

ISED CABid: ES1909

Test report No:
 NIE: 68000RAN.003A1

Test report

ISED RSS-102 Issue 5 (05-2015) AMD 1 (02-2021)
 IEC/IEEE 62209-1528:2020

(*) Identification of item tested	Telematic control unit with wireless technologies, used in automotive industry
(*) Trademark	BMW
(*) Model and /or type reference tested	WAVE-11-HIGH-R2
(*) Derived model not tested	WAVE-11-HAF-R2
(*) Other identification of the product	HW version: D5 SW version: 21411A.004_045_017 Contains ID: 6434A-SAN9000 Contains ID: 6434A-SAN9001
(*) Features	GSM, UMTS, LTE, 5G, GNSS
Manufacturer	HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY
Test method requested, standard	<ol style="list-style-type: none"> ISED RSS-102 Issue 5 (2015-03) Amendment 1 (February 2, 2021) – Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) IEC/IEEE 62209-1528:2020: Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
Summary	<p>Considering the results of the performed test, the item under test is IN COMPLIANCE with FCC 47CFR Part 2.1093 exposure limits.</p> <p>The maximum 1-g SAR found during this test has been 0.903 W/kg, for GPRS 4 slots 850 MHz.</p>
Approved by (name / position & signature)	Miguel Lacave Antennas Lab Manager
Date of issue	2023-11-27
Report template No	FDT08_23 (*) "Data provided by the client"



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Competences and guarantees

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Uncertainty

Uncertainty (factor $k=2$) was calculated according to the following documents:

1. DEKRA Testing and Certification S.A.U. internal document PODT000.
2. 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-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz).

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested" and "Other identification of the product").
2. Maximum output power, 5G conducted output power values and testing distance.
3. Derived model not tested. These models have been declared by the supplier of the sample as being the same as the model under test.

HARMAN AUTOMOTIVE DIVISION
HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH
BECKER-GOERING-STRASSE 16
76307 KARLSBAD, GERMANY



Declaration of similarity

To whom it may concern,

We, **Harman Becker Automotive Systems GmbH**, located in
Becker-Goering-Str. 16; 76307 Karlsbad, Germany

Hereby declare that the following units: **WAVE-11-HIGH-R2** and **WAVE-11-HAF-R2**
have integrated the same NAD modules, are using same schematic and same PCB
layout.

The only difference between the two models is that **WAVE-11-HIGH-R2** is equipped
with chipset U-Blox UBX-F9940, where **WAVE-11-HAF-R2** is equipped with chipset
ST-Micro STA9100MGA & STA5635S.

Where only one of the aforementioned variants has been used as DUT, shall remain
valid and applicable for these two models described.

This declaration is intended to be included in the test reports where applies

Regards



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DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by
the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by: the client

Sample M/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
68000C/007	TCU	WAVE-11-HIGH-R2	B392F10M4914018	2021/07/29
68000C/073	DA WAVE HIGH 5G ROW	DA04DI20	0016	2021/08/27
68000C/075	DA WAVE HIGH 5G US	DA05DI20	0109	2021/08/27

1. Sample M/01 has undergone the test(s) specified in subclause "Test method requested": Conducted average output power and SAR evaluation for 2G, 3G, LTE and 5G modes.

Test sample description

Description of product	Telematic control unit with wireless technologies.		
Software version.....	21411A.004_045_017		
Hardware version	D5		
Mounting position	<input type="checkbox"/>	Table top equipment	
	<input type="checkbox"/>	Wall/Ceiling mounted equipment	
	<input type="checkbox"/>	Floor standing equipment	
	<input type="checkbox"/>	Hand-held equipment	
	<input checked="" type="checkbox"/>	Other: Vehicular environment equipment (Car Roof)	
Accessories (not part of the test item).....	Description	Type	Manufacturer
	Charging adapter	---	
	USB cable	---	

Identification of the client

HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH
 BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-10-04
Date (finish)	2022-01-03

Document history

Report number	Date	Description
68000RAN.003	2022-01-31	First release
68000RAN.003A1	2023-11-27	Second release. New 5G NSA combinations have been added. This modification test report cancels and replaces the test report 68000RAN.003.

Environmental conditions

Date	Max. Temp.	Min. Temp.	Max. Hum.	Min. Hum.	Limit
	°C	°C	%	%	
From 2021-10-04 to 2021-12-27	24.52	20.04	69.97	30.06	18-25 °C, 30-70%

Remarks and comments

1: Testing of GPRS EDGE mode is not required according to test reductions mentioned in FCC OET KDB 941225 D01 3G SAR Procedures, paragraph "5. GSM, GPRS and EDGE".

2: Testing of HSDPA/HSPA/HSPA+/DC-HSPA modes are not required according to paragraph "2.1 3G SAR test reduction procedure" mentioned in FCC OET KDB 941225 D01 3G SAR Procedures.

3: Only the plots of the highest reported SAR for each mode/band are included in appendix C.

4: According to ISED requirements, the low, mid and high frequency channels for the configuration with the highest SAR value has been tested regardless of the measured SAR value.

5: The tests have been performed by the technical personnel: Ismael Gamarro and Francisco J. Sánchez.

6: References:

The tests documented in this report were performed in accordance with IC RSS-102 Issue 5 (2015-03) AMD 1 (2021-02) – Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), IEC/IEEE 62209-1528:2020 standard and the following FCC Published RF exposure KDB procedures:

- FCC OET KDB 447498 D01 General RF Exposure Guidance v06 (October 2015)
- FCC OET KDB 941225 D01 3G SAR Procedures v03r01 (October 2015).
- FCC OET KDB 941225 D05 SAR for LTE Devices v02r05 (October 2015).
- FCC OET KDB 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02 (October 2015).
- TCB Workshop Nov. 2017, TCB Workshop October 2018, TCB Workshop October 2020 and TCB Workshop February 2021

7: LTE Rel.10 and 5G NR FR1 testing method and procedure was consulted and approved through FCC/ ISED inquiry.

8: The instrumentation utilized to perform the tests covered in this test report is listed in the following table:

Equipment	NC
Dosimetric E-field probe SPEAG EX3DV4	6125
Dosimetric E-field probe SPEAG ES3DV3	3052
Data acquisition device SPEAG DAE4	3430
Data acquisition device SPEAG DAE4	8876
SPEAG Mounting Device for Laptop and Body-Worn Transmitters	3526
Oval flat phantom SPEAG ELI 4	3525
Electro-optical converter SPEAG SE UMS 018 BB	8902
Robot Stäubli RX60BL, Robot controller STÄUBLI CS8CSpeag-TX60	8867
Measurement server SPEAG DASY6 SE UMS 028 CA	8895
SAR measurement software SPEAG cDASY6 16.0.0.116	8898
Head Tissue Equivalent Liquid for 750 MHz band	3920
Head Tissue Equivalent Liquid for 900 MHz band	3631
Head Tissue Equivalent Liquid for 1700 MHz band	6028
Head Tissue Equivalent Liquid for 1900 MHz band	8844
Head Tissue Equivalent Liquid for 2000 MHz band	4173
Head Tissue Equivalent Liquid for 2100 MHz band	4173
Head Tissue Equivalent Liquid for 2300 MHz band	4173
Head Tissue Equivalent Liquid for 2600 MHz band	4173
Head Tissue Equivalent Liquid for 3300 MHz band	3636
Head Tissue Equivalent Liquid for 3500 MHz band	3636
Head Tissue Equivalent Liquid for 3700 MHz band	3636
Head Tissue Equivalent Liquid for 4200 MHz band	3636
750 MHz dipole validation kit SPEAG D750V3	3919
900 MHz dipole validation kit SPEAG D900V2	3426
1800 MHz dipole validation kit SPEAG D1800V2	3427
2000 MHz dipole validation kit SPEAG D2000V2	3428
2300 MHz dipole validation kit SPEAG D2300V2	8148
2600 MHz dipole validation kit SPEAG D2600V2	3527
3300 MHz dipole validation kit SPEAG D3300V2	8761
3500 MHz dipole validation kit SPEAG D3500V2	8762
3700 MHz dipole validation kit SPEAG D3700V2	8763
4200 MHz dipole validation kit SPEAG D4200V2	8765
Vector network analyzer Agilent FieldFox N9923A	4482
Dielectric probe kit SPEAG DAK-3.5	4171
RF Generator R&S SMU200	3346
Power amplifier MITEQ AMF-4D-00400600-50-30P	3485
DC Power supply Agilent U8002A	4835
Dual directional coupler HP 778D	1084
Dual directional coupler NARDA 4227-16	3630
Power meter Agilent E4419B	4393
Power sensor DC 50 MHz to 18 GHz R&S model NRP-Z81	4164
Digital thermometer LKM Electronics model DTM300-Spezial	4170
Temperature and humidity probe HUMIDIPROBE Pico Technology	3453
Universal Radio Communication Tester R&S CMW 500	3934
Universal Radio Communication Tester R&S CMW 500	4804
Wideband Radio Communication Tester Keysight E7515A UXM	8066
Universal Radio Communication Tester R&S CMW 500	8922
Wideband Radio Communication Tester R&S CMX 500	8923

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

FCC 47CFR Part 2.1093	VERDICT			
	N/A	P	F	NM
GSM 850		P		
GSM 1900		P		
WCDMA II		P		
WCDMA IV		P		
WCDMA V		P		
LTE 2		P		
LTE 4		P		
LTE 5		P		
LTE 7		P		
LTE 12		P		
LTE 13		P		
LTE 17		P		
LTE 25		P		
LTE 26		P		
LTE 38		P		
LTE 41		P		
LTE 42		P		
LTE 66		P		
LTE 71		P		
n2		P		
n5		P		
n7		P		
n25		P		
n38		P		
n41		P		
n66		P		
n71		P		
n77		P		
n78		P		

Appendix A: RF Exposure assessment result

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1. General description of the device under evaluation

The device under evaluation consists of a telematics control unit with wireless technologies, used in automotive, equipped with 2 modems, OEM and customer. The project name WAVE has the meaning “Wireless Access in Vehicular Environment” and thus describes the key features of this device as Communication and Data Interface. This unit was designed for automotive usage and contains the following features: GSM, UMTS, LTE, 5G, and GNSS.

The equipment supports two cellular modules and multiple antennas that can be used for transmission. It supports different configurations in which different antennas can be used for different purposes and transmit simultaneously. Technologies and frequency bands supported by each antenna, as well as simultaneous transmission conditions, are evaluated in the “RF Exposure Assessment result and verdict” section.

The list of cellular modules and antennas supported by the device are:

- Cellular modules: “NAD1 (OEM)” and “NAD2 (Consumer)”
- Antennas: “MIMO1 High”, “MIMO2 High”, “MIMO1 RoW”, “MIMO2 RoW”, “DSDA1 FSA”, “DSDA2 FSA”, “DSDA1 Antennenbox”, “DSDA2 Antennenbox” and “Int BuA”

Each antenna can be connected through switching to different modules and used for specific technologies and/or frequency band ranges depending on the configuration of the device. The table below shows all possible configurations of the device, usage of each antenna and simultaneous transmission combinations:

Configuration	Module	Antenna	Tx - Bands
Conf 1	NAD2	DSDA1 Antennenbox	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78, 38+n78)
	NAD2	DSDA2 Antennenbox	LTE (42) 5G (n77,n78)
	NAD1	Int BuA	2G (850/1900 MHz) 3G (II, IV, V)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission		1. DSDA1 Antennebox + Int BuA 2. DSDA2 Antennebox + Int BuA 3. DSDA1 Antennebox + MIMO2 4. DSDA2 Antennebox + MIMO2
Conf 2	NAD2	DSDA1 FSA	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78, 38+n78)
	NAD2	DSDA2 FSA	LTE (42) 5G (n77,n78)
	NAD1	Int BuA	2G (850/1900 MHz) 3G (II, IV, V)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission		1. DSDA1 FSA + Int BuA 2. DSDA2 FSA + Int BuA 3. DSDA1 FSA + MIMO2 4. DSDA2 FSA + MIMO2

Configuration	Module	Antenna	Tx - Bands
Conf 3	NAD2	DSDA1 Antennenbox	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD2	DSDA2 Antennenbox	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission		1. DSDA1 Antennebox + MIMO1 2. DSDA1 Antennebox + MIMO2 3. DSDA2 Antennebox + MIMO1 4. DSDA2 Antennebox + MIMO2
Conf 4	NAD2	DSDA1 FSA	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD2	DSDA2 FSA	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission		1. DSDA1 FSA + MIMO1 2. DSDA1 FSA + MIMO2 3. DSDA2 FSA + MIMO1 4. DSDA2 FSA + MIMO2
Conf 5	NAD2	DSDA1 Antennenbox	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD2	DSDA2 Antennenbox	LTE (42) 5G (n77,n78)
	NAD2	Int BuA	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)

Configuration	Module	Antenna	Tx - Bands
	Simultaneous transmission	<ol style="list-style-type: none"> DSDA1 Antennebox + MIMO1 DSDA1 Antennebox + MIMO2 DSDA2 Antennebox + MIMO1 DSDA2 Antennebox + MIMO2 Int BuA + MIMO1 Int BuA + MIMO2 	
Conf 6	NAD2	DSDA1 FSA	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD2	DSDA2 FSA	LTE (42) 5G (n77,n78)
	NAD2	Int BuA Antenna	None (this port is only for UHB)
	NAD2	Int BuA	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission	<ol style="list-style-type: none"> DSDA1 FSA + MIMO1 DSDA1 FSA + MIMO2 DSDA2 FSA + MIMO1 DSDA2 FSA + MIMO2 Int BuA + MIMO1 Int BuA + MIMO2 	
Conf 7	NAD2	DSDA1 Monopol	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD2	DSDA2 Monopol	LTE (42) 5G (n77,n78)
	NAD1	Int BuA	2G (850/1900 MHz) 3G (II, IV, V)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission	<ol style="list-style-type: none"> DSDA1 Monopol + Int BuA DSDA2 Monopol + Int BuA DSDA1 Monopol + MIMO2 DSDA2 Monopol + MIMO2 	
Conf 8	NAD2	DSDA1 Spoiler	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD2	DSDA2 Spoiler	LTE (42) 5G (n77,n78)
	NAD1	Int BuA	2G (850/1900 MHz) 3G (II, IV, V)

Configuration	Module	Antenna	Tx - Bands
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission	1. DSDA1 Spoiler + Int BuA 2. DSDA2 Spoiler + Int BuA 3. DSDA1 Spoiler + MIMO2 4. DSDA2 Spoiler + MIMO2	
Conf 9	NAD2	DSDA1 Monopol	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78, 38+n78)
	NAD2	DSDA2 Monopol	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78, 38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission	1. DSDA1 Monopol + MIMO1 2. DSDA1 Monopol + MIMO2 3. DSDA2 Monopol + MIMO1 4. DSDA2 Monopol + MIMO2	
Conf 10	NAD2	DSDA1 Spoiler	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78, 38+n78)
	NAD2	DSDA2 FSA	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78, 38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission	1. DSDA1 Spoiler + MIMO1 2. DSDA1 Spoiler + MIMO2 3. DSDA2 Spoiler + MIMO1 4. DSDA2 Spoiler + MIMO2	
Conf 11	NAD2	DSDA1 Antennenbox	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78, 38+n78)
	NAD2	DSDA2 Antennenbox	LTE (42) 5G (n77,n78)
	NAD2	Int BuA	LTE (42) 5G (n77,n78)

Configuration	Module	Antenna	Tx - Bands
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission	1. DSDA1 Monopol + MIMO1 2. DSDA1 Monopol + MIMO2 3. DSDA2 Monopol + MIMO1 4. DSDA2 Monopol + MIMO2 5. Int BuA + MIMO1 6. Int BuA + MIMO2	
Conf 12	NAD2	DSDA1 Spoiler	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD2	DSDA2 Spoiler	LTE (42) 5G (n77,n78)
	NAD2	Int BuA Antenna	None (this port is only for UHB)
	NAD2	Int BuA	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71,7+n78,38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)
	Simultaneous transmission	1. DSDA1 Spoiler + MIMO1 2. DSDA1 Spoiler + MIMO2 3. DSDA2 Spoiler + MIMO1 4. DSDA2 Spoiler + MIMO2 5. Int BuA + MIMO1 6. Int BuA + MIMO2	

Table 1: Equipment configurations and simultaneous transmission antenna combinations

Declared worst-case carline installation distance are shown in the following tables:

Wave Head Unit Worst-case distances summary	
Antenna	Min. distance to passenger
DSDA1/2 Antennenbox, DSDA1/2 FSA, DSDA1/2 Monopol and DSDA1/2 Spoiler	> 20 cm
MIMO1, MIMO2 and Int BuA	37.92 mm

Table 2: Minimum distance to passenger

In order to cover all carlines installations, the attenuation of the installation cable, which will depend on the cable length, was not taken into account to assess a more conservative worst-case condition.

An assessment according to RSS-102 Issue 5 for each antenna installed more than 20 cm away from nearby passengers has been performed at an evaluation distance of 20 cm for DSDA1/2 Antennenbox and DSDA1/2 FSA antennas and 24 cm for DSDA1/2 Monopol and DSDA1/2 Spoiler antennas.

For antennas that could be installed closer than 20 cm to the nearest passenger, SAR testing according to IC RSS-102 Issue 5 (2015-03) AMD 1 (2021-02), IEC/IEEE 62209-1528:2020 standard and FCC Published RF exposure KDB procedures have been performed for the worst-case installation distance between all carlines.

The equipment specifications for each supported technology are shown in the following tables.

Values corresponding to antenna gain for DSDA1 FSA, DSDA2 FSA, DSDA1 Antennebox and DSDA2 Antennebox have been measured and stated into DEKRA Testing and Certification, S.A.U. test report num. 62486RAN.001.

Values corresponding to antenna gain for DSDA1 Monopol, DSDA2 Monopol, DSDA1 Spoiler and DSDA2 Spoiler are data provided by the client.

Equipment specs - Antennas DSDA1 FSA and DSDA2 FSA:

Technology / Mode	Band	Frequency (MHz)	Maximum Conducted Output Power (Incl. Tune-Up) (dBm)	Duty Cycle (%)	Time Averaged Conducted Power (dBm)	Antenna peak gain DSDA1 FSA (dBi)	Antenna peak gain DSDA2 FSA (dBi)	Maximum Averaged E.I.R.P. (dBm)	Maximum Averaged E.I.R.P. (mW)
GSM	850	824 - 849	34.00	12.50	24.97	-0.99	-	23.98	249.98
GPRS 1TX	850	824 - 849	33.50	12.50	24.47	-0.99	-	23.48	222.80
GPRS 2TX	850	824 - 849	31.50	25.00	25.48	-0.99	-	24.49	281.15
GPRS 3TX	850	824 - 849	29.50	37.50	25.24	-0.99	-	24.25	266.09
GPRS 4TX	850	824 - 849	28.50	50.00	25.49	-0.99	-	24.50	281.82
EGPRS 1TX	850	824 - 849	27.50	12.50	18.47	-0.99	-	17.48	55.96
EGPRS 2TX	850	824 - 849	26.50	25.00	20.48	-0.99	-	19.49	88.91
EGPRS 3TX	850	824 - 849	24.50	37.50	20.24	-0.99	-	19.25	84.15
EGPRS 4TX	850	824 - 849	23.50	50.00	20.49	-0.99	-	19.50	89.12
GSM	1900	1850 - 1910	31.00	12.50	21.97	-1.58	-	20.39	109.37
GPRS 1TX	1900	1850 - 1910	30.50	12.50	21.47	-1.58	-	19.89	97.48
GPRS 2TX	1900	1850 - 1910	27.50	25.00	21.48	-1.58	-	19.90	97.71
GPRS 3TX	1900	1850 - 1910	26.50	37.50	22.24	-1.58	-	20.66	116.42
GPRS 4TX	1900	1850 - 1910	24.50	50.00	21.49	-1.58	-	19.91	97.94
EGPRS 1TX	1900	1850 - 1910	26.50	12.50	17.47	-1.58	-	15.89	38.81
EGPRS 2TX	1900	1850 - 1910	25.00	25.00	18.98	-1.58	-	17.40	54.95
EGPRS 3TX	1900	1850 - 1910	23.00	37.50	18.74	-1.58	-	17.16	52.00
EGPRS 4TX	1900	1850 - 1910	22.00	50.00	18.99	-1.58	-	17.41	55.08
UMTS	II	1850 - 1910	24.50	100.00	24.50	-1.58	-	22.92	195.88
UMTS	IV	1710 - 1755	24.00	100.00	24.00	-0.06	-	23.94	247.74
UMTS	V	824 - 849	25.00	100.00	25.00	-0.99	-	24.01	251.77
LTE	2	1850 - 1910	24.50	100.00	24.50	-1.58	-	22.92	195.88
LTE	4	1710 - 1755	25.00	100.00	25.00	-0.06	-	24.94	311.89
LTE	5	824 - 849	24.50	100.00	24.50	-0.99	-	23.51	224.39
LTE	7	2500 - 2570	25.00	100.00	25.00	-0.16	-	24.84	304.79
LTE	10	1710 - 1770	25.00	100.00	25.00	-0.06	-	24.94	311.89
LTE	12	699 - 716	24.50	100.00	24.50	1.24	-	25.74	374.97
LTE	13	777 - 787	24.50	100.00	24.50	1.24	-	25.74	374.97
LTE	17	704 - 716	24.50	100.00	24.50	1.24	-	25.74	374.97
LTE	25	1850 - 1915	24.50	100.00	24.50	-1.58	-	22.92	195.88
LTE	26	814 - 849	25.00	100.00	25.00	-0.99	-	24.01	251.77
LTE	38	2570 - 2620	24.50	100.00	24.50	-1.95	-	22.55	179.89
LTE	41	2496 - 2690	24.50	100.00	24.50	-1.95	-	22.55	179.89
LTE	42	3400 - 3600	24.50	100.00	24.50	-	-3.87	20.63	115.61
LTE	66	1710 - 1780	24.50	100.00	24.50	-0.48	-	24.02	252.35
LTE	71	663 - 698	24.50	100.00	24.50	1.01	-	25.51	355.63
5G	n2	1850 - 1910	24.50	100.00	24.50	-1.58	-	22.92	195.88
5G	n5	824 - 849	25.00	100.00	25.00	-0.99	-	24.01	251.77
5G	n7	2500 - 2570	25.00	100.00	25.00	-0.16	-	24.84	304.79
5G	n25	1850 - 1915	24.50	100.00	24.50	-1.58	-	22.92	195.88
5G	n38	2570 - 2620	24.50	100.00	24.50	-1.95	-	22.55	179.89
5G	n41	2496 - 2690	24.50	100.00	24.50	-1.95	-	22.55	179.89
5G	n66	1710 - 1780	24.50	100.00	24.50	-0.48	-	24.02	252.35
5G	n71	663 - 698	24.50	100.00	24.50	1.01	-	25.51	355.63
5G	n77	3300 - 4200	24.50	100.00	24.50	-	-3.87	20.63	115.61
5G	n78	3300 - 3800	24.50	100.00	24.50	-	-3.87	20.63	115.61

Table 3: Equipment specifications

Equipment specs - Antennas DSDA1 Antennebox and DSDA2 Antennebox:

Technology / Mode	Band	Frequency (MHz)	Maximum Conducted Output Power (Incl. Tune-Up) (dBm)	Duty Cycle (%)	Time Averaged Conducted Power (dBm)	Antenna peak gain DSDA1 Antennebox (dBi)	Antenna peak gain DSDA2 Antennebox (dBi)	Maximum Averaged E.I.R.P. (dBm)	Maximum Averaged E.I.R.P. (mW)
GSM	850	824 - 849	34.00	12.50	24.97	-1.18	-	23.79	239.28
GPRS 1TX	850	824 - 849	33.50	12.50	24.47	-1.18	-	23.29	213.26
GPRS 2TX	850	824 - 849	31.50	25.00	25.48	-1.18	-	24.30	269.12
GPRS 3TX	850	824 - 849	29.50	37.50	25.24	-1.18	-	24.06	254.70
GPRS 4TX	850	824 - 849	28.50	50.00	25.49	-1.18	-	24.31	269.76
EGPRS 1TX	850	824 - 849	27.50	12.50	18.47	-1.18	-	17.29	53.57
EGPRS 2TX	850	824 - 849	26.50	25.00	20.48	-1.18	-	19.30	85.10
EGPRS 3TX	850	824 - 849	24.50	37.50	20.24	-1.18	-	19.06	80.54
EGPRS 4TX	850	824 - 849	23.50	50.00	20.49	-1.18	-	19.31	85.30
GSM	1900	1850 - 1910	31.00	12.50	21.97	-0.07	-	21.90	154.85
GPRS 1TX	1900	1850 - 1910	30.50	12.50	21.47	-0.07	-	21.40	138.01
GPRS 2TX	1900	1850 - 1910	27.50	25.00	21.48	-0.07	-	21.41	138.34
GPRS 3TX	1900	1850 - 1910	26.50	37.50	22.24	-0.07	-	22.17	164.83
GPRS 4TX	1900	1850 - 1910	24.50	50.00	21.49	-0.07	-	21.42	138.67
EGPRS 1TX	1900	1850 - 1910	26.50	12.50	17.47	-0.07	-	17.40	54.94
EGPRS 2TX	1900	1850 - 1910	25.00	25.00	18.98	-0.07	-	18.91	77.79
EGPRS 3TX	1900	1850 - 1910	23.00	37.50	18.74	-0.07	-	18.67	73.63
EGPRS 4TX	1900	1850 - 1910	22.00	50.00	18.99	-0.07	-	18.92	77.98
UMTS	II	1850 - 1910	24.50	100.00	24.50	-0.07	-	24.43	277.33
UMTS	IV	1710 - 1755	24.00	100.00	24.00	-1.21	-	22.79	190.11
UMTS	V	824 - 849	25.00	100.00	25.00	-1.18	-	23.82	240.99
LTE	2	1850 - 1910	24.50	100.00	24.50	-0.07	-	24.43	277.33
LTE	4	1710 - 1755	25.00	100.00	25.00	-1.21	-	23.79	239.33
LTE	5	824 - 849	24.50	100.00	24.50	-1.18	-	23.32	214.78
LTE	7	2500 - 2570	25.00	100.00	25.00	0.84	-	25.84	383.71
LTE	10	1710 - 1770	25.00	100.00	25.00	-1.21	-	23.79	239.33
LTE	12	699 - 716	24.50	100.00	24.50	-0.82	-	23.68	233.35
LTE	13	777 - 787	24.50	100.00	24.50	0.35	-	24.85	305.49
LTE	17	704 - 716	24.50	100.00	24.50	-0.82	-	23.68	233.35
LTE	25	1850 - 1915	24.50	100.00	24.50	-0.07	-	24.43	277.33
LTE	26	814 - 849	25.00	100.00	25.00	-0.35	-	24.65	291.74
LTE	38	2570 - 2620	24.50	100.00	24.50	1.41	-	25.91	389.94
LTE	41	2496 - 2690	24.50	100.00	24.50	1.41	-	25.91	389.94
LTE	42	3400 - 3600	24.50	100.00	24.50	-	-3.42	21.08	128.23
LTE	66	1710 - 1780	24.50	100.00	24.50	-1.21	-	23.29	213.30
LTE	71	663 - 698	24.50	100.00	24.50	-0.82	-	23.68	233.35
5G	n2	1850 - 1910	24.50	100.00	24.50	-0.07	-	24.43	277.33
5G	n5	824 - 849	25.00	100.00	25.00	-1.18	-	23.82	240.99
5G	n7	2500 - 2570	25.00	100.00	25.00	0.84	-	25.84	383.71
5G	n25	1850 - 1915	24.50	100.00	24.50	-0.07	-	24.43	277.33
5G	n38	2570 - 2620	24.50	100.00	24.50	1.41	-	25.91	389.94
5G	n41	2496 - 2690	24.50	100.00	24.50	1.41	-	25.91	389.94
5G	n66	1710 - 1780	24.50	100.00	24.50	-1.21	-	23.29	213.30
5G	n71	663 - 698	24.50	100.00	24.50	-0.82	-	23.68	233.35
5G	n77	3300 - 4200	24.50	100.00	24.50	-	-3.42	21.08	128.23
5G	n78	3300 - 3800	24.50	100.00	24.50	-	-3.42	21.08	128.23

Table 4: Equipment specifications

Equipment specs - Antennas DSDA1 Monopol and DSDA2 Monopol:

