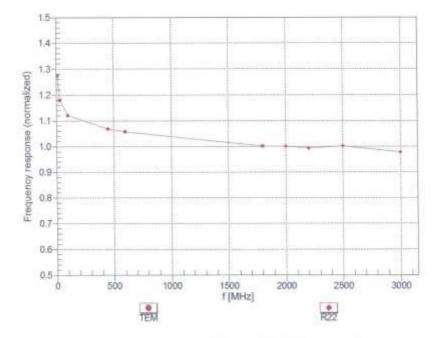
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Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



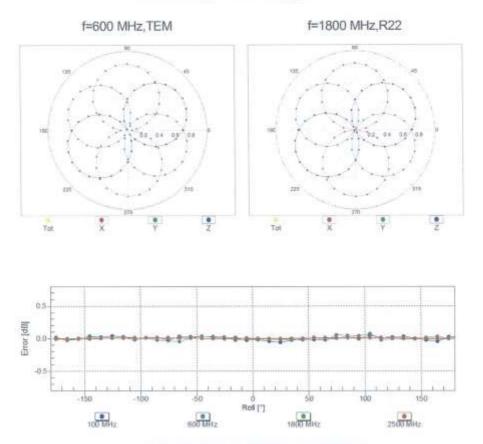
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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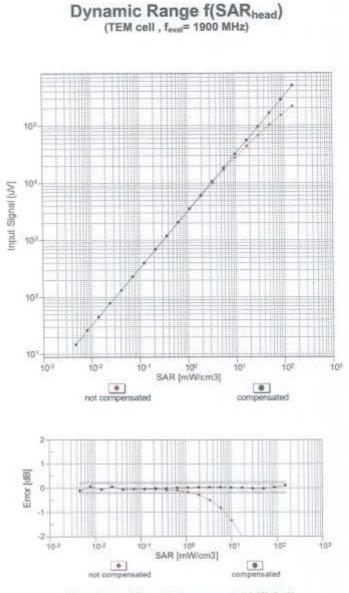


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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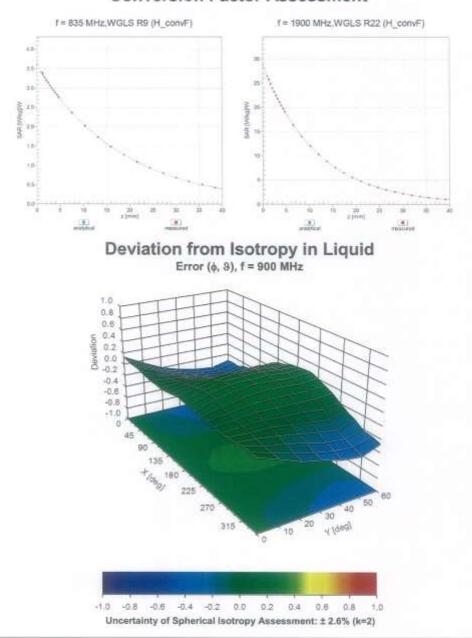
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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Conversion Factor Assessment

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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^e (k=2)
0	- anoth	GW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	±9.6%
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	±9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	±9.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	±9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	±9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7,78	±9.6%
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	±9.6 %
10032	CAA	IEEE 802,15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	±.9.6 %
10033	GAA	IEEE 802,15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3,83	± 9.6 %
10036	GAA	IEEE 802 15 1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	±9.6%
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mops)	TD-SCDMA	11.01	±9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	±9.6 %
10059	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps)	WEAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 11 Mbbs)	WLAN	3.60	± 9.6 %
10062	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	19.6%
10063	CAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	±9.6 %
10064	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	±9.6 %
10065	CAD	IEEE 802,11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	±9.6%
10066	CAD	IEEE 802,11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAD	IEEE 802, 11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	±9.6%
10068	CAD	IEEE 802,11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.12	19.6%
10069	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10071		IEEE 802.11d WIFI 2.4 GHz (DSSS/OFDM, 9 Mops)	WLAN	9.83	±9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps) IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.63	± 9.6 %
10072	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	±9.6%
10073	CAB	IEEE 802 11g WIFI 2.4 GHz (DSSS/OFDM, 18 Mbps) IEEE 802 11g WIFI 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	
10079	CAB	IEEE 802 11g WIFI 2.4 GHz (DSSS/OFDM, 24 Mbps) IEEE 802 11g WIFI 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN		±9.6 %
10075	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 36 Mbps) IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.77	±9.6 %
10076	CAB		WLAN	10.94	± 9.6 %
	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 54 Mbps)	1 S1 S1 S1 S1 S1 S1	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	±9,6 9
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	±9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3,98	±9.63
10098	DAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA:	3.98	± 9.6 %

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66001	CAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
0100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
0101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	5.42	±9.6 %
0102	CAB	LTE-FOD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
0103	DAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
0104	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TOO	9.97	± 9.6 %
0105	CAE	LTE-TOD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
0108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FOD	5.80	± 9.6 %
0109	CAG	LTE-FOD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
0110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FOD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FOD	6.62	± 9.6 %
10114	CAG	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAG	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAG	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAD	IEEE 802.11n (HT Mixed, 13S Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FOD	6.65	± 9.6 %
10145	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FOD	6.41	± 9.6 %
10147	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6 9
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TOD	9.28	±9.6 %
10152	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	±9.6 %
10153	CAE	LTE-TDD (SC-FDMA, 50% R8, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAF	LTE-FOD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 9
10158	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 9
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 9
10160	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	±9.6 %
10162	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 9
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 9
10167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 9
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	+ 9.6
10169	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	±9.6 %
10170	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDO	6.52	± 9.6 1
10171	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 4
10172	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 1
10173	CAE	LTE-TOD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	±9.6 9
10174	CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.61
10175	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	19.6
10176	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6
10176		LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 0PSK)	LTE-FDD	5.73	± 9.64
10178	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 18-GAM)	LTE-FDD	6.52	± 9.6
10178		LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6
101153	AAE	FIELOD (DOLDMAR LUD, ID MUSE, De-Shan)	PLE-COD	0.30	= 0.0

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10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9,6 %
0182	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FOD	6.52	± 9.6 %
0183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
0184	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FOO	5.73	±9.6 %
0185	CAI	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
0186	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	±9.6%
0187	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDO	5.73	±9.6 %
0188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 18-QAM)	LTE-FDD	6.52	±9.6 %
0189	CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
0193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	±9.6 %
0194	AAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8,12	±9.6%
0195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	±9.6 %
0196	CAE.	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	AAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
0198	CAF	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
0219	CAF	IEEE 802.11n (HT Mixed, 7.2 Mbps; BPSK)	WLAN	8.03	± 9.6 %
10220	AAF	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
0221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	B.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAD	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	±9.6 %
10224	CAD	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAD	UMTS-FDD (HSPA+)	WCDMA	5.97	±9.6 %
10226	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6 %
10228	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	±9.6 %
10229	DAG	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TOD	10.25	± 9.6 %
10234	CAD	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TOD	9.21	± 9.6 %
10235	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDO	9.48	± 9.6 %
10236	CAD	LTE-TDD (SC-FDMA, 1 R8, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAD	LTE-TOD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDO	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 18-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAG	LTE-TDD (SC-FDMA, 50% R8, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6.%
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 18-QAM)	LTE-TDD	9.81	±9.6%
10251	CAF	LTE-TOD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	29.6 %
10255	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 9
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6.9
10257	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	±9.6 %
10258	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	±9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %

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0260	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TOD	9,97	±9.6 %
0261	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TOD	9.24	± 9.6 %
0262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TOD	9,83	± 9.6 %
0263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9,6 %
0264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TOD	9.23	± 9.6 %
0265	CAG	LTE-TDD (SC-FDMA, 100% R8, 10 MHz, 16-QAM)	LTE-TDD	9.92	±9.6 %
0266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	L'TE-TOO	10.07	± 9.6 %
0267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	±9.6 %
0268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 18-QAM)	LTE-TOO	10.06	± 9.6 %
0269	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TOD	10.13	± 9.6 %
0270	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
0274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
0275	CAD	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3,96	± 9.6 %
10277	CAD	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAD	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAG	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	±9.6 %
10290	CAG	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	±9.6 %
10291	CAG	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	CAG	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	±9.6 %
10293	CAG	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	±9.6 %
10295	CAG	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	COMA2000	12.49	±9.6 %
10297	GAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FOD	5.72	± 9.6 %
10299	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %
10300	CAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	CAC	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WIMAX	12.03	± 9.6 %
10302	CAB	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WIMAX	12.57	± 9.6 %
10303	CAB	IEEE 802.16e WIMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WIMAX	12.52	± 9.6 %
10304	CAA	IEEE 802.16e WMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WIMAX	11.86	± 9.6 %
10305	CAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WIMAX	15.24	± 9.6 %
10306	CAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WIMAX	14.67	±9.6%
10307	AAB	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WIMAX	14,49	±9.6 %
10308	AAB	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAB	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3)	WMAX	14.58	± 9.6 %
10310	AAB	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3	WIMAX	14.57	± 9.6 %
10311	AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAD	IDEN 1:3	IDEN	10.51	± 9.6 %
10314	AAD	IDEN 1:6	IDEN	13.48	±9.6 %
10315	AAD	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	WLAN	1.71	± 9.6 %
10316	AAD	IEEE 802.11g WiFI 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	±9.69
10317	AAA	IEEE 802.11a WIFI 5 GHz (OFDM, 6 Mbps, 96pc dc)	WILAN	8.36	± 9.6 %
10362	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	± 9.6 %
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	± 9.6 %
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	± 9.6 %
10355	AAA	Putse Waveform (200Hz, 60%)	Generic	2.22	± 9.6 %
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	± 9.6 °
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	± 9.6 %
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	± 9.6 *
10395	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	19.61
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	± 9.6 *
10400	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc dc)	WLAN	8.37	± 9.6 %
10401	AAA	IEEE 802.11ac WiFI (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	±9.6
10402	AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	WLAN	8.53	± 9,6 9
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	±9.6
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	± 9.6 %
10406	AAD	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 *