Technology / Mode	Band	Frequency (MHz)	Maximum Conducted Output Power (Incl. Tune-Up) (dBm)	Duty Cycle (%)	Time Averaged Conducted Power (dBm)	Antenna peak gain DSDA1/DSDA2 Monopol (dBi)	Maximum Averaged E.I.R.P. (dBm)	Maximum Averaged E.I.R.P. (mW)
GSM	850	824 - 849	34.00	12.50	24.97	6.00	30.97	1250.00
GPRS 1TX	850	824 - 849	33.50	12.50	24.47	6.00	30.47	1114.06
GPRS 2TX	850	824 - 849	31.50	25.00	25.48	6.00	31.48	1405.85
GPRS 3TX	850	824 - 849	29.50	37.50	25.24	6.00	31.24	1330.55
GPRS 4TX	850	824 - 849	28.50	50.00	25.49	6.00	31.49	1409.19
EGPRS 1TX	850	824 - 849	27.50	12.50	18.47	6.00	24.47	279.84
EGPRS 2TX	850	824 - 849	26.50	25.00	20.48	6.00	26.48	444.57
EGPRS 3TX	850	824 - 849	24.50	37.50	20.24	6.00	26.24	420.76
EGPRS 4TX	850	824 - 849	23.50	50.00	20.49	6.00	26.49	445.63
GSM	1900	1850 - 1910	31.00	12.50	21.97	6.00	27.97	626.48
GPRS 1TX	1900	1850 - 1910	30.50	12.50	21.47	6.00	27.47	558.35
GPRS 2TX	1900	1850 - 1910	27.50	25.00	21.48	6.00	27.48	559.68
GPRS 3TX	1900	1850 - 1910	26.50	37.50	22.24	6.00	28.24	666.85
GPRS 4TX	1900	1850 - 1910	24.50	50.00	21.49	6.00	27.49	561.01
EGPRS 1TX	1900	1850 - 1910	26.50	12.50	17.47	6.00	23.47	222.28
EGPRS 2TX	1900	1850 - 1910	25.00	25.00	18.98	6.00	24.98	314.73
EGPRS 3TX	1900	1850 - 1910	23.00	37.50	18.74	6.00	24.74	297.87
EGPRS 4TX	1900	1850 - 1910	22.00	50.00	18.99	6.00	24.99	315.48
UMTS	II	1850 - 1910	24.50	100.00	24.50	6.00	30.50	1122.02
UMTS	IV	1710 - 1755	24.00	100.00	24.00	6.00	30.00	1000.00
UMTS	V	824 - 849	25.00	100.00	25.00	6.00	31.00	1258.93
LTE	2	1850 - 1910	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	4	1710 - 1755	25.00	100.00	25.00	6.00	31.00	1258.93
LTE	5	824 - 849	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	7	2500 - 2570	25.00	100.00	25.00	6.00	31.00	1258.93
LTE	10	1710 - 1770	25.00	100.00	25.00	6.00	31.00	1258.93
LTE	12	699 - 716	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	13	777 - 787	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	17	704 - 716	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	25	1850 - 1915	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	26	814 - 849	25.00	100.00	25.00	6.00	31.00	1258.93
LTE	38	2570 - 2620	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	41	2496 - 2690	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	42	3400 - 3600	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	66	1710 - 1780	24.50	100.00	24.50	6.00	30.50	1122.02
LTE	71	663 - 698	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n2	1850 - 1910	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n5	824 - 849	25.00	100.00	25.00	6.00	31.00	1258.93
5G	n7	2500 - 2570	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n25	1850 - 1915	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n38	2570 - 2620	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n41	2496 - 2690	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n66	1710 - 1780	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n71	663 - 698	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n77	3300 - 4200	24.50	100.00	24.50	6.00	30.50	1122.02
5G	n78	3300 - 3800	24.50	100.00	24.50	6.00	30.50	1122.02

Table 5: Equipment specifications

Equipment specs - Antennas DSDA1 Spoiler and DSDA2 Spoiler:

Technology / Mode	Band	Frequency (MHz)	Maximum Conducted Output Power (Incl. Tune-Up) (dBm)	Duty Cycle (%)	Time Averaged Conducted Power (dBm)	Antenna peak gain DSDA1/DSDA2 Spoiler (dBi)	Maximum Averaged E.I.R.P. (dBm)	Maximum Averaged E.I.R.P. (mW)
GSM	850	824 - 849	34.00	12.50	24.97	5.00	29.97	992.91
GPRS 1TX	850	824 - 849	33.50	12.50	24.47	5.00	29.47	884.93
GPRS 2TX	850	824 - 849	31.50	25.00	25.48	5.00	30.48	1116.71
GPRS 3TX	850	824 - 849	29.50	37.50	25.24	5.00	30.24	1056.89
GPRS 4TX	850	824 - 849	28.50	50.00	25.49	5.00	30.49	1119.36
EGPRS 1TX	850	824 - 849	27.50	12.50	18.47	5.00	23.47	222.28
EGPRS 2TX	850	824 - 849	26.50	25.00	20.48	5.00	25.48	353.13
EGPRS 3TX	850	824 - 849	24.50	37.50	20.24	5.00	25.24	334.22
EGPRS 4TX	850	824 - 849	23.50	50.00	20.49	5.00	25.49	353.97
GSM	1900	1850 - 1910	31.00	100.00	31.00	5.00	36.00	3981.07
GPRS 1TX	1900	1850 - 1910	30.50	100.00	30.50	5.00	35.50	3548.13
GPRS 2TX	1900	1850 - 1910	27.50	100.00	27.50	5.00	32.50	1778.28
GPRS 3TX	1900	1850 - 1910	26.50	100.00	26.50	5.00	31.50	1412.54
GPRS 4TX	1900	1850 - 1910	24.50	100.00	24.50	5.00	29.50	891.25
EGPRS 1TX	1900	1850 - 1910	26.50	100.00	26.50	5.00	31.50	1412.54
EGPRS 2TX	1900	1850 - 1910	25.00	100.00	25.00	5.00	30.00	1000.00
EGPRS 3TX	1900	1850 - 1910	23.00	100.00	23.00	5.00	28.00	630.96
EGPRS 4TX	1900	1850 - 1910	22.00	100.00	22.00	5.00	27.00	501.19
UMTS	II	1850 - 1910	24.50	100.00	24.50	5.00	29.50	891.25
UMTS	IV	1710 - 1755	24.00	100.00	24.00	5.00	29.00	794.33
UMTS	V	824 - 849	25.00	100.00	25.00	5.00	30.00	1000.00
LTE	2	1850 - 1910	24.50	100.00	24.50	5.00	29.50	891.25
LTE	4	1710 - 1755	25.00	100.00	25.00	5.00	30.00	1000.00
LTE	5	824 - 849	24.50	100.00	24.50	5.00	29.50	891.25
LTE	7	2500 - 2570	25.00	100.00	25.00	5.00	30.00	1000.00
LTE	10	1710 - 1770	25.00	100.00	25.00	5.00	30.00	1000.00
LTE	12	699 - 716	24.50	100.00	24.50	5.00	29.50	891.25
LTE	13	777 - 787	24.50	100.00	24.50	5.00	29.50	891.25
LTE	17	704 - 716	24.50	100.00	24.50	5.00	29.50	891.25
LTE	25	1850 - 1915	24.50	100.00	24.50	5.00	29.50	891.25
LTE	26	814 - 849	25.00	100.00	25.00	5.00	30.00	1000.00
LTE	38	2570 - 2620	24.50	100.00	24.50	5.00	29.50	891.25
LTE	41	2496 - 2690	24.50	100.00	24.50	5.00	29.50	891.25
LTE	42	3400 - 3600	24.50	100.00	24.50	5.00	29.50	891.25
LTE	66	1710 - 1780	24.50	100.00	24.50	5.00	29.50	891.25
LTE	71	663 - 698	24.50	100.00	24.50	5.00	29.50	891.25
5G	n2	1850 - 1910	24.50	100.00	24.50	5.00	29.50	891.25
5G	n5	824 - 849	25.00	100.00	25.00	5.00	30.00	1000.00
5G	n7	2500 - 2570	24.50	100.00	24.50	5.00	29.50	891.25
5G	n25	1850 - 1915	24.50	100.00	24.50	5.00	29.50	891.25
5G	n38	2570 - 2620	24.50	100.00	24.50	5.00	29.50	891.25
5G	n41	2496 - 2690	24.50	100.00	24.50	5.00	29.50	891.25
5G	n66	1710 - 1780	24.50	100.00	24.50	5.00	29.50	891.25
5G	n71	663 - 698	24.50	100.00	24.50	5.00	29.50	891.25
5G	n77	3300 - 4200	24.50	100.00	24.50	5.00	29.50	891.25
5G	n78	3300 - 3800	24.50	100.00	24.50	5.00	29.50	891.25

Table 6: Equipment specifications

2. RF Exposure Assessment result and verdict

According to RSS-102 Issue 5, paragraph "2.5.2.Exemption Limits for Routine Evaluation – RF Exposure Evaluation", each transmitting technology will be assessed against its exemption limits:

Results - Antennas DSDA1 FSA and DSDA2 FSA:

Technology / Mode	Band	Frequency (MHz)	Distance (cm)	Time-averaged maximum e.i.r.p (mW)	ISED General Public Limit (W/m ²)	Verdict
GSM/GPRS	850	824 - 849	20.00	0.56	2.58	Pass
GSM/GPRS	1900	1850 - 1910	20.00	0.23	4.48	Pass
UMTS	II	1850 - 1910	20.00	0.39	4.48	Pass
UMTS	IV	1710 - 1755	20.00	0.49	4.24	Pass
UMTS	V	824 - 849	20.00	0.50	2.58	Pass
LTE	2	1850 - 1910	20.00	0.39	4.48	Pass
LTE	4	1710 - 1755	20.00	0.62	4.24	Pass
LTE	5	824 - 849	20.00	0.45	2.58	Pass
LTE	7	2500 - 2570	20.00	0.61	5.50	Pass
LTE	10	1710 - 1770	20.00	0.62	4.24	Pass
LTE	12	699 - 716	20.00	0.75	2.30	Pass
LTE	13	777 - 787	20.00	0.75	2.47	Pass
LTE	17	704 - 716	20.00	0.75	2.31	Pass
LTE	25	1850 - 1915	20.00	0.39	4.48	Pass
LTE	26	814 - 849	20.00	0.50	2.55	Pass
LTE	38	2570 - 2620	20.00	0.36	5.60	Pass
LTE	41	2496 - 2690	20.00	0.36	5.49	Pass
LTE	42	3400 - 3600	20.00	0.23	6.78	Pass
LTE	66	1710 - 1780	20.00	0.50	4.24	Pass
LTE	71	663 - 698	20.00	0.71	2.22	Pass
5G	n2	1850 - 1910	20.00	0.39	4.48	Pass
5G	n5	824 - 849	20.00	0.50	2.58	Pass
5G	n7	2500 - 2570	20.00	0.54	5.50	Pass
5G	n25	1850 - 1915	20.00	0.39	4.48	Pass
5G	n38	2570 - 2620	20.00	0.36	5.60	Pass
5G	n41	2496 - 2690	20.00	0.36	5.49	Pass
5G	n66	1710 - 1780	20.00	0.50	4.24	Pass
5G	n71	663 - 698	20.00	0.71	2.22	Pass
5G	n77	3300 - 4200	20.00	0.23	6.65	Pass
5G	n78	3300 - 3800	20.00	0.23	6.65	Pass

Table 7: Assessment result and verdict

Results - Antennas DSDA1 Antennebox and DSDA2 Antennebox:

Technology / Mode	Band	Frequency (MHz)	Distance (cm)	Time-averaged maximum e.i.r.p (mW)	ISED General Public Limit (W/m ²)	Verdict
GSM/GPRS	850	824 - 849	20.00	0.54	2.58	Pass
GSM/GPRS	1900	1850 - 1910	20.00	0.33	4.48	Pass
UMTS	II	1850 - 1910	20.00	0.62	4.48	Pass
UMTS	IV	1710 - 1755	20.00	0.48	4.24	Pass
UMTS	V	824 - 849	20.00	0.48	2.58	Pass
LTE	2	1850 - 1910	20.00	0.62	4.48	Pass
LTE	4	1710 - 1755	20.00	0.48	4.24	Pass
LTE	5	824 - 849	20.00	0.48	2.58	Pass
LTE	7	2500 - 2570	20.00	0.76	5.50	Pass
LTE	10	1710 - 1770	20.00	0.48	4.24	Pass
LTE	12	699 - 716	20.00	0.52	2.30	Pass
LTE	13	777 - 787	20.00	0.68	2.47	Pass
LTE	17	704 - 716	20.00	0.52	2.31	Pass
LTE	25	1850 - 1915	20.00	0.62	4.48	Pass
LTE	26	814 - 849	20.00	0.58	2.55	Pass
LTE	38	2570 - 2620	20.00	0.87	5.60	Pass
LTE	41	2496 - 2690	20.00	0.87	5.49	Pass
LTE	42	3400 - 3600	20.00	0.29	6.78	Pass
LTE	66	1710 - 1780	20.00	0.48	4.24	Pass
LTE	71	663 - 698	20.00	0.52	2.22	Pass
5G	n2	1850 - 1910	20.00	0.62	4.48	Pass
5G	n5	824 - 849	20.00	0.48	2.58	Pass
5G	n7	2500 - 2570	20.00	0.76	5.50	Pass
5G	n25	1850 - 1915	20.00	0.62	4.48	Pass
5G	n38	2570 - 2620	20.00	0.87	5.60	Pass
5G	n41	2496 - 2690	20.00	0.87	5.49	Pass
5G	n66	1710 - 1780	20.00	0.48	4.24	Pass
5G	n71	663 - 698	20.00	0.52	2.22	Pass
5G	n77	3300 - 4200	20.00	0.29	6.65	Pass
5G	n78	3300 - 3800	20.00	0.29	6.65	Pass

Table 8: Assessment result and verdict

Results - Antennas DSDA1 Monopol and DSDA2 Monopol:

Technology / Mode	Band	Frequency (MHz)	Distance (cm)	Power density (W/m ²)	ISED General Public Limit (W/m ²)	Verdict
GSM/GPRS	850	824 - 849	24.00	1.95	2.58	Pass
GSM/GPRS	1900	1850 - 1910	24.00	0.92	4.48	Pass
UMTS	II	1850 - 1910	24.00	1.55	4.48	Pass
UMTS	IV	1710 - 1755	24.00	1.38	4.24	Pass
UMTS	V	824 - 849	24.00	1.74	2.58	Pass
LTE	2	1850 - 1910	24.00	1.55	4.48	Pass
LTE	4	1710 - 1755	24.00	1.74	4.24	Pass
LTE	5	824 - 849	24.00	1.55	2.58	Pass
LTE	7	2500 - 2570	24.00	1.74	5.50	Pass
LTE	10	1710 - 1770	24.00	1.74	4.24	Pass
LTE	12	699 - 716	24.00	1.55	2.30	Pass
LTE	13	777 - 787	24.00	1.55	2.47	Pass
LTE	17	704 - 716	24.00	1.55	2.31	Pass
LTE	25	1850 - 1915	24.00	1.55	4.48	Pass
LTE	26	814 - 849	24.00	1.74	2.55	Pass
LTE	38	2570 - 2620	24.00	1.55	5.60	Pass
LTE	41	2496 - 2690	24.00	1.55	5.49	Pass
LTE	42	3400 - 3600	24.00	1.55	6.78	Pass
LTE	66	1710 - 1780	24.00	1.55	4.24	Pass
LTE	71	663 - 698	24.00	1.55	2.22	Pass
5G	n2	1850 - 1910	24.00	1.55	4.48	Pass
5G	n5	824 - 849	24.00	1.74	2.58	Pass
5G	n7	2500 - 2570	24.00	1.55	5.50	Pass
5G	n25	1850 - 1915	24.00	1.55	4.48	Pass
5G	n38	2570 - 2620	24.00	1.55	5.60	Pass
5G	n41	2496 - 2690	24.00	1.55	5.49	Pass
5G	n66	1710 - 1780	24.00	1.55	4.24	Pass
5G	n71	663 - 698	24.00	1.55	2.22	Pass
5G	n77	3300 - 4200	24.00	1.55	6.65	Pass
5G	n78	3300 - 3800	24.00	1.55	6.65	Pass

Table 9: Assessment result and verdict

Results - Antennas DSDA1 Spoiler and DSDA2 Spoiler:

Technology / Mode	Band	Frequency (MHz)	Distance (cm)	Power density (W/m ²)	ISED General Public Limit (W/m ²)	Verdict
GSM/GPRS	850	824 - 849	24.00	1.55	2.58	Pass
GSM/GPRS	1900	1850 - 1910	24.00	0.73	4.48	Pass
UMTS	II	1850 - 1910	24.00	1.23	4.48	Pass
UMTS	IV	1710 - 1755	24.00	1.10	4.24	Pass
UMTS	V	824 - 849	24.00	1.38	2.58	Pass
LTE	2	1850 - 1910	24.00	1.23	4.48	Pass
LTE	4	1710 - 1755	24.00	1.38	4.24	Pass
LTE	5	824 - 849	24.00	1.23	2.58	Pass
LTE	7	2500 - 2570	24.00	1.38	5.50	Pass
LTE	10	1710 - 1770	24.00	1.38	4.24	Pass
LTE	12	699 - 716	24.00	1.23	2.30	Pass
LTE	13	777 - 787	24.00	1.23	2.47	Pass
LTE	17	704 - 716	24.00	1.23	2.31	Pass
LTE	25	1850 - 1915	24.00	1.23	4.48	Pass
LTE	26	814 - 849	24.00	1.38	2.55	Pass
LTE	38	2570 - 2620	24.00	1.23	5.60	Pass
LTE	41	2496 - 2690	24.00	1.23	5.49	Pass
LTE	42	3400 - 3600	24.00	1.23	6.78	Pass
LTE	66	1710 - 1780	24.00	1.23	4.24	Pass
LTE	71	663 - 698	24.00	1.23	2.22	Pass
5G	n2	1850 - 1910	24.00	1.23	4.48	Pass
5G	n5	824 - 849	24.00	1.38	2.58	Pass
5G	n7	2500 - 2570	24.00	1.23	5.50	Pass
5G	n25	1850 - 1915	24.00	1.23	4.48	Pass
5G	n38	2570 - 2620	24.00	1.23	5.60	Pass
5G	n41	2496 - 2690	24.00	1.23	5.49	Pass
5G	n66	1710 - 1780	24.00	1.23	4.24	Pass
5G	n71	663 - 698	24.00	1.23	2.22	Pass
5G	n77	3300 - 4200	24.00	1.23	6.65	Pass
5G	n78	3300 - 3800	24.00	1.23	6.65	Pass

Table 10: Assessment result and verdict

Simultaneous transmission assessment:

Antenna Configuration		Simultaneous technologies and modes (worst case per antenna)	Result	Limit	Verdict
Config number	Antennas				
1	DSDA1 Antennebox + Int BuA	LTE 13 + GPRS 4TX	0.67	1.0	Pass
1	DSDA2 Antennebox + Int BuA	n77/n78 + GPRS 4TX	0.28	1.0	Pass
1/3/5	DSDA1 Antennebox + MIMO2	LTE 13 + LTE42	0.44	1.0	Pass
1/3/5	DSDA2 Antennebox + MIMO2	n77/n78 + LTE42	0.05	1.0	Pass
2	DSDA1 FSA + Int BuA	LTE 12 + GPRS 4TX	0.56	1.0	Pass
2	DSDA2 FSA + Int BuA	n77/n78 + GPRS 4TX	0.27	1.0	Pass
2/4/6	DSDA1 FSA + MIMO2	LTE 12 + LTE42	0.33	1.0	Pass
2/4/6	DSDA2 FSA + MIMO2	n77/n78 + LTE42	0.04	1.0	Pass
5/6/11/12	Int BuA + MIMO1	LTE 42 + GPRS 4TX	0.57	1.0	Pass
5/6/11/12	Int BuA + MIMO2	LTE 42 + LTE 42	0.01	1.0	Pass
7	DSDA1 Monopol + Int BuA	GPRS 4TX + GPRS 4TX	0.99	1.0	Pass
7	DSDA2 Monopol + Int BuA	n77/n78 + GPRS 4TX	0.47	1.0	Pass
7/9/11	DSDA1 Monopol + MIMO2	GPRS 4TX + LTE42	0.76	1.0	Pass
7/9/11	DSDA2 Monopol + MIMO2	n77/n78 + LTE42	0.24	1.0	Pass
8	DSDA1 Spoiler + Int BuA	GPRS 4TX + GPRS 4TX	0.84	1.0	Pass
8	DSDA2 Spoiler + Int BuA	n77/n78 + GPRS 4TX	0.42	1.0	Pass
8/10/12	DSDA1 Spoiler + MIMO2	GPRS 4TX + LTE42	0.61	1.0	Pass
8/10/12	DSDA2 Spoiler + MIMO2	n77/n78 + LTE42	0.19	1.0	Pass
3/5	DSDA1 Antennebox + MIMO1	LTE 13 + GPRS 4TX	0.84	1.0	Pass
3/5	DSDA2 Antennebox + MIMO1	LTE n77/n78 + GPRS 4TX	0.61	1.0	Pass
4/6	DSDA1 FSA + MIMO1	LTE 12 + GPRS 4TX	0.89	1.0	Pass
4/6	DSDA2 FSA + MIMO1	n77/n78 + GPRS 4TX	0.60	1.0	Pass
9/11	DSDA1 Monopol + MIMO1	GPRS 4TX + GPRS 4TX	1.32	1.0	Pass*
9/11	DSDA2 Monopol + MIMO1	n77/n78 + GPRS 4TX	0.80	1.0	Pass
10/12	DSDA1 Spoiler + MIMO1	GPRS 4TX + GPRS 4TX	1.16	1.0	Pass*
10/12	DSDA2 Spoiler + MIMO1	n77/n78 + GPRS 4TX	0.75	1.0	Pass

Table 11: Simultaneous Transmission assessment

Simultaneous Transmission configurations number 9/10/11/12 need a less conservative assessment to comply with the limit.

- Simultaneous Transmission Config 9/11

Antenna	Minimum installation distance (cm)	Assessment. distance (cm)
DSDA Monopol 1/2	77.0	33.0
MIMO 1	3.79	0.1

Antenna	Band	Dist. (cm)	Power density (W/m ²)	ISED General Public Limit (W/m ²)	1-g SAR (W/kg)	1-g SAR Limit (W/kg)	Result	Sum.	Limit	Verdict
DSDA Monopol 1/2	GPRS 850 MHz 4TX	33.00	1.03	2.58	-	-	0.40	0.96	1.0	Pass
MIMO 1		0.1	-	-	0.903	1.6	0.56			

- Simultaneous Transmission Config 10/12

Antenna	Rear left passanger minimum installation distance (cm)	Rear center passanger minimum installation distance (cm)	Rear right passanger minimum installation distance (cm)
Dist DSDA 1 Spoiler	24.4	>50	>> 100
Dist DSDA 2 Spoiler	>> 100	>50	24.4
Dist MIMO 1	>>50	< 20	>>50

Antenna	Rear left passanger assessment distance (cm)	Rear center passanger minimum distance (cm)
Dist DSDA 1 Spoiler	24.4	40.0
Dist MIMO 1	20.0	0.1

- Rear left passanger

Antenna	Band	Dist. (cm)	Power density (W/m ²)	ISED General Public Limit (W/m ²)	Result	Sum.	Limit	Verdict
DSDA Spoiler 1	GPRS 850 MHz 4TX	24.0	1.55	2.58	0.60	0.86	1.0	Pass
MIMO 1		20.0	0.67	2.58	0.26			

- Rear center passanger

Antenna	Band	Dist. (cm)	Power density (W/m ²)	ISED General Public Limit (W/m ²)	1-g SAR (W/kg)	1-g SAR Limit (W/kg)	Result	Sum.	Limit	Verdict
DSDA Monopol 1/2	GPRS 850 MHz 4TX	40.0	0.56	2.58	-	-	0.22	0.78	1.0	Pass
MIMO 1		0.1	-	-	0.903	1.6	0.56			

3. RF Exposure evaluation information

According to RSS-102 Issue 5, Paragraph “2.5.2. Exemption Limits for Routine Evaluation – RF Exposure Evaluation”:

2.5.2 Exemption Limits for Routine Evaluation – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device’s radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz⁶ and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $22.48/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-3} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

According to RSS-102 Issue 5, Paragraph “4. Exposure Limits”, Industry of Canada has adopted the RF field strength limits established in Health Canada’s RF exposure guideline, Safety code 6:

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$
Note: f is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

Table 6: RF Field Strength Limits for Controlled Use Devices (Controlled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²³	170	180	-	Instantaneous*
0.1-10	-	$1.6/f$	-	6**
1.29-10	$193/f^{0.5}$	-	-	6**
10-20	61.4	0.163	10	6
20-48	$129.8/f^{0.25}$	$0.3444/f^{0.25}$	$44.72/f^{0.5}$	6
48-100	49.33	0.1309	6.455	6
100-6000	$15.60 f^{0.25}$	$0.04138 f^{0.25}$	$0.6455 f^{0.5}$	6
6000-15000	137	0.364	50	6
15000-150000	137	0.364	50	$616000/f^{1.2}$
150000-300000	$0.354 f^{0.5}$	$9.40 \times 10^{-4} f^{0.5}$	$3.33 \times 10^{-4} f$	$616000/f^{1.2}$
Note: f is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

4. MPE Evaluation

When device is exempt from RF Exposure evaluation because of E.I.R.P level according to "RSS-102 Issue 5, paragraph 2.5.2.Exemption Limits for Routine Evaluation – RF Exposure Evaluation", to assess compliance with the Exemption Limits, maximum E.I.R.P was derived using the following formula:

$$P_{E.I.R.P.} = P_T + G_T - L_C$$

Where:

P_T = transmitter output power (including tune-up tolerance)

G_T = gain of the transmitting antenna

L_C = signal attenuation in the connecting cable between the transmitter and the antenna, if applicable

When RF Exposure evaluation is needed to determine compliance with RSS-102 Issue 5, RF Field Strength Limits, the following equations have been used for the calculations; these equations are accurate in the far-field of an antenna and will over-predict power density in the near field, where they could be used for making a "worst-case" or conservative prediction:

$$\text{Power density: } S[W / m^2] = \frac{P_{E.I.R.P.}[W]}{4\pi R[m]^2}$$

Where:

S = power density

$P_{E.I.R.P.}$ = Equivalent isotropically radiated power

R = distance to the center of radiation of the antenna (evaluation distance)

$$P_{E.I.R.P.} = P_T + G_T - L_C$$

Where:

P_T = transmitter output power (including tune-up tolerance)

G_T = gain of the transmitting antenna

L_C = signal attenuation in the connecting cable between the transmitter and the antenna if applicable

Multiple frequencies assessment

When multiple sources are introduced into an environment, it becomes necessary to address the sources interdependently, since each source will contribute some percentage of the maximum exposure towards the total exposure at a fixed location. The sum of the ratios of the exposure from each source to the corresponding maximum exposure for the frequency of each source must be evaluated.

The exposure complies with the maximum permissible exposure if the sum of the ratios is less than unity:

$$\sum_{i=1}^n \frac{S_i}{Lim_i}$$

Where

S_i is the applicable contribution of each source (e.g. power flux density).

Lim_i is the limit for the applicable contribution of each source (e.g. MPE power flux density basic restriction).

Appendix B: SAR Test configuration

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1. GENERAL INTRODUCTION

1.1. Application Standard

Industry of Canada (ISED) sets the limits for General Population/Uncontrolled environment when the exposure occurs at a distance of 0.2 m or less into the RSS-102 Issue 5, paragraph 4 “Exposure Limits”, Table 3.

1.2. General requirements

The SAR measurement has been performed continuing the following considerations and environment conditions:

- The ambient temperature shall be in the range of 18°C to 25°C and the variation shall not exceed +/- 2°C during the test.
- The ambient humidity shall be in the range of and 30% - 70%.
- The device battery shall be fully charged before each measurement.

1.3. Measurement system requirements

The measurement system used for SAR tests fulfills the procedural and technical requirements described at Point 6 (“Measurement system specifications”) of EN 62209-1528.

1.4. Phantom requirements

The phantom model for body measurements is an elliptical open-top container with a flat bottom, with shape, dimensions and materials defined at Point “6.2.4 Flat Phantom” of EN 62209-1528:

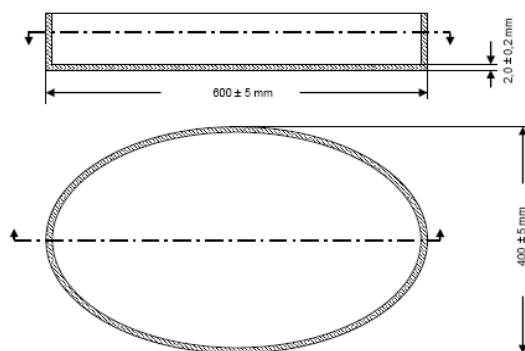


Figure 1: Proportions and shape of Phantom shell

a) Except as specified in item b), the shape of the phantom shall be an ellipse with length 600 mm \pm 5 mm and width 400 mm \pm 5 mm (see Figure 3).

b) For frequencies above 150 MHz and for separation distances less than or equal to 25 mm from the outer surface of the bottom of the phantom shell, phantoms with other shapes and smaller dimensions are allowed as follows:

- between 150 MHz and 800 MHz, the phantom flat bottom wall may have any shape that encompasses an ellipse with length $0,6 \lambda_0$ and width $0,4 \lambda_0$, where λ_0 is the wavelength in air.
- between 800 MHz and 6 GHz, the phantom may have any shape flat bottom wall that encompasses an ellipse with length 225 mm and width 150 mm.

1.5. Measurement Liquids requirements.

The liquids used to simulate the human tissues, must fulfill the requirements of the dielectric properties required. These dielectric properties of the liquids are indicated in the IEC/IEEE 62209-1528, point “6.2.2. Table 2 – Dielectric properties of the tissue-equivalent medium”.

As indicated in Point 6.1.1 of IEC/IEEE 62209-1528, tissue-equivalent media shall yield measured relative permittivity and conductivity values within $\pm 5\%$ of the target values at frequencies at which the SAR is measured. When the method of 7.8 is used to correct the measured SAR for the deviations in permittivity and conductivity, the tolerance may be relaxed to a maximum of $\pm 10\%$ from the targets.

To minimize the effect of reflections on peak spatial-average SAR values, from the upper surface of the tissue equivalent liquid, the depth of the liquid should be at least 15 cm.

Dielectric properties values of the Tissue Simulant Liquids used for SAR measurements are included in Appendix B, Section 3, of this document.

2. MEASUREMENT SYSTEM

2.1. Measurement System

The DASY6 system for performing compliance tests consists of the following items:

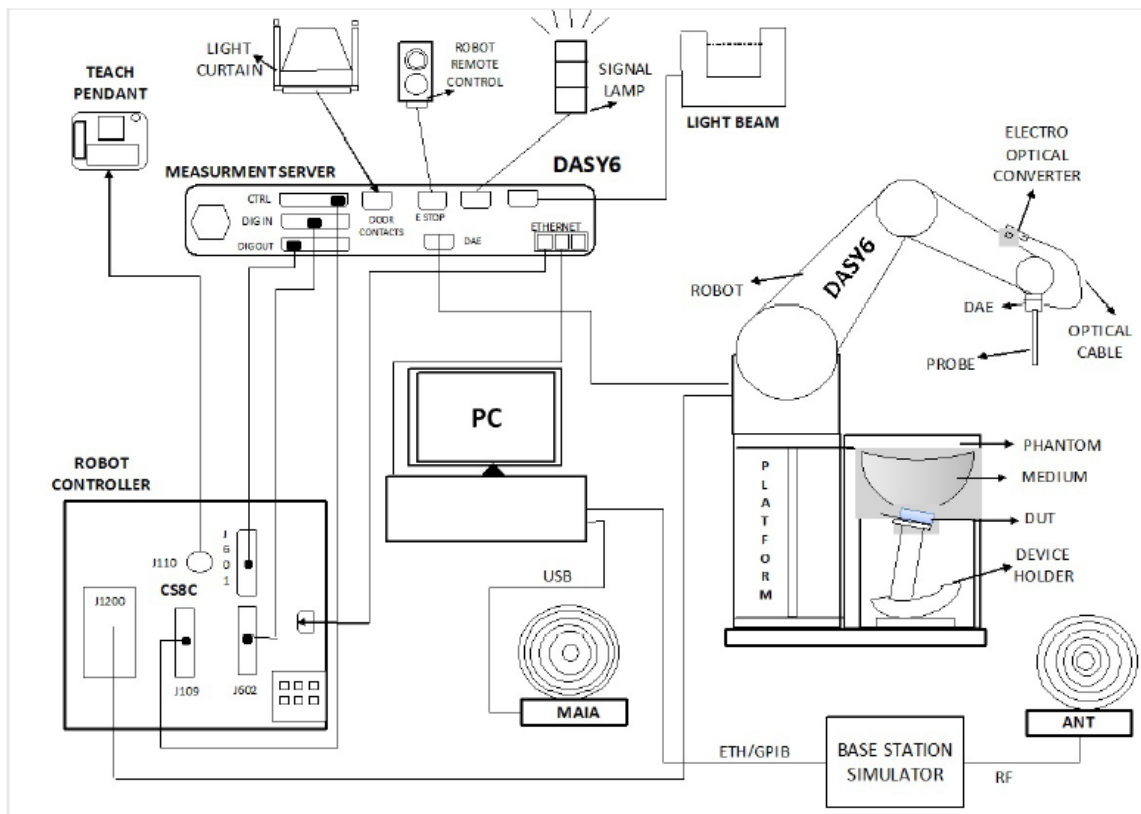






Figure 2: SAR Measurement system


- A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running the DASY software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.


	Model	EX3DV4
	Construction	Symmetrical design with triangular core. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
	Frequency	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
	Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
	Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
	Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1.0 mm

	Model	ES3DV3
	Construction	Symmetrical design with triangular core. Interleaved sensors. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
	Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
	Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)
	Dynamic Range	5 μ W/g to > 100 mW/g Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm	

	Model	DAE4
	Construction	Signal amplifier, multiplexer, A/D converter, and control logic. Serial optical link communication with DASY4/5 embedded system (fully remote controlled). Two-step probe touch detector for mechanical surface detection and emergency robot stop.
	Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)
	Input Offset Voltage	< 5 μ V (with auto zero)
	Input Resistance	200 MOhm
Input Bias Current	< 50 fA	

	Model	Mounting Device for Laptop and Body-Worn Transmitters
	Construction	In combination with the Twin SAM V5.0/V5.0c or ELI Phantoms, the Mounting Device (Body-worn) enables testing of transmitters devices according to IEC 62209-2 specifications. The device holder can be locked for positioning at flat phantom section.
	Material	Polyoxymethylene (POM), PET-G, Foam

	Model	ELI
	Construction	Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.
	Material	Vinylester, glass fiber reinforced (VE-GF)
	Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
	Shell Thickness	2 ± 0.2 mm (bottom plate)
	Dimensions	Major axis: 600 mm Minor axis: 400 mm
	Filling Volume	Approx. 30 liters
	Wooden Support	SPEAG standard phantom table

	Model	System Validations Kits 450 MHz – 6 GHz			
	Construction	Symmetrical dipole with I/4 balun. Enables measurement of feedpoint impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.			
	Frequency	450 MHz to 5800 MHz			
	Return Loss	20 dB at specified validation position			
	Dimensions (length and overall height in mm)	Product	Dipole length	Overall height	
		D450V3	290.0	330.0	
		D750V3	179.0	330.0	
		D900V2	148.5	340.0	
		D1800V2	72.5	300.0	
		D2000V2	65.0	300.0	
D2300V2		56.3	290.0		
D2450V2		52.0	290.0		
D2600V2		49.2	290.0		
D3300V2		38.0	285.0		
D3500V2	37.0	285.0			
D3700V2	34.7	285.0			
D3900V2	32.0	280.0			
D4200V2	30.1	280.0			
D4600V2	27.0	280.0			
D4900V2	25.0	280.0			
D5GHzV2	20.6	300.0			

2.2. Device Holder

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source in 5mm distance, a positioning uncertainty of $\pm 0.5\text{mm}$ would produce a SAR uncertainty of $\pm 20\%$. An accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions, in which the devices must be measured, are defined by the standards.

The DASY Laptop Holder extension is lightweight and made of POM, PET-G acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM and ELI phantoms.

2.3. Test Positions of device relative to body

The device under test consists of a Telematics Control Unit, which will be installed into car roofs. It supports two cellular modules and multiple antennas that can be used for transmission. It supports different configurations where different antennas can be used for different purposes and to transmit simultaneously.

The list of cellular modules and antennas supported by the device are:

- Cellular modules: "NAD1 (OEM, model SA-N9000)" and "NAD2 (Customer, model OEM:SA-N9001)"
- Antennas: "MIMO1 RoW", "MIMO2 RoW", "DSDA1 FSA", "DSDA2 FSA", "DSDA1 Antennenbox", "DSDA2 Antennenbox" and "Int BuA"

Only three antennas will be installed close to car passengers at a distance minor to 20 cm, these antennas will be named as "MIMO1 RoW/MIMO2 RoW (both on the external Shark antenna)" and "Int BuA (TCU internal)" antennas.

The main antenna "MIMO1 RoW/MIMO2 RoW (External Shark antenna)" will be placed outside the car cabin, and the back-up antenna "Int BuA (TCU internal)" will be placed oriented to the car roof, inspite being inside the TCU.

During normal device function the "MIMO1 RoW/MIMO2 RoW (External Shark antenna)" will be used to operate normally and if this antenna has any functionality problems, "Int BuA (TCU internal)" could be used for emergency calls.

According to the manufacturer once installed the minimum distance from the TCU to any car passenger will be 37.92mm.

The device was tested placed at the centre of the flat phantom with its backside facing the flat phantom surface simulating the normal use conditions, and due to low SAR results at the declared installation distance, test distance was set to 0 mm and 10 mm for Internal and External antennas.

2.4. Test to be performed

Test shall be performed for each test position previously described, using the channel producing the highest rated output power.

Additionally the other applicable test frequency channels must be measured for the test configuration providing the highest SAR for each applicable transmitting band.

2.5. Description of interpolation/extrapolation scheme

The local SAR inside the Phantom is measured using small dipole sensing elements inside a probe element. The probe tip must not be in contact with the Phantoms surface in order to minimise measurement errors, but the highest local SAR is obtained from measurements at a certain distances from the shell trough extrapolation. The accurate assessment of the maximum SAR averaged over 1 gr and 10 gr. requires a very fine resolution in the three dimensional scanned data array. Since the measurements have to be performed over a limited time, the measured data have to be interpolated to provide an array of sufficient resolution.

The interpolation of 2D area scan is used after the initial area scan, at a fixed distance from the Phantom shell wall. The initial scan data is collected with approx. 15 mm spatial resolution and this interpolation is used to find the location of the local maximum for positioning the subsequent 3D scanning within a 1 mm resolution.

For the 3D scan, data is collected on a spatially regular 3D grid having 5 mm steps in both directions. After the data collection by the SAR probe, the data are extrapolated in the depth direction to assign values to points in the 3D array closer to the shell wall. A notional extrapolation value is also assigned to the first point outside the shell wall so that subsequent interpolation schemes will be applicable right up to the shell wall boundary.

2.6. Determination of the largest peak spatial-average SAR

To determine the maximum value of the peak spatial-average SAR of a DUT, all device positions, configurations and operational modes should be tested for each frequency band.

The averaging volume shall be chosen as 1gr. of contiguous tissue. The cubic volumes, over which the SAR measurements are averaged after extrapolation and interpolation, are chosen in order to include the highest values of local SAR.

The maximum SAR level for the DUT will be the maximum level obtained of the performed measurements, and indicated in the previous points.

2.7. System Validation

Prior to the SAR measurements, system verification is done to verify the system accuracy. A complete SAR evaluation is done using a half-wavelength dipole as source with the frequency of the mid-band channel of the operating band, or within 10% of this channel.

The measured 1 gr. and 10 gr. SAR should be within 10% of the expected target values specified in the calibration certificate of the dipole, for the specific tissue and frequency used.

3. UNCERTAINTY

According to FCC OET KDB 865664 D01 - SAR Measurement Requirements for 100 MHz to 6 GHz v01r04 (August 2015), as the highest measured 1-g SAR has been < 1.5 W/kg, SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in the actual SAR report, but it has been included for ISO 17025 accreditation.

Uncertainty for 300 MHz – 3 GHz

ERROR SOURCES	Uncertainty value (± %)	Probability distribution	Divisor	(c _i) 1g	(c _i) 10g	Standard uncertainty (1g) (± %)	Standard uncertainty (10g) (± %)
Measurement Equipment							
Probe Calibration	6.650	6.650	N	1	1	1	6.650
Axial Isotropy	3.500	3.500	R	√3	0.7	0.7	1.415
Hemisfericall Isotropy	2.320	2.320	R	√3	0.7	0.7	0.938
Boundary effect	1.000	1.000	R	√3	1	1	0.577
Linearity	4.700	4.700	R	√3	1	1	2.714
System Detection limits	0.250	0.250	R	√3	1	1	0.144
Probe modulation response	4.800	4.800	N	1	1	1	4.800
Readout electronics	0.300	0.300	N	1	1	1	0.300
Response time	1.010	1.010	R	√3	1	1	0.583
Integration time	2.600	2.600	R	√3	1	1	1.501
RF Ambient noise	3.000	3.000	R	√3	1	1	1.732
RF Ambient reflections	3.000	3.000	R	√3	1	1	1.732
Probe positioner mech. restrictions	0.400	0.400	R	√3	1	1	0.231
Probe positioning with respect to phantom shell	2.900	2.900	R	√3	1	1	1.674
Max. SAR Eval.	2.000	2.000	R	√3	1	1	1.155
Test Sample Related							
Device holder uncertainty	2.900	N	1	1	1	2.900	2.900
Test sample positioning	3.600	N	1	1	1	3.600	3.600
Drift of output power	5.000	R	√3	1	1	2.887	2.887
Phantom and Setup							
Phantom uncertainty (shape and thickness tolerances)	6.100	R	√3	1	1	3.522	3.522
Algorithm for correcting SAR for deviations in permittivity and conductivity	1.900	R	√3	1	0.84	1.097	0.921
Liquid conductivity (meas.)	2.454	N	1	0.78	0.71	1.914	1.742
Liquid permittivity (meas.)	2.454	N	1	0.26	0.26	0.638	0.638
Liquid conductivity – temperature uncertainty	5.220	R	√3	0.78	0.71	2.351	2.140
Liquid permittivity – temperature uncertainty	0.840	R	√3	0.23	0.26	0.112	0.126
Combined standard uncertainty	$u_c = \sqrt{\sum_{i=1}^m c_i^2 \cdot u_i^2}$					12.00	11.92
Expanded uncertainty (confidence interval of 95%)	$ue = 2.00 u_c$					24.00	23.84

Table 12: Uncertainty Assessment for 300 MHz - 3 GHz.

Uncertainty for 3 GHz – 6 GHz

ERROR SOURCES	Uncertainty value (± %)	Probability distribution	Divisor	(c _i) 1g	(c _i) 10g	Standard uncertainty (1g) (± %)	Standard uncertainty (10g) (± %)
Measurement Equipment							
Probe Calibration	7.000	N	1	1	1	7.000	7.000
Axial Isotropy	3.500	R	√3	0.7	0.7	1.415	1.415
Hemisfericall Isotropy	2.320	R	√3	0.7	0.7	0.938	0.938
Boundary effect	2.000	R	√3	1	1	1.155	1.155
Linearity	4.700	R	√3	1	1	2.714	2.714
System Detection limits	0.250	R	√3	1	1	0.144	0.144
Probe modulation response	4.800	N	1	1	1	4.800	4.800
Readout electronics	0.300	N	1	1	1	0.300	0.300
Response time	1.010	R	√3	1	1	0.583	0.583
Integration time	2.600	R	√3	1	1	1.501	1.501
RF Ambient noise	3.000	R	√3	1	1	1.732	1.732
RF Ambient reflections	3.000	R	√3	1	1	1.732	1.732
Probe positioner mech. restrictions	0.400	R	√3	1	1	0.231	0.231
Probe positioning with respect to phantom shell	6.700	R	√3	1	1	3.868	3.868
Max. SAR Eval.	4.000	R	√3	1	1	2.309	2.309
Test Sample Related							
Device holder uncertainty	2.900	N	1	1	1	2.900	2.900
Test sample positioning	3.600	N	1	1	1	3.600	3.600
Drift of output power	5.000	R	√3	1	1	2.887	2.887
Phantom and Setup							
Phantom uncertainty (shape and thickness tolerances)	6.600	R	√3	1	1	3.811	3.811
Algorithm for correcting SAR for deviations in permittivity and conductivity	1.900	R	√3	1	0.84	1.097	0.921
Liquid conductivity (meas.)	2.454	N	1	0.78	0.71	1.914	1.742
Liquid permittivity (meas.)	2.454	N	1	0.26	0.26	0.638	0.638
Liquid conductivity – temperature uncertainty	3.360	R	√3	0.78	0.71	1.513	1.377
Liquid permittivity – temperature uncertainty	0.780	R	√3	0.23	0.26	0.104	0.117
Combined standard uncertainty	$u_c = \sqrt{\sum_{i=1}^m c_i^2 \cdot u_i^2}$					12.84	12.79
Expanded uncertainty (confidence interval of 95%)	$u_e = 2.00 u_c$					25.68	25.57

Table 13: Uncertainty Assessment for 3 GHz - 6 GHz.

4. SAR LIMIT

Having a worst case measurement, the SAR limit is valid for general population/uncontrolled exposure.

The SAR values have to be averaged over a mass of 1 gr. (SAR 1 gr.) with the shape of a cube and averaged over a mass of 10 gr (Extremity SAR 10 gr). These levels could not exceed the values indicated in the application Standard:

Standard	Exposure	SAR	SAR Limit (W/kg)
RSS-102 Issue 5 (2015-03), Paragraph 4	General population/Uncontrolled	SAR 1-g.	1.6
RSS-102 Issue 5 (2015-03), Paragraph 4	General population/Uncontrolled Extremity	SAR 10-g.	4.0

Table 14: SAR limit

5. DEVICE UNDER TEST

5.1. Dimensions

Dimensions	Millimetres
Length x Width x Height	160.0 x 110.0 x 17.0
Length x Width x Height (including ext antenna)	160.0 x 140.0 x 55.0

Table 15: Dimensions

5.2. Wireless Technology

Wireless Technology	Frequency Bands	Modes
GSM	850 / 1900	- Voice (GMSK) - GPRS (GMSK, Multi-slot class 33) - EGPRS (8PSK, Multi-slot class 33)
W-CDMA	II/IV/V	- UMTS Rel. 99 - HSDPA (Rel. 5) - HSPA (Rel. 6) - HSPA+ (Rel. 7)
LTE	2/4/5/7/12/13/17/25/26/38/41/42/66/71	- FDD and TDD Bands - CA Downlink - CA Uplink Intra-Band - CA Uplink Inter-Band
5G	n2/n5/n7/n25/n38/n41/n66/n71/n77/n78	- FDD and TDD Bands - SA mode - NSA-EN-DC mode

Table 16: Supported modes

The supported transmitting technology for each antenna combination is:

Module	Port	Antenna	Technology	Tx Bands
NAD#1	MIMO1	MIMO1 Antenna (External shark fin antenna)	2G	850 / 1900 MHz
NAD#1	MIMO1	MIMO1 Antenna (External shark fin antenna)	3G	II, IV, V
NAD#1	MIMO1	MIMO1 Antenna (External shark fin antenna)	LTE	2, 4, 5, 7,12,13,17, 25, 26, 38, 41, 66, 71
NAD#1	MIMO1	MIMO1 Antenna (External shark fin antenna)	5G	n2, n5, n7, n25, n38, n41, n66, n71
NAD#1	MIMO2	MIMO2 Antenna (External shark fin antenna)	LTE	42
NAD#1	MIMO2	MIMO2 Antenna (External shark fin antenna)	5G	n77, n78
NAD#1	MIMO1	Int BuA Antenna (TCU internal)	2G	850 / 1900 MHz
NAD#1	MIMO1	Int BuA Antenna (TCU internal)	3G	II, IV, V
NAD#2	DSDA2	Int BuA Antenna (TCU internal)	LTE	42
NAD#2	DSDA2	Int BuA Antenna (TCU internal)	5G	n77, n78

Table 17: Antenna supported transmitting modes

5.3. Simultaneous Transmission

“MIMO1/MIMO2 antenna” (External shark fin antenna) is able to transmit simultaneously with “Int BuA Antenna” (TCU internal) in the following configurations:

Configuration	Module	Antenna	Tx - Bands
5/6/11/12	NAD2	Int BuA	LTE (42) 5G (n77,n78)
	NAD1	MIMO1 High or RoW	2G (850/1900 MHz) 3G (II, IV, V) LTE (2,4,5,7,12,13,17,25,26,66,71,41) 5G SA (n2,n5,n7,n25,n41,n66,n71) 5G NSA (2+n5,66+n5,26+n41,5+n66,12+n66,2+n71,66+n71, 7+n78, 38+n78)
	NAD1	MIMO2 High or RoW	LTE (42) 5G (n77,n78)

Table 18: Simultaneous transmission

5.4. Antenna Location

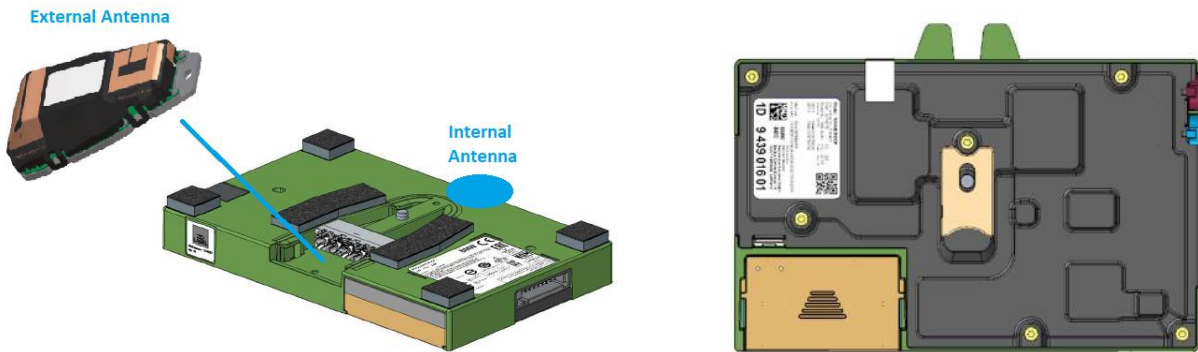


Figure 3: Antenna diagram location sketch

Appendix C: Test results

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1. TEST CONDITIONS

1.1. Power supply (V):

$V_n = 12.0 \text{ V}$

Type of power supply = DC Voltage from power supply.

1.2. Temperature (°C):

$T_n = +20.00 \text{ to } +25.00$

The subscript n indicates normal test conditions.

1.3. Test signal, Output Power and Frequencies

The sample was put into operation by using an R&S CMW 500 as base station simulator for 2G, 3G and LTE transmitting technologies and a Keysight UXM E7515A and an R&S CMX500 were used to perform measurements for 5G transmitting technologies.

The maximum conducted time-averaged power of the device for each mode was measured with a power sensor R&S NRP-Z81.

The output power of the device was set to Power Control Level (PCL) maximum for all tests.

In all operating bands and test positions, the measurements were performed on middle, lowest and highest channels.

The target power alignments for RF components declared by the manufacturer for each supported technology are:

Technology / Mode	Band	Frequency (MHz)	Maximum Output Power (Incl. Tune-Up) (dBm)
GSM	850	824 - 849	34.0
GPRS 1TX	850	824 - 849	33.5
GPRS 2TX	850	824 - 849	31.5
GPRS 3TX	850	824 - 849	29.5
GPRS 4TX	850	824 - 849	28.5
EGPRS 1TX	850	824 - 849	27.5
EGPRS 2TX	850	824 - 849	26.5
EGPRS 3TX	850	824 - 849	24.5
EGPRS 4TX	850	824 - 849	23.5
GSM	1900	1850 - 1910	31.0
GPRS 1TX	1900	1850 - 1910	30.5
GPRS 2TX	1900	1850 - 1910	27.5
GPRS 3TX	1900	1850 - 1910	26.5
GPRS 4TX	1900	1850 - 1910	24.5
EGPRS 1TX	1900	1850 - 1910	26.5
EGPRS 2TX	1900	1850 - 1910	25.0
EGPRS 3TX	1900	1850 - 1910	23.0
EGPRS 4TX	1900	1850 - 1910	22.0

Technology / Mode	Band	Frequency (MHz)	Maximum Output Power (Incl. Tune-Up) (dBm)
UMTS	II	1850 - 1910	24.5
UMTS	IV	1710 - 1755	24.0
UMTS	V	824 - 849	25.0

Technology / Mode	Band	Frequency (MHz)	Maximum Output Power (Incl. Tune-Up) (dBm)
LTE	2	1850 - 1910	24.5
LTE	4	1710 - 1755	25.0
LTE	5	824 - 849	24.5
LTE	7	2500 - 2570	25.0
LTE	12	699 - 716	24.5
LTE	13	777 - 787	24.5
LTE	17	704 - 716	24.5
LTE	25	1850 - 1915	24.5
LTE	26	814 - 849	25.0
LTE	38	2570 - 2620	24.5
LTE	41	2496 - 2690	24.5
LTE	42	3400 - 3600	24.5
LTE	66	1710 - 1780	24.5
LTE	71	663 - 698	24.5

LTE CA Uplink Combination	PCC Band	Maximum Output Power (Incl. Tune-Up) (dBm)
2A-5A	LTE 2	24.5-24.5
2A-12A	LTE 2	24.5-24.5
2A-13A	LTE 2	24.5-24.5
4A-5A	LTE4	25.0-24.5
4A-12A	LTE4	25.0-24.5
4A-13A	LTE4	25.0-24.5
4A-17A	LTE4	25.0-24.5
5A-7A	LTE 5	24.5-25.0
5A-66A	LTE 5	24.5-24.5
5B	LTE 5	24.5
7C	LTE 7	25.0
41C	LTE 41	24.5
42C	LTE 42	24.5
66B	LTE 66	24.5
66C	LTE 66	24.5

Technology / Mode	Band	Frequency (MHz)	Maximum Output Power (Incl. Tune-Up) (dBm)
5G SA	n2	1850 - 1910	24.5
	n5	824 - 849	25.0
	n7	2500 - 2570	25.0
	n25	1850 - 1915	24.5
	n38	2570 - 2620	24.5
	n41	2496 - 2690	24.5
	n66	1710 - 1780	24.5
	n71	663 - 698	24.5
	n77	3450 - 3980	24.5
	n78	3300 - 3800	24.5

Technology / Mode	Band	Maximum Output Power (Incl. Tune-Up) (dBm)
5G NSA	2A-n5A	24.5-25.0
	66A-n5A	24.5-25.0
	26A-n41A	25.0-24.5
	5A-n66A	24.5-24.5
	12A-n66A	24.5-24.5
	2A-n71A	24.5-24.5
	66A-n71A	24.5-24.5
	7A-n78A	25.0-24.5
	38A-n78A	24.5-24.5

1.4. DUT and test-site configurations

For all supported modes, the back face of the DUT was placed facing the flat phantom surface using 0-10 mm test separation distance for measurements with the “External shark fin antenna” and using 0 mm test separation distance for measurements with the “TCU internal antenna”.

2. CONDUCTED AVERAGE POWER MEASUREMENTS

2.1. MIMO1 port: MIMO1 ANT (Shark fin antenna) and Int BuA ANT (TCU internal)

2.1.1. GSM/GPRS/EGPRS Bands

- GSM 850: For voice mode PCL 5 was set to allow max power transmission.

GSM 900 - Average Output Power					
Channel Number	Frequency (MHz)	Frame Average Output Power (dBm)	Average Burst Output Power (dBm)	PCL	Modulation
128	824.2	23.85	32.9	5	GMSK
190	836.6	23.90	32.9	5	GMSK
251	848.8	23.92	32.9	5	GMSK

- GPRS 850: For data mode. PCL 5, CS1 coding scheme and Gamma 3 were set to allow DUT's max power transmission for each slot.

GPRS 850 - Frame Average Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
128	824.2	23.43	23.45	23.89	23.47	5	GMSK-CS1
190	836.6	23.53	23.68	23.90	23.47	5	GMSK-CS1
251	848.8	23.74	23.77	23.96	23.48	5	GMSK-CS1

GPRS 850 - Average Burst Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
128	824.2	32.5	29.5	28.2	26.5	5	GMSK-CS1
190	836.6	32.6	29.7	28.2	26.5	5	GMSK-CS1
251	848.8	32.8	29.8	28.2	26.5	5	GMSK-CS1

- EGPRS 850: For data mode. PCL 8, MCS5 coding scheme and Gamma 6 were set to allow DUT's max power transmission for each slot.

EDGE 850 - Frame Average Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
128	824.2	17.67	20.31	21.63	22.63	8	8PSK-MCS5
190	836.6	17.62	20.48	21.80	22.59	8	8PSK-MCS5
251	848.8	17.72	20.55	21.84	22.65	8	8PSK-MCS5

EDGE 850 - Average Burst Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
128	824.2	26.7	26.3	25.9	25.6	8	8PSK-MCS5
190	836.6	26.7	26.5	26.1	25.6	8	8PSK-MCS5
251	848.8	26.8	26.6	26.1	25.7	8	8PSK-MCS5

- GSM 1900: For voice mode PCL 0 was set to allow max power transmission.

GSM 1800 - Average Output Power					
Channel Number	Frequency (MHz)	Frame Average Output Power (dBm)	Average Burst OutputPower (dBm)	PCL	Modulation
512	1850.2	20.37	29.4	0	GMSK
661	1880.0	20.20	29.2	0	GMSK
810	1909.8	19.78	28.8	0	GMSK

- GPRS1900: For data mode. PCL 0, CS1 coding scheme and Gamma 3 were set to allow max power transmission for each slot.

GPRS 1900 - Frame Average Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
512	1850.2	20.22	19.93	20.84	21.11	0	GMSK-CS1
661	1880.0	19.92	19.25	20.22	20.38	0	GMSK-CS1
810	1909.8	19.48	18.19	18.81	19.02	0	GMSK-CS1

GPRS 1900 - Average Burst Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
512	1850.2	29.3	26.0	25.1	24.1	0	GMSK-CS1
661	1880.0	29.0	25.3	24.5	23.4	0	GMSK-CS1
810	1909.8	28.5	24.2	23.1	22.0	0	GMSK-CS1

- EGPRS 1900: For data mode, PCL 2, MCS5 coding scheme and Gamma 5 were set to allow max power transmission for each slot.