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10410	AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub=2,3,4,7,8,9)	LTE-TOD	7.82	±9.6%
0414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	±9.6 %
0415	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 99pc dc)	WLAN	1.54	± 9.6 %
0416	AAA	IEEE 802.11g WIFI 2.4 GHz (ERP-OFDM, & Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
0417	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10418	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	8.19	± 9.6 %
10422	AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAE	IEEE 802.11n (HT Greanfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	±9.6 %
10425	AAE	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	±9.6 %
10426	AAE	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FOD	8.34	± 9.8 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAG	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TOD	7.82	± 9.6 %
10447	AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7:56	±9.6 %
10448	AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FOD	7,48	± 9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	± 9.6 %
10453	AAC	Validation (Souare, 10ms, 1ms)	Test	10.00	±9.6%
10456	AAC	IEEE 602.11ac WIFI (160MHz, 64-QAM, 99pc dc)	WLAN	8.63	# 9.6 %
10457	AAC	UMTS-FDD (DC-HSOPA)	WCDMA	6.62	± 9.6 %
10458	AAC	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAC	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TOD	8.30	± 9.6 %
10463	AAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TOO	8.56	± 9.6 %
10464	AAD	LTE-TDD (SC-FDMA, 1 R8, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TOD	8.32	± 9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10467	AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	±9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6.9
10469	AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TOD	8.56	± 9.6 %
10470	AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sib)	LTE-TDD	8.32	±9.6 9
10472	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 9
10473	AAA	LTE-TDO (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 9
10474	AAA	LTE-TOD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDO	8.32	± 9.6 5
10475	AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 84-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 5
10477	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 1
10478	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 9
10479		LTE-TOD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.8 9
10480	AAC	LTE-TOD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 04-04M, 0E 500) LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDO	7.71	± 9.6 %
10482	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, GPSA, 0L 500) LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10483	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 10-GAM, 500) LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	± 9.6 %
	AAS		LTE-TDD	7.59	± 9.6 1
10485	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub) LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	±9.6 9
		LTP+TUUT(SL-FUMA, SPA H05, D MPC, T0-UAM, UL SUD)	LIC+100	0.35	1 2 9.0 1

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10488	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TOD	7.70	± 9.6 %
0489	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TOD	8.31	± 9.6 %
0490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	±9.6 %
0491	AAF	LTE-TOD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
0492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 18-QAM, UL Sub)	LTE-TDD	8.41	±9.6 %
0493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8,55	± 9.6 %
0494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
0495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TOD	8.37	± 9.6 %
10495	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TOD	8.54	± 9.6 %
10497	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TOD	7.67	± 9.6 %
10498	AAE	LTE-TDD (SC-FDMA, 100% R8, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	±9.6 %
10499	AAC.	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TOD	8.68	±9.6%
10500	AAF	LTE-TOD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TOO	7.67	±9.6%
10501	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.44	± 9.6 %
10502	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TOD	8.52	± 9.6 %
10503	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TOD	8.31	± 9.6 %
10505	AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TOD	7.74	± 9,6 %
10507	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TOD	8.36	± 9.6 %
10508		LTE-TDD (SC-FDMA, 100% R8, 10 MHz, 64-QAM, UL Sub)	LTE-TOO	8.55	± 9.6 %
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TOD	7.99	± 9.6 %
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 0F SR, 0L S00)	LTE-TOD	8.49	± 9.6 %
1.000	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 10-QAM, UL Sub)	LTE-TDD	8.51	± 9.6 %
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 04-04W, 05 Sub)	LTE-TDD	7.74	± 9.6 %
	AAF		LTE-TDD	8.42	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-OAM, UL Sub)	LTE-TOD	8.45	± 9.6 %
10514	AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	WLAN	and the second second	
10515	AAE	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10516	AAE	IEEE 802.11b WIFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc dc)	WLAN		
10517	AAF	IEEE 802.11b WIFI 2.4 GHz (DSSS, 11 Mbps, 99pc dc)	1.7587535753	1.58	± 9.6 %
10518	AAF	IEEE 802.11a/h WIFI 5 GHz (OFDM, 9 Mops, 99pc dc)	WLAN	8.23	± 9.6 %
10519	AAF	IEEE 802.11a/h WIFI 5 GHz (OFDM, 12 Mbps, 99pc dc)	WLAN	8.39	
10520	AAB	IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WIFI 5 GHz (OFDM, 24 Mbps, 99pc dc)		7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10523	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc dc)	WLAN	8.08	± 9.6 %
10524	AAC	IEEE 802.11a/h WIFi 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.27	± 9.6 %
10525	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc dc)	VVLAN	8.36	± 9.6 %
10526	AAF	IEEE 802.11ac WIFI (20MHz, MCS1, 99pc dc)	WLAN	8.42	± 9.6 %
10527	AAF	IEEE 802,11ac WiFi (20MHz, MCS2, 99pc dc)	WLAN	8.21	± 9.6 %
10528	AAF	IEEE 802.11ac WIFI (20MHz, MCS3, 99pc dc)	WLAN	8.36	± 9.6 %
10529	AAF	IEEE 802.11ac WIFI (20MHz, MCS4, 99pc dc)	WLAN	8.36	± 9.6.%
10531	AAF	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc dc)	WLAN	8,43	± 9.6 %
10532	AAF	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10533	AAE	IEEE 802.11ac WIFI (20MHz, MCS8, 99pc dc)	WLAN	8.38	±9.6 %
10534	AAE	IEEE 802.11ac WIFI (40MHz, MCS0, 99pc dd)	WLAN	8.45	± 9.6 %
10535	AAE	IEEE 802.11ac WIFi (40MHz, MCS1, 99pc dc)	WLAN	8.45	#9.6 %
10536	AAF	IEEE 802 11ac WIFI (40MHz, MCS2, 99pc dc)	WLAN	8.32	± 9.6 %
10537	AAF	IEEE 832.11ac WiFI (40MHz, MCS3, 99pc dc)	WLAN	8.44	±9.6 %
10538	AAF	IEEE 802.11ac WIFI (40MHz, MCS4, 99pc dc)	WLAN	8.54	± 9.6 %
10540	AAA	IEEE 802.11ac WiFI (40MHz, MGS6, 99pc dc)	WLAN	8.39	± 9.6 %
10541	AAA	IEEE 802.11ac WiFI (40MHz, MCS7, 99pc dc)	WLAN	8.46	± 9.6 %
10542	AAA.	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc dc)	WLAN	8.65	± 9.6 %
10543	AAC	IEEE 802.11ac WIFI (40MHz, MCS9, 99pc dc)	WLAN	8.65	± 9.6 %
10544	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc dc)	WLAN	8.47	± 9.6 %
10545	AAC	IEEE 802.11ac WIFI (80MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 3

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10546	AAC	IEEE 802.11ac WIFI (80MHz, MCS2, 99pc dc)	WLAN	8.35	± 9.6 %
0547	AAC	IEEE 802.11ac WIFI (80MHz, MCS3, 99pc dc)	WLAN	8.49	± 9.6 %
0548	AAC	IEEE 802.11ac WIFI (80MHz, MCS4, 99pc dc)	WLAN	8.37	± 9.6 %
0550	AAC	IEEE 802.11ac WIFI (80MHz, MCS6, 99pc dc)	WLAN	8.38	± 9.6 %
0651	AAC	IEEE 802.11ac WIFI (BOMHz, MCS7, 99pc dc)	WLAN	8.50	±9.6 %
0552	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc dc)	WLAN	8.42	± 9.6 %
0653	AAC	IEEE 802.11ac WIFI (60MHz, MCS9, 99pc dc)	WLAN	8.45	±9.6 %
10554	AAC	IEEE 802.11ac WIFI (160MHz, MCS0, 99pc dc)	WLAN	8.48	±9.6 %
10555	AAC	IEEE 802.11ac WIFI (160MHz, MCS1, 99pc dc)	WLAN	8.47	±9.6%
10556	AAC	IEEE 802.11ac WIFI (160MHz, MCS2, 99pc dc)	WLAN.	8.50	± 9.6 %
10557	AAC	IEEE 802.11ac WIFI (160MHz, MC53, 99pc.dc)	WLAN	8.52	±9.6 %
10558	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc dc)	WLAN	8.61	±9.6 %
10560	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc dc)	WLAN	8.73	± 9.8.%
10561	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc dc)	WLAN	8.56	± 9.6 %
10562	AAC	IEEE 802.11ac WIFI (160MHz, MCS8, 99pc dc)	WLAN	8.69	± 9.6 %
10563	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc dc)	WLAN	8.77	± 9.6 %
10564	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc)	WLAN	8.25	± 9.6 %
10565	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc)	WLAN.	8.45	± 9.6 %
10566	AAC	IEEE 802,11g WIFI 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc dc)	WLAN	8.13	± 9.6 %
10587	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc dc)	WLAN	8.00	± 9.6 %
10568	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc dc)	WLAN	8.37	± 9.6 %
10569	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc dc)	WLAN	8.10	± 9.6 %
10570	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc dc)	WLAN	8.30	± 9.6 %
10571	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10572	AAC	IEEE 802 11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc dc)	WLAN	1,99	± 9.6 %
10573	AAC	IEEE 802.11b WiFI 2.4 GHz (DSSS, 5.5 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10574	AAC	IEEE 802.11b WIFI 2.4 GHz (DSSS, 11 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10575	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10576	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10577	AAC	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10578	AAD	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10579	AAD	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10580	AAD	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10581	AAD	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10582	AAD	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10583	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10584	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	19.65
10585	AAD	IEEE 802.11a/r WiFi 5 GHz (OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	±9.6 %
10586	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10587	AAA	IEEE 802.11a/h WIFI 5 GHz (OFDM, 16 Mbps, sopc dc)	WLAN	8.36	± 9.6 %
10588	AAA	IEEE 802.11a/h WIFI 5 GHz (OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 9
10589	AAA	IEEE 802.11a/h WIFIS GHz (OFDM, 30 Mbps, 90pc dc)	WLAN	8.35	± 9.6.9
10590	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 46 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10591		IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc)	WLAN	8.63	19.6 9
10592	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc)	WEAN	8.79	± 9.6 %
10593	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc dc)	WLAN	8.64	± 9.6 %
10594	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 80pc dc)	WEAN		
10595	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 80pc 6c)	WLAN	8.74	±9.69
10596	AAA	IEEE 802,11n (HT Mixed, 20MHz, MCS4, 80pc 6c)	WLAN	8.74	±9.6 %
10596	AAA	IEEE 802,11n (HT Mixed, 20MHz, MCS6, 90pc dc)	WLAN	8.71	± 9.6 9
10598	AAA	IEEE 802.11n (H1 Mixed, 20MHz, MCSR, 90pc dc)	WLAN	8.72	± 9.6 %
10595	AAA			8.50	± 9,6 %
	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc dc)	WLAN	8.79	± 9.6 %
10600	A,A,A	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc dc)	WLAN	8.88	± 9,6 %
10601	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc dc)	WLAN	8.82	± 9,6 %
10602	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc dc)	WLAN	8.94	± 9,6 %
10803	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc dc)	WLAN	9.03	±9.6 %

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10604	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc)	WLAN	8.76	± 9.6 %
0605	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc dc)	WLAN	8.97	± 9.6 %
0606	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
0807	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc)	WLAN	8.64	± 9.6 %
0608	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc)	WLAN	8.77	±9.6 %
0609	AAC	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc)	WLAN	8.57	±9.6 %
0610	AAC	IEEE 802.11ac WIFI (20MHz, MCS3, 90pc dc)	WLAN	8.78	± 9.6 %
0611	AAC	IEEE 802.11ac WIFI (20MHz, MCS4, 90pc dc)	WLAN	8.70	±9.6 %
0612	AAC	IEEE 802.11ac WIFI (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10613	AAC	IEEE 802.11ac WIFI (20MHz, MCS6, 90pc dc)	WLAN	8.94	± 9.6 %
10614	AAC	IEEE 802.11ac WiFI (20MHz, MCS7, 90pc dc)	WLAN	8.59	± 9.6 %
10615	AAC	IEEE 802.11sc WIFI (20MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10616	AAC	IEEE 802.11ac WIFI (40MHz, MCS0, 90pc dc)	WLAN	8.82	± 9.6 %
10617	AAC	IEEE 802,11ac WIFI (40MHz, MCS1, 90pc dc)	WLAN	8.81	± 9.6 %
10618	AAC	IEEE 802 11ac WIFI (40MHz, MCS2, 90pc dc)	WLAN	8.58	± 9.6 %
10619	AAC	IEEE 802,11ac WIFI (40MHz, MCS3, 90pc dc)	WLAN	8.86	±9.6 %
10620	AAC	IEEE 802.11ac WIFI (40MHz, MCS4, 90pc dc)	WLAN	8.87	± 9.6 %
10621	AAC	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10622	AAC	IEEE 802.11ac WIFI (40MHz, MCS6, 90pc dc)	WLAN	8.68	± 9.6 %
10623		IEEE 802.11ac WiFI (40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10624	AAC	IEEE 802.11ac WIFI (40MHz, MCS8, 90pc dc)	WLAN	8.96	± 9.6 %
10625	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc dc)	WLAN	8.96	± 9.6 %
10625	AAC	IEEE 802,11ac WIFI (80MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
2.1.1.1.1.1.1.1	AAC		WLAN		
10627	AAC	IEEE 802,11ac WIFI (80MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10628	AAC	IEEE 802.11ac WIFI (80MHz, MCS2, 90pc dc)		8.71	± 9.6 %
10629	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10630	AAC	IEEE 802.11ac WIFI (80MHz, MCS4, 90pc dc)	WLAN	8.72	±9.6 %
10631	AAC	IEEE 802.11ac WIFI (80MHz, MCS5, 90pc dc)	WLAN	8,81	± 9.6 %
10632	AAG	IEEE 802.11ac WIFI (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10633	AAC	IEEE 802.11ac WIFI (B0MHz, MCS7, 90pc dc)	WLAN	8.83	± 9.6 %
10634	AAC	IEEE 802,11ac WiFi (80MHz, MCS8, 90pc dc)	WLAN	8,80	± 9.6 %
10635	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10637	AAC	IEEE 802.11ac WIFI (160MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10638	AAC	IEEE 802.11ac WIFI (160MHz, MCS2, 90pc dc)	WLAN	8.86	± 9.6 %
10639	AAC	IEEE 802.11ac WIFi (160MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc)	WLAN	8.98	± 9.6 %
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc)	WLAN	9.06	±9.6 %
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc)	WLAN	9.06	±9.6%
10643	AAC	IEEE 802.11ac WIFI (160MHz, MCS7, 90pc dc)	WLAN	8.89	± 9.6 %
10644	AAC	IEEE 802.11ac WiFI (160MHz, MCS8, 96pc dc)	WLAN	9.05	± 9.6 %
10645	AAC	IEEE 802.11ac WIFI (160MHz, MCS9, 90pc dc)	WLAN	9,11	± 9.6 %
10646	AAC	LTE-TDD (SC-FDMA, 1 RB; 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10848	AAC	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 %
10654	AAC	LTE-TOD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %
10655	AAC	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7,21	± 9.6 %
10658	AAC	Putse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10859	AAC	Putse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10680	AAC	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10681	AAC	Pulse Waveform (200Hz, 60%)	Test	2.22	±9.6 9
10662	AAC	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10870	AAC	Bluetpoth Low Energy	Biuetooth	2.19	± 9.6 %
10671	AAD	IEEE 802.11ax (20MHz, MCS0, 90pc dc)	WLAN	9.09	± 9.6 %

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10672	AAD	IEEE 802.11ax (20MHz, MCS1, 90pc do)	WLAN	8.57	±9.6 %
0673	AAD	IEEE 802.11ax (20MHz, MCS2, 90pc dc)	WLAN	8.78	± 9.6 %
0674	AAD	IEEE 802.11ax (20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
0675	AAD	IEEE 802.11ax (20MHz, MCS4, 90pc dc)	WLAN	8.90	±9.6%
0676	AAD	IEEE 802.11ax (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
0677	AAD	IEEE 802.11ax (20MHz, MCS6, 90pc dc)	WLAN	8.73	± 9.6 %
0678	AAD	IEEE 802.11ax (20MHz, MCS7, 90pc dc)	WLAN	8.78	±9.6 %
0679	AAD	IEEE 802.11ax (20MHz, MCS8, 90pc dc)	WLAN	8.89	±9.6%
0680	AAD	IEEE 802.11ax (20MHz, MCS9, 90pc dc)	WLAN	8.80	±9.6 %
0681	AAG	IEEE 802.11ax (20MHz, MCS10, 90pc dc)	WLAN	8.62	± 9.6 %
10682	AAF	IEEE 802.11ax (20MHz, MCS11, 90pc dc)	WLAN	8.83	±9.6 %
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99pc dc)	WLAN	8.42	±9.6 %
10684	AAC	IEEE 802.11ax (20MHz, MCS1, 99pc dc)	WLAN	8.26	±9.6%
10685	AAC	IEEE 802.11ax (20MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10686	AAC	IEEE 802.11ax (20MHz, MCS3, 99pc dc)	WLAN	8.28	±9.6 %
10687	AAE	IEEE 802.11ax (20MHz, MCS4, 99pc dc)	WLAN	8,45	± 9.6 %
10668	AAE	IEEE 802.11ax (20MHz, MCS5, 99pc.dc)	WLAN	8,29	± 9.6 %
10689	AAD	IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN	8.55	± 9.6 %
10690	AAE	IEEE 802.11ax (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10691	AAB	IEEE 802.11ax (20MHz, MCSB, 99pc dc)	WLAN	8.25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MC59, 99pc dc)	WLAN	8.29	±9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc dc)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc dc)	WLAN	8.57	±9.6%
10695	AAA	IEEE 802 11ax (40MHz, MCS0, 90pc dc)	WLAN	8.78	±9.6 %
10696	AAA	IEEE 602.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	± 9.6 %
10897	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.89	±9.6%
10899	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.69	± 9.6 %
10706	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.66	± 9.6 %
10707	AAC	IEEE 802.11ax (40MHz, MCS0, 99pc dc)	WLAN	8.32	± 9.6 %
10708	AAC	IEEE 802.11ax (40MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10709	AAC	IEEE 802.11ax (40MHz, MCS2, 99pc dc)	WLAN.	8.33	± 9.6 %
10710	AAC	IEEE 802.11ax (40MHz, MCS3, 99pc dc)	WEAN	8.29	± 9.6 %
10711	AAC	IEEE 802.11ax (40MHz, MCS4, 99pc dc)	WLAN	8.39	± 9.6 %
10712	AAC	IEEE 802.11ax (40MHz, MCS5, 99pc dc)	WLAN	8.67	± 9.6 %
10713	AAC	IEEE 802.11ax (40MHz, MCS6, 99pc dc)	WLAN	8.33	± 9.6 %
10714	AAC	IEEE 802.11ax (40MHz, MCS7, 99pc dc)	WLAN	8.26	±9.6 %
10715	AAC	IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.45	± 9.6 %
10716	AAC	IEEE 802,11ax (40MHz, MCS9, 99pc dc)	WLAN	8.30	±9.6 %
10717	AAC	IEEE 802.11ax (40MHz, MCS10, 99pc dc)	WLAN	8.48	± 9.6 %
10718	AAC	IEEE 802.11ax (40MHz, MCS11, 99pc dc)	WLAN	8.24	±9.6 %
10719	AAC	IEEE 802.11ax (80MHz, MCS0, 90pc dc)	WLAN	8.81	± 9.6 %
10720	AAC	IEEE 802.11ax (80MHz, MCS1, 90pc db)	WLAN	8.87	± 9.6 %
10721	AAC	IEEE 802.11ax (80MHz, MCSZ, 90pc dc)	WLAN	8.76	± 9.6 %
10722	AAC	IEEE 802.11ax (80MHz, MCS3, 90pc dc)	WLAN	8.55	± 9.6 %
10723	AAC	IEEE 802.11ax (80MHz, MCS4, 90pc dc)	WLAN	8.70	±9.6 %
10724	AAC	IEEE 802.11ax (80MHz, MCS5, 90pc dc)	WLAN	8,90	± 9.6 %
10725	AAC	IEEE 802.11ax (80MHz, MCS8, 90pc dc)	WLAN	8.74	± 9.6 %
10726	AAC	IEEE 802.11ax (80MHz, MCS7, 90pc dc)	WLAN	8.72	± 9.6 %
10727	AAC	IEEE 802.11ax (80MHz, MCS8, 90pc dc)	WLAN	8.66	± 9.6 %

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0728	AAC.	IEEE 802.11ax (80MHz, MCS9, 90pc dc)	WLAN	8.65	± 9.6 %
0729	AAC	IEEE 802.11ax (80MHz, MCS10, 90pc dc)	WLAN	8.64	± 9.6 %
0730	AAC	IEEE 802.11ax (80MHz, MCS11, 90pc dc)	WLAN	8.67	± 9.6 %
0731	AAC	IEEE 802.11ax (80MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
0732	AAC	IEEE 802.11ax (80MHz, MCS1, 99pc do)	WLAN	8.46	土 9.6 %
0733	AAC	IEEE 802.11ax (80MHz, MCS2, 99pc dc)	WLAN	8.40	± 9.6 %
0734	AAC	IEEE 802.11ax (80MHz, MCS3, 99pc.dc)	WLAN	8.25	±9.6 %
0735	AAC	IEEE 802.11ax (80MHz, MCS4, 99pc dc)	WLAN	8.33	± 9.6 %
0736	AAC	IEEE 802 11ax (80MHz, MCS5, 99pc dc)	WLAN	8,27	± 9.6 %
0737	AAC	IEEE 802.11ax (80MHz, MCS6, 99pc dc)	WLAN	B.36	±9.8 %
0738	AAC	IEEE 802.11ax (80MHz, MCS7, 99pc dc)	WLAN	8.42	±9.6 %
0739	AAC	IEEE 802.11ax (60MHz, MCS8, 99pc dc)	WLAN	8.29	±9.6 %
0740	AAC	IEEE 802.11ax (80MHz, MCS9, 99pc dc)	W/LAN	8.48	±9.6 %
0741	AAC	IEEE 802.11ax (80MHz, MCS10, 99pc dc)	WLAN	8.40	±9.6 %
10742	AAC	IEEE 802.11ax (80MHz, MCS11, 99pc dc)	WLAN	8.43	±9.6 %
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	± 9.6 %
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	9.16	±9.6 %
0745	AAC	IEEE 802.11ax (160MHz, MCS2, 90pc do)	WLAN	8.93	± 9.6 %
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	9,11	± 9.6.%
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	9.04	± 9,6 %
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.93	± 9.6 %
10749	AAC	IEEE 802.11ax (160MHz, MCS6, 90pc dc)	WLAN	8,90	± 9.6 %
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.79	± 9.6 %
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10752	AAC	IEEE 802.11ax (160MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	9.00	± 9.6 %
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	± 9.6 %
10755	AAC	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.64	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 9.6 %
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.69	± 9.6 %
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	± 9.6 %
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	8.49	± 9.6 %
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	± 9.6 %
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8.49	± 9.6 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 9.6 %
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 9.6 %
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 9.6 %
10768	AAC	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8,51	± 9.6 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7,99	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9,6 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TOD	8.02	±9.6 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TOD	8.23	± 9.6 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	±9,69
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TOD	8.02	± 9.6 %
10775	AAC	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9,6 %
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDO	8.30	±9.6 %
10778	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	±9.6 %
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TOD	8.42	± 9.6 3
10780	AAC	5G NR (CP-OFDM, 50% R8, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6.9
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9,6 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6%