EDGE 1900 - Frame Average Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
512	1850.2	16.37	18.74	19.87	20.50	2	8PSK-MCS5
661	1880.0	15.68	18.20	19.26	19.85	2	8PSK-MCS5
810	1909.8	14.68	16.87	17.85	18.59	2	8PSK-MCS5

EDGE 1900 - Average Burst Output Power							
Channel Number	Frequency (MHz)	Power (dBm) 1 Slot	Power (dBm) 2 Slots	Power (dBm) 3 Slots	Power (dBm) 4 Slots	PCL	Modulation
512	1850.2	25.4	24.8	24.1	23.5	2	8PSK-MCS5
661	1880.0	24.7	24.2	23.5	22.9	2	8PSK-MCS5
810	1909.8	23.7	22.9	22.1	21.6	2	8PSK-MCS5

2.1.2. WCDMA/HSDPA/HSPA/HSPA+ Bands

- **WCDMA**: The DUT supports power Class 3, with a nominal maximum output power of 24 dBm. Tests were completed according to 3GPP TS34.121, section 5.

Mode	Subtest	Rel99
WCDMA	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2Kbps RMC
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)
FDD II 1900	WCDMA	9262	1852.4	23.06
FDD II 1900	WCDMA	9400	1880.0	22.87
FDD II 1900	WCDMA	9538	1907.6	22.78

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)
FDD IV 1700	WCDMA	1312	1712.4	24.01
FDD IV 1700	WCDMA	1412	1732.6	23.78
FDD IV 1700	WCDMA	1512	1752.6	23.54

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)
FDD V 850	WCDMA	4132	826.4	23.13
FDD V 850	WCDMA	4182	836.4	23.01
FDD V 850	WCDMA	4233	846.6	22.92

- HSDPA:

Mode	Subtest	1	2	3	4
HSDPA	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2Kbps RMC			
	HSDPA FRC	H-Set1			
	HSUPA Test	HSUPA Loopback			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64	64	64	64
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR	0	0	0.5	0.5
	Dack	8			
	Dnak	8			
	Ack-Nack repetition factor	3			
	DCQI	8			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
$A_{hs} = \beta_{hs}/\beta_c$	30/15				

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)			
				Subtest			
				1	2	3	4
FDD II 1900	HSDPA	9262	1852.4	22.71	22.32	22.10	21.07
FDD II 1900	HSDPA	9400	1880.0	22.63	22.33	22.09	21.17
FDD II 1900	HSDPA	9538	1907.6	22.59	22.10	21.86	20.91

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)			
				Subtest			
				1	2	3	4
FDD IV 1700	HSDPA	1312	1712.4	23.13	22.40	22.14	21.20
FDD IV 1700	HSDPA	1412	1732.6	23.02	22.25	22.03	21.06
FDD IV 1700	HSDPA	1512	1752.6	22.72	21.95	22.01	20.99

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)			
				Subtest			
				1	2	3	4
FDD V 850	HSDPA	4132	826.4	23.00	22.18	22.00	21.04
FDD V 850	HSDPA	4182	836.4	22.66	21.90	21.93	20.95
FDD V 850	HSDPA	4233	846.6	22.94	22.10	21.73	21.46

- HSPA:

Mode	Subtest	1	2	3	4	5
HSPA	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2Kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm 2				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	15/15
	β_{ec}	209/225	12/15	30/15	2/15	24/15
	β_c/β_d	11/15	6/15	15/9	2/15	15/15
	β_{hs}	22/15	12/15	30/15	4/15	30/15
	β_{ed}	1309/225	94/75	47/15	56/75	134/15
	MPR (dB)	0	2	1	2	0
	Dack	8				
	Dnak	8				
	Ack-Nack repetition factor	3				
	DCQI	8				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	Ahs = β_{hs}/β_c	30/15				
	AG Index	20	12	15	17	21
ETFCI	75	67	92	71	81	
Associated Max UL DataRate Kbps	242.1	174.9	482.8	205.8	308.9	

Band	Mode	CH	Frequency (MHz)	Average Output Power (dBm)				
				Subtest				
				1	2	3	4	5
FDD II 1900	HSPA	9262	1852.4	23.16	22.16	23.18	22.16	23.34
FDD II 1900	HSPA	9400	1880.0	23.11	22.15	23.09	22.15	23.33
FDD II 1900	HSPA	9538	1907.6	22.86	21.91	22.92	21.92	23.05

Band	Mode	CH	Frequency (MHz)	Average Output Power (dBm)				
				Subtest				
				1	2	3	4	5
FDD IV 1700	HSPA	1312	1712.4	23.18	22.23	23.24	22.24	23.28
FDD IV 1700	HSPA	1412	1732.6	23.07	22.11	23.11	22.13	23.15
FDD IV 1700	HSPA	1512	1752.6	23.07	22.15	23.08	22.10	23.09

Band	Mode	CH	Frequency (MHz)	Average Output Power (dBm)				
				Subtest				
				1	2	3	4	5
FDD V 850	HSPA	4132	826.4	23.00	21.03	23.02	21.04	23.05
FDD V 850	HSPA	4182	836.4	22.92	20.96	22.92	20.97	22.93
FDD V 850	HSPA	4233	846.6	22.94	20.98	22.94	21.13	22.94

- HSPA+

Mode	Subtest	1
HSPA+	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2Kbps RMC
	HSDPA FRC	H-Set1
	HSUPA Test	HSUPA Loopback
	Power Control Algorithm	Algorithm 2
	β_c	1
	β_d	0
	β_{ec}	30/15
	β_{hs}	30/15
	β_{ed} (2xSF2)	β_{ed1} : 30/15 β_{ed2} : 30/15
	β_{ed} (2xSF4)	β_{ed3} : 24/15 β_{ed4} : 24/15
	CM (dB)	3.5
	MPR (dB)	2.5
	D E-DPCCH	7
	AG Index	14
	ETFCI	105

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)
FDD II 1900	HSPA+	9262	1852.4	23.16
FDD II 1900	HSPA+	9400	1880.0	23.15
FDD II 1900	HSPA+	9538	1907.6	22.93

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)
FDD IV 1700	HSPA+	1312	1712.4	23.26
FDD IV 1700	HSPA+	1412	1732.6	23.15
FDD IV 1700	HSPA+	1512	1752.6	23.11

Band	Mode	Channel Number	Frequency (MHz)	Average Output Power (dBm)
FDD V 850	HSPA+	4132	826.4	23.02
FDD V 850	HSPA+	4182	836.4	22.94
FDD V 850	HSPA+	4233	846.6	22.95

2.1.3. LTE Bands

LTE MPR is permanently implemented for the device. A-MPR was disable for SAR measurements.

Maximum Power Reductions are specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

- LTE 2

Band	BW	Modulation	Mode		Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1860.0 MHz	1880.0 MHz	1900.0 MHz
LTE B2	20 MHz	QPSK	1RB Low	0	23.06	23.07	23.10
			1RB Mid	0	22.87	22.97	23.25
			1RB High	0	23.00	23.00	23.23
			50% Low	1	22.09	22.08	22.22
			50% Mid	1	22.08	22.03	22.20
			50% High	1	22.08	22.02	22.22
			100%	1	22.01	21.97	22.16
		16-QAM	1RB Low	1	22.35	22.38	22.49
			1RB Mid	1	22.41	22.36	22.61
			1RB High	1	22.32	22.18	22.45
			50% Low	2	21.14	21.16	21.33
			50% Mid	2	21.09	21.12	21.29
			50% High	2	21.09	21.06	21.30
			100%	2	21.06	21.03	21.24
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1857.5 MHz	1880.0 MHz	1902.5 MHz
LTE B2	15 MHz	QPSK	1RB Low	0	23.02	23.07	23.15
			1RB Mid	0	22.98	23.01	23.14
			1RB High	0	23.08	22.96	23.27
			50% Low	1	22.09	22.01	22.14
			50% Mid	1	22.07	22.00	22.18
			50% High	1	22.08	22.02	22.27
			100%	1	22.04	22.02	22.23
		16-QAM	1RB Low	1	22.39	22.19	22.33
			1RB Mid	1	22.27	22.08	22.36
			1RB High	1	22.32	22.07	22.19
			50% Low	2	21.07	21.08	21.24
			50% Mid	2	21.06	21.05	21.23
			50% High	2	21.07	21.05	21.22
			100%	2	21.07	21.03	21.25

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1855.0 MHz	1880.0MHz	1905.0 MHz
LTE B2	10 MHz	QPSK	1RB Low	0	22.99	23.04	23.09
			1RB Mid	0	22.96	22.94	23.12
			1RB High	0	23.05	22.99	23.11
			50% Low	1	22.02	21.96	22.11
			50% Mid	1	22.01	21.96	22.12
			50% High	1	22.00	21.93	22.11
			100%	1	21.97	21.93	22.08
		16-QAM	1RB Low	1	22.23	22.09	22.25
			1RB Mid	1	22.34	22.13	22.22
			1RB High	1	22.27	22.05	22.04
			50% Low	2	21.07	21.05	21.18
			50% Mid	2	21.05	21.04	21.15
			50% High	2	21.03	21.01	21.13
			100%	2	21.03	20.99	21.14
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1852.5 MHz	1880.0 MHz	1907.5 MHz
LTE B2	5 MHz	QPSK	1RB Low	0	23.05	22.93	23.01
			1RB Mid	0	23.06	22.80	23.03
			1RB High	0	23.07	22.95	23.03
			50% Low	1	21.96	21.95	22.02
			50% Mid	1	21.98	21.95	22.01
			50% High	1	21.95	21.96	22.03
			100%	1	21.97	21.92	21.98
		16-QAM	1RB Low	1	22.24	22.29	22.12
			1RB Mid	1	22.07	22.19	22.07
			1RB High	1	22.23	22.15	22.18
			50% Low	2	21.09	20.98	21.02
			50% Mid	2	21.09	21.00	21.03
			50% High	2	21.09	20.99	21.06
			100%	2	21.07	20.98	20.96

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1851.5 MHz	1880.0 MHz	1908.5 MHz
LTE B2	3 MHz	QPSK	1RB Low	0	23.05	22.92	23.05
			1RB Mid	0	22.99	22.99	22.82
			1RB High	0	23.05	23.03	23.06
			50% Low	1	22.15	22.01	22.05
			50% Mid	1	22.11	21.96	21.99
			50% High	1	22.09	21.96	22.00
			100%	1	22.11	21.92	21.97
		16-QAM	1RB Low	1	22.42	22.15	22.11
			1RB Mid	1	22.45	22.04	21.99
			1RB High	1	22.60	22.02	21.97
			50% Low	2	21.23	21.01	21.06
			50% Mid	2	21.18	20.99	21.03
			50% High	2	21.22	20.98	21.00
			100%	2	21.13	20.95	20.99
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
LTE B2	1.4 MHz	QPSK	1RB Low	0	23.10	22.88	22.95
			1RB Mid	0	23.11	22.92	22.82
			1RB High	0	23.13	22.89	23.00
			50% Low	0	23.08	22.87	22.97
			50% Mid	0	23.05	22.86	22.96
			50% High	0	23.02	22.84	22.88
			100%	1	21.97	21.82	21.89
		16-QAM	1RB Low	1	22.24	22.03	22.04
			1RB Mid	1	22.24	22.10	21.82
			1RB High	1	22.27	22.05	21.98
			50% Low	1	22.30	22.02	22.05
			50% Mid	1	22.30	22.00	22.05
			50% High	1	22.26	22.00	22.01
			100%	2	21.10	20.94	20.87

- **LTE 4**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1720.0 MHz	1732.5 MHz	1745.0 MHz
LTE B4	20 MHz	QPSK	1RB Low	0	23.94	23.09	23.00
			1RB Mid	0	23.05	23.03	23.06
			1RB High	0	23.28	23.08	22.97
			50% Low	1	22.29	22.25	22.03
			50% Mid	1	22.20	22.11	22.01
			50% High	1	22.32	22.10	22.06
			100%	1	22.26	22.06	21.99
		16-QAM	1RB Low	1	22.51	22.23	22.37
			1RB Mid	1	22.63	22.35	22.38
			1RB High	1	22.58	22.16	22.32
			50% Low	2	21.37	21.19	21.08
			50% Mid	2	21.38	21.22	21.09
			50% High	2	21.36	21.19	21.11
			100%	2	21.35	21.15	21.09
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE B4	15 MHz	QPSK	1RB Low	0	23.96	23.75	23.72
			1RB Mid	0	23.13	23.07	22.94
			1RB High	0	23.33	23.02	22.97
			50% Low	1	22.33	22.06	22.03
			50% Mid	1	22.34	22.09	22.01
			50% High	1	22.38	22.08	21.99
			100%	1	22.36	22.08	21.99
		16-QAM	1RB Low	1	22.57	22.19	22.33
			1RB Mid	1	22.41	22.06	22.19
			1RB High	1	22.55	22.19	22.28
			50% Low	2	21.33	21.12	21.06
			50% Mid	2	21.31	21.09	21.05
			50% High	2	21.33	21.13	21.06
			100%	2	21.35	21.12	20.98

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1715.0 MHz	1732.5MHz	1750.0 MHz
LTE B4	10 MHz	QPSK	1RB Low	0	23.28	23.10	23.04
			1RB Mid	0	23.13	22.94	23.12
			1RB High	0	23.30	23.08	23.01
			50% Low	1	22.34	22.09	22.01
			50% Mid	1	22.31	22.08	21.99
			50% High	1	22.34	22.08	22.01
			100%	1	22.29	22.08	21.99
		16-QAM	1RB Low	1	22.53	22.21	22.23
			1RB Mid	1	22.72	22.15	22.43
			1RB High	1	22.61	22.14	22.20
			50% Low	2	21.42	21.15	21.07
			50% Mid	2	21.43	21.12	21.08
			50% High	2	21.44	21.13	21.06
			100%	2	21.33	21.10	21.04
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1712.5 MHz	1732.5MHz	1752.5 MHz
LTE B4	5 MHz	QPSK	1RB Low	0	23.37	23.08	23.02
			1RB Mid	0	23.37	22.92	23.08
			1RB High	0	23.38	23.07	23.06
			50% Low	1	22.36	22.08	22.06
			50% Mid	1	22.35	22.07	22.05
			50% High	1	22.36	22.10	22.05
			100%	1	22.32	22.08	22.03
		16-QAM	1RB Low	1	22.42	22.32	22.36
			1RB Mid	1	22.27	22.12	22.26
			1RB High	1	22.60	22.32	22.28
			50% Low	2	21.39	21.17	21.08
			50% Mid	2	21.38	21.15	21.07
			50% High	2	21.40	21.14	21.07
			100%	2	21.40	21.11	21.04

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1711.5 MHz	1732.5MHz	1753.5 MHz
LTE B4	3 MHz	QPSK	1RB Low	0	23.32	23.07	23.12
			1RB Mid	0	23.25	23.09	22.83
			1RB High	0	23.31	23.16	23.13
			50% Low	1	22.40	22.10	22.04
			50% Mid	1	22.37	22.05	22.00
			50% High	1	22.37	22.03	22.06
			100%	1	22.36	22.04	22.03
		16-QAM	1RB Low	1	22.48	22.21	22.28
			1RB Mid	1	22.52	22.19	22.18
			1RB High	1	22.58	22.14	22.10
			50% Low	2	21.43	21.17	21.07
			50% Mid	2	21.40	21.14	21.05
			50% High	2	21.41	21.14	21.03
			100%	2	21.32	21.11	21.03
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1710.7 MHz	1732.5MHz	1754.3 MHz
LTE B4	1.4 MHz	QPSK	1RB Low	0	23.26	23.05	22.98
			1RB Mid	0	23.36	22.86	23.00
			1RB High	0	23.33	23.09	23.03
			50% Low	0	23.33	23.10	23.03
			50% Mid	0	23.31	23.02	22.96
			50% High	0	23.33	22.88	22.90
			100%	1	22.29	21.92	21.89
		16-QAM	1RB Low	1	22.43	21.91	21.99
			1RB Mid	1	22.47	21.72	22.08
			1RB High	1	22.42	22.05	22.02
			50% Low	1	22.35	22.11	22.10
			50% Mid	1	22.32	22.08	22.05
			50% High	1	22.30	22.04	22.05
			100%	2	21.27	21.05	20.92

- **LTE 5**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					829.0 MHz	836.5 MHz	844.0 MHz
LTE B5	10 MHz	QPSK	1RB Low	0	23.33	23.28	23.19
			1RB Mid	0	23.38	23.10	23.31
			1RB High	0	23.41	23.29	23.23
			50% Low	1	22.31	22.20	22.11
			50% Mid	1	22.35	22.21	22.11
			50% High	1	22.30	22.17	22.16
			100%	1	22.24	22.12	22.05
		16-QAM	1RB Low	1	22.56	22.37	22.20
			1RB Mid	1	22.65	22.39	22.18
			1RB High	1	22.64	22.35	22.21
			50% Low	2	21.28	21.18	21.19
			50% Mid	2	21.27	21.18	21.17
			50% High	2	21.31	21.23	21.20
			100%	2	21.26	21.14	21.12
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					826.5 MHz	836.5 MHz	846.5 MHz
LTE B5	5 MHz	QPSK	1RB Low	0	23.46	23.23	23.27
			1RB Mid	0	23.40	23.10	23.25
			1RB High	0	23.43	23.21	23.24
			50% Low	1	22.28	22.12	22.17
			50% Mid	1	22.23	22.15	22.11
			50% High	1	22.27	22.15	22.14
			100%	1	22.23	22.11	22.12
		16-QAM	1RB Low	1	22.47	22.36	22.44
			1RB Mid	1	22.36	22.32	22.23
			1RB High	1	22.49	22.33	22.40
			50% Low	2	21.23	21.16	21.14
			50% Mid	2	21.23	21.18	21.12
			50% High	2	21.24	21.21	21.18
			100%	2	21.26	21.19	21.12

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					825.5 MHz	836.5 MHz	847.4 MHz
LTE B5	3 MHz	QPSK	1RB Low	0	23.34	23.25	23.34
			1RB Mid	0	23.14	23.19	23.18
			1RB High	0	23.34	23.30	23.37
			50% Low	1	22.31	22.20	22.22
			50% Mid	1	22.30	22.13	22.13
			50% High	1	22.29	22.14	22.16
			100%	1	22.22	22.08	22.10
		16-QAM	1RB Low	1	22.67	22.53	22.39
			1RB Mid	1	22.54	22.31	22.30
			1RB High	1	22.73	22.36	22.31
			50% Low	2	21.33	21.17	21.24
			50% Mid	2	21.27	21.14	21.20
			50% High	2	21.31	21.14	21.17
			100%	2	21.17	21.11	21.11
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
LTE B5	1.4 MHz	QPSK	1RB Low	0	23.52	23.34	23.27
			1RB Mid	0	23.52	23.21	23.33
			1RB High	0	23.51	23.37	23.29
			50% Low	0	23.44	23.25	23.19
			50% Mid	0	23.36	23.22	23.18
			50% High	0	23.37	23.07	23.13
			100%	1	22.43	22.13	22.17
		16-QAM	1RB Low	1	22.59	22.28	22.33
			1RB Mid	1	22.73	22.26	22.35
			1RB High	1	22.69	22.30	22.43
			50% Low	1	22.47	22.28	22.36
			50% Mid	1	22.46	22.26	22.33
			50% High	1	22.41	22.29	22.32
			100%	2	21.33	21.12	21.20

- **LTE 7**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					2510.0 MHz	2535.0 MHz	2560.0 MHz
LTE B7	20 MHz	QPSK	1RB Low	0	24.38	24.37	23.83
			1RB Mid	0	24.48	24.08	23.99
			1RB High	0	24.68	24.10	23.98
			50% Low	1	23.52	23.31	22.85
			50% Mid	1	23.53	23.23	22.84
			50% High	1	23.57	23.14	22.84
			100%	1	23.51	23.20	22.82
		16-QAM	1RB Low	1	23.78	23.47	23.13
			1RB Mid	1	23.77	23.50	23.23
			1RB High	1	23.79	23.24	22.95
			50% Low	2	22.59	22.34	21.85
			50% Mid	2	22.56	22.28	21.80
			50% High	2	22.59	22.21	21.90
			100%	2	22.54	22.24	21.85
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					2507.5 MHz	2535.0 MHz	2562.5 MHz
LTE B7	15 MHz	QPSK	1RB Low	0	24.53	24.38	23.73
			1RB Mid	0	24.45	24.25	23.66
			1RB High	0	24.65	24.03	23.78
			50% Low	1	23.61	23.36	22.82
			50% Mid	1	23.63	23.23	22.80
			50% High	1	23.69	23.17	22.83
			100%	1	23.66	23.21	22.76
		16-QAM	1RB Low	1	23.72	23.35	22.86
			1RB Mid	1	23.78	23.29	22.76
			1RB High	1	23.73	23.07	22.74
			50% Low	2	22.59	22.32	21.76
			50% Mid	2	22.58	22.25	21.79
			50% High	2	22.64	22.18	21.78
			100%	2	22.60	22.20	21.75

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					2505.0 MHz	2535.0 MHz	2565.0 MHz
LTE B7	10 MHz	QPSK	1RB Low	0	24.41	24.29	23.60
			1RB Mid	0	24.33	24.07	23.66
			1RB High	0	24.44	24.04	23.75
			50% Low	1	23.50	23.22	22.65
			50% Mid	1	23.50	23.17	22.64
			50% High	1	23.50	23.13	22.65
			100%	1	23.44	23.12	22.65
		16-QAM	1RB Low	1	23.66	23.31	22.86
			1RB Mid	1	23.71	23.24	22.86
			1RB High	1	23.65	23.10	22.76
			50% Low	2	22.50	22.22	21.75
			50% Mid	2	22.51	22.17	21.69
			50% High	2	22.52	22.19	21.72
			100%	2	22.49	22.18	21.70
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					2502.5 MHz	2535.0 MHz	2567.5 MHz
LTE B7	5 MHz	QPSK	1RB Low	0	24.49	24.24	23.61
			1RB Mid	0	24.49	24.03	23.66
			1RB High	0	24.48	24.14	23.65
			50% Low	1	23.47	23.14	22.61
			50% Mid	1	23.46	23.15	22.62
			50% High	1	23.46	23.09	22.66
			100%	1	23.47	23.10	22.60
		16-QAM	1RB Low	1	23.60	23.28	22.88
			1RB Mid	1	23.50	23.22	22.71
			1RB High	1	23.67	23.16	22.83
			50% Low	2	22.50	22.13	21.68
			50% Mid	2	22.48	22.14	21.68
			50% High	2	22.49	22.14	21.69
			100%	2	22.51	22.07	21.62

- **LTE 12**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					-	707.5 MHz	-
LTE B12	10 MHz	QPSK	1RB Low	0	-	22.96	-
			1RB Mid	0	-	22.90	-
			1RB High	0	-	23.09	-
			50% Low	1	-	21.94	-
			50% Mid	1	-	21.84	-
			50% High	1	-	21.86	-
			100%	1	-	21.93	-
		16-QAM	1RB Low	1	-	22.13	-
			1RB Mid	1	-	22.20	-
			1RB High	1	-	22.16	-
			50% Low	2	-	20.87	-
			50% Mid	2	-	20.81	-
			50% High	2	-	20.85	-
			100%	2	-	20.93	-
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					701.5 MHz	707.5 MHz	713.5 MHz
LTE B12	5 MHz	QPSK	1RB Low	0	23.11	23.01	23.01
			1RB Mid	0	22.99	22.90	23.00
			1RB High	0	23.04	23.02	23.09
			50% Low	1	21.90	21.93	21.88
			50% Mid	1	21.90	21.88	21.86
			50% High	1	21.90	21.90	21.85
			100%	1	21.95	21.91	21.91
		16-QAM	1RB Low	1	22.04	22.05	22.24
			1RB Mid	1	21.95	21.97	21.94
			1RB High	1	22.09	22.04	22.15
			50% Low	2	20.87	20.89	20.88
			50% Mid	2	20.87	20.84	20.85
			50% High	2	20.89	20.87	20.90
			100%	2	20.96	20.95	20.90

Note: According to KDB941225 D05 SAR for LTE Devices, for LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					700.5 MHz	707.5 MHz	714.5 MHz
LTE B12	3 MHz	QPSK	1RB Low	0	22.96	23.04	23.07
			1RB Mid	0	22.73	23.01	22.84
			1RB High	0	22.92	23.11	23.09
			50% Low	1	21.94	21.99	21.89
			50% Mid	1	21.92	21.87	21.81
			50% High	1	21.91	21.88	21.84
			100%	1	21.97	21.90	21.88
		16-QAM	1RB Low	1	22.07	21.98	22.12
			1RB Mid	1	21.99	21.88	21.95
			1RB High	1	22.19	21.93	21.99
			50% Low	2	20.93	20.94	20.88
			50% Mid	2	20.92	20.91	20.86
			50% High	2	20.91	20.91	20.83
			100%	2	20.90	20.95	20.84
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					699.7 MHz	707.5 MHz	715.3 MHz
LTE B12	1.4 MHz	QPSK	1RB Low	0	23.02	23.05	23.00
			1RB Mid	0	23.13	22.99	22.98
			1RB High	0	23.09	23.11	23.00
			50% Low	0	22.97	22.94	22.86
			50% Mid	0	22.91	22.90	22.81
			50% High	0	22.92	22.84	22.79
			100%	1	22.00	21.98	21.90
		16-QAM	1RB Low	1	22.09	22.16	21.79
			1RB Mid	1	22.01	22.13	21.79
			1RB High	1	22.15	22.23	21.79
			50% Low	1	21.86	21.94	21.91
			50% Mid	1	21.92	21.95	21.89
			50% High	1	21.88	21.94	21.91
			100%	2	20.96	21.00	20.89

- **LTE 13**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					-	782.0 MHz	-
LTE B13	10 MHz	QPSK	1RB Low	0	-	22.86	-
			1RB Mid	0	-	22.92	-
			1RB High	0	-	22.93	-
			50% Low	1	-	21.95	-
			50% Mid	1	-	21.94	-
			50% High	1	-	21.97	-
			100%	1	-	22.02	-
		16-QAM	1RB Low	1	-	22.11	-
			1RB Mid	1	-	22.24	-
			1RB High	1	-	22.24	-
			50% Low	2	-	20.90	-
			50% Mid	2	-	20.96	-
			50% High	2	-	20.97	-
			100%	2	-	20.95	-
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					779.5 MHz	782.0 MHz	784.5 MHz
LTE B13	5 MHz	QPSK	1RB Low	0	-	23.05	-
			1RB Mid	0	-	22.96	-
			1RB High	0	-	23.05	-
			50% Low	1	-	21.93	-
			50% Mid	1	-	21.92	-
			50% High	1	-	21.96	-
			100%	1	-	22.00	-
		16-QAM	1RB Low	1	-	22.11	-
			1RB Mid	1	-	21.93	-
			1RB High	1	-	22.22	-
			50% Low	2	-	20.92	-
			50% Mid	2	-	20.97	-
			50% High	2	-	20.95	-
			100%	2	-	21.00	-

Note: According to KDB941225 D05 SAR for LTE Devices, for LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

- **LTE 17**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					-	710.0 MHz	-
LTE B17	10 MHz	QPSK	1RB Low	0	-	22.86	-
			1RB Mid	0	-	22.83	-
			1RB High	0	-	22.86	-
			50% Low	1	-	21.79	-
			50% Mid	1	-	21.82	-
			50% High	1	-	21.80	-
			100%	1	-	21.80	-
		16-QAM	1RB Low	1	-	22.05	-
			1RB Mid	1	-	22.15	-
			1RB High	1	-	22.17	-
			50% Low	2	-	20.82	-
			50% Mid	2	-	20.82	-
			50% High	2	-	20.83	-
			100%	2	-	20.81	-
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					-	710.0 MHz	-
LTE B17	5 MHz	QPSK	1RB Low	0	-	22.92	-
			1RB Mid	0	-	22.84	-
			1RB High	0	-	22.95	-
			50% Low	1	-	21.79	-
			50% Mid	1	-	21.83	-
			50% High	1	-	21.84	-
			100%	1	-	21.85	-
		16-QAM	1RB Low	1	-	21.94	-
			1RB Mid	1	-	21.75	-
			1RB High	1	-	21.97	-
			50% Low	2	-	20.79	-
			50% Mid	2	-	20.75	-
			50% High	2	-	20.77	-
			100%	2	-	20.84	-

Note: According to KDB941225 D05 SAR for LTE Devices, for LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

- **LTE 25**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1860.0 MHz	1882.5 MHz	1905.0 MHz
LTE B25	20 MHz	QPSK	1RB Low	0	23.05	23.07	23.15
			1RB Mid	0	22.85	23.02	23.30
			1RB High	0	23.00	23.08	23.16
			50% Low	1	22.05	22.01	22.12
			50% Mid	1	22.03	22.00	22.11
			50% High	1	22.01	21.99	22.11
			100%	1	22.02	22.00	22.11
		16-QAM	1RB Low	1	22.41	22.44	22.59
			1RB Mid	1	22.47	22.35	22.41
			1RB High	1	22.27	22.27	22.46
			50% Low	2	21.10	21.10	21.23
			50% Mid	2	21.04	21.05	21.15
			50% High	2	21.07	21.06	21.18
			100%	2	21.09	21.03	21.19
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1857.5 MHz	1882.5 MHz	1907.5 MHz
LTE B25	15 MHz	QPSK	1RB Low	0	23.09	23.07	23.05
			1RB Mid	0	23.02	23.07	22.99
			1RB High	0	23.08	23.00	22.98
			50% Low	1	22.05	21.97	22.00
			50% Mid	1	22.03	21.99	21.98
			50% High	1	22.04	21.99	22.02
			100%	1	22.06	22.05	22.06
		16-QAM	1RB Low	1	22.33	22.41	22.24
			1RB Mid	1	22.24	22.23	22.11
			1RB High	1	22.29	22.22	22.20
			50% Low	2	21.03	21.05	20.98
			50% Mid	2	21.01	21.03	20.99
			50% High	2	21.04	21.01	21.01
			100%	2	21.10	21.05	21.02