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10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	±9.6 %
0785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
0786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
0787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	±9.6 %
0788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
0789	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
0790	AAC	5G NR (CP-OFDM, 100% R8, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6 %
0791	AAC	5G NR (CP-OFDM, 1 R8, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	±9.6%
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	±9.6 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QP5K, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	±9.6 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
0797	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
0799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
0801	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6 %
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8:34	± 9.6 %
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	# 9.6 %
10817	AAD	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	± 9.6 %
10820	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	±9.6 %
10821	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8,41	±9.6 %
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10823	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10827	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	8.43	± 9.6 %
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	AAD	SG NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 9.6 %
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	± 9.6 %
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 9.6 %
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	19.6 %
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9.6 %
10835	AAD	5G NR (CP-OFOM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6 %
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 9.6 %
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6 %
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.69
10840	AAD	5G NR (CP-OFDM, 1 R8, 90 MHz, GPSK, 60 kHz)	5G NR FR1 TDD	7.67	± 9.6 %
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 9.6 9
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 9.6 9
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 3
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TOD	8.34	± 9.6 %
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	50 NR FR1 TOD	8.36	± 9.6 9
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.63
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 80 kHz)	6G NR FR1 TDD	8.34	± 9.6 9

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10880	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6%
0861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8:40	±9.6%
0863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6%
0864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
0865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
0866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
0868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 9.6 %
0889	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
0870	AAD	5G NR (DFT-6-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	±9.6 %
0871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.6 %
0872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
0873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
0876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 %
0878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 8.6 %
10680	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDO	5.96	± 9.6 %
10883	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 18QAM, 120 kHz)	6G NR FR2 TDD	6.57	± 9.6 %
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10888	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8,40	± 9.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TOD	8.41	± 9.6 %
10897	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10899	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10900	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAD	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAD	5G NR (DFT-8-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	5.68	± 9.6 %
10903	AAD	5G NR (DFT-6-OFOM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	5.68	± 9.6 %
10904	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	5.68	± 9.6 %
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	56 NR FR1 TDD	5.68	± 9.6 %
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6.9
10907	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.6 %
10908	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 5
10909	AAD	5G NR (DFT-#-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 9
10910	AAD	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6%
10911	AAD	5G NR (DFT-6-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 5
10912	AAD	5G NR (DET-9-OEDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10913	AAD	5G NR (DFT-s-OFDM, 50% R8, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAD	5G NR (DFT-s-OFDM, 50% R8, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAD	5G NR (DFT-s-OFDM, 50% R8, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6.9
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6 9
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10918	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	2 9.6 3
10919	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	29.67
10920	AAD	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 9
10921	AAD	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6 %

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10922	AAD	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %
0923	AAD	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDO	5.84	±9.6%
0924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
0925	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	± 9.6 %
0926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6 %
0927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6 %
0928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6 %
0929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6 %
0930	AAD	6G NR (DFT-9-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
0931	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
0932	AAB	5G NR (DFT-9-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
0933	AAA	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
0934	AAA	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6 %
0935	AAA	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDO	6.51	±9.6 %
0936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
0937	AAB	5G NR (DFT-8-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	±9.6 %
0938	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
0939	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	± 9.6 %
0940	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	± 9.6 %
0941	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10942	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
0943	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	± 9.6 %
10944	AAB	5G NR (DFT-5-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	± 9.6 %
10945	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FOD	5.85	± 9.6 %
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10947	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6%
10948	AAB	5G NR (DFT-8-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6 %
10949	BAA	5G NR (DFT-p-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±969
10950	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.69
10961	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 EDD	5.92	± 9.6 %
10952	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	± 9.6 %
10953	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	± 9,6 %
10954	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	± 9.6 %
10955	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	± 9.6 %
10956	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	± 9.6 3
10957	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	± 9.6 %
10958	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	± 9.6 3
10959	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	± 9.6.9
10960	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 1
10961	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 9.6 1
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±9.6.5
10963	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 1
10964	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 9
10965	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	± 9.6 %
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 84-QAM, 30 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10967	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	±9.6 9
10968	AAB	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TOD	9.49	± 9.6 %
10972	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	± 9.6 1
10973	AAB	SG NR (DFT-s-OFDM, 1 R8, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	± 9.6 1
10974	AAB	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	± 9.6

² Uncertainty is determined using the max, deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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lient HCT (Dymste		ertificates						
and the funder	ec)	Certificate No:	EX3-7681_Dec21					
ALIBRATION	CERTIFICATE		Part in the Part					
-14001107								
Object	EX3DV4 - SN:768							
Calibration procedure(s)		QA CAL-01.v9, QA CAL-14.v6, QA CAL-23.v5, QA CAL-25.v7 Calibration procedure for dosimetric E-field probes						
Calibration date:	December 14, 202	21						
	ducted in the closed laboratory	bability are given on the following pages and a facility: environment temperature $(22\pm3)^{\circ}$ C i						
Primary Standards	10	Cal Date (Certificate No.)	Scheduled Calibration					
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22					
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22					
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22					
Reference 20 dB Attenuator	SN: CC2552 (20x)	09-Apr-21 (No. 217-03343)	Apt-22					
DAE4	SN: 660	23-Dec-20 (No. DAE4-660_Dec20)	Dec-21					
Reference Probe ES3DV2	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	Dec-21					
Secondary Slandards	ID	Check Date (in house)	Scheduled Check					
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22					
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	in house check: Jun-22					
	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22					
Power sensor E4412A	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22					
RF generator HP 8648C		31-Mar. 14 (in house cherk Circl. 20)						
	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22					
RF generator HP 8648C		31-Mar-14 (in house check Oct-20) Function Laboratory Technician	Signature					
RF generator HP 8648C Network Analyzer E8358A	SN: US41080477 Name	Function	- I - Constant of the Constant					



FCC ID: A3LSMM236B

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



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

Accreditation No.: SCS 0108

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C

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

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization ϕ	p rotation around probe axis
Polarization 3	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.
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization 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 = 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.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z; A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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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EX3DV4 ~ SN:7681

December 14, 2021

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7681

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^4$	0.65	0.64	0.69	± 10.1 %
DCP (mV) ⁸	104.6	104.6	100.9	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dBõV	Ċ	D dB	VR mV	Max dev.	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	142.9	± 3.0 %	±4.7 %
		Y.	0.00	0.00	1.00	3	154.4		
		Z	0.00	0.00	1.00		143.9	1	
10352-	Pulse Waveform (200Hz, 10%)	X	1.46	60.24	6.21	10.00	60.0	±3.1%	± 9.6 %
AAA		Y	1.70	61.41	6.92		60.0	1	
	Contract of the second	Z	1.53	60.64	6.46		60.0	1	
10353-	Pulse Waveform (200Hz, 20%)	X	20.00	74.00	9.00	6.99	80.0	12.0%	±9.6 %
AAA		Y	22.00	78.00	11.00		0.08	1	
		Z	0.77	60.00	4.92		80.0	1	
10354-	Pulse Waveform (200Hz, 40%)	X	0.19	117.92	1.84	3.98	95.0	±2.4 %	± 9.6 %
AAA	The second s	Y	0.40	151.14	1.35		95.0		7580000
		Z	0.02	122.40	2.10		95.0		
10355-	Pulse Waveform (200Hz, 60%)	X	5.91	158.41	19.84	2.22	120.0	± 1.4 %	± 9.5 %
AAA		Y	11.27	155.79	14.12		120.0		
		Z	0.84	157.30	4.92		120.0	1	
10387-	QPSK Waveform, 1 MHz	X	0.53	61.27	10.63	1.00	150.0	± 4.1 %	± 9.6 %
AAA		Y	0.69	63.89	12.32		150.0		
		Z	0.57	62.18	11.35		150.0		
10388-	QPSK Waveform, 10 MHz	X	1.24	63.59	12.68	0.00	150.0	±1.5%	± 9.6 %
AAA		Y	1.43	65.28	13.80		150.0	2223420 1020	COMM
		Z	1.30	64.33	13.17		150.0	1	
10396-	64-QAM Waveform, 100 kHz	X	1.52	62.54	14.94	3.01	150.0	±1.3%	± 9.6 %
AAA		Y	1.70	64.25	15.60		150.0		125160
		Z	1.51	62.45	14.94		150.0	1	
10399-	64-QAM Waveform, 40 MHz	X	2.73	65.13	14:39	0.00	150.0	±1.8 %	± 9.6 %
AAA		Y	2.91	66.02	14.92		150.0	1	
	100000000000000000000000000000000000000	Z	2.80	65.49	14.66		150.0	1	
10414-	WLAN CCDF, 64-QAM, 40MHz	X	3.96	65.87	15.16	0.00	150.0	± 3.4 %	± 9.6 %
AAA		Y.	3.96	65.67	15.14	6	150.0		
		Z	3.82	65.30	14.94	· · · · · ·	150.0	1	

Note: For details on UID parameters see Appendix

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

⁶ The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSI, (see Pages 5 and 8). ⁹ Numerical linearization parameter: uncertainty not required. ⁹ Uncertainty is determined using the max: deviation from linear response applying rectangular distribution and is expressed for the square of the field value. field value.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7681

Sensor Model Parameters

	C1 fF	C2 fF	α V~1	T1 ms.V ⁻¹	T2 ms.V ⁻⁺	T3 ms	T4 V ⁻²	T5 V ⁻¹	Т6
X	11.3	81.91	33.68	1.09	0.00	4.90	0.07	0.00	1.00
Y	12.2	87.43	32.78	2.35	0.00	4.90	0.49	0.00	1.00
Z	11.1	81.49	34.19	0.92	0.00	4.90	0.00	0.00	1,00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (*)	-96.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1.mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7681

f (MHz) ^C	Relative Permittivity [*]	Conductivity (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	10.57	10.57	10.57	0.56	0.88	± 12.0 %
835	41.5	0.90	10.40	10.40	10.40	0.47	0.80	± 12.0 %
900	41.5	0.97	10.18	10.18	10.18	0.33	1.00	± 12.0 %
1750	40.1	1.37	9.16	9.16	9.16	0.41	0.86	± 12.0 %
1900	40.0	1.40	8.81	8.81	8.81	0.31	0.86	± 12.0 %
2450	39,2	1,80	8.23	8.23	8.23	0.38	0.90	± 12.0 %
2600	39.0	1.96	8.00	8.00	8.00	0.42	0.90	± 12.0 %
3300	38.2	2.71	7.35	7.35	7.35	0.30	1.35	± 13.1 %
3500	37.9	2.91	7.15	7.15	7.15	0.30	1.35	± 13.1 %
3700	37.7	3.12	7.14	7.14	7.14	0.35	1.50	± 13.1 %
3900	37.5	3.32	6.80	6.80	6.80	0.40	1.60	± 13.1 %
4100	37.2	3.53	6.56	6.56	6.56	0.40	1.60	± 13.1 %
4400	36.9	3.84	6.50	6.50	6.50	0.40	1.70	± 13.1 %
4600	36.7	4.04	6.45	6.45	6.45	0.40	1.70	± 13.1 %
4800	36.4	4.25	6.40	6.40	6.40	0.40	1.80	± 13.1 %
4950	36.3	4.40	6.15	6.15	6.15	0.40	1.80	± 13.1 %
5250	35.9	4.71	5.94	5.94	5.94	0.40	1.80	± 13.1 %
5600	35.5	5.07	5.25	5.25	5.25	0.40	1.80	± 13.1 %
5750	35.4	5.22	5.23	5.23	5.23	0.40	1.80	± 13.1 %

Calibration Parameter Determined in Head Tissue Simulating Media

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the Conv^C 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 ± 9 MHz, and ConvF assessed at 13 MHz is 3-10 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz. ^C Al frequencies below 3 GHz, the validity of tissue parameters (a and a) 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. ^C Alpha e 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 below 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7681

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)
6500	34.5	6.07	6.30	6.30	6.30	0.20	0.25	± 18.6 %

^{II} Frequency validity above 6GHz is ± 700 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for

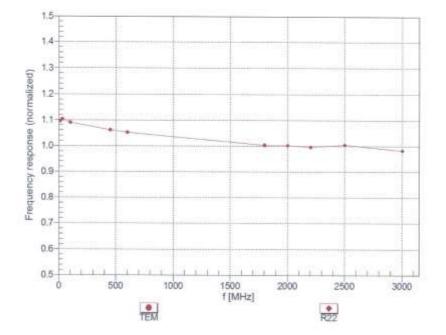
¹⁶ Frequency validity above dGrtz is ± 700 kmz. The uncertainty is the NSS of the Convr uncertainty of convention (requency band, if A frequencies 6-10 GHz, the validity of tissue parameters (s and e) can be relisived to ± 10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters. ¹⁶ Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz; below ± 2% for frequencies between 3-6 GHz; and below ± 4% for frequencies between 6-10 GHz at any distance larger than half the probe tip diameter from the boundary.

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

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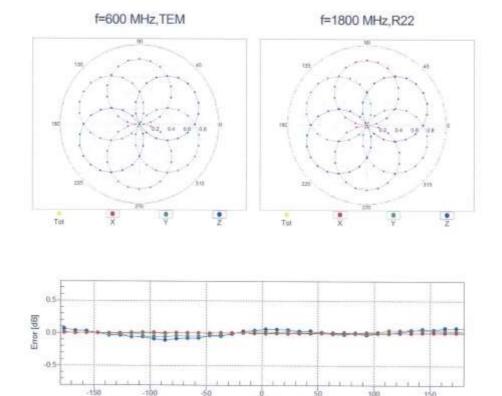
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150

2500 MHz



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

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

HOO MHZ

Rat

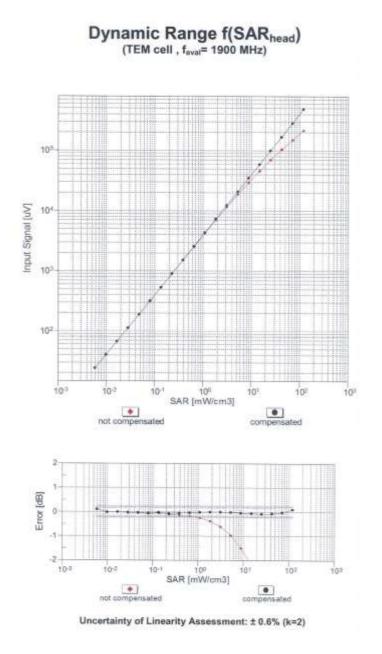
1800 MHz

100 MHz

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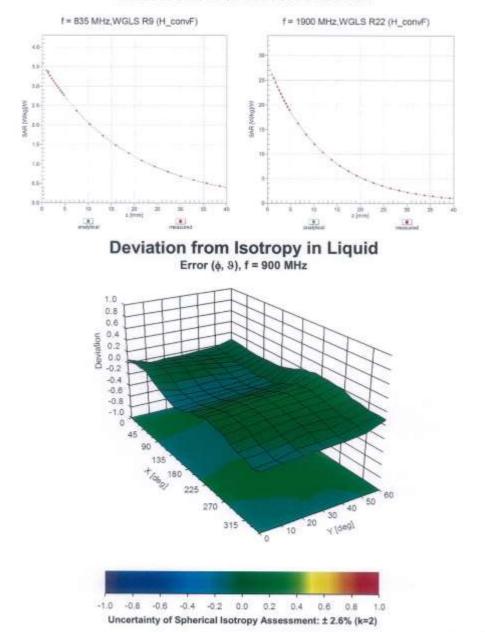


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Conversion Factor Assessment

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^e (k=2)
0	÷	CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	± 9.6 %
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8P5K, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	±9.69
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5,30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	±9.6%
10034	CAA	IEEE 802.15.1 Bluetoath (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	± 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4,10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 3
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6.5
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM.	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	±9.6%
10060	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WEAN	9.38	± 9.6 %
10067	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 38 Mbps)	WLAN	10.12	± 9.6 %
10068	CAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	±9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAB	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	CAB	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	±9.6 %
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±9.6 %

Appendix: Modulation Calibration Parameters

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10100	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %
10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	L'TE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAD	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WEAN	8.10	± 9.6 %
10115	CAD	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAD	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WEAN	8.15	± 9.6 %
10117	CAD	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAD	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	±9.69
10146	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	±9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	±9.6 %
10152	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	L'TE-TDD	9.92	± 9.6 %
10153	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	±9.6 %
10155	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	±9.6 %
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 9
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 5
10161	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6,49	± 9.6 %
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5,73	± 9.6 %
10178	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %

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10182	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	±9.69
10186	AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 5
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAD	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	±9.6.9
10194	CAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAD	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6.9
10196	CAD	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 9
10197	CAD	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	±9.6 %
10198	CAD	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	±9.6 %
10219	CAD	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	±9.6 %
10220	CAD	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 9
10221	CAD	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	±9.6 %
10222	CAD	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAD	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAD	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	±9.69
10225	CAB	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 9
10227	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6 %
10228	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 9
10229	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	±9.69
10230	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	±9.6.9
10231	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, OPSK)	LTE-TDD	9.19	± 9.6.9
10232	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	±9.65
10234	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	19.6 %
10235	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	19.63
10236	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	±9.6 %
10237	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	±9.6 %
10238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	±9.6 %
10240	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 18-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	19.6 9
10243	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TOD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 18-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TOD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TOD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 84-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAB	LTE-TOD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %

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10262			LTE-TDD	9.24	
	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TOD	9.83	± 9.6 %
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 9
10266	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 3
10269	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TOD	10.13	± 9.6 %
10270	CAF	LTE-TOD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAA	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	AAB	CDMA2000, RC1, SQ55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	AAB	CDMA2000, RC3, SQ55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	±9.6 %
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 9
10298	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	±9.6 %
10299	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	±9.69
10300	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	±9.69
10301	AAA	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WIMAX		
10302	AAA	IEEE 802.16e WIMAX (29.18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WIMAX	12.03	±9.69
10303	AAA	IEEE 802.16e WIMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WIMAX	12.57	±9.69
10304	AAA	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	±9.69
10305	AAA	IEEE 802.16e WIMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WIMAX	11.86	±9.6 %
10306	AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WIMAX	15.24	±9.69
10307	AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WIMAX	14.67	±9.65
10308	AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WIMAX	14.49	±9.69
10309	AAA	IEEE 802.16e WIMAX (29:16, 10ms, 10MHz, 16QAM, AMC 2x3)	WiMAX		
10310	AAA	IEEE 802 16e WIMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3)	WIMAX	14.58	±9.69
10311	AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	and the state of t	14.57	±9.69
10313	AAA	IDEN 1:3	LTE-FDD	6.06	±9.69
10314	AAA	IDEN 1:6	IDEN	10.51	±9.6 7
10315	AAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	IDEN	13.48	±9.69
10316	AAB	IEEE 802.11g WIFI 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	1,71	19.65
10317	AAD	IEEE 802 11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	±9,6 %
10352	AAA	Pulse Waveform (200Hz, 10%)	and a second	8.36	±9.6 %
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	10.00	± 9.6.%
10354	AAA	Pulse Waveform (200Hz, 40%)	Gerieric	6.99	± 9.6 %
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	3.98	± 9.6 %
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	2.22	# 9.6 %
10387	AAA	QPSK Waveform, 1 MHz	Generic	0.97	± 9.6 %
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.10	± 9.6 %
10396	AAA	64-QAM Waveform, 100 kHz	Generic	5.22	± 9.6 %
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	± 9.6 %
10400	AAE	IEEE 802.11ac WIFI (20MHz, 64-QAM, 99pc dc)	Generic	6.27	± 9.6 %
10400	AAE		WLAN	8.37	±9.6%
10401	AAE	IEEE 802.11ac WIFI (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	± 9.6 %
interview in the state of the s	COLUMN STATES	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	WLAN	8.53	± 9.6 %
10403	BAA	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	± 9.6 %
10404	AAB	CDMA2000 (1xEV-DO, Rev. A) CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	3.77	± 9.6 %
10406	AAB .		CDMA2000	5.22	± 9.6 %

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10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc.dc)	WLAN	1.54	± 9.6 %
10416	AAA	IEEE 802.11g WiFI 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10417	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9,6 %
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802 11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	8.19	± 9.6 %
10422	AAC	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAC	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAC	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAC	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	±9.6 %
10426	AAC	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAC	IEEE 802.11n (HT Greenfield, 150 Mbps, 84-QAM)	WLAN	8,41	± 9.6 %
10430	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAA	W-CDMA (BS Test Model 1, 64 DPCH)	WCOMA	8.60	± 9.6 %
10435	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10447	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7,48	± 9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	# 9.6 %
10453	AAD	Validation (Square, 10ms, 1ms)	Test	10.00	1 9.6 %
10456	AAC	IEEE 802.11ac WIFI (160MHz, 64-QAM, 99pc dc)	WLAN	8.63	± 9.6 %
10457	AAA	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAA	CDMA2000 (1xEV-DD, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAA	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAB	LTE-TOD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAB	LTE-TOD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	± 9.6 %
10463	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10464	AAC	LTE-TOD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10467	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL, Sub)	LTE-TDD	7.82	± 9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10469	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10470	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10472	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10473	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10474	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10475	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10477	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10478	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10479	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10480	AAB	LTE-TDD (SC-FOMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10481	AAB	LTE-TDD (SC-FOMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10482	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	19.6%
10483	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10484	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	±9.6 %
10485	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	± 9.6 %
10486	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TOD	8.38	± 9.6 %
10487	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	± 9.6 %
10488	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	0.00	± 9.6 %