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1855.0 MHz	1882.5 MHz	1910.0 MHz
LTE B25	10 MHz	QPSK	1RB Low	0	23.03	23.11	23.04
			1RB Mid	0	22.95	22.88	23.06
			1RB High	0	23.05	23.02	23.06
			50% Low	1	22.01	21.99	21.96
			50% Mid	1	22.00	21.97	21.96
			50% High	1	22.00	21.94	21.96
			100%	1	22.01	21.97	21.99
		16-QAM	1RB Low	1	22.42	22.23	22.26
			1RB Mid	1	22.42	21.96	22.13
			1RB High	1	22.26	22.10	22.27
			50% Low	2	21.06	21.09	20.99
			50% Mid	2	21.06	21.05	21.01
			50% High	2	21.03	21.06	21.03
			100%	2	21.05	21.07	21.01
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1852.5 MHz	1882.2 MHz	1912.5 MHz
LTE B25	5 MHz	QPSK	1RB Low	0	23.18	23.07	23.04
			1RB Mid	0	23.16	22.92	23.13
			1RB High	0	23.21	23.04	23.11
			50% Low	1	22.05	21.99	21.97
			50% Mid	1	22.06	21.98	21.97
			50% High	1	22.05	21.98	21.96
			100%	1	22.09	21.99	21.99
		16-QAM	1RB Low	1	22.33	22.37	22.28
			1RB Mid	1	22.29	22.22	22.22
			1RB High	1	22.34	22.23	22.25
			50% Low	2	21.10	21.02	20.97
			50% Mid	2	21.09	21.00	21.01
			50% High	2	21.10	21.02	21.03
			100%	2	21.13	21.04	21.01

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1851.5 MHz	1882.5 MHz	1913.5 MHz
LTE B25	3 MHz	QPSK	1RB Low	0	23.12	23.13	23.11
			1RB Mid	0	23.04	23.13	22.99
			1RB High	0	23.09	23.16	23.23
			50% Low	1	22.10	22.02	21.97
			50% Mid	1	22.09	21.96	21.94
			50% High	1	22.08	21.97	21.98
			100%	1	22.15	22.01	22.02
		16-QAM	1RB Low	1	22.39	22.12	22.26
			1RB Mid	1	22.44	22.08	22.17
			1RB High	1	22.51	22.04	22.15
			50% Low	2	21.21	21.01	21.02
			50% Mid	2	21.23	20.97	20.98
			50% High	2	21.22	20.98	21.02
			100%	2	21.17	21.02	21.00
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1850.7 MHz	1882.5 MHz	1914.3 MHz
LTE B25	1.4 MHz	QPSK	1RB Low	0	23.13	22.99	23.02
			1RB Mid	0	23.09	23.08	22.90
			1RB High	0	23.16	22.99	23.07
			50% Low	0	23.01	22.88	22.94
			50% Mid	0	22.99	22.90	22.91
			50% High	0	22.91	22.89	22.84
			100%	1	21.96	21.98	21.92
		16-QAM	1RB Low	1	22.22	22.38	21.94
			1RB Mid	1	22.17	22.33	21.79
			1RB High	1	22.25	22.27	22.00
			50% Low	1	22.15	21.94	21.93
			50% Mid	1	22.11	21.93	21.86
			50% High	1	22.05	21.94	21.82
			100%	2	20.98	20.92	21.00

- **LTE 26**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					-	831.5 MHz	-
LTE B26	15 MHz	QPSK	1RB Low	0	-	23.18	-
			1RB Mid	0	-	22.99	-
			1RB High	0	-	23.21	-
			50% Low	1	-	22.20	-
			50% Mid	1	-	22.25	-
			50% High	1	-	22.28	-
			100%	1	-	22.21	-
		16-QAM	1RB Low	1	-	22.35	-
			1RB Mid	1	-	22.20	-
			1RB High	1	-	22.39	-
			50% Low	2	-	21.16	-
			50% Mid	2	-	21.15	-
			50% High	2	-	21.22	-
			100%	2	-	21.17	-
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					819.0 MHz	831.5 MHz	844.0 MHz
LTE B26	10 MHz	QPSK	1RB Low	0	23.20	23.23	23.04
			1RB Mid	0	23.16	22.95	23.07
			1RB High	0	23.24	23.17	23.06
			50% Low	1	22.29	22.19	22.05
			50% Mid	1	22.29	22.19	22.04
			50% High	1	22.29	22.24	22.09
			100%	1	22.22	22.14	22.06
		16-QAM	1RB Low	1	22.28	22.17	22.14
			1RB Mid	1	22.50	22.25	22.19
			1RB High	1	22.40	22.19	22.19
			50% Low	2	21.24	21.17	21.08
			50% Mid	2	21.26	21.18	21.05
			50% High	2	21.28	21.16	21.11
			100%	2	21.25	21.13	21.10

Note: According to KDB941225 D05 SAR for LTE Devices, for LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					816.5 MHz	831.5 MHz	846.5 MHz
LTE B26	5 MHz	QPSK	1RB Low	0	23.47	23.25	23.19
			1RB Mid	0	23.39	23.18	23.19
			1RB High	0	23.48	23.31	23.20
			50% Low	1	22.39	22.29	22.20
			50% Mid	1	22.40	22.27	22.16
			50% High	1	22.41	22.28	22.16
			100%	1	22.36	22.22	22.11
		16-QAM	1RB Low	1	22.34	22.32	22.42
			1RB Mid	1	22.27	22.31	22.28
			1RB High	1	22.43	22.34	22.42
			50% Low	2	21.38	21.23	21.24
			50% Mid	2	21.37	21.30	21.23
			50% High	2	21.36	21.25	21.26
			100%	2	21.39	21.21	21.17
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					815.5 MHz	831.5 MHz	847.5 MHz
LTE B26	3 MHz	QPSK	1RB Low	0	23.32	23.33	23.30
			1RB Mid	0	23.10	23.28	23.09
			1RB High	0	23.31	23.40	23.32
			50% Low	1	22.40	22.37	22.32
			50% Mid	1	22.41	22.28	22.14
			50% High	1	22.42	22.35	22.24
			100%	1	22.41	22.22	22.17
		16-QAM	1RB Low	1	22.42	22.36	22.35
			1RB Mid	1	22.38	22.32	22.30
			1RB High	1	22.60	22.24	22.26
			50% Low	2	21.43	21.37	21.26
			50% Mid	2	21.44	21.27	21.22
			50% High	2	21.41	21.30	21.22
			100%	2	21.28	21.22	21.17
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					814.5 MHz	831.5 MHz	848.3 MHz
LTE B26	1.4 MHz	QPSK	1RB Low	0	23.27	23.26	23.13
			1RB Mid	0	23.36	23.08	23.14
			1RB High	0	23.35	23.28	23.17
			50% Low	0	23.38	23.23	23.15
			50% Mid	0	23.33	23.26	23.12
			50% High	0	23.34	23.13	23.08
			100%	1	22.30	22.23	22.09
		16-QAM	1RB Low	1	22.47	22.34	22.15
			1RB Mid	1	22.52	22.30	22.16
			1RB High	1	22.51	22.37	22.15
			50% Low	1	22.35	22.22	22.13
			50% Mid	1	22.38	22.21	22.16
			50% High	1	22.33	22.17	22.10
			100%	2	21.30	21.08	21.07

- **LTE 38**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					2580.0 MHz	2595.0 MHz	2610.0 MHz
LTE B38	20 MHz	QPSK	1RB Low	0	22.52	22.43	22.46
			1RB Mid	0	22.06	22.25	22.35
			1RB High	0	22.32	22.31	22.34
			50% Low	1	21.37	21.35	21.45
			50% Mid	1	21.40	21.36	21.39
			50% High	1	21.33	21.31	21.36
			100%	1	21.34	21.35	21.41
		16-QAM	1RB Low	1	21.79	21.47	21.80
			1RB Mid	1	21.27	21.05	21.52
			1RB High	1	21.36	21.07	21.70
			50% Low	2	20.33	20.44	20.49
			50% Mid	2	20.36	20.44	20.46
			50% High	2	20.37	20.42	20.48
			100%	2	20.30	20.40	20.44
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					2577.5 MHz	2595.0 MHz	2612.5 MHz
LTE B38	15 MHz	QPSK	1RB Low	0	22.49	22.43	22.48
			1RB Mid	0	22.48	22.25	21.99
			1RB High	0	22.31	22.29	22.35
			50% Low	1	21.41	21.38	21.44
			50% Mid	1	21.36	21.33	21.42
			50% High	1	21.34	21.31	21.38
			100%	1	21.39	21.35	21.45
		16-QAM	1RB Low	1	21.51	21.62	21.54
			1RB Mid	1	21.92	21.32	21.96
			1RB High	1	21.63	21.51	21.99
			50% Low	2	20.43	20.34	20.45
			50% Mid	2	20.40	20.34	20.49
			50% High	2	20.41	20.33	20.45
			100%	2	20.38	20.36	20.46

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					2575.0 MHz	2595.0 MHz	2615.0 MHz
LTE B38	10 MHz	QPSK	1RB Low	0	22.37	22.40	22.51
			1RB Mid	0	22.15	22.04	22.41
			1RB High	0	22.35	22.33	22.37
			50% Low	1	21.36	21.34	21.43
			50% Mid	1	21.34	21.29	21.45
			50% High	1	21.32	21.23	21.41
			100%	1	21.35	21.33	21.41
		16-QAM	1RB Low	1	21.56	21.63	21.42
			1RB Mid	1	21.49	21.22	21.31
			1RB High	1	21.85	21.43	21.58
			50% Low	2	20.40	20.37	20.44
			50% Mid	2	20.38	20.40	20.41
			50% High	2	20.43	20.37	20.37
			100%	2	20.35	20.35	20.43
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					2572.5 MHz	2595.0 MHz	2617.5 MHz
LTE B38	5 MHz	QPSK	1RB Low	0	22.41	22.31	22.38
			1RB Mid	0	22.52	22.17	22.52
			1RB High	0	22.35	22.20	22.31
			50% Low	1	21.34	21.31	21.44
			50% Mid	1	21.31	21.22	21.42
			50% High	1	21.33	21.29	21.39
			100%	1	21.28	21.27	21.37
		16-QAM	1RB Low	1	21.50	20.96	21.58
			1RB Mid	1	21.57	21.82	21.61
			1RB High	1	21.66	21.81	21.48
			50% Low	2	20.35	20.37	20.37
			50% Mid	2	20.26	20.35	20.43
			50% High	2	20.25	20.41	20.45
			100%	2	20.29	20.34	20.44

- LTE 41

To perform LTE TDD measurements, CMW LTE TDD options “Uplink Downlink Configuration” was set to “0” and “Special Subframe” was set to “7”.

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)				
					Low CH	Low/Mid CH	Mid CH	Mid/High CH	High CH
					2506.0 MHz	2549.5 MHz	2593.0 MHz	2636.5 MHz	2680.0 MHz
LTE B41	20 MHz	QPSK	1RB Low	0	23.26	23.23	22.35	22.30	22.87
			1RB Mid	0	23.12	22.82	22.11	21.72	22.77
			1RB High	0	23.28	22.97	22.29	21.77	22.73
			50% Low	1	22.31	21.77	21.35	21.27	21.72
			50% Mid	1	22.25	21.86	21.27	21.16	21.71
			50% High	1	22.27	21.80	21.29	20.95	21.71
			100%	1	22.32	21.87	21.32	21.10	21.76
		16-QAM	1RB Low	1	22.76	22.10	22.00	21.59	21.82
			1RB Mid	1	22.62	22.01	21.98	21.42	21.37
			1RB High	1	22.85	22.08	21.94	21.03	21.72
			50% Low	2	21.34	20.80	20.31	20.25	20.77
			50% Mid	2	21.31	20.94	20.25	20.11	20.71
			50% High	2	21.34	20.81	20.30	19.93	20.77
			100%	2	21.30	20.87	20.35	20.11	20.77
Band	BW	Modulation	Mode	MPR	Low CH	Low/Mid CH	Mid CH	Mid/High CH	High CH
					2503.5 MHz	2549.5 MHz	2593.0 MHz	2636.5 MHz	2682.5 MHz
LTE B41	15 MHz	QPSK	1RB Low	0	23.33	23.07	22.48	22.31	22.76
			1RB Mid	0	23.42	23.04	22.50	22.20	22.40
			1RB High	0	23.30	22.70	22.36	21.82	22.62
			50% Low	1	22.30	21.98	21.38	21.25	21.80
			50% Mid	1	22.30	21.92	21.36	21.09	21.74
			50% High	1	22.30	21.78	21.35	20.92	21.72
			100%	1	22.34	21.94	21.39	21.13	21.76
		16-QAM	1RB Low	1	22.64	21.98	21.54	21.25	22.11
			1RB Mid	1	22.55	21.60	20.81	21.00	21.91
			1RB High	1	22.62	21.61	21.48	20.79	22.02
			50% Low	2	21.37	20.96	20.37	20.22	20.77
			50% Mid	2	21.38	20.87	20.31	20.11	20.77
			50% High	2	21.36	20.76	20.30	19.97	20.75
			100%	2	21.34	20.93	20.38	20.18	20.77

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)				
					Low CH	Low/Mid CH	Mid CH	Mid/High CH	High CH
					2501.0 MHz	2549.5 MHz	2593.0 MHz	2636.5 MHz	2682.5 MHz
LTE B41	10 MHz	QPSK	1RB Low	0	23.18	23.01	22.43	22.00	22.77
			1RB Mid	0	22.99	22.51	22.05	21.66	22.62
			1RB High	0	23.24	22.78	22.38	21.64	22.61
			50% Low	1	22.23	21.91	21.29	20.99	21.69
			50% Mid	1	22.25	21.86	21.31	20.92	21.73
			50% High	1	22.25	21.83	21.29	20.84	21.69
			100%	1	22.23	21.91	21.28	20.94	21.69
		16-QAM	1RB Low	1	22.38	22.17	21.47	20.62	21.67
			1RB Mid	1	22.20	21.94	21.24	20.39	21.52
			1RB High	1	22.49	21.86	21.46	20.30	21.63
			50% Low	2	21.29	20.99	20.31	20.06	20.75
			50% Mid	2	21.29	20.95	20.34	19.94	20.76
			50% High	2	21.29	20.89	20.33	19.89	20.72
			100%	2	21.24	20.85	20.30	19.99	20.65
Band	BW	Modulation	Mode	MPR	Low CH	Low/Mid CH	Mid CH	Mid/High CH	High CH
					2498.5 MHz	2549.5 MHz	2593.0 MHz	2636.5 MHz	2682.5 MHz
LTE B41	5 MHz	QPSK	1RB Low	0	23.21	22.98	22.35	22.27	22.67
			1RB Mid	0	23.39	22.79	22.42	22.11	22.65
			1RB High	0	23.20	22.77	22.28	22.02	22.55
			50% Low	1	22.16	21.89	21.27	21.15	21.65
			50% Mid	1	22.12	21.87	21.28	21.07	21.63
			50% High	1	22.17	21.88	21.27	21.09	21.62
			100%	1	22.17	21.86	21.26	21.08	21.60
		16-QAM	1RB Low	1	22.49	22.14	21.57	21.30	21.61
			1RB Mid	1	22.37	22.11	21.80	21.55	21.87
			1RB High	1	22.44	21.89	21.47	21.24	21.64
			50% Low	2	21.22	21.05	20.38	20.25	20.65
			50% Mid	2	21.20	20.98	20.27	20.22	20.62
			50% High	2	21.22	20.98	20.28	20.19	20.60
			100%	2	21.16	20.88	20.31	20.14	20.69

- **LTE 66**

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1720.0 MHz	1745.0 MHz	1770.0 MHz
LTE B66	20 MHz	QPSK	1RB Low	0	23.17	23.14	23.18
			1RB Mid	0	23.12	23.11	23.13
			1RB High	0	23.11	23.16	23.16
			50% Low	1	22.28	22.27	22.27
			50% Mid	1	22.25	22.26	22.29
			50% High	1	22.26	22.26	22.28
			100%	1	22.39	22.38	22.36
		16-QAM	1RB Low	1	22.35	22.40	22.30
			1RB Mid	1	22.59	22.59	22.61
			1RB High	1	22.49	22.39	22.61
			50% Low	2	21.29	21.30	21.29
			50% Mid	2	21.23	21.25	21.25
			50% High	2	21.27	21.27	21.28
			100%	2	21.40	21.42	21.41
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1717.5 MHz	1745.0 MHz	1772.5 MHz
LTE B66	15 MHz	QPSK	1RB Low	0	23.12	23.12	23.15
			1RB Mid	0	23.13	23.12	23.14
			1RB High	0	23.13	23.15	23.13
			50% Low	1	22.27	22.26	22.26
			50% Mid	1	22.24	22.23	22.26
			50% High	1	22.26	22.21	22.24
			100%	1	22.37	22.35	22.34
		16-QAM	1RB Low	1	22.35	22.31	22.35
			1RB Mid	1	22.49	22.52	22.50
			1RB High	1	22.49	22.51	22.50
			50% Low	2	21.27	21.26	21.25
			50% Mid	2	21.25	21.24	21.25
			50% High	2	21.25	21.24	21.24
			100%	2	21.40	21.35	21.39

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					1715.0 MHz	1745.0 MHz	1775.0 MHz
LTE B66	10 MHz	QPSK	1RB Low	0	23.14	23.12	23.14
			1RB Mid	0	23.10	23.11	23.12
			1RB High	0	23.12	23.12	23.13
			50% Low	1	22.26	22.26	22.23
			50% Mid	1	22.25	22.25	22.25
			50% High	1	22.26	22.24	22.23
			100%	1	22.36	22.34	22.36
		16-QAM	1RB Low	1	22.25	22.32	22.30
			1RB Mid	1	22.51	22.52	22.53
			1RB High	1	22.46	22.50	22.49
			50% Low	2	21.25	21.29	21.26
			50% Mid	2	21.23	21.26	21.26
			50% High	2	21.29	21.28	21.26
			100%	2	21.39	21.37	21.36
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					1712.5 MHz	1745.0 MHz	1777.5 MHz
LTE B66	5 MHz	QPSK	1RB Low	0	23.14	23.12	23.13
			1RB Mid	0	23.12	23.12	23.12
			1RB High	0	23.05	23.10	23.08
			50% Low	1	23.24	23.23	23.23
			50% Mid	1	23.25	23.24	23.23
			50% High	1	23.23	23.20	23.21
			100%	1	22.36	22.37	22.36
		16-QAM	1RB Low	1	22.30	22.29	22.28
			1RB Mid	1	22.45	22.49	22.49
			1RB High	1	22.53	22.50	22.51
			50% Low	2	22.23	22.27	22.26
			50% Mid	2	22.25	22.23	22.21
			50% High	2	22.23	22.23	22.22
			100%	2	21.37	21.38	21.38

- LTE 71

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					673.0 MHz	680.5 MHz	688.0 MHz
LTE B71	20 MHz	QPSK	1RB Low	0	22.93	22.92	22.93
			1RB Mid	0	22.95	22.94	22.94
			1RB High	0	22.94	22.93	22.94
			50% Low	1	21.73	21.71	21.69
			50% Mid	1	21.71	21.71	21.73
			50% High	1	21.71	21.74	21.72
			100%	1	21.60	21.64	21.65
		16-QAM	1RB Low	1	22.07	22.07	22.04
			1RB Mid	1	22.21	22.18	22.22
			1RB High	1	22.23	22.21	22.23
			50% Low	2	20.73	20.74	20.74
			50% Mid	2	20.70	20.69	20.70
			50% High	2	20.71	20.71	20.69
			100%	2	20.62	20.62	20.64
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					670.5 MHz	680.5 MHz	690.5 MHz
LTE B71	15 MHz	QPSK	1RB Low	0	22.92	22.93	22.93
			1RB Mid	0	22.93	22.95	22.97
			1RB High	0	22.95	22.95	22.95
			50% Low	1	21.75	21.76	21.75
			50% Mid	1	21.74	21.74	21.74
			50% High	1	21.73	21.76	21.73
			100%	1	21.66	21.67	21.66
		16-QAM	1RB Low	1	22.04	22.04	22.04
			1RB Mid	1	22.25	22.23	22.25
			1RB High	1	22.22	22.24	22.23
			50% Low	2	20.72	20.74	20.73
			50% Mid	2	20.75	20.74	20.72
			50% High	2	20.76	20.75	20.73
			100%	2	20.62	20.65	20.63

Band	BW	Modulation	Mode	MPR	Average Output Power (dBm)		
					Low CH	Mid CH	High CH
					668.0 MHz	680.5 MHz	693.0 MHz
LTE B71	10 MHz	QPSK	1RB Low	0	22.95	22.94	22.93
			1RB Mid	0	22.82	22.83	22.83
			1RB High	0	22.92	22.93	22.90
			50% Low	1	21.71	21.72	21.72
			50% Mid	1	21.70	21.71	21.70
			50% High	1	21.71	21.74	21.72
			100%	1	21.62	21.64	21.63
		16-QAM	1RB Low	1	22.06	22.12	22.17
			1RB Mid	1	22.45	22.41	22.26
			1RB High	1	22.29	22.32	22.28
			50% Low	2	20.69	20.69	20.70
			50% Mid	2	20.69	20.72	20.73
			50% High	2	20.69	20.72	20.76
			100%	2	20.62	20.60	20.60
Band	BW	Modulation	Mode	MPR	Low CH	Mid CH	High CH
					665.5 MHz	680.5 MHz	695.5 MHz
LTE B71	5 MHz	QPSK	1RB Low	0	23.30	22.88	22.88
			1RB Mid	0	23.29	22.90	22.89
			1RB High	0	23.25	22.78	22.77
			50% Low	1	23.20	22.68	22.72
			50% Mid	1	23.24	22.73	22.72
			50% High	1	23.24	22.70	22.72
			100%	1	22.04	21.62	21.61
		16-QAM	1RB Low	1	23.68	22.07	22.07
			1RB Mid	1	23.68	22.27	22.28
			1RB High	1	23.58	22.39	22.41
			50% Low	2	22.26	21.66	21.72
			50% Mid	2	22.19	21.70	21.73
			50% High	2	22.20	21.70	21.73
			100%	2	22.12	20.59	20.59

2.1.4. LTE CA Donwlink.

Covered by higher CA combination
Measurement needed

DL 2CA		DL 3CA		DL 4CA		DL 5CA	
Combination	UL Band	Combination	UL Band	Combination	UL Band	Combination	UL Band
2-2	2	2-2-4	2	2-2-4-4	2	2-2-4-4-5	2
2C	2	2-2-4	4	2-2-4-4	4	2-2-4-4-5	4
2-4	2	2-2-5	2	2-2-4-5	2	2-2-4-4-5	5
2-4	4	2-2-5	5	2-2-4-5	4	2-2-4-5B	2
2-5	2	2C-5	2	2-2-4-5	5	2-2-4-5B	4
2-5	5	2C-5	5	2-2-4-12	2	2-2-4-5B	5
2-12	2	2-2-12	2	2-2-4-12	4	2-2-5-66-66	2
2-12	12	2-2-12	12	2-2-4-12	12	2-2-5-66-66	5
2-13	2	2C-12	2	2C-5B	2	2-2-5-66-66	66
2-13	13	2C-12	12	2C-5B	5	2-2-5-66C	2
2-17	2	2-2-13	2	2-2-5-30	2	2-2-5-66C	5
2-17	17	2-2-13	13	2-2-5-30	5	2-2-5-66C	66
2-29	2	2-2-29	2	2C-5-30	2	2-2-5-66B	2
2-30	2	2C-29	2	2C-5-30	5	2-2-5-66B	5
2-66	2	2-2-30	2	2-2-5-66	2	2-2-5-66B	66
2-66	66	2C-30	2	2-2-5-66	5	2-2-12B-66	2
2-71	2	2-2-66	2	2-2-5-66	66	2-2-12B-66	12
2-71	71	2-2-66	66	2-2-12-12	2	2-2-12B-66	66
4-4	4	2C-66	2	2-2-12-12	12	2-2-12-66-66	2
4-5	4	2C-66	66	2-2-12B	2	2-2-12-66-66	12
4-5	5	2-2-71	2	2-2-12B	12	2-2-12-66-66	66
4-12	4	2-2-71	71	2-2-12-30	2	2-2-66D	2
4-12	12	2-4-4	2	2-2-12-30	12	2-2-66D	66
4-13	4	2-4-4	4	2-2-12-66	2	2-2-66-66C	2
4-13	13	2-4-5	2	2-2-12-66	12	2-2-66-66C	66
4-17	4	2-4-5	4	2-2-12-66	66	2-2-66-66C	66
4-17	17	2-4-5	5	2-2-13-66	2	2-2-66-66B	2
4-29	4	2-4-12	2	2-2-13-66	13	2-2-66-66B	66
4-30	4	2-4-12	4	2-2-13-66	66	2-2-66-66B	66
4-71	4	2-4-12	12	2-2-30-66	2	2-4-4-5B	2
4-71	71	2-4-13	2	2-2-30-66	66	2-4-4-5B	4
5-5	5	2-4-13	4	2-2-66-66	2	2-4-4-5B	5
5B	5	2-4-13	13	2-2-66-66	66	2-5B-66-66	2
5-7	5	2-4-29	2	2-2-66C	2	2-5B-66-66	5

5-7	7	2-4-29	4	2-2-66C	66	2-5B-66-66	66
5-25	5	2-4-30	2	2C-66-66	2	2-5B-66C	2
5-25	25	2-4-30	4	2C-66-66	66	2-5B-66C	5
5-30	5	2-4-71	2	2-2-66B	2	2-5B-66C	66
5-40	5	2-4-71	4	2-2-66B	66	2-5B-66B	2
5-40	40	2-4-71	71	2-2-66-71	2	2-5B-66B	5
5-41	5	2-5B	2	2-2-66-71	66	2-5B-66B	66
5-41	41	2-5B	5	2-2-66-71	71	2-5-66D	2
5-66	5	2-5-30	2	2-4-4-5	2	2-5-66D	5
5-66	66	2-5-30	5	2-4-4-5	4	2-5-66D	66
7-7	7	2-5-66	2	2-4-4-5	5	2-12B-66-66	2
7B	7	2-5-66	5	2-4-4-12	2	2-12B-66-66	12
7C	7	2-5-66	66	2-4-4-12	4	2-12B-66-66	66
7-8	7	2-12-12	2	2-4-4-12	12	2-13-66D	2
7-8	8	2-12-12	12	2-4-5B	2	2-13-66D	13
7-12	7	2-12B	2	2-4-5B	4	2-13-66D	66
7-12	12	2-12B	12	2-4-5B	5	2-13-66-66C	2
7-20	7	2-12-30	2	2-4-5-30	2	2-13-66-66C	13
7-20	20	2-12-30	12	2-4-5-30	4	2-13-66-66C	66
7-26	7	2-12-66	2	2-4-5-30	5	2-13-66-66C	66
7-26	26	2-12-66	12	2-4-12-12	2	2-13-66-66B	2
7-42	7	2-12-66	66	2-4-12-12	4	2-13-66-66B	13
7-42	42	2-13-66	2	2-4-12-12	12	2-13-66-66B	66
7-66	7	2-13-66	13	2-4-12B	2	2-13-66-66B	66
12-12	12	2-13-66	66	2-4-12B	4	5-5-66D	5
12B	12	2-29-30	2	2-4-12B	12	5-5-66D	66
12-25	12	2-29-66	2	2-4-12-30	2	5-5-66-66C	5
12-25	25	2-29-66	66	2-4-12-30	4	5-5-66-66C	66
12-30	12	2-30-66	2	2-4-12-30	12	5-5-66-66C	66
12-66	12	2-30-66	66	2-4-29-30	2	5-5-66-66B	5
12-66	66	2-66-66	2	2-4-29-30	4	5-5-66-66B	66
13-66	13	2-66-66	66	2-5B-30	2	5-5-66-66B	66
13-66	66	2-66B	2	2-5B-30	5	5B-66-66C	5
25-25	25	2-66B	66	2-5B-66	2	5B-66-66C	66
25-26	25	2-66C	2	2-5B-66	5	5B-66-66C	66
25-26	26	2-66C	66	2-5B-66	66	5B-66-66B	5
26-41	26	2-66-71	2	2-5-30-66	2	5B-66-66B	66
26-41	41	2-66-71	66	2-5-30-66	5	5B-66-66B	66
41-41	41	2-66-71	71	2-5-30-66	66		
41C	41	4-4-5	4	2-5-66-66	2		
41-42	41	4-4-5	5	2-5-66-66	5		
41-42	42	4-4-12	4	2-5-66-66	66		