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10489	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10491	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10492	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	± 9.6 %
10493	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 18-QAM, UL Sub)	LTE-TDD	8.37	± 9.6 %
10496	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-DAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10497	AAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10498	AAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	± 9.6 %
10499	AAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	± 9.6 %
10500	AAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7,67	± 9.6 %
10501	AAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 18-QAM, UL Sub)	LTE-TDD	8.44	± 9.6 %
10502	AAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	± 9.6 %
10503	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10505	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10507	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	± 9.6 %
10508	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10509	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.99	± 9.6 %
10510	AAE	LTE-TDD (SC-FOMA, 100% RB, 15 MHz, 16-QAM, UL Sub)			and an example a second stability
10511	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 10-04M, 0L Sub)	LTE-TDD	8.49	± 9.6 %
10512	AAF	LTE-TOD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, GFSA, GL Sub)	LTE-TDO	7.74	± 9.6 %
	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.42	± 9.6 %
10514	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	LTE-TDD	8.45	± 9.6 %
10516	AAA	IEEE 802.116 WIFI 2.4 GHz (DSSS, 2 Mops, 99pc dc)	WLAN	1.58	± 9.6 %
	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Maps, sape dc)	WLAN	1.57	± 9.6 %
10517 10518	AAC	IEEE 802.118/WIFI 5 GHz (DSSS, 11 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10519	AAC	IEEE 802.11a/h WIFI 5 GHz (OFDM, 9 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
	AAC		WLAN	8.39	± 9.6 %
10520		IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8,12	± 9.6 %
10521	AAC	IEEE 802.11a/h WIFi 5 GHz (OFDM, 24 Mbps, 99pc dc) IEEE 802.11a/h WIFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	7.97	± 9.6 %
10522	AAC	IEEE 802,11am WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
NUMBER OF STREET	and the second second	and the set of the set	WLAN	8.08	± 9.6 %
10524	AAC	IEEE 802.11a/h WIFI 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.27	± 9.6 %
10525	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc dc)	WLAN	8.36	± 9.6 %
10526	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc dc)	WLAN	8.42	± 9.6 %
10527	AAC	IEEE 802.11ac WiFI (20MHz, MCS2, 99pc dc)	WLAN	8.21	± 9.6 %
10528	AAC	IEEE 802.11ac WIFI (20MHz, MCS3, 99pc dc)	WLAN	8.36	± 9.6 %
10529	AAC	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc dc)	WLAN	8.36	± 9.6 %
10531	AAC	IEEE 802.11ac WIFI (20MHz, MCS6, 99pc dc)	WLAN	8.43	±9.6 %
10532	AAC	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10533	AAC	IEEE 802.11ac WIFI (20MHz, MCS8, 99pc dc)	WLAN	8.38	± 9.6 %
10534	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc dc)	WLAN	8.45	± 9.6 %
10535	AAC	IEEE 802.11ac WIFI (40MHz, MCS1, 99pc dc)	WLAN	8.45	± 9.6 %
10536	AAC	IEEE 802.11ac WIFI (40MHz, MCS2, 99pc dc)	WLAN	8.32	± 9.6 %
10537	AAC	IEEE 802.11ac WIFI (40MHz, MCS3, 99pc dc)	WLAN	8.44	± 9.6 %
10538	AAC	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc dc)	WLAN	8.54	± 9,6 %
10540	AAC	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc dc)	WLAN	8.39	± 9.6 %
10541	AAC	(EEE 802.11ac WiFi (40MHz, MCS7, 99pc dc)	WLAN	8.46	± 9.6 %
10542	AAC	IEEE 802.11ac WiFI (40MHz, MCS8, 99pc dc)	WLAN	8.65	± 9.6 %
10543	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc dc)	WLAN	8.65	± 9.6 %
10544	AAC	IEEE 802.11ac WIFI (80MHz, MCS0, 99pc dc)	WLAN	8.47	± 9.6 %
10545	AAC	IEEE 802.11ac WIFI (80MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10546	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc dc)	WLAN	8.35	±9.6%

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10547	AAC	IEEE 802.11ac WIFI (80MHz, MCS3, 99pc dc)	WLAN	8.49	± 9.6 %
10548	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc dc)	WLAN	8.37	± 9.6 %
10550	AAC	IEEE 802.11ac WIFI (80MHz, MCS6, 99pc dc)	WLAN	8.39	± 9.6 %
10551	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc dd)	WLAN	8.50	± 9.6 %
10552	AAC	IEEE 802.11ac WIFi (80MHz, MCS8, 99pc dc)	WLAN	8.42	± 9.6 %
10553	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc dc)	WLAN	8.45	± 9.6 %
10554	AAD	IEEE 802.11ac WIFI (160MHz, MCS0, 99pc dc)	WLAN	8.48	± 9.6 %
10555	AAD	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc dc)	WLAN	8.47	± 9.6 %
10556	AAD	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc dc)	WLAN	8.50	± 9.6 %
10557	AAD	IEEE 802.11ac WIFI (160MHz, MCS3, 99pc dc)	WLAN	8.52	± 9.6 %
10558	AAD	IEEE 802.11ac WIFI (160MHz, MCS4, 99pc dc)	WLAN	8.61	± 9.6 %
10560	AAD	IEEE 802.11ac WiFI (160MHz, MCS6, 99pc dc)	WLAN	8.73	± 9.6 %
10561	AAD	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc dc)	WLAN	8.56	± 9.6 %
10562	AAD	IEEE 802_11ac WiFi (160MHz, MCS8, 99pc dc)	WLAN	8.69	± 9.6 %
10563	AAD	IEEE 802.11ac WiFI (160MHz, MCS9, 99pc dc)	WLAN	8.77	± 9.6 %
10564	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc)	WLAN	8.25	± 9.6 %
10565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10566	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc dc)	WLAN	8.13	± 9.6 %
10567	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc dc)	WLAN	8.00	± 9.6 %
10568	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc dc)	WLAN	8.37	± 9.6 %
10569	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc dc)	WLAN	8.10	± 9.6 %
10570	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc dc)	WLAN	8.30	± 9.6 %
10571	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10572	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbos, 90pc dc)	WLAN	1.99	± 9.6 %
10573	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10574	AAA	IEEE 802.11b WIFi 2.4 GHz (DSSS, 11 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10575	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10576	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10577	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10578	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	±9.6%
10579	AAA	IEEE 802.11g WiFI 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10580	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	±9.6 %
10581	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10582	AAA	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10583	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10584	AAC	IEEE 802 11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	19.6%
10585	AAC	IEEE 802 11a/h WiFi 5 GHz (OFDM, 12 Mbps; 90pc dc)	WLAN	8.70	± 9.6 %
10586	AAC	IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10587	AAC	IEEE 802.11a/h WiFI 5 GHz (OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10588	AAC	IEEE 802.11a/h WIFI 5 GHz (OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10589	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10590	AAC	IEEE 802.11a/h WIFi 5 GHz (OFDM, 54 Mbps. 90pc dc)	WLAN	8.67	± 9.6 %
10591	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc)	WLAN	8.63	± 9.6 %
10592	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10593	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc dc)	WLAN	8.64	± 9.6 %
10594	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10595	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc dc)	WLAN	8.74	± 9.6 %
10596	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc dc)	WLAN	8.71	± 9.6 %
10597	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc dc)	WLAN	8.72	± 9.6 %
10598	AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc dc)	WLAN	8.50	± 9.6 %
10599	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc dc)	WLAN	8.79	± 9.6 %
10600	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10601	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc dc)	WLAN	8.82	± 9.6 %
10602	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc dc)	WLAN	8.94	± 9.6 %
10603	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc.dc)	WLAN	9.03	± 9.6 %
10604	AAC	(EEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc)	WLAN	8.76	± 9.6 %

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10605	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS6; 90pc dc)	WLAN	8.97	±9.6 9
10606	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc)	WLAN	8.82	±9.6.9
10607	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc)	WLAN	8.64	± 9.6 %
10608	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc)	WLAN	8.77	± 9.6 %
10609	AAC	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc)	WLAN	8.57	± 9.6 %
10610	AAC	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc dc)	WLAN	8.78	± 9.6.9
10611	AAC	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 5
10612	AAC	IEEE 802.11ac WIFI (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10613	AAC	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc dc)	WLAN	8.94	± 9.6 %
10614	AAC	IEEE 802.11ac WIFI (20MHz, MCS7, 90pc dc)	WLAN	8.59	±9.6 9
10615	AAC	IEEE 802.11ac WIFI (20MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10616	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc dc)	WLAN	8.82	± 9.6.9
10617	AAC	IEEE 802.11ac WIFI (40MHz, MCS1, 90pc dc)	WLAN	8.81	±9.6 %
10618	AAC	IEEE 802.11ac WIFI (40MHz, MCS2, 90pc dc)	WLAN	8.58	± 9.6 %
10619	AAC	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc dc)	WLAN	8.86	± 9.6 %
10620	AAC	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc dc)	WLAN	8.87	± 9.6 5
10621	AAC	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6.9
10622	AAC	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc dc)	WLAN	8.68	± 9.6 1
10623	AAC	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 9
10624	AAC	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc dc)	WLAN	8.96	± 9.6 1
10625	AAC	IEEE 802.11ac WiFI (40MHz, MCS9, 90pc dc)	WEAN	8.96	19.6 9
10626	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10627	AAC	IEEE 802.11ac WIFI (80MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 9
10628	AAC	IEEE 802.11ac WIFI (80MHz, MCS2, 90pc dc)	WLAN	8.71	±9.6 %
10629	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc)	WLAN	8.85	±9.69
10630	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dc)	WLAN	8.72	± 9.6 %
10631	AAC	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc dc)	WLAN	8.81	± 9.6 %
10632	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc dc)	WLAN	8.74	±9.6 %
10633	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dc)	WLAN	8.83	± 9.6 %
10634	AAC	IEEE 802.11ac WiFI (80MHz, MCS8, 90pc dc)	WLAN	8.80	±9.6 5
10635	AAC	IEEE 802.11ac WIFI (80MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 1
10636	AAD	IEEE 802.11ac WIFI (160MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10637	AAD	IEEE 802.11ac WiFI (160MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 5
10638	AAD	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dc)	WLAN	8.86	±9.6 9
10639	AAD	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 3
10640	AAD	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc)	WLAN	8.98	± 9.6 %
10641	AAD	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc)	WLAN	9.06	± 9.6 %
10642	AAD	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc)	WLAN	9.06	± 9.6 9
10643	AAD	IEEE 802.11ac WIFI (160MHz, MCS7, 90pc dc)	WLAN	8.89	± 9.6 %
10644	AAD	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dc)	WLAN	9.05	± 9.6 %
10645	AAD	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc.dc)	WLAN	9.11	± 9.6 %
10646	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAE	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAE	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 9
10654	AAD	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %
10655	AAE	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	± 9.6 %
10658	AAA	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10659	AAA	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10660	AAA	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10661	AAA	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6 %
10662	AAA.	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10670	AAA	Bluetoath Low Energy	Bluetooth	2.19	± 9.6 %
10671	AAC	IEEE 802.11ax (20MHz, MCS0, 90pc dc)	WLAN	9.09	± 9.6 %
10672	AAC	IEEE 802.11ax (20MHz, MCS1, 90pc dc)	WLAN	8.57	± 9.6 %

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10675 A 10676 A 10677 A 10678 A 10678 A 10680 A 10680 A 10681 A 10682 A 10683 A 10684 A 10685 A 10686 A 10686 A 10688 A 10688 A 10689 A 10689 A 10690 A 10691 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS3, 90pc dc) IEEE 802.11ax (20MHz, MCS4, 80pc dc) IEEE 802.11ax (20MHz, MCS5, 90pc dc) IEEE 802.11ax (20MHz, MCS6, 90pc dc) IEEE 802.11ax (20MHz, MCS7, 90pc dc) IEEE 802.11ax (20MHz, MCS6, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS11, 90pc dc) IEEE 802.11ax (20MHz, MCS11, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS3, 90pc dc) IEEE 802.11ax (20MHz, MCS5, 90	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8,74 8,90 8,77 8,73 8,78 8,89 8,80 8,62 8,83 8,42 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,26 8,33 8,34 8,34 8,35 8,35 8,35 8,35 8,35 8,35 8,35 8,35	196% 196% 196% 196% 196% 196% 196% 196%
10676 A 10677 A 10678 A 10679 A 10680 A 10681 A 10681 A 10683 A 10684 A 10685 A 10685 A 10686 A 10688 A 10688 A 10689 A 10689 A 10690 A 10691 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS5, 90pc dc) IEEE 802.11ax (20MHz, MCS6, 90pc dc) IEEE 802.11ax (20MHz, MCS7, 90pc dc) IEEE 802.11ax (20MHz, MCS6, 90pc dc) IEEE 802.11ax (20MHz, MCS10, 90pc dc) IEEE 802.11ax (20MHz, MCS10, 90pc dc) IEEE 802.11ax (20MHz, MCS11, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS3, 90pc dc) IEEE 802.11ax (20MHz, MCS5, 9	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.77 8.73 8.78 8.89 8.80 8.62 8.83 8.42 8.26 8.33 8.28 8.33 8.28 8.45	± 9.6 % ± 9.6 %
10677 A 10678 A 10679 A 10680 A 10681 A 10681 A 10682 A 10683 A 10685 A 10685 A 10685 A 10686 A 10688 A 10689 A 10689 A 10691 A 10692 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS6, 90pc dc) IEEE 802.11ax (20MHz, MCS7, 90pc dc) IEEE 802.11ax (20MHz, MCS7, 90pc dc) IEEE 802.11ax (20MHz, MCS8, 90pc dc) IEEE 802.11ax (20MHz, MCS10, 90pc dc) IEEE 802.11ax (20MHz, MCS11, 90pc dc) IEEE 802.11ax (20MHz, MCS0, 99pc dc) IEEE 802.11ax (20MHz, MCS1, 99pc dc) IEEE 802.11ax (20MHz, MCS2, 99pc dc) IEEE 802.11ax (20MHz, MCS3, 99pc dc) IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS5, 99	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.77 8.73 8.78 8.89 8.80 8.62 8.83 8.42 8.26 8.33 8.28 8.33 8.28 8.45	± 9.6 % ± 9.6 %
10678 A 10679 A 10680 A 10681 A 10682 A 10683 A 10684 A 10685 A 10686 A 10685 A 10686 A 10687 A 10688 A 10687 A 10688 A 10689 A 10690 A 10691 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS7, 90pc dc) IEEE 802.11ax (20MHz, MCS8, 90pc dc) IEEE 802.11ax (20MHz, MCS8, 90pc dc) IEEE 802.11ax (20MHz, MCS10, 90pc dc) IEEE 802.11ax (20MHz, MCS11, 90pc dc) IEEE 802.11ax (20MHz, MCS0, 99pc dc) IEEE 802.11ax (20MHz, MCS1, 99pc dc) IEEE 802.11ax (20MHz, MCS2, 99pc dc) IEEE 802.11ax (20MHz, MCS3, 99pc dc) IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS5, 90pc dc) IEEE 802.11ax (20MHz, MCS5, 90	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.78 8.89 8.62 8.83 8.42 8.26 8.33 8.28 8.33 8.28 8.45	± 9.6 % ± 9.6 %
10679 A 10680 A 10681 A 10682 A 10683 A 10684 A 10685 A 10685 A 10686 A 10687 A 10688 A 10688 A 10689 A 10690 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS8, 90pc dc) IEEE 802.11ax (20MHz, MCS8, 90pc dc) IEEE 802.11ax (20MHz, MCS10, 90pc dc) IEEE 802.11ax (20MHz, MCS11, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 90pc dc) IEEE 802.11ax (20MHz, MCS2, 90pc dc) IEEE 802.11ax (20MHz, MCS3, 90pc dc) IEEE 802.11ax (20MHz, MCS4, 90pc dc) IEEE 802.11ax (20MHz, MCS5, 90pc dc)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.78 8.89 8.62 8.83 8.42 8.26 8.33 8.28 8.33 8.28 8.45	± 9.6 % ± 9.6 %
10680 A 10681 A 10682 A 10683 A 10683 A 10684 A 10685 A 10686 A 10687 A 10688 A 10689 A 10689 A 10690 A 10691 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS8, 90pc dc) IEEE 802.11ax (20MHz, MCS10, 90pc dc) IEEE 802.11ax (20MHz, MCS11, 90pc dc) IEEE 802.11ax (20MHz, MCS1, 99pc dc) IEEE 802.11ax (20MHz, MCS1, 99pc dc) IEEE 802.11ax (20MHz, MCS2, 99pc dc) IEEE 802.11ax (20MHz, MCS3, 99pc dc) IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS5, 99pc dc)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.89 8.62 8.83 8.42 8.26 8.33 8.28 8.45	± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 %
10681 A 10682 A 10683 A 10684 A 10685 A 10685 A 10685 A 10687 A 10688 A 10689 A 10689 A 10690 A 10691 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802 11ax (20MHz, MCS10, 90pc dc) IEEE 802 11ax (20MHz, MCS11, 90pc dc) IEEE 802 11ax (20MHz, MCS0, 99pc dc) IEEE 802 11ax (20MHz, MCS1, 99pc dc) IEEE 802 11ax (20MHz, MCS2, 99pc dc) IEEE 802 11ax (20MHz, MCS3, 99pc dc) IEEE 802 11ax (20MHz, MCS5, 99pc dc)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.62 8.83 8.42 8.26 8.33 8.28 8.45	± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 %
10682 A 10683 A 10684 A 10685 A 10685 A 10686 A 10687 A 10688 A 10689 A 10690 A 10691 A 10692 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802 11ax (20MHz, MCS11, 90pc dc) IEEE 802 11ax (20MHz, MCS0, 99pc dc) IEEE 802 11ax (20MHz, MCS1, 99pc dc) IEEE 802 11ax (20MHz, MCS2, 99pc dc) IEEE 802 11ax (20MHz, MCS3, 99pc dc) IEEE 802 11ax (20MHz, MCS4, 99pc dc) IEEE 802 11ax (20MHz, MCS5, 89pc dc) IEEE 802 11ax (20MHz, MCS5, 89pc dc) IEEE 802 11ax (20MHz, MCS5, 89pc dc)	WLAN WLAN WLAN WLAN WLAN WLAN	8.83 8.42 8.26 8.33 8.28 8.45	± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 %
10683 A 10684 A 10685 A 10686 A 10687 A 10688 A 10689 A 10690 A 10691 A 10692 A	AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS0, 99pc dc) IEEE 802.11ax (20MHz, MCS1, 99pc dc) IEEE 802.11ax (20MHz, MCS2, 99pc dc) IEEE 802.11ax (20MHz, MCS3, 99pc dc) IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS5, 89pc dc) IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN WLAN WLAN WLAN WLAN WLAN	8.42 8.26 8.33 8.28 8.45	± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 %
10684 A 10685 A 10685 A 10687 A 10687 A 10688 A 10689 A 10690 A 10691 A 10692 A	AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS1, 99pc.dc) IEEE 802.11ax (20MHz, MCS2, 99pc.dc) IEEE 802.11ax (20MHz, MCS3, 99pc.dc) IEEE 802.11ax (20MHz, MCS4, 99pc.dc) IEEE 802.11ax (20MHz, MCS5, 99pc.dc) IEEE 802.11ax (20MHz, MCS6, 99pc.dc)	WLAN WLAN WLAN WLAN WLAN	8.42 8.26 8.33 8.28 8.45	± 9.6 % ± 9.6 % ± 9.6 % ± 9.6 %
10685 A 10685 A 10687 A 10688 A 10689 A 10690 A 10691 A 10692 A	AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS2, 99pc dc) IEEE 802.11ax (20MHz, MCS3, 99pc dc) IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS5, 99pc dc) IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN WLAN WLAN WLAN	8.26 8.33 8.28 8.45	± 9.6 % ± 9.6 % ± 9.6 %
10685 A 10687 A 10688 A 10689 A 10690 A 10691 A 10691 A	AAC AAC AAC AAC AAC AAC	IEEE 802 11ax (20MHz, MCS3, 99pc dc) IEEE 802 11ax (20MHz, MCS4, 99pc dc) IEEE 802 11ax (20MHz, MCS5, 99pc dc) IEEE 802 11ax (20MHz, MCS6, 99pc dc)	WLAN WLAN WLAN	8.33 8.28 8.45	± 9.6 %
10687 A 10688 A 10689 A 10690 A 10691 A 10692 A	AAC AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS4, 99pc dc) IEEE 802.11ax (20MHz, MCS5, 99pc dc) IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN WLAN WLAN	8.28 8.45	± 9.6 %
10688 A 10689 A 10690 A 10691 A 10692 A	AAC AAC AAC AAC	IEEE 802.11ax (20MHz, MCS5, 99pc dc) IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN WLAN	8.45	the part of the pa
10689 A 10690 A 10691 A 10692 A	AAC AAC AAC	IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN		
10689 A 10690 A 10691 A 10692 A	AAC AAC AAC	IEEE 802.11ax (20MHz, MCS6, 99pc dc)		8.29	± 9.6 %
10690 A 10691 A 10692 A	AAC	IEEE 802 11ax (20MHz, MCS7, 99nc do)	WLAN	8.55	± 9.6 %
10691 A 10692 A	AAC		WLAN	8.29	± 9.6 %
10692 A		IEEE 802.11ax (20MHz, MCS8, 99pc dc)	WLAN	8.25	± 9.6 %
the state of the s	100 million (1990)	IEEE 802.11ax (20MHz, MCS9, 99pc dc)	WLAN	8.29	± 9.6 %
	AAC	IEEE 802.11ax (20MHz, MCS10, 99pc dc)	WLAN	8.25	± 9.6 %
contraction (see the second	No. of Concession, Name	IEEE 802.11ax (20MHz, MCS11, 99pc dc)	WLAN	8.57	± 9.6 %
the second s	CARGE COLORS	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.78	19.6%
	And in case of the local diversion of the local diversion of the local diversion of the local diversion of the	IEEE 802 11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	± 9.6 %
	And in case of the local diversion of the local diversion of the local diversion of the local diversion of the	IEEE 802 11ax (40MHz, MCS2, 90pc dc)	WLAN	8.61	19.6%
		IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.89	± 9.6 %
the second s		IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.82	19.6%
and shares be and a second		IEEE 802.11ax (40MHz, MC55, 90pc dc)	WLAN	8.73	29.6%
and the state of t	and the local division of the local division	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN		
And the Annual State of State		IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.86	± 9.6 %
	A Read Providence on the	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.82	
and the second se	ad a property lies of the	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN		± 9.6 %
	And Provide State	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8,56	± 9.6 %
second and second s	And strategic contracts on the	IEEE 802.11ax (40MHz, MCS11, 90pc 6c)	WLAN	8.69	± 9.6 %
		IEEE 802.11ax (40MHz, MCS0, 99pc dc)	WLAN	8.32	± 9.6 %
COLUMN ADDRESS OF TAXABLE PARTY.		IEEE 802.11ax (40MHz, MCS1, 99pc dc)			
Construction and a location of	and the second	IEEE 802.11ax (40MHz, MCS2, 99pc dc)	WLAN	8.55	± 9.6 %
CONTRACTOR OF A DESCRIPTION OF A DESCRIP	design and the second second	IEEE 802.11ax (40MHz, MCS3, 99pc dc)	WLAN	8.33	± 9.6 %
		IEEE 802.11ax (40MHz, MCS4, 99pc dc)	WLAN	8.29	± 9.6 %
		IEEE 802.11ax (40MHz, MCS4, 59pc dc)	WLAN	8.39	± 9.6 %
		IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.67	± 9.6 %
		IEEE 802.11ax (40MHz, MCS7, 99pc dc)	WLAN	8.33	± 9.6 %
		IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.26	± 9.6 %
Coloristic Science in a subscript		IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.45	± 9.6 %
Contraction and Address of the Address	and the second	IEEE 802.11ax (40MHz, MCS9, 99pc 0c)	WLAN	8.30	± 9.6 %
where the second states	and the second second	IEEE 802.11ax (40MHz, MCS10, 99pc 6c)	WLAN	8.48	± 9.6 %
Contraction of the local division of the loc	and the second second	the second se	WLAN	8.24	± 9.6 %
Concernance in the second	the second s	IEEE 802.11ax (80MHz, MCS0, 90pc dc)	WLAN	8.81	± 9.6 %
		IEEE 802.11ax (80MHz, MCS1, 90pc dc) IEEE 802.11ax (80MHz, MCS2, 90pc dc)	WLAN	8.87	±9.6 %
			WLAN	8.76	± 9.6 %
and the second se		IEEE 802.11ax (80MHz, MCS3, 90pc dc)	WLAN	8.55	± 9.6 %
Control (Arrively 1) and 14		IEEE 802.11ax (80MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
Comparison of the local division of	and the second	IEEE 802.11ax (80MHz, MCS5, 90pc dc)	WLAN	8.90	± 9.6 %
Contraction of the local division of the loc	Contraction of the	IEEE 802.11ax (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
		IEEE 802.11ax (80MHz, MCS7, 90pc dc)	WLAN	8.72	± 9.6 %
		IEEE 802.11ax (80MHz, MCS8, 90pc dc) IEEE 802.11ax (80MHz, MCS9, 90pc dc)	WLAN	8.66	± 9.6 %