42-42	42	4-4-12	12	2-5-66C	2
42C	42	4-4-13	4	2-5-66C	5
66-29	66	4-4-13	13	2-5-66C	66
66-30	66	4-4-29	4	2-5-66B	2
66-66	66	4-4-30	4	2-5-66B	5
66B	66	4-4-71	4	2-5-66B	66
66C	66	4-4-71	71	2-12B-66	2
66-71	66	4-5B	4	2-12B-66	12
66-71	71	4-5B	5	2-12B-66	66
		4-5-30	4	2-12-30-66	2
		4-5-30	5	2-12-30-66	12
		4-12-12	4	2-12-30-66	66
		4-12-12	12	2-12-66-66	2
		4-12B	4	2-12-66-66	12
		4-12B	12	2-12-66-66	66
		4-12-30	4	2-12-66C	2
		4-12-30	12	2-12-66C	12
		4-29-30	4	2-12-66C	66
		5B-30	5	2-13-66-66	2
		5-5-66	5	2-13-66-66	13
		5-5-66	66	2-13-66-66	66
		5B-66	5	2-13-66C	2
		5B-66	66	2-13-66C	13
		5-7C	5	2-13-66C	66
		5-7C	7	2-13-66B	2
		5-7-7	5	2-13-66B	13
		5-7-7	7	2-13-66B	66
		5-30-66	5	2-29-30-66	2
		5-30-66	66	2-29-30-66	66
		5-66-66	5	2-30-66-66	2
		5-66-66	66	2-30-66-66	66
		5-66B	5	2-66-66-66	2
		5-66B	66	2-66-66-66	66
		5-66C	5	2-66D	2
		5-66C	66	2-66D	66
		7-7-26	7	2-66-66C	2
		7-7-26	26	2-66-66C	66
		7-7-66	7	2-66-66C	66
		7C-66	7	2-66-66B	2
		7-12B	7	2-66-66B	66
		7-12B	12	2-66-66B	66
		7-12-66	7	2-66-66-71	2

	7-12-66	12		2-66-66-71	66	
	7-42-42	42		2-66-66-71	71	
	7-66-66	7		2-66C-71	2	
	12B-66	12		2-66C-71	66	
	12B-66	66		2-66C-71	71	
	12-30-66	12		4-4-5B	4	
	12-30-66	66		4-4-5B	5	
	12-66-66	12		4-4-5-30	4	
	12-66-66	66		4-4-5-30	5	
	12-66C	12		4-4-12-12	4	
	12-66C	66		4-4-12-12	12	
	13-66-66	13		4-4-12B	4	
	13-66-66	66		4-4-12B	12	
	13-66B	13		5B-30-66	5	
	13-66B	66		5B-30-66	66	
	13-66C	13		5-5-66-66	5	
	13-66C	66		5-5-66-66	66	
	25-25-25	25		5-5-66C	5	
	25-25-26	25		5-5-66C	66	
	25-25-26	26		5-5-66B	5	
	26-41C	26		5B-66-66	5	
	26-41C	41		5B-66-66	66	
	41-41C	41		5B-66-66	66	
	41-41C	41		5B-66C	5	
	41-41-41	41		5B-66C	66	
	41D	41		5B-66B	5	
	41-42C	41		5B-66B	66	
	41-42C	42		5-30-66-66	5	
	42-42C	42		5-30-66-66	66	
	42-42C	42		5-66D	5	
	42D	42		5-66D	66	
	66-29-30	66		5-66-66C	5	
	66-66-29	66		5-66-66C	66	
	66C-29	66		5-66-66C	66	
	66-66-30	66		5-66-66B	5	
	66-66B	66		5-66-66B	66	
	66-66B	66		5-66-66B	66	
	66-66C	66		7-7-66-66	7	
	66-66C	66		7C-66-66	7	
	66-66-66	66		7-12B-66	7	
	66D	66		7-12B-66	12	
	66-66-71	66		12B-66-66	12	

	66-66-71	71	12B-66-66	66	
	66C-71	66	12-30-66-66	12	
	66C-71	71	12-30-66-66	66	
			13-66-66-66	13	
			13-66-66-66	66	
			13-66D	13	
			13-66D	66	
			13-66-66C	13	
			13-66-66C	66	
			13-66-66C	66	
			13-66-66B	13	
			13-66-66B	66	
			13-66-66B	66	
			41-41D	41	
			41-41D	41	
			41-41-41C	41	
			41-41-41C	41	
			41C-41C	41	
			41D-42	41	
			41D-42	42	
			41C-42C	41	
			41C-42C	42	
			42-42D	42	
			42-42D	42	
			42C-42C	42	

Following KDB 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02, output power measurements have been performed to qualify for UL SAR test exclusion using the configuration with the largest aggregated BW.

Uplink maximum output power is measured with downlink carrier aggregation active, only for the channel with highest measured maximum output power when downlink carrier aggregation is inactive to check if with the DL CA active the maximum output power remains within the tune-up tolerance limits and/or the maximum output power increases less than 0.25 dB.

All Downlink CA fulfills with this statements, please check the measured combinations:

DL 5CA																					
Combination	UL Band	PCC (dBm)	PCC+SCCs (dBm)	Delta	Aggr. BW	PCC1				SCC1			SCC2			SCC3			SCC4		
						BW	CH	FREQ	RB	BW	CH	FREQ	BW	CH	FREQ	BW	CH	FREQ	BW	CH	FREQ
2-2-4-4-5	2	23.25																			
2-2-4-4-5	4	23.94	23.96	0.02	90	20	20050	1720	1LOW	20	700	1940	20	900	1960	20	2175	2132.5	10	2600	889
2-2-4-4-5	5	23.41																			
2-2-4-5B	2	23.25																			
2-2-4-5B	4	23.94	23.95	0.01	80	20	20050	1720	1LOW	20	700	1940	20	900	1960	10	2476	876.6	10	2575	886.5
2-2-4-5B	5	23.41																			
2-2-5-66-66	2	23.25																			
2-2-5-66-66	5	23.41	23.37	-0.04	90	10	20600	844	1LOW	20	700	1940	20	900	1960	20	67039	2170.3	20	66886	2155
2-2-5-66-66	66	23.18																			
2-2-5-66C	2	23.25																			
2-2-5-66C	5	23.41	23.39	-0.02	90	10	20600	844	1LOW	20	700	1940	20	900	1960	20	66787	2145.1	20	66985	2164.9
2-2-5-66C	66	23.18																			
2-2-5-66B	2	23.25																			
2-2-5-66B	5	23.41	23.46	0.05	70	10	20450	829	1HIGH	20	700	1940	20	900	1960	10	66787	2145.1	10	66985	2164.9
2-2-5-66B	66	23.18																			
2-2-12B-66	2	23.25	23.15	-0.1	75	20	19100	1900	1MID	20	700	1940	5	5048	732.8	10	5120	740	20	66886	2155
2-2-12B-66	12	23.09																			
2-2-12B-66	66	23.18																			
2-2-12-12-66	2	23.25	23.2	-0.05	80	20	19100	1900	1MID	20	700	1940	10	5095	737.5	10	5060	734	20	66886	2155
2-2-12-12-66	12	23.09																			
2-2-12-12-66	66	23.18																			
2-2-66D	2	23.25	23.16	-0.09	100	20	19100	1900	1MID	20	700	1940	20	66536	2120	20	66734	2139.8	20	66932	2160
2-2-66D	66	23.18																			
2-2-66-66C	2	23.25	23.27	0.02	100	20	19100	1900	1MID	20	700	1940	20	67039	2170.3	20	66536	2120	20	66734	2139.8
2-2-66-66C	66	23.18																			
2-2-66-66B	2	23.25	23.14	-0.11	80	20	19100	1900	1MID	20	700	1940	20	67039	2170.3	10	66486	2115	10	66585	2124.9
2-2-66-66B	66	23.18																			
2-4-4-5B	2	23.25																			
2-4-4-5B	4	23.94	23.98	0.04	80	20	20050	1720	1LOW	20	700	1940	20	2175	2132.5	10	2476	876.6	10	2575	886.5
2-4-4-5B	5	23.41																			
2-5B-66-66	2	23.25																			
2-5B-66-66	5	23.41	23.29	-0.12	80	10	20450	829	1HIGH	10	2501	879.1	20	700	1940	20	67039	2170.3	20	66886	2155
2-5B-66-66	66	23.18																			
2-5B-66C	2	23.25																			
2-5B-66C	5	23.41	23.33	-0.08	80	10	20450	829	1HIGH	10	2501	879.1	20	700	1940	20	66536	2120	20	66734	2139.8
2-5B-66C	66	23.18																			
2-5B-66B	2	23.25																			
2-5B-66B	5	23.41	23.34	-0.07	60	10	20450	829	1HIGH	10	2501	879.1	20	700	1940	10	66486	2115	10	66585	2124.9
2-5B-66B	66	23.18																			
2-5-66D	2	23.25																			
2-5-66D	5	23.41	23.33	-0.08	90	10	20450	829	1HIGH	20	700	1940	20	66536	2120	20	66734	2139.8	20	66932	2160
2-5-66D	66	23.18																			
2-12B-66-66	2	23.25	23.28	0.03	75	20	19100	1900	1MID	5	5048	732.8	10	5120	740	20	67039	2170.3	20	66886	2155
2-12B-66-66	12	23.09																			
2-12B-66-66	66	23.18																			
2-13-66D	2	23.25	23.22	-0.03	100	20	19100	1900	1MID	20	5230	751	20	66536	2120	20	66734	2139.8	20	66932	2160
2-13-66D	13	22.93																			
2-13-66D	66	23.18																			
2-13-66-66C	2	23.25	23.37	0.12	100	20	19100	1900	1MID	20	5230	751	20	67039	2170.3	20	66536	2120	20	66734	2139.8
2-13-66-66C	13	22.93																			
2-13-66-66C	66	23.18																			
2-13-66-66C	2	23.25	23.33	0.08	80	20	19100	1900	1MID	20	5230	751	20	67039	2170.3	10	66486	2115	10	66585	2124.9
2-13-66-66C	13	22.93																			
2-13-66-66C	66	23.18																			
5-5-66D	5	23.41	23.34	-0.07	80	10	20450	829	1HIGH	10	2450	874	20	66536	2120	20	66734	2139.8	20	66932	2160
5-5-66D	66	23.18																			
5-5-66-66C	5	23.41	23.24	-0.17	80	10	20450	829	1HIGH	10	2450	874	20	67039	2170.3	20	66536	2120	20	66734	2139.8
5-5-66-66C	66	23.18																			
5-5-66-66B	5	23.41	23.35	-0.06	60	10	20450	829	1HIGH	10	2450	874	20	67039	2170.3	10	66486	2115	10	66585	2124.9
5-5-66-66B	66	23.18																			
5B-66-66C	5	23.41	23.38	-0.03	80	10	20450	829	1HIGH	10	2501	879.1	20	67039	2170.3	20	66536	20120	20	66734	2139.8
5B-66-66C	66	23.18																			
5B-66-66B	5	23.41	23.46	0.05	60	10	20450	829	1HIGH	10	2501	879.1	20	67039	2170.3	10	66486	2115	10	66585	2124.9
5B-66-66B	66	23.18																			

DL 4CA																		
Combination	UL Band	PCC (dBm)	PCC+SCCs (dBm)	Delta	Aggr. BW	PCC1				SCC1			SCC2			SCC3		
						BW	CH	FREQ	RB	BW	CH	FREQ	BW	CH	FREQ	BW	CH	FREQ
2-2-4-12	2	23.25																
2-2-4-12	4	23.94	23.88	-0.06	70	20	20050	1720	1LOW	20	700	1940	20	900	1960	10	5095	737.5
2-2-4-12	12	23.09																
2-2-12-12	2	23.25	23.14	-0.11	60	20	19100	1900	1MID	20	700	1940	10	5095	737.5	10	5060	734
2-2-12-12	12	23.09																
2-2-13-66	2	23.25	23.35	0.1	80	20	19100	1900	1MID	20	700	1940	20	5230	751	20	67039	2170.3
2-2-13-66	13	22.93																
2-2-13-66	66	23.18																
2C-66-66	2	23.25	23.32	0.07	80	20	19100	1900	1MID	20	999	1969.9	20	67039	2170.3	20	66886	2155
2C-66-66	66	23.47																
2-2-66-71	2	23.25	23.31	0.06	80	20	19100	1900	1MID	20	700	1940	20	67039	2170.3	20	68761	634.5
2-2-66-71	66	23.18																
2-2-66-71	71	22.95																
2-4-4-12	2	23.25																
2-4-4-12	4	23.94	23.88	-0.06	60	20	20050	1720	1LOW	20	700	1940	10	2476	876.6	10	5095	737.5
2-4-4-12	12	23.09																
2-4-12-12	2	23.25																
2-4-12-12	4	23.94	23.96	0.02	60	20	20050	1720	1LOW	20	700	1940	10	5095	737.5	10	5060	734
2-4-12-12	12	23.09																
2-4-12B	2	22.46																
2-4-12B	4	23.94	23.99	0.05	55	20	20050	1720	1LOW	20	700	1940	5	5048	732.8	10	5120	740
2-4-12B	12	23.29																
2-12-66C	2	23.25	23.19	-0.06	70	20	19100	1900	1MID	10	5095	737.5	20	66536	20120	20	66734	2139.8
2-12-66C	12	23.09																
2-12-66C	66	23.18																
2-66-66-66	2	23.25	23.24	-0.01	80	20	19100	1900	1MID	20	66536	2120	20	66886	2155	20	67039	2170.3
2-66-66-66	66	23.18																
2-66-66-71	2	23.25	23.14	-0.11	80	20	19100	1900	1MID	20	66886	2155	20	67039	2170.3	20	68761	634.5
2-66-66-71	66	23.47																
2-66-66-71	71	22.95																
2-66C-71	2	23.25	23.14	-0.11	80	20	19100	1900	1MID	20	66536	2120	20	66734	2139.8	20	68761	634.5
2-66C-71	66	23.47																
2-66C-71	71	22.95																
4-4-12-12	4	23.94	23.96	0.02	60	20	20050	1720	1LOW	20	2300	2132.5	10	5095	737.5	10	5060	734
4-4-12-12	12	23.09																
4-4-12B	4	23.94	23.87	-0.07	55	20	20050	1720	1LOW	20	2300	2132.5	5	5048	732.8	10	5120	740
4-4-12B	12	23.09																
7-7-66-66	7	24.68	24.66	-0.02	80	20	20850	2510	1HIGH	20	3350	2680	20	67039	2170.3	20	66886	2155
7C-66-66	7	24.68	24.73	0.05	80	20	20850	2510	1HIGH	20	3048	2649.8	20	67039	2170.3	20	66886	2155
7-12B-66	7	24.68	24.61	-0.07	55	20	20850	2510	1HIGH	5	5048	732.8	10	5120	740	20	67039	2170.3
7-12B-66	12	23.09																
12B-66-66	12	23.09																
12B-66-66	66	23.18	23.15	-0.03	55	20	132575	1770	1LOW	5	5048	732.8	10	5120	740	20	67039	2170.3
13-66-66-66	13	22.93																
13-66-66-66	66	23.18	23.26	0.08	70	10	132575	1770	1LOW	20	5230	751	20	67039	2170.3	20	66886	2155
13-66D	13	22.93																
13-66D	66	23.18	23.15	-0.03	80	20	132072	1720	1LOW	20	66734	2139.8	20	66932	2159.6	20	5230	751
13-66-66C	13	22.93																
13-66-66C	66	23.18	23.22	0.04	70	10	132575	1770	1LOW	20	5230	751	20	66536	20120	20	66734	2139.8
13-66-66B	13	22.93																
13-66-66B	66	23.18	23.27	0.09	50	10	132575	1770	1LOW	20	5230	751	10	66486	2115	10	66585	2124.9
42-42D	42	25.16	25.18	0.02	80	20	41690	3410	1LOW	20	43094	3550.4	20	43292	3570.2	20	43490	3590
42C-42C	42	25.16	25.17	0.01	80	20	41690	3410	1LOW	20	41888	3429.8	20	43292	3570.2	20	43490	3590

DL 3CA															
Combination	UL Band	PCC (dBm)	PCC+SCCs (dBm)	Delta	Aggr. BW	PCC1				SCC1			SCC2		
						BW	CH	FREQ	RB	BW	CH	FREQ	BW	CH	FREQ
2-4-13	2	23.25													
2-4-13	4	23.94	23.85	-0.09	60	20	20050	1720	1LOW	20	700	1940	20	5230	751
2-4-13	13	22.93													
2-4-71	2	23.25													
2-4-71	4	23.94	23.85	-0.09	60	20	20050	1720	1LOW	20	700	1940	20	68761	634.5
2-4-71	71	22.95													
2-29-66	2	23.25	23.14	-0.11	60	20	19100	1900	1MID	20	66886	2155	20	67039	2170.3
2-29-66	66	23.18													
4-4-13	4	23.94	23.85	-0.09	60	20	20050	1720	1LOW	20	2300	2132.5	20	5230	751
4-4-13	13	23.39													
4-4-29	4	23.94	23.97	0.03	50	20	20050	1720	1LOW	20	2175	2132.5	10	9715	722.5
4-4-71	4	23.94	23.96	0.02	60	20	20050	1720	1LOW	20	2300	2132.5	20	68761	634.5
4-4-71	71	22.95													
5-7C	5	23.41													
5-7C	7	24.68	24.66	-0.02	50	20	20850	2510	1HIGH	20	3048	2649.8	10	2450	874
5-7-7	5	23.41													
5-7-7	7	24.68	24.55	-0.13	50	20	20850	2510	1HIGH	10	2450	874	20	3350	2680
7-7-26	7	24.68	24.6	-0.08	50	20	20850	2510	1HIGH	20	3350	2680	10	8865	876.5
7-7-26	26	23.21													
7-42-42	42	25.16	25.1	-0.06	60	20	41690	3410	1LOW	20	2850	2630	20	43490	3590
12-66C	12	23.09													
12-66C	66	23.18	23.21	0.03	50	20	132575	1770	1LOW	20	66734	2139.8	10	5095	737.5
25-25-25	25	23.3	23.24	-0.06	60	20	26590	1905	1MID	20	8140	1940	20	8590	1985
25-25-26	25	23.3	23.26	0.05	55	20	26590	1905	1MID	20	8140	1940	10	8865	876.5
25-25-26	26	23.21													
26-41C	26	23.21													
26-41C	41	23.28	24.55	1.27	50	20	39750	2506	1HIGH	20	39948	2525.8	10	8865	876.5
66C-29	66	23.18	23.22	0.04	50	20	132575	1770	1LOW	20	66734	2139.8	10	9715	722.5
66-66B	66	23.18	23.21	0.03	30	10	132575	1770	1LOW	10	66486	2115	10	66585	2124.9
66-66C	66	23.18	23.19	0.01	50	10	132575	1770	1LOW	20	66536	20120	20	66734	2139.8
66-66-66	66	23.18	23.17	-0.01	50	10	132575	1770	1LOW	20	67039	2170.3	20	66886	2155
66D	66	23.18	23.23	0.05	60	20	132072	1720	1LOW	20	66734	2140	20	66932	2160
66-66-71	66	23.18	23.27	0.09	55	10	132575	1770	1LOW	20	67039	2170.3	20	68761	634.5
66-66-71	71	22.95													
66C-71	66	23.18	23.15	-0.03	55	20	132575	1770	1LOW	20	66734	2139.8	20	68761	634.5
66C-71	71	22.95													

DL 2CA												
Combination	UL Band	PCC (dBm)	PCC+SCCs (dBm)	Delta	Aggr. BW	PCC1				SCC1		
						BW	CH	FREQ	RB	BW	CH	FREQ
2C	2	23.25	23.21	-0.04	40	20	19100	1900	1MID	20	898	1959.8
2-17	2	23.25	23.36	0.11	30	20	19100	1900	1MID	10	5790	740
2-17	17	22.86										
2-71	2	23.25	23.29	0.04	40	20	19100	1900	1MID	20	68761	634.5
2-71	71	22.95										
4-5	4	23.94	23.57	-0.37	30	20	20050	1720	1LOW	10	2450	874
4-5	5	23.41										
4-13	4	23.94	24.01	0.07	40	20	20050	1720	1LOW	20	5230	751
4-13	13	22.93										
4-17	4	23.94	23.81	-0.13	30	20	20050	1720	1LOW	10	5790	740
4-17	17	22.86										
5-25	5	23.41	23.58	0.17	30	10	20450	829	1HIGH	20	8140	1940
5-25	25	23.3										
5-41	5	23.41	23.55	0.14	30	10	20450	829	1HIGH	20	40175	2549.5
5-41	41	23.28										
7-26	7	23.09										
7-26	26	23.21	23.23	0.02	40	20	20850	2510	1HIGH	20	2850	2630
12-12	12	23.09	23.18	0.09	20	10	23095	707.5	1HIGH	10	5060	734
12-25	12	23.09										
12-25	25	23.3	23.22	-0.08	30	20	26590	1905	1MID	10	5060	734

2.1.5. LTE CA Uplink Inter-Band.

LTE CA UPLINK	PCC Band
2A-5A	LTE 2
2A-12A	LTE 2
2A-13A	LTE 2
4A-5A	LTE4
4A-12A	LTE4
4A-13A	LTE4
4A-17A	LTE4
5A-7A	LTE 5
5A-66A	LTE 5

Following guidance from TCB Workshop October 2018:

- Provide the single uplink SAR values you have obtained for the SAR configurations and frequency bands that employ inter-band uplink carrier aggregation.
- If the single uplink 1-g SAR values for each band are both less than 0.8 W/kg and the algebraic summation of the 1-g SAR values are less than 1.45 W/kg no additional measurements need to be performed.
- If one of the single uplink 1-g SAR values is greater than 0.8 W/kg, instead of algebraically summing the 1-g SAR values, sum up the SAR distributions, similar to the enlarged zoom scan (volume scan) procedures found in FCC KDB Publication 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04.
- If the algebraic sum of the 1-g SAR values is > 1.45 W/kg additional measurements may have to be made. Submit a KDB inquiry for additional guidance.

CA UL maximum output power is reduced by 3 dBm from the single carrier maximum output power value. Reported SAR for the CA UL maximum output power have been calculated using worst-case single carrier SAR values for each CC:

LTE CA UPLINK	CC1			CC2			CA				
	Band	Tune-up limit	Reported SAR	Band	Tune-up limit	Reported SAR	CC1 Tune-up limit	CC2 Tune-up limit	CC1 Reported SAR	CC2 Reported SAR	CA sum
2A-5A	2A	24.5	0.108	5A	24.5	0.281	21.5	21.5	0.054	0.141	0.195
2A-12A	2A	24.5	0.108	12A	24.5	0.211	21.5	21.5	0.054	0.106	0.160
2A-13A	2A	24.5	0.108	13A	24.5	0.250	21.5	21.5	0.054	0.125	0.179
4A-5A	4A	25.0	0.073	5A	24.5	0.281	22.0	21.5	0.037	0.141	0.178
4A-12A	4A	25.0	0.073	12A	24.5	0.211	22.0	21.5	0.037	0.106	0.143
4A-13A	4A	25.0	0.073	13A	24.5	0.250	22.0	21.5	0.037	0.125	0.162
4A-17A	4A	25.0	0.073	17A	24.5	0.211	22.0	21.5	0.037	0.106	0.143
5A-7A	5A	24.5	0.281	7A	25.0	0.135	21.5	22.0	0.141	0.068	0.209
5A-66A	5A	24.5	0.281	66A	24.5	0.094	21.5	21.5	0.141	0.047	0.188

2.1.6. LTE CA Uplink Intra-Band

LTE CA UPLINK	PCC Band
5B	LTE 5
7C	LTE 7
41C	LTE 41
42C	LTE 42
66B	LTE 66
66C	LTE 66

Following KDB 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02 and TCB Workshop Nov. 2017

- SAR for UL CA is required in each exposure condition (highest standalone head test position, body, etc.) and frequency band combination.
- When the maximum output for UL CA is \leq standalone LTE mode (without CA)
 - PCC is configured according to the highest standalone SAR configuration tested
 - SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) similar to that used for the PCC
- Reported SAR for UL CA configuration, described above, is > 1.2 W/kg, UL CA SAR is also required for all required test channels(PCC based)
- UL CA SAR is also required for standalone SAR configurations > 1.2 W/kg when they are scaled to the UL CA power level

All measured SAR values for the bands that supports Uplink CA Intra-band are lower than, 1.2 W/kg, therefore all Uplink CA intra-band combinations values are also < 1.2 W/kg.

LTE CA UPLINK BAND	Band	BW (MHz)	Channel	Frequency (MHz)	Configuration	Output power W/O CA	Output power with CA	Delta CA off/on
5B	LTE 5	5	20528	836.8	1Rb High	23.32	21.04	2.28
7C	LTE 7	20	20850	2510.0	1Rb High	24.41	22.12	2.29
41C	LTE 41	20	39750	2506.0	1Rb High	23.01	20.85	2.16
42C	LTE 42	20	42565	3497.5	1Rb High	24.86	23.1	1.76
66B	LTE 66	10	132575	1770.0	1Rb High	22.97	22.04	0.93
66C	LTE 66	20	132522	1765.0	1Rb High	23.08	21.19	1.89

LTE CA UPLINK BAND	PCC				SCC				Reported SAR
	BW (MHz)	CH	FREQ	RB	BW (MHz)	CH	FREQ	RB	
5B	5	20528	836.8	1Rb High	10	20600	844.0	1Rb Low	0.513
7C	20	20850	2510.0	1Rb High	20	21048	2529.8	1Rb Low	0.186
41C	20	39750	2506.0	1Rb High	5	39867	2517.7	1Rb Low	0.179
42C	20	42565	3497.5	1Rb High	5	42682	3509.2	1Rb Low	0.033
66B	10	132575	1770.0	1Rb High	5	132644	1777.2	1Rb Low	0.150
66C	20	132522	1765.0	1Rb High	5	132639	1776.7	1Rb Low	0.130

2.1.7. 5G Stand-Alone Bands

MPR is permanently implemented for the device. A-MPR was disabled for SAR measurements.

Maximum Power Reductions are specified in Table 6.2.3-1 of the 3GPP TS138.521-1.

Table 6.2.2.3-1: Maximum Power Reduction (MPR) for Power 3

Modulation	MPR (dB)		
	Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM PI/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
	$\leq 0.5^2$		0^2
DFT-s-OFDM QPSK	≤ 1		0
DFT-s-OFDM 16 QAM	≤ 2		≤ 1
DFT-s-OFDM 64 QAM		≤ 2.5	
DFT-s-OFDM 256 QAM		≤ 4.5	
CP-OFDM QPSK	≤ 3		≤ 1.5
CP-OFDM 16 QAM	≤ 3		≤ 2
CP-OFDM 64 QAM		≤ 3.5	
CP-OFDM 256 QAM		≤ 6.5	
NOTE 1: Applicable for UE operating in TDD mode with PI/2 BPSK modulation and UE indicates support for UE capability <i>powerBoosting-pi2BPSK</i> and if the IE <i>powerBoostPi2BPSK</i> is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0dB MPR is 26dBm.			
NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 and if the IE <i>powerBoostPi2BPSK</i> is set to 0 and if more than 40% of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.			