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10729	AAC	IEEE 802.11ax (80MHz, MCS10, 90pc dc)	WLAN	8.64	± 9.6 9
10730	AAC	IEEE 802.11ax (80MHz, MCS11, 90pc dc)	WLAN	8.67	±9.69
10731	AAC	IEEE 802.11ax (80MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 9
10732	AAC.	IEEE 802.11ax (80MHz, MCS1, 99pc dc)	WLAN	8.46	± 9.6 %
10733	AAC	IEEE 802.11ax (80MHz, MCS2, 99pc dc)	WLAN	8.40	± 9.6 %
10734	AAC	IEEE 802.11ax (80MHz, MCS3, 99pc dc)	WLAN	8.25	± 9.6 °
10735	AAC	IEEE 802.11ax (80MHz, MCS4, 99pc dc)	WLAN	8,33	± 9.6 %
10736	AAC	IEEE 802.11ax (80MHz, MCS5, 99pc dc)	WLAN	8.27	± 9.6 *
10737	AAC	IEEE 802.11ax (80MHz, MC56, 99pc dc)	WLAN	8.36	± 9.6 %
10738	AAC	IEEE 802.11ax (80MHz, MCS7, 99pc dc)	WLAN	8.42	± 9.6 5
10739	AAC	IEEE 802.11ax (80MHz, MCS8, 99pc dc)	WLAN	8.29	± 9.6 %
10740	AAC	IEEE 802.11ax (80MHz, MCS9, 99pc dc)	WLAN	8.48	±9.65
10741	AAC	IEEE 802.11ax (80MHz, MCS10, 99pc dc)	WLAN	8.40	± 9.6 9
10742	AAC	IEEE 802.11ax (80MHz, MCS11, 99pc dc)	WLAN	8.43	±9.65
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	±9.6 9
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	9.16	±9.65
10745	AAC	(EEE 802.11ax (160MHz, MCS2, 90pc dc)	WLAN	8.93	± 9.6 9
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	9.11	±9.6
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	9.04	± 9.6*
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.93	± 9.6 1
10749	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.90	± 9.6 *
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.79	± 9.6
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6*
10752	AAC	IEEE 802.11ax (160MHz, MC59, 90pc dc)	WLAN	8.81	± 9.6 9
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	9.00	± 9.6 %
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	± 9.6 %
10755	AAC	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.64	± 9.6 1
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 9.6 1
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.69	± 9.6 *
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	# 9.6 3
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	B.49	# 9.6 3
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	19.6 1
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8,49	± 9.6 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 9.6 9
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 9.6 9
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 9.6 9
10766	AAC	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8.51	± 9.6 %
10767	AAE	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 9.6 %
10768	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10769	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 9
10770	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 9
10771	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10772	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 9.6 9
10773	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	±9.6 %
10774	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 9
10775	AAD	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.65
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 9
10778	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8:42	± 9.6 5
10780	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10781	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAD	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 9
10783	AAE	5G NR (CP-OFDM, 100% R8, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 9
10784	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	19.6 7

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10785	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10786	AAD	5G NR (CP-DFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10787	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 9.6 3
10788	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10789	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 9
10790	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAE	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 5
10793	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 9.6 %
10796	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 9
10797	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10801	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	AAD	5G NR (CP-OFDM, 1 R8, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10817	AAE	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, OPSK, 30 kHz)	5G NR FR1 TDD	8.33	±9.6 %
10820	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8:30	± 9.6 9
10821	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 9
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10823	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 9.6 9
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10827	AAD .	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	±9.69
10828	AAD	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	±9.69
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 9.6 %
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±9.69
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 9.6 9
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7,70	± 9.6 %
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	± 9.6 5
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10836	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 9.6 %
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6 %
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.6 %
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 9.6 %
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 9.6 %
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6-3
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10860	AAD	5G NR (CP-OFDM; 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %

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10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.6 %
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10864	AAD	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8:37	± 9.6 9
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 5
10866	AAD	5G NR (DFT-6-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 9
10868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 9.6 %
10869	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 3
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 9.6 3
10871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 5
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 3
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 5
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 3
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 9.6 3
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-8-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 9
10882	AAD	5G NR (DFT-6-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 9.6.5
10683	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 9.6 1
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6.5
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6 %
10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	# 9.6 5
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7,78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 5
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 9.6 3
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-DFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.69
10897	AAC	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAB	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10899	AAB	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6.9
10900	AAB	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAB	5G NR (DFT-9-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAB	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10903	AAB	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10904	AAB	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.69
10905	AAB	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10906	AAB	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10907	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.6 %
10908	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10909	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 %
10910	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 9
10911	AAB	5G NR (DFT-8-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10912	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6 %
10913	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAB	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10916	AAB	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10917	AAB	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10918	AAC	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10919	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10921	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %

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10923	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10924	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10925	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	± 9.6 %
10926	AAB	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10927	AAB	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10928	AAC	5G NR (DFT-s-OFDM, 1 R8, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10929	AAC	5G NR (DFT-6-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10930	AAC	5G NR (DFT-s-OFDM, 1 RB, 15 MHz; QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10931	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10932	AAC	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10933	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10934	AAC	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10935	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10937	AAC	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	± 9.6 %
10938	AAC	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10939	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	± 9.6 %
10940	AAC	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	± 9.6 %
10941	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10942	AAC	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10943	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	± 9.6 %
10944	AAC	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	± 9.6 %
10945	AAC	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10947	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10948	AAC	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10949	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10950	AAC	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10951	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	± 9.6 %
10952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	± 9.6 %
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	± 9.6 %
10954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	± 9.6 %
10955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	± 9.6 %
10956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	± 9.6 %
10957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	± 9.6 %
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	± 9.6 %
10959	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	± 9.6 %
10960	AAC	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 %
10961	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 9.6 %
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	± 9.6 %
10963	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10964	AAC	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 %
10965	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	± 9.6 %
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10967	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10968	AAB	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	± 9.6 %
10972	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	± 9.6 %
10973	AAB	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	± 9.6 %
10974	AAB	5G NR (CP-OFDM, 100% RB, 100 MHz, 258-QAM, 30 kHz)	5G NR FR1 TDD	10.28	± 9.6 %
10978	AAA	ULLA BDR	ULLA	2.23	± 9.6 %
10979	AAA	ULLA HDR4	ULLA	7.02	± 9.6 %
10980	AAA	ULLA HDR8	ULLA	8.82	± 9.6 %
10981	AAA	ULLA HDRp4	ULLA	1.50	± 9.6 %
10982	AAA	ULLA HDRp8	ULLA	1.44	± 9.6 %

² Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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