- n2

NR Band 2 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		372000	376000	380000
		Frequency (MHz)		1860	1880	1900
20 MHz	pi/2 BPSK	1	0	23.69	23.67	23.65
		1	53	23.79	23.71	23.75
		1	105	23.79	23.78	23.74
		53	0	23.69	23.64	23.64
		53	27	23.67	23.62	23.63
		53	53	23.65	23.68	23.63
		106	0	23.51	23.50	23.50
	QPSK	1	0	20.77	20.80	20.80
		1	53	20.90	20.87	20.85
		1	105	20.87	20.83	20.83
		53	0	20.80	20.71	20.75
		53	27	20.72	20.75	20.71
		53	53	20.74	20.78	20.77
		106	0	20.65	20.64	20.68
	16QAM	1	0	20.61	20.61	20.65
		1	53	20.75	20.79	20.70
		1	105	20.77	20.70	20.77
		53	0	20.61	20.60	20.64
		53	27	20.66	20.60	20.65
		53	53	20.68	20.65	20.60
		106	0	20.60	20.52	20.57
	64QAM	1	0	20.27	20.21	20.27
		1	53	20.35	20.37	20.30
		1	105	20.30	20.40	20.39
		53	0	20.29	20.29	20.29
		53	27	20.22	20.30	20.21
		53	53	20.21	20.28	20.29
		106	0	20.16	20.10	20.18
	256QAM	1	0	17.30	17.26	17.27
		1	53	17.39	17.30	17.40
1		105	17.31	17.31	17.39	
53		0	17.27	17.26	17.21	
53		27	17.27	17.25	17.29	
53		53	17.27	17.22	17.21	
106		0	17.14	17.18	17.11	

NR Band 2 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		371500	376000	380500
		Frequency (MHz)		1857.5	1880	1902.5
15 MHz	pi/2 BPSK	1	0	23.67	23.62	23.65
		1	39	23.70	23.79	23.73
		1	78	23.78	23.71	23.70
		39	0	23.69	23.68	23.62
		39	19	23.69	23.60	23.60
		39	40	23.62	23.63	23.68
		79	0	23.56	23.54	23.55
	QPSK	1	0	20.74	20.74	20.76
		1	39	20.80	20.86	20.81
		1	78	20.85	20.90	20.86
		39	0	20.75	20.76	20.79
		39	19	20.72	20.77	20.70
		39	40	20.72	20.73	20.76
		79	0	20.69	20.70	20.60
	16QAM	1	0	20.67	20.66	20.67
		1	39	20.72	20.71	20.70
		1	78	20.73	20.74	20.77
		39	0	20.63	20.65	20.63
		39	19	20.60	20.68	20.65
		39	40	20.68	20.67	20.68
		79	0	20.52	20.50	20.53
	64QAM	1	0	20.29	20.23	20.29
		1	39	20.33	20.35	20.36
		1	78	20.34	20.37	20.40
		39	0	20.25	20.22	20.30
		39	19	20.25	20.22	20.28
		39	40	20.28	20.22	20.20
		79	0	20.10	20.18	20.18
	256QAM	1	0	17.26	17.22	17.23
		1	39	17.40	17.36	17.37
1		78	17.38	17.38	17.34	
39		0	17.24	17.28	17.29	
39		19	17.27	17.23	17.22	
39		40	17.25	17.20	17.27	
79		0	17.12	17.20	17.15	

NR Band 2 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		371000	376000	381000
		Frequency (MHz)		1855	1880	1905
10 MHz	pi/2 BPSK	1	0	23.65	23.63	23.67
		1	26	23.79	23.79	23.72
		1	51	23.77	23.70	23.77
		26	0	23.63	23.61	23.62
		26	13	23.64	23.63	23.66
		26	26	23.66	23.67	23.64
		52	0	23.58	23.59	23.53
	QPSK	1	0	20.74	20.71	20.79
		1	26	20.90	20.89	20.88
		1	51	20.90	20.88	20.86
		26	0	20.75	20.72	20.75
		26	13	20.75	20.75	20.78
		26	26	20.80	20.77	20.71
		52	0	20.61	20.65	20.69
	16QAM	1	0	20.70	20.60	20.65
		1	26	20.75	20.77	20.80
		1	51	20.74	20.74	20.77
		26	0	20.64	20.68	20.65
		26	13	20.69	20.70	20.64
		26	26	20.69	20.64	20.70
		52	0	20.50	20.60	20.55
	64QAM	1	0	20.30	20.28	20.30
		1	26	20.31	20.36	20.36
		1	51	20.40	20.30	20.39
		26	0	20.28	20.23	20.29
		26	13	20.30	20.29	20.30
		26	26	20.27	20.22	20.28
		52	0	20.18	20.11	20.18
	256QAM	1	0	17.28	17.28	17.28
		1	26	17.36	17.40	17.36
		1	51	17.38	17.30	17.32
		26	0	17.21	17.28	17.21
		26	13	17.21	17.23	17.26
		26	26	17.21	17.25	17.21
		52	0	17.11	17.15	17.16

NR Band 2 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		370500	376000	381500
		Frequency (MHz)		1852.5	1880	1907.5
5 MHz	pi/2 BPSK	1	0	23.63	23.62	23.60
		1	12	23.71	23.71	23.75
		1	24	23.73	23.71	23.75
		12	0	23.64	23.63	23.67
		12	6	23.66	23.61	23.67
		12	13	23.64	23.61	23.66
		25	0	23.55	23.58	23.54
	QPSK	1	0	20.80	20.71	20.73
		1	12	20.84	20.82	20.87
		1	24	20.81	20.86	20.83
		12	0	20.79	20.77	20.78
		12	6	20.71	20.72	20.74
		12	13	20.78	20.80	20.71
		25	0	20.67	20.66	20.70
	16QAM	1	0	20.60	20.67	20.69
		1	12	20.73	20.70	20.74
		1	24	20.72	20.73	20.74
		12	0	20.68	20.66	20.60
		12	6	20.67	20.60	20.69
		12	13	20.70	20.67	20.61
		25	0	20.55	20.52	20.56
	64QAM	1	0	20.20	20.30	20.27
		1	12	20.31	20.35	20.35
		1	24	20.33	20.31	20.33
		12	0	20.21	20.23	20.29
		12	6	20.27	20.28	20.26
		12	13	20.21	20.27	20.29
		25	0	20.18	20.12	20.18
	256QAM	1	0	17.23	17.26	17.29
		1	12	17.37	17.32	17.37
1		24	17.35	17.34	17.35	
12		0	17.27	17.30	17.28	
12		6	17.20	17.22	17.25	
12		13	17.29	17.20	17.28	
25		0	17.11	17.14	17.10	

- n5

NR Band 5 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		166800	167300	167800
		Frequency (MHz)		834	836.5	839
20 MHz	pi/2 BPSK	1	0	24.44	24.50	24.35
		1	53	24.40	24.36	24.21
		1	105	24.40	24.31	24.44
		53	0	24.38	24.32	24.21
		53	27	24.32	24.31	24.24
		53	53	24.23	24.39	24.36
		106	0	24.28	24.27	24.26
	QPSK	1	0	21.45	21.35	21.44
		1	53	21.25	21.37	21.20
		1	105	21.45	21.34	21.31
		53	0	21.38	21.21	21.21
		53	27	21.36	21.36	21.38
		53	53	21.31	21.40	21.23
		106	0	21.22	21.25	21.28
	16QAM	1	0	21.32	21.31	21.48
		1	53	21.30	21.20	21.21
		1	105	21.47	21.34	21.32
		53	0	21.25	21.34	21.30
		53	27	21.25	21.35	21.35
		53	53	21.31	21.36	21.38
		106	0	21.14	21.20	21.30
	64QAM	1	0	20.74	20.87	20.77
		1	53	20.74	20.79	20.79
		1	105	20.86	20.72	20.83
		53	0	20.70	20.69	20.72
		53	27	20.70	20.71	20.60
		53	53	20.65	20.67	20.75
		106	0	20.56	20.52	20.54
	256QAM	1	0	17.76	17.86	17.89
		1	53	17.65	17.74	17.75
1		105	17.73	17.80	17.90	
53		0	17.78	17.67	17.72	
53		27	17.63	17.72	17.79	
53		53	17.60	17.77	17.73	
106		0	17.58	17.68	17.52	

NR Band 5 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		166300	167300	168300
		Frequency (MHz)		831.5	836.5	841.5
15 MHz	pi/2 BPSK	1	0	24.41	24.49	24.35
		1	39	24.39	24.32	24.40
		1	78	24.47	24.43	24.49
		39	0	24.26	24.36	24.22
		39	19	24.38	24.27	24.24
		39	40	24.22	24.38	24.26
		79	0	24.14	24.29	24.12
	QPSK	1	0	21.32	21.35	21.32
		1	39	21.35	21.20	21.30
		1	78	21.34	21.34	21.40
		39	0	21.23	21.28	21.33
		39	19	21.33	21.23	21.23
		39	40	21.24	21.34	21.34
		79	0	21.19	21.11	21.13
	16QAM	1	0	21.30	21.37	21.30
		1	39	21.29	21.40	21.23
		1	78	21.45	21.48	21.31
		39	0	21.20	21.31	21.20
		39	19	21.39	21.29	21.22
		39	40	21.21	21.34	21.33
		79	0	21.11	21.19	21.23
	64QAM	1	0	20.86	20.81	20.78
		1	39	20.72	20.72	20.62
		1	78	20.73	20.90	20.78
		39	0	20.65	20.68	20.66
		39	19	20.70	20.64	20.60
		39	40	20.68	20.68	20.66
		79	0	20.57	20.60	20.66
	256QAM	1	0	17.87	17.81	17.75
		1	39	17.62	17.66	17.69
1		78	17.89	17.83	17.88	
39		0	17.80	17.74	17.65	
39		19	17.61	17.61	17.66	
39		40	17.75	17.63	17.69	
79		0	17.62	17.57	17.58	

NR Band 5 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		165800	167300	168800
		Frequency (MHz)		829	836.5	844
10 MHz	pi/2 BPSK	1	0	24.35	24.50	24.39
		1	26	24.32	24.24	24.20
		1	51	24.40	24.48	24.50
		26	0	24.20	24.32	24.21
		26	13	24.21	24.33	24.40
		26	26	24.21	24.30	24.33
		52	0	24.20	24.11	24.24
	QPSK	1	0	21.40	21.50	21.30
		1	26	21.30	21.31	21.37
		1	51	21.49	21.33	21.36
		26	0	21.33	21.29	21.27
		26	13	21.20	21.24	21.36
		26	26	21.40	21.39	21.37
		52	0	21.17	21.21	21.27
	16QAM	1	0	21.41	21.39	21.30
		1	26	21.30	21.23	21.35
		1	51	21.34	21.38	21.36
		26	0	21.27	21.23	21.30
		26	13	21.32	21.36	21.20
		26	26	21.39	21.40	21.34
		52	0	21.23	21.24	21.23
	64QAM	1	0	20.80	20.78	20.83
		1	26	20.66	20.70	20.77
		1	51	20.82	20.72	20.80
		26	0	20.78	20.80	20.65
		26	13	20.64	20.74	20.73
		26	26	20.60	20.74	20.62
		52	0	20.63	20.52	20.58
	256QAM	1	0	17.90	17.75	17.70
		1	26	17.64	17.74	17.76
1		51	17.76	17.88	17.87	
26		0	17.68	17.66	17.64	
26		13	17.65	17.75	17.74	
26		26	17.69	17.64	17.70	
52		0	17.66	17.54	17.66	

NR Band 5 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		165300	167300	169300
		Frequency (MHz)		826.5	836.5	846.5
5 MHz	pi/2 BPSK	1	0	24.36	24.48	24.30
		1	12	24.39	24.21	24.36
		1	24	24.41	24.47	24.35
		12	0	24.32	24.20	24.27
		12	6	24.23	24.30	24.29
		12	13	24.35	24.39	24.25
		25	0	24.29	24.20	24.10
	QPSK	1	0	21.36	21.50	21.37
		1	12	21.24	21.21	21.21
		1	24	21.32	21.31	21.49
		12	0	21.35	21.31	21.38
		12	6	21.40	21.37	21.24
		12	13	21.34	21.40	21.29
		25	0	21.27	21.17	21.12
	16QAM	1	0	21.39	21.35	21.50
		1	12	21.24	21.20	21.32
		1	24	21.47	21.46	21.30
		12	0	21.28	21.20	21.29
		12	6	21.38	21.33	21.27
		12	13	21.30	21.25	21.38
		25	0	21.26	21.29	21.16
	64QAM	1	0	20.85	20.76	20.79
		1	12	20.64	20.62	20.64
		1	24	20.79	20.83	20.83
		12	0	20.62	20.72	20.74
		12	6	20.73	20.61	20.60
		12	13	20.60	20.79	20.69
		25	0	20.63	20.56	20.65
	256QAM	1	0	17.81	17.81	17.82
		1	12	17.75	17.79	17.79
1		24	17.81	17.83	17.80	
12		0	17.80	17.67	17.63	
12		6	17.61	17.66	17.61	
12		13	17.77	17.60	17.67	
25		0	17.60	17.61	17.55	

- n7

NR Band 7 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		502000	507000	512000
		Frequency (MHz)		2510	2535	2560
20 MHz	pi/2 BPSK	1	0	24.00	24.09	23.91
		1	53	24.05	23.99	23.98
		1	105	23.51	23.50	23.61
		53	0	23.96	23.89	23.94
		53	27	23.98	23.99	23.84
		53	53	23.70	23.74	23.74
		106	0	23.85	23.78	23.89
	QPSK	1	0	20.93	21.07	21.06
		1	53	20.90	21.00	20.96
		1	105	20.63	20.68	20.57
		53	0	20.98	20.94	20.98
		53	27	20.90	20.81	20.90
		53	53	20.71	20.72	20.75
		106	0	20.74	20.71	20.85
	16QAM	1	0	20.90	21.06	20.97
		1	53	20.92	20.96	20.97
		1	105	20.65	20.64	20.60
		53	0	20.99	20.92	20.91
		53	27	20.97	20.84	20.82
		53	53	20.70	20.75	20.82
		106	0	20.76	20.88	20.71
	64QAM	1	0	20.31	20.49	20.49
		1	53	20.49	20.45	20.40
		1	105	20.09	20.00	19.95
		53	0	20.37	20.26	20.39
		53	27	20.24	20.20	20.20
		53	53	20.13	20.14	20.17
		106	0	20.18	20.24	20.26
	256QAM	1	0	17.50	17.30	17.44
		1	53	17.39	17.41	17.49
1		105	16.95	17.06	17.07	
53		0	17.37	17.27	17.35	
53		27	17.28	17.24	17.21	
53		53	17.14	17.14	17.15	
106		0	17.30	17.28	17.10	

NR Band 7 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		501500	507000	512500
		Frequency (MHz)		2507.5	2535	2562.5
15 MHz	pi/2 BPSK	1	0	23.90	23.94	23.90
		1	39	23.99	24.04	23.92
		1	78	23.70	23.52	23.67
		39	0	23.86	23.92	23.99
		39	19	23.96	23.81	23.83
		39	40	23.77	23.83	23.70
		79	0	23.89	23.72	23.89
	QPSK	1	0	21.06	21.03	20.93
		1	39	20.92	20.99	20.93
		1	78	20.68	20.68	20.55
		39	0	20.94	21.00	20.92
		39	19	20.87	20.86	20.97
		39	40	20.82	20.78	20.79
		79	0	20.70	20.70	20.77
	16QAM	1	0	20.90	21.00	21.00
		1	39	20.93	21.03	21.08
		1	78	20.57	20.59	20.66
		39	0	20.82	20.85	20.96
		39	19	20.93	20.92	20.97
		39	40	20.70	20.86	20.70
		79	0	20.71	20.78	20.90
	64QAM	1	0	20.45	20.34	20.48
		1	39	20.31	20.35	20.47
		1	78	20.03	19.90	19.99
		39	0	20.34	20.25	20.20
		39	19	20.35	20.22	20.21
		39	40	20.12	20.13	20.27
		79	0	20.18	20.12	20.12
	256QAM	1	0	17.38	17.32	17.32
		1	39	17.44	17.48	17.44
1		78	16.96	17.06	16.95	
39		0	17.40	17.39	17.27	
39		19	17.35	17.26	17.30	
39		40	17.23	17.29	17.24	
79		0	17.18	17.26	17.10	

NR Band 7 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		501000	507000	513000
		Frequency (MHz)		2505	2535	2565
10 MHz	pi/2 BPSK	1	0	24.00	23.92	24.03
		1	26	24.01	24.01	24.00
		1	51	23.60	23.66	23.55
		26	0	23.80	23.98	23.81
		26	13	23.98	23.94	23.90
		26	26	23.87	23.85	23.86
		52	0	23.89	23.77	23.88
	QPSK	1	0	21.06	21.08	20.92
		1	26	20.95	21.01	20.92
		1	51	20.69	20.58	20.69
		26	0	20.97	20.86	20.91
		26	13	20.83	20.91	20.80
		26	26	20.76	20.77	20.86
		52	0	20.80	20.78	20.84
	16QAM	1	0	20.91	20.92	20.96
		1	26	20.92	20.91	21.05
		1	51	20.51	20.59	20.59
		26	0	20.85	20.96	20.94
		26	13	20.84	20.87	21.00
		26	26	20.80	20.77	20.79
		52	0	20.71	20.89	20.81
	64QAM	1	0	20.39	20.43	20.44
		1	26	20.38	20.34	20.45
		1	51	19.98	19.95	20.06
		26	0	20.33	20.24	20.28
		26	13	20.36	20.20	20.25
		26	26	20.25	20.19	20.10
		52	0	20.12	20.18	20.30
	256QAM	1	0	17.35	17.43	17.41
		1	26	17.47	17.37	17.34
1		51	16.99	17.09	17.09	
26		0	17.38	17.21	17.30	
26		13	17.28	17.24	17.38	
26		26	17.19	17.20	17.12	
52		0	17.27	17.22	17.23	

NR Band 7 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		500500	507000	513500
		Frequency (MHz)		2502.5	2535	2567.5
5 MHz	pi/2 BPSK	1	0	24.07	24.10	24.06
		1	12	23.90	23.93	24.08
		1	24	23.60	23.61	23.65
		12	0	23.82	24.00	23.93
		12	6	23.81	23.87	23.92
		12	13	23.87	23.89	23.73
		25	0	23.84	23.88	23.77
	QPSK	1	0	20.92	20.96	20.96
		1	12	21.00	20.98	21.05
		1	24	20.61	20.60	20.69
		12	0	20.87	20.87	20.85
		12	6	20.95	20.86	20.85
		12	13	20.80	20.73	20.72
		25	0	20.87	20.83	20.80
	16QAM	1	0	20.90	21.01	21.03
		1	12	21.09	20.94	20.91
		1	24	20.61	20.53	20.56
		12	0	20.99	20.85	20.94
		12	6	20.96	20.84	20.83
		12	13	20.73	20.75	20.90
		25	0	20.85	20.72	20.89
	64QAM	1	0	20.35	20.33	20.47
		1	12	20.40	20.32	20.40
		1	24	19.98	20.10	20.04
		12	0	20.29	20.40	20.30
		12	6	20.21	20.20	20.35
		12	13	20.12	20.13	20.13
		25	0	20.21	20.12	20.12
	256QAM	1	0	17.35	17.32	17.46
		1	12	17.40	17.37	17.44
1		24	17.06	17.10	17.00	
12		0	17.21	17.22	17.35	
12		6	17.27	17.26	17.36	
12		13	17.23	17.17	17.26	
25		0	17.30	17.16	17.30	

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NR Band 25 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		374000	376500	379000
		Frequency (MHz)		1870	1882.5	1895
20 MHz	pi/2 BPSK	1	0	23.98	24.09	24.02
		1	53	23.92	23.97	24.10
		1	105	24.00	23.94	23.92
		53	0	24.02	24.06	23.91
		53	27	24.04	23.91	24.05
		53	53	23.98	23.97	23.89
		106	0	23.82	23.82	23.89
	QPSK	1	0	21.00	20.96	21.02
		1	53	21.03	21.02	21.08
		1	105	20.84	20.88	20.93
		53	0	21.05	20.90	20.98
		53	27	20.92	21.07	20.94
		53	53	20.93	20.80	20.95
		106	0	20.87	20.88	20.85
	16QAM	1	0	21.09	20.92	20.97
		1	53	21.10	20.91	20.95
		1	105	20.95	20.96	20.93
		53	0	21.10	20.97	21.03
		53	27	20.91	21.08	21.06
		53	53	20.83	20.90	20.97
		106	0	20.98	20.94	20.83
	64QAM	1	0	20.59	20.49	20.40
		1	53	20.40	20.43	20.45
		1	105	20.43	20.45	20.43
		53	0	20.47	20.52	20.52
		53	27	20.44	20.40	20.52
		53	53	20.39	20.49	20.45
		106	0	20.42	20.46	20.42
	256QAM	1	0	17.54	17.54	17.57
		1	53	17.45	17.48	17.46
1		105	17.35	17.30	17.41	
53		0	17.48	17.58	17.41	
53		27	17.48	17.53	17.58	
53		53	17.33	17.43	17.44	
106		0	17.38	17.38	17.32	

NR Band 25 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		371500	376500	381500
		Frequency (MHz)		1857.5	1882.5	1907.5
15 MHz	pi/2 BPSK	1	0	24.03	23.90	23.94
		1	39	23.94	23.90	24.07
		1	78	23.84	23.97	23.98
		39	0	24.06	24.04	24.08
		39	19	24.07	23.99	23.94
		39	40	23.89	23.87	23.90
		79	0	23.92	23.88	23.81
	QPSK	1	0	21.10	20.97	20.94
		1	39	20.91	21.08	20.94
		1	78	20.84	20.83	20.90
		39	0	20.91	21.03	20.95
		39	19	21.04	21.05	20.96
		39	40	20.86	20.80	20.81
		79	0	20.83	20.84	20.81
	16QAM	1	0	20.92	20.90	21.06
		1	39	21.00	21.01	21.00
		1	78	20.91	20.90	20.97
		39	0	21.10	20.98	21.01
		39	19	21.05	21.03	20.98
		39	40	20.80	20.87	20.88
		79	0	20.89	20.80	20.82
	64QAM	1	0	20.44	20.51	20.50
		1	39	20.57	20.42	20.53
		1	78	20.34	20.47	20.46
		39	0	20.43	20.42	20.57
		39	19	20.60	20.51	20.59
		39	40	20.47	20.35	20.35
		79	0	20.36	20.50	20.45
	256QAM	1	0	17.53	17.58	17.57
		1	39	17.50	17.59	17.40
1		78	17.47	17.50	17.36	
39		0	17.57	17.47	17.43	
39		19	17.49	17.44	17.43	
39		40	17.32	17.38	17.42	
79		0	17.42	17.34	17.49	

NR Band 25 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		371000	376500	382000
		Frequency (MHz)		1855	1882.5	1910
10 MHz	pi/2 BPSK	1	0	24.09	23.95	23.98
		1	26	24.04	24.03	24.09
		1	51	23.84	23.83	23.96
		26	0	23.93	24.00	23.95
		26	13	23.91	24.06	23.91
		26	26	23.85	23.85	23.95
		52	0	23.86	23.87	23.84
	QPSK	1	0	21.02	20.92	21.07
		1	26	20.95	21.03	21.06
		1	51	20.81	20.86	20.81
		26	0	20.90	21.10	21.01
		26	13	20.98	21.08	20.91
		26	26	20.91	20.89	20.86
		52	0	20.82	20.85	20.97
	16QAM	1	0	20.99	20.95	21.01
		1	26	20.93	20.95	20.94
		1	51	21.00	20.91	20.84
		26	0	21.10	20.99	20.91
		26	13	21.04	20.95	20.91
		26	26	20.86	20.95	20.90
		52	0	20.81	20.85	20.91
	64QAM	1	0	20.51	20.43	20.53
		1	26	20.53	20.40	20.44
		1	51	20.46	20.31	20.47
		26	0	20.42	20.45	20.46
		26	13	20.56	20.59	20.43
		26	26	20.43	20.42	20.40
		52	0	20.50	20.41	20.30
	256QAM	1	0	17.58	17.50	17.43
		1	26	17.51	17.55	17.52
		1	51	17.36	17.43	17.47
		26	0	17.55	17.51	17.43
		26	13	17.43	17.51	17.57
		26	26	17.43	17.39	17.38
		52	0	17.44	17.36	17.45

NR Band 25 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		370500	376500	382500
		Frequency (MHz)		1852.5	1882.5	1912.5
5 MHz	pi/2 BPSK	1	0	24.04	23.93	24.04
		1	12	23.93	24.00	24.10
		1	24	23.85	23.83	23.81
		12	0	23.99	23.96	23.96
		12	6	23.95	24.00	24.10
		12	13	23.94	23.93	23.93
		25	0	23.87	23.96	23.94
	QPSK	1	0	21.01	21.09	21.05
		1	12	20.92	21.07	20.91
		1	24	20.89	20.95	20.86
		12	0	20.93	21.05	21.01
		12	6	21.04	21.09	20.97
		12	13	20.81	20.82	20.97
		25	0	20.84	20.87	20.80
	16QAM	1	0	21.01	20.93	21.05
		1	12	21.05	21.09	21.00
		1	24	20.99	20.85	20.82
		12	0	21.10	20.93	20.95
		12	6	20.90	20.99	21.05
		12	13	20.95	20.87	20.89
		25	0	20.92	20.92	20.80
	64QAM	1	0	20.45	20.60	20.42
		1	12	20.47	20.45	20.45
		1	24	20.39	20.50	20.49
		12	0	20.55	20.56	20.46
		12	6	20.52	20.56	20.44
		12	13	20.42	20.46	20.34
		25	0	20.45	20.33	20.46
	256QAM	1	0	17.48	17.53	17.53
		1	12	17.50	17.42	17.42
		1	24	17.36	17.49	17.38
		12	0	17.42	17.51	17.50
12		6	17.59	17.45	17.53	
12		13	17.34	17.47	17.50	
25		0	17.49	17.46	17.43	

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NR Band 38 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		516000	519000	522000
		Frequency (MHz)		2580	2595	2610
20 MHz	pi/2 BPSK	1	0	22.91	22.94	22.89
		1	53	22.74	22.76	22.73
		1	105	22.67	22.69	22.64
		53	0	22.51	22.54	22.49
		53	27	22.45	22.48	22.41
		53	53	22.43	22.46	22.41
		106	0	22.38	22.40	22.35
	QPSK	1	0	22.69	22.46	22.28
		1	53	22.81	22.56	22.59
		1	105	22.37	22.32	22.58
		53	0	22.48	22.45	22.41
		53	27	22.64	22.76	22.75
		53	53	22.17	22.48	22.56
		106	0	22.19	22.80	22.21
	16QAM	1	0	21.59	21.78	21.07
		1	53	21.51	21.70	21.05
		1	105	21.15	21.51	21.39
		53	0	21.75	21.75	21.56
		53	27	21.19	21.38	21.58
		53	53	21.62	21.53	21.27
		106	0	21.19	21.43	21.39
	64QAM	1	0	20.02	20.87	20.78
		1	53	20.32	20.35	20.45
		1	105	20.88	20.88	20.32
		53	0	20.03	20.33	20.41
		53	27	20.34	20.56	20.53
		53	53	20.58	20.76	20.57
		106	0	20.57	20.64	20.29
	256QAM	1	0	19.81	19.84	19.82
		1	53	19.65	19.74	19.70
1		105	19.58	19.62	19.56	
53		0	19.49	19.55	19.50	
53		27	19.43	19.44	19.40	
53		53	19.38	19.42	19.37	
106		0	19.29	19.31	19.26	

NR Band 38 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		515500	519000	522500
		Frequency (MHz)		2577.5	2595	2612.5
15 MHz	pi/2 BPSK	1	0	22.75	22.85	22.72
		1	39	22.64	22.67	22.60
		1	78	22.50	22.52	22.46
		39	0	22.43	22.50	22.40
		39	19	22.39	22.41	22.34
		39	40	22.37	22.39	22.34
		79	0	22.29	22.30	22.26
	QPSK	1	0	22.31	22.47	22.72
		1	39	22.53	22.22	22.56
		1	78	22.25	22.34	22.14
		39	0	22.56	22.80	22.28
		39	19	22.74	22.81	22.34
		39	40	22.55	22.59	22.16
		79	0	22.75	22.48	22.14
	16QAM	1	0	21.46	21.53	21.40
		1	39	21.42	21.33	21.67
		1	78	21.20	21.67	21.46
		39	0	21.52	21.31	21.37
		39	19	21.52	21.54	21.45
		39	40	21.57	21.26	21.08
		79	0	21.23	21.35	21.63
	64QAM	1	0	20.15	20.47	20.31
		1	39	20.13	20.82	20.76
		1	78	20.60	20.85	20.16
		39	0	20.68	20.67	20.19
		39	19	20.03	20.60	20.48
		39	40	20.36	20.38	20.32
		79	0	20.55	20.33	20.60
	256QAM	1	0	19.68	19.73	19.66
		1	39	19.56	19.60	19.53
1		78	19.48	19.55	19.45	
39		0	19.41	19.43	19.37	
39		19	19.26	19.32	19.25	
39		40	19.29	19.33	19.27	
79		0	19.16	19.17	19.13	

NR Band 38 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		515000	523000	515500
		Frequency (MHz)		2575	2595	2615
10 MHz	pi/2 BPSK	1	0	22.63	22.90	22.61
		1	26	22.59	22.60	22.56
		1	51	22.48	22.50	22.44
		26	0	22.36	22.39	22.34
		26	13	22.26	22.29	22.24
		26	26	22.25	22.27	22.21
		52	0	22.15	22.19	22.13
	QPSK	1	0	22.46	22.87	22.81
		1	26	22.23	22.49	22.77
		1	51	22.71	22.13	22.22
		26	0	22.51	22.46	22.68
		26	13	22.72	22.89	22.29
		26	26	22.15	22.28	22.09
		52	0	22.44	22.41	22.12
	16QAM	1	0	21.60	21.53	21.15
		1	26	21.64	21.68	21.07
		1	51	21.76	21.71	21.14
		26	0	21.45	21.25	21.55
		26	13	21.43	21.68	21.03
		26	26	21.70	21.75	21.23
		52	0	21.14	21.59	21.28
	64QAM	1	0	20.08	20.70	20.56
		1	26	20.47	20.37	20.50
		1	51	20.80	20.47	20.58
		26	0	20.58	20.42	20.46
		26	13	20.76	20.26	20.14
		26	26	20.55	20.42	20.25
		52	0	20.11	20.52	20.46
	256QAM	1	0	19.51	19.53	19.50
		1	26	19.40	19.43	19.36
1		51	19.26	19.28	19.23	
26		0	19.17	19.26	19.21	
26		13	19.09	19.11	19.07	
26		26	19.13	19.15	19.10	
52		0	19.01	19.04	18.97	

NR Band 38 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		514500	519000	523500
		Frequency (MHz)		2572.5	2595	2617.5
5 MHz	pi/2 BPSK	1	0	22.53	22.71	22.55
		1	12	22.42	22.47	22.40
		1	24	22.34	22.36	22.33
		12	0	22.20	22.24	22.23
		12	6	22.16	22.18	22.15
		12	13	22.14	22.19	22.16
		25	0	22.09	22.12	22.07
	QPSK	1	0	22.57	22.40	22.08
		1	12	22.60	22.86	22.69
		1	24	22.34	22.17	22.73
		12	0	22.35	22.79	22.11
		12	6	22.61	22.29	22.14
		12	13	22.21	22.72	22.70
		25	0	22.59	22.19	22.25
	16QAM	1	0	21.26	21.47	21.31
		1	12	21.06	21.72	21.62
		1	24	21.68	21.74	21.34
		12	0	21.73	21.25	21.05
		12	6	21.63	21.40	21.18
		12	13	21.73	21.58	21.04
		25	0	21.28	21.43	21.31
	64QAM	1	0	20.70	20.58	20.58
		1	12	20.31	20.62	20.40
		1	24	20.51	20.81	20.69
		12	0	20.71	20.45	20.33
		12	6	20.14	20.56	20.36
		12	13	20.35	20.54	20.70
		25	0	20.07	20.23	20.63
	256QAM	1	0	19.50	19.54	19.52
		1	12	19.37	19.44	19.40
1		24	19.25	19.28	19.23	
12		0	19.19	19.22	19.16	
12		6	19.08	19.13	19.09	
12		13	19.09	19.10	19.07	
25		0	18.97	19.01	18.99	

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NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		509202	518598	528000
		Frequency (MHz)		2546.01	2592.99	2640
100 MHz	pi/2 BPSK	1	0	23.61	23.79	23.75
		1	136	23.37	23.22	23.12
		1	272	23.31	23.45	23.62
		136	0	23.34	23.51	23.49
		136	68	23.13	23.56	23.67
		136	136	23.23	23.24	23.52
		273	0	23.34	23.75	23.28
	QPSK	1	0	22.29	22.83	22.72
		1	136	22.15	22.52	22.65
		1	272	22.64	22.59	22.19
		136	0	22.36	22.39	22.09
		136	68	22.72	22.50	22.47
		136	136	22.56	22.41	22.58
		273	0	22.68	22.60	22.35
	16QAM	1	0	21.38	21.85	21.81
		1	136	21.26	21.76	21.51
		1	272	21.56	21.68	21.60
		136	0	21.64	21.51	21.83
		136	68	21.74	21.45	21.52
		136	136	21.68	21.83	21.03
		273	0	21.17	21.48	21.14
	64QAM	1	0	20.19	20.79	20.28
		1	136	20.73	20.76	20.72
		1	272	20.47	20.58	20.80
		136	0	20.01	20.56	20.18
		136	68	20.31	20.29	20.74
		136	136	20.25	20.41	20.21
		273	0	20.14	20.35	20.82
	256QAM	1	0	19.43	19.64	19.19
		1	136	19.62	19.82	19.54
1		272	19.74	19.71	19.45	
136		0	19.32	19.31	19.71	
136		68	19.70	19.80	19.52	
136		136	19.41	19.98	19.15	
273		0	19.68	19.87	19.38	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		508200	518598	528996
		Frequency (MHz)		2541	2592.99	2644.98
90 MHz	pi/2 BPSK	1	0	23.69	23.18	23.50
		1	122	23.52	23.16	23.37
		1	244	23.20	23.22	23.28
		122	0	23.43	23.10	23.39
		122	61	23.77	23.63	23.30
		122	122	23.73	23.25	23.22
		245	0	23.47	23.21	23.12
	QPSK	1	0	22.12	22.64	22.60
		1	122	22.44	22.69	22.66
		1	244	22.25	22.53	22.69
		122	0	22.18	22.37	22.13
		122	61	22.57	22.57	22.77
		122	122	22.48	22.59	22.27
		245	0	22.39	22.66	22.12
	16QAM	1	0	21.25	21.52	21.45
		1	122	21.30	21.98	21.46
		1	244	21.31	21.27	21.49
		122	0	21.69	21.49	21.07
		122	61	21.13	21.55	21.16
		122	122	21.64	21.71	21.57
		245	0	21.42	21.76	21.66
	64QAM	1	0	20.07	20.56	20.55
		1	122	20.18	20.53	20.21
		1	244	20.36	20.21	20.24
		122	0	20.36	20.16	20.62
		122	61	20.69	20.58	20.41
		122	122	20.28	20.31	20.24
		245	0	20.45	20.85	20.33
256QAM	1	0	19.50	19.30	19.28	
	1	122	19.39	19.85	19.37	
	1	244	19.65	19.30	19.36	
	122	0	19.61	19.57	19.57	
	122	61	19.67	19.85	19.65	
	122	122	19.28	19.74	19.66	
	245	0	19.60	19.78	19.38	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		507204	518598	529998
		Frequency (MHz)		2536.02	2592.99	2649.99
80 MHz	pi/2 BPSK	1	0	23.18	23.36	23.21
		1	108	23.40	23.66	23.58
		1	216	23.74	23.76	23.61
		108	0	23.45	23.58	23.76
		108	54	23.28	23.55	23.13
		108	108	23.25	23.65	23.12
		217	0	23.68	23.49	23.53
	QPSK	1	0	22.75	22.58	22.17
		1	108	22.62	22.10	22.50
		1	216	22.14	22.33	22.22
		108	0	22.71	22.80	22.45
		108	54	22.14	22.07	22.51
		108	108	22.38	22.48	22.22
		217	0	22.21	22.69	22.16
	16QAM	1	0	21.35	21.97	21.15
		1	108	21.53	21.19	21.53
		1	216	21.51	21.17	21.21
		108	0	21.42	21.18	21.66
		108	54	21.44	21.72	21.44
		108	108	21.16	21.46	21.24
		217	0	21.62	21.37	21.09
	64QAM	1	0	20.69	20.35	20.11
		1	108	20.36	20.50	20.54
		1	216	20.46	20.81	20.71
		108	0	20.50	20.30	20.19
		108	54	20.48	20.55	20.86
		108	108	20.18	20.56	20.13
		217	0	20.61	20.48	20.94
	256QAM	1	0	19.30	19.44	19.62
		1	108	19.82	19.79	19.33
1		216	19.39	19.26	19.15	
108		0	19.34	19.80	19.12	
108		54	19.32	19.97	19.21	
108		108	19.62	19.99	19.70	
217		0	19.44	19.70	19.21	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		505200	518598	531996
		Frequency (MHz)		2526	2592.99	2659.98
60 MHz	pi/2 BPSK	1	0	23.60	23.27	23.67
		1	81	23.21	23.27	23.62
		1	161	23.14	23.51	23.24
		81	0	23.29	23.40	23.35
		81	40	23.20	23.20	23.48
		81	81	23.47	23.22	23.74
		162	0	23.40	23.16	23.45
	QPSK	1	0	22.30	22.34	22.28
		1	81	22.55	22.13	22.43
		1	161	22.59	22.79	22.27
		81	0	22.12	22.21	22.34
		81	40	22.40	22.11	22.30
		81	81	22.49	22.13	22.34
		162	0	22.11	22.35	22.07
	16QAM	1	0	21.41	21.34	21.46
		1	81	21.26	21.68	21.21
		1	161	21.61	21.72	21.79
		81	0	21.61	21.44	21.10
		81	40	21.64	21.79	21.12
		81	81	21.53	21.43	21.56
		162	0	21.28	21.66	21.80
	64QAM	1	0	20.55	20.73	20.66
		1	81	20.54	20.79	20.68
		1	161	20.04	20.41	20.98
		81	0	20.31	20.74	20.78
		81	40	20.23	20.17	20.15
		81	81	20.46	20.57	20.70
		162	0	20.13	20.14	20.89
	256QAM	1	0	19.57	19.55	19.14
		1	81	19.36	19.97	19.58
1		161	19.76	19.92	19.44	
81		0	19.76	19.37	19.46	
81		40	19.56	19.60	19.24	
81		81	19.66	19.75	19.61	
162		0	19.42	19.63	19.71	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		504204	518598	532998
		Frequency (MHz)		2521.02	2592.99	2664.99
50 MHz	pi/2 BPSK	1	0	23.49	23.26	23.53
		1	66	23.28	23.37	23.27
		1	132	23.24	23.43	23.21
		66	0	23.12	23.49	23.10
		66	33	23.39	23.53	23.35
		66	66	23.37	23.45	23.42
		133	0	23.18	23.25	23.31
	QPSK	1	0	22.54	22.47	22.33
		1	66	22.80	22.68	22.12
		1	132	22.52	22.60	22.40
		66	0	22.27	22.38	22.76
		66	33	22.65	22.46	22.69
		66	66	22.34	22.84	22.22
		133	0	22.24	22.21	22.30
	16QAM	1	0	21.28	21.19	21.45
		1	66	21.51	21.32	21.23
		1	132	21.26	21.81	21.65
		66	0	21.30	21.80	21.05
		66	33	21.54	21.18	21.69
		66	66	21.24	21.53	21.76
		133	0	21.73	21.56	21.84
	64QAM	1	0	20.23	20.75	20.70
		1	66	20.30	20.75	20.27
		1	132	20.36	20.40	20.74
		66	0	20.47	20.67	20.42
		66	33	20.41	20.43	20.15
		66	66	20.64	20.48	20.52
		133	0	20.26	20.73	20.17
	256QAM	1	0	19.65	19.50	19.36
		1	66	19.64	19.49	19.37
1		132	19.54	19.66	19.14	
66		0	19.28	19.94	19.64	
66		33	19.29	19.50	19.70	
66		66	19.41	19.73	19.58	
133		0	19.24	19.55	19.50	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		503202	518598	534000
		Frequency (MHz)		2516.01	2592.99	2670
40 MHz	pi/2 BPSK	1	0	23.73	23.32	23.55
		1	53	23.61	23.59	23.18
		1	105	23.15	23.15	23.43
		53	0	23.21	23.11	23.55
		53	26	23.53	23.18	23.67
		53	53	23.15	23.19	23.18
		106	0	23.12	23.51	23.15
	QPSK	1	0	22.26	22.40	22.49
		1	53	22.73	22.08	22.21
		1	105	22.53	22.75	22.51
		53	0	22.52	22.20	22.33
		53	26	22.35	22.13	22.24
		53	53	22.47	22.65	22.08
		106	0	22.26	22.22	22.67
	16QAM	1	0	21.28	21.16	21.78
		1	53	21.46	21.36	21.35
		1	105	21.18	21.47	21.59
		53	0	21.51	21.85	21.51
		53	26	21.39	21.39	21.66
		53	53	21.51	21.18	21.33
		106	0	21.49	21.92	21.74
	64QAM	1	0	20.72	20.22	20.34
		1	53	20.20	20.25	20.16
		1	105	20.51	20.22	20.59
		53	0	20.21	20.43	20.45
		53	26	20.62	20.46	20.57
		53	53	20.14	20.52	20.43
		106	0	20.24	20.17	20.77
256QAM	1	0	19.69	19.48	19.14	
	1	53	19.62	19.33	19.35	
	1	105	19.64	19.95	19.23	
	53	0	19.46	19.95	19.58	
	53	26	19.81	19.92	19.34	
	53	53	19.37	19.42	19.69	
	106	0	19.67	19.30	19.30	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		501204	518598	535998
		Frequency (MHz)		2506.02	2592.99	2679.99
20 MHz	pi/2 BPSK	1	0	23.30	23.13	23.13
		1	25	23.38	23.36	23.59
		1	50	23.54	23.43	23.28
		25	0	23.32	23.46	23.38
		25	12	23.33	23.46	23.57
		25	25	23.42	23.21	23.26
		51	0	23.14	23.49	23.67
	QPSK	1	0	22.34	22.64	22.23
		1	25	22.71	22.09	22.61
		1	50	22.67	22.41	22.50
		25	0	22.72	22.73	22.72
		25	12	22.44	22.25	22.28
		25	25	22.45	22.67	22.60
		51	0	22.22	22.51	22.71
	16QAM	1	0	21.15	21.92	21.55
		1	25	21.66	21.69	21.48
		1	50	21.15	21.63	21.24
		25	0	21.25	21.46	21.53
		25	12	21.43	21.82	21.11
		25	25	21.45	21.93	21.28
		51	0	21.59	21.41	21.30
	64QAM	1	0	20.51	20.57	20.62
		1	25	20.15	20.41	20.78
		1	50	20.57	20.23	20.32
		25	0	20.20	20.37	20.14
		25	12	20.16	20.80	20.34
		25	25	20.43	20.43	20.87
		51	0	20.54	20.45	20.19
	256QAM	1	0	19.66	19.69	19.47
		1	25	19.39	19.81	19.62
1		50	19.64	19.54	19.32	
25		0	19.47	19.61	19.24	
25		12	19.31	19.30	19.15	
25		25	19.37	19.61	19.56	
51		0	19.47	19.61	19.49	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		505200	518598	531996
		Frequency (MHz)		2526	2592.99	2659.98
15 MHz	pi/2 BPSK	1	0	23.19	23.55	23.21
		1	19	23.23	23.52	23.42
		1	37	23.68	23.21	23.36
		19	0	23.43	23.60	23.58
		19	9	23.64	23.62	23.24
		19	20	23.29	23.76	23.22
		38	0	23.48	23.50	23.61
	QPSK	1	0	22.57	22.47	22.60
		1	19	22.51	22.06	22.18
		1	37	22.16	22.23	22.16
		19	0	22.46	22.28	22.28
		19	9	22.41	22.14	22.61
		19	20	22.66	22.21	22.42
		38	0	22.70	22.39	22.51
	16QAM	1	0	21.14	21.45	21.55
		1	19	21.27	21.20	21.12
		1	37	21.29	21.73	21.12
		19	0	21.75	21.33	21.48
		19	9	21.29	21.92	21.08
		19	20	21.14	21.58	21.32
		38	0	21.70	21.48	21.36
	64QAM	1	0	20.16	20.26	20.48
		1	19	20.50	20.32	20.16
		1	37	20.47	20.83	20.14
		19	0	20.69	20.82	20.56
		19	9	20.33	20.69	20.94
		19	20	20.08	20.14	20.21
		38	0	20.70	20.24	20.90
	256QAM	1	0	19.60	19.26	19.41
		1	19	19.29	19.49	19.64
1		37	19.83	19.35	19.29	
19		0	19.42	19.28	19.63	
19		9	19.59	19.47	19.22	
19		20	19.32	19.62	19.24	
38		0	19.29	19.34	19.68	

NR Band 41 (SCS 30kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		500202	518598	537000
		Frequency (MHz)		2501.01	2592.99	2685
10 MHz	pi/2 BPSK	1	0	23.59	23.39	23.59
		1	12	23.67	23.63	23.25
		1	23	23.40	23.71	23.50
		12	0	23.13	23.26	23.38
		12	6	23.54	23.72	23.40
		12	12	23.69	23.33	23.65
		24	0	23.65	23.80	23.40
	QPSK	1	0	22.47	22.74	22.59
		1	12	22.16	22.56	22.66
		1	23	22.17	22.09	22.62
		12	0	22.53	22.32	22.51
		12	6	22.28	22.36	22.13
		12	12	22.51	22.23	22.21
		24	0	22.32	22.45	22.69
	16QAM	1	0	21.49	21.22	21.45
		1	12	21.72	21.68	21.70
		1	23	21.57	21.95	21.33
		12	0	21.28	21.81	21.16
		12	6	21.37	21.87	21.25
		12	12	21.69	21.82	21.66
		24	0	21.74	21.84	21.35
	64QAM	1	0	20.41	20.15	20.14
		1	12	20.07	20.60	20.72
		1	23	20.51	20.24	20.66
		12	0	20.63	20.64	20.93
		12	6	20.72	20.36	20.75
		12	12	20.74	20.83	20.86
		24	0	20.72	20.16	20.60
256QAM	1	0	19.66	19.34	19.67	
	1	12	19.78	19.73	19.35	
	1	23	19.39	19.54	19.49	
	12	0	19.85	19.72	19.69	
	12	6	19.76	19.48	19.51	
	12	12	19.40	19.29	19.51	
	24	0	19.75	19.58	19.81	

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NR Band 66 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		346000	349000	352000
		Frequency (MHz)		1730	1745	1760
40 MHz	pi/2 BPSK	1	0	23.64	23.59	23.65
		1	108	24.08	24.00	23.95
		1	215	24.01	23.93	24.10
		108	0	23.94	23.92	23.95
		108	53	23.87	23.82	23.98
		108	107	23.93	23.81	23.87
		216	0	23.95	23.96	23.89
	QPSK	1	0	20.53	20.66	20.53
		1	108	21.09	20.94	21.04
		1	215	21.00	20.93	21.01
		108	0	21.00	20.98	20.91
		108	53	20.98	20.86	20.87
		108	107	20.98	20.88	20.85
		216	0	20.94	20.90	20.86
	16QAM	1	0	20.65	20.63	20.59
		1	108	21.06	21.08	21.07
		1	215	21.09	20.92	21.01
		108	0	20.91	20.91	20.80
		108	53	20.93	20.93	20.83
		108	107	20.97	21.00	20.92
		216	0	20.97	20.88	20.98
	64QAM	1	0	20.19	20.19	20.07
		1	108	20.41	20.54	20.50
		1	215	20.44	20.59	20.60
		108	0	20.35	20.31	20.32
		108	53	20.46	20.48	20.31
		108	107	20.38	20.50	20.37
		216	0	20.35	20.50	20.43
	256QAM	1	0	17.00	17.16	17.04
		1	108	17.57	17.60	17.60
1		215	17.56	17.47	17.47	
108		0	17.46	17.35	17.37	
108		53	17.32	17.48	17.30	
108		107	17.44	17.30	17.45	
216		0	17.32	17.41	17.34	

NR Band 66 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		344000	349000	354000
		Frequency (MHz)		1720	1745	1770
20 MHz	pi/2 BPSK	1	0	23.69	23.67	23.58
		1	53	24.10	23.92	23.97
		1	105	23.99	24.02	23.90
		53	0	23.89	23.93	23.81
		53	27	23.98	23.81	23.93
		53	53	23.97	23.82	23.92
		106	0	23.80	23.99	23.99
	QPSK	1	0	20.54	20.60	20.64
		1	53	20.95	20.95	21.08
		1	105	21.02	20.92	20.95
		53	0	20.92	20.85	20.81
		53	27	20.84	20.99	20.97
		53	53	20.95	20.97	20.93
		106	0	20.98	20.90	20.98
	16QAM	1	0	20.55	20.53	20.54
		1	53	20.93	20.99	20.93
		1	105	21.07	20.91	20.94
		53	0	20.83	20.80	20.98
		53	27	20.86	21.00	20.82
		53	53	20.81	20.95	20.80
		106	0	20.98	20.97	20.87
	64QAM	1	0	20.17	20.16	20.08
		1	53	20.41	20.44	20.49
		1	105	20.47	20.51	20.53
		53	0	20.33	20.48	20.50
		53	27	20.46	20.48	20.33
		53	53	20.49	20.35	20.47
		106	0	20.37	20.50	20.31
	256QAM	1	0	17.12	17.05	17.13
		1	53	17.45	17.41	17.51
1		105	17.60	17.40	17.52	
53		0	17.41	17.45	17.37	
53		27	17.44	17.31	17.37	
53		53	17.39	17.48	17.44	
106		0	17.35	17.44	17.42	

NR Band 66 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		343500	349000	354500
		Frequency (MHz)		1717.5	1745	1772.5
15 MHz	pi/2 BPSK	1	0	23.57	23.66	23.68
		1	39	24.05	23.96	23.94
		1	78	24.04	23.93	23.96
		39	0	23.97	23.81	23.89
		39	19	23.88	23.87	23.83
		39	40	23.81	23.84	23.94
		79	0	23.81	23.88	23.82
	QPSK	1	0	20.56	20.54	20.68
		1	39	20.95	21.08	21.09
		1	78	21.06	21.03	20.90
		39	0	20.92	20.96	20.89
		39	19	20.93	20.88	20.89
		39	40	20.93	20.91	20.85
		79	0	20.97	20.88	20.85
	16QAM	1	0	20.70	20.64	20.60
		1	39	21.06	20.95	21.08
		1	78	20.91	21.09	20.98
		39	0	20.83	20.98	20.85
		39	19	20.86	20.92	20.81
		39	40	21.00	20.83	20.96
		79	0	20.81	20.85	20.92
	64QAM	1	0	20.17	20.03	20.02
		1	39	20.54	20.48	20.40
		1	78	20.58	20.60	20.41
		39	0	20.40	20.49	20.34
		39	19	20.31	20.48	20.46
		39	40	20.43	20.49	20.41
		79	0	20.49	20.44	20.45
256QAM	1	0	17.11	17.01	17.01	
	1	39	17.57	17.59	17.43	
	1	78	17.49	17.52	17.58	
	39	0	17.43	17.42	17.35	
	39	19	17.31	17.46	17.40	
	39	40	17.32	17.46	17.42	
	79	0	17.30	17.37	17.46	

NR Band 66 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		343000	349000	355000
		Frequency (MHz)		1715	1745	1775
10 MHz	pi/2 BPSK	1	0	23.59	23.56	23.62
		1	26	24.01	23.98	24.06
		1	51	24.06	23.99	23.92
		26	0	23.97	23.88	23.80
		26	13	23.89	23.89	23.92
		26	26	23.89	23.94	23.86
		52	0	23.97	23.85	23.92
	QPSK	1	0	20.70	20.63	20.60
		1	26	21.03	20.90	20.99
		1	51	20.96	20.90	20.98
		26	0	20.89	20.83	20.86
		26	13	20.97	20.94	20.81
		26	26	20.92	20.92	20.96
		52	0	20.81	21.00	20.85
	16QAM	1	0	20.57	20.55	20.59
		1	26	21.05	21.09	20.94
		1	51	20.92	21.10	20.96
		26	0	20.91	20.82	20.90
		26	13	20.92	20.92	20.96
		26	26	20.99	20.93	20.90
		52	0	20.84	20.88	20.90
	64QAM	1	0	20.05	20.11	20.08
		1	26	20.47	20.48	20.49
		1	51	20.43	20.44	20.49
		26	0	20.40	20.42	20.45
		26	13	20.30	20.43	20.32
		26	26	20.35	20.33	20.47
		52	0	20.49	20.38	20.46
	256QAM	1	0	17.08	17.12	17.01
		1	26	17.56	17.54	17.57
1		51	17.40	17.53	17.50	
26		0	17.41	17.43	17.36	
26		13	17.45	17.42	17.35	
26		26	17.35	17.41	17.50	
52		0	17.41	17.34	17.42	

NR Band 66 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		342500	349000	355500
		Frequency (MHz)		1712.5	1745	1777.5
5 MHz	pi/2 BPSK	1	0	23.70	23.59	23.52
		1	12	23.98	23.90	23.97
		1	24	23.93	23.92	24.07
		12	0	23.92	23.87	23.99
		12	6	23.91	23.96	23.87
		12	13	23.85	23.90	23.80
		25	0	23.89	23.80	23.97
	QPSK	1	0	20.61	20.67	20.58
		1	12	20.95	20.99	21.04
		1	24	20.99	21.02	20.92
		12	0	20.82	20.88	20.84
		12	6	20.92	20.90	20.94
		12	13	20.93	20.92	20.84
		25	0	21.00	20.95	20.87
	16QAM	1	0	20.52	20.68	20.62
		1	12	20.93	20.99	20.94
		1	24	20.93	21.10	21.09
		12	0	20.89	20.93	20.82
		12	6	20.80	20.96	20.81
		12	13	20.84	20.92	20.93
		25	0	20.82	20.96	20.83
	64QAM	1	0	20.19	20.19	20.14
		1	12	20.59	20.40	20.43
		1	24	20.55	20.41	20.57
		12	0	20.36	20.35	20.39
		12	6	20.41	20.45	20.35
		12	13	20.37	20.46	20.31
		25	0	20.50	20.36	20.37
	256QAM	1	0	17.20	17.06	17.14
		1	12	17.40	17.43	17.51
1		24	17.52	17.54	17.59	
12		0	17.39	17.40	17.43	
12		6	17.49	17.33	17.32	
12		13	17.47	17.41	17.46	
25		0	17.48	17.35	17.48	

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NR Band 71(SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		134600	136100	137600
		Frequency (MHz)		673	680.5	688
20 MHz	pi/2 BPSK	1	0	24.26	24.24	24.27
		1	53	23.96	23.97	24.06
		1	105	23.92	24.08	23.95
		53	0	24.05	24.09	24.10
		53	27	24.09	23.95	24.09
		53	53	23.91	24.02	24.03
		106	0	24.01	23.92	24.10
	QPSK	1	0	21.19	21.24	21.22
		1	53	20.90	21.05	21.03
		1	105	21.01	21.10	20.95
		53	0	21.01	20.95	20.97
		53	27	20.98	21.10	20.96
		53	53	20.92	21.08	20.95
		106	0	20.90	20.99	21.06
	16QAM	1	0	21.28	21.10	21.16
		1	53	21.09	21.01	21.09
		1	105	20.94	21.04	20.98
		53	0	20.96	21.04	20.97
		53	27	20.99	21.10	20.93
		53	53	20.90	21.10	21.00
		106	0	21.04	21.05	20.91
	64QAM	1	0	20.62	20.62	20.63
		1	53	20.41	20.48	20.45
		1	105	20.44	20.41	20.52
		53	0	20.56	20.50	20.46
		53	27	20.60	20.59	20.51
		53	53	20.40	20.44	20.57
		106	0	20.47	20.40	20.57
	256QAM	1	0	17.75	17.75	17.78
		1	53	17.52	17.52	17.47
1		105	17.45	17.47	17.49	
53		0	17.48	17.41	17.48	
53		27	17.57	17.54	17.41	
53		53	17.45	17.59	17.56	
106		0	17.45	17.45	17.59	

NR Band 71 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		134100	136100	138100
		Frequency (MHz)		670.5	680.5	690.5
15 MHz	pi/2 BPSK	1	0	24.19	24.28	24.14
		1	39	24.08	24.06	24.02
		1	78	24.01	23.95	24.04
		39	0	24.10	24.06	23.97
		39	19	24.09	24.04	24.09
		39	40	24.04	23.92	23.99
		79	0	24.02	23.97	24.06
	QPSK	1	0	21.23	21.28	21.28
		1	39	20.96	21.05	21.07
		1	78	20.99	20.99	20.92
		39	0	20.99	21.09	21.08
		39	19	21.01	20.93	20.96
		39	40	20.91	20.98	21.08
		79	0	21.08	20.90	20.98
	16QAM	1	0	21.10	21.14	21.27
		1	39	21.05	21.08	21.01
		1	78	21.02	21.02	20.93
		39	0	20.91	20.99	20.98
		39	19	21.03	20.97	21.05
		39	40	21.10	21.01	20.94
		79	0	20.93	20.91	20.90
	64QAM	1	0	20.73	20.64	20.70
		1	39	20.50	20.44	20.52
		1	78	20.54	20.54	20.42
		39	0	20.50	20.49	20.54
		39	19	20.46	20.42	20.49
		39	40	20.46	20.55	20.53
		79	0	20.45	20.46	20.53
	256QAM	1	0	17.63	17.73	17.67
		1	39	17.58	17.46	17.41
1		78	17.51	17.43	17.43	
39		0	17.60	17.47	17.50	
39		19	17.60	17.54	17.48	
39		40	17.46	17.46	17.44	
79		0	17.49	17.58	17.56	

NR Band 71 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133600	136100	138600
		Frequency (MHz)		668	680.5	693
10 MHz	pi/2 BPSK	1	0	24.10	24.24	24.17
		1	26	24.10	24.05	23.97
		1	51	24.08	23.91	23.90
		26	0	24.07	23.99	23.97
		26	13	23.96	24.04	23.96
		26	26	23.93	23.96	24.04
		52	0	24.08	24.05	23.92
	QPSK	1	0	21.18	21.30	21.25
		1	26	21.03	20.92	20.98
		1	51	20.92	20.91	20.92
		26	0	21.07	20.92	20.91
		26	13	21.06	21.00	20.91
		26	26	20.96	21.09	21.09
		52	0	21.07	20.94	20.90
	16QAM	1	0	21.22	21.29	21.10
		1	26	20.92	21.06	20.96
		1	51	20.95	20.95	20.98
		26	0	21.01	20.98	21.09
		26	13	20.92	21.08	20.90
		26	26	20.95	20.95	21.03
		52	0	20.94	21.00	20.92
	64QAM	1	0	20.72	20.60	20.77
		1	26	20.60	20.53	20.53
		1	51	20.41	20.60	20.47
		26	0	20.44	20.54	20.53
		26	13	20.44	20.45	20.42
		26	26	20.44	20.53	20.58
		52	0	20.48	20.43	20.54
	256QAM	1	0	17.65	17.60	17.63
		1	26	17.50	17.60	17.52
1		51	17.44	17.48	17.40	
26		0	17.40	17.44	17.57	
26		13	17.57	17.50	17.55	
26		26	17.59	17.52	17.54	
52		0	17.57	17.46	17.45	

NR Band 71 (SCS 15kHz)				Average Output Power (dBm)		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133100	136100	139100
		Frequency (MHz)		665.5	680.5	695.5
5 MHz	pi/2 BPSK	1	0	24.13	24.13	24.21
		1	12	23.98	23.95	23.97
		1	24	24.09	23.92	24.00
		12	0	24.07	24.09	23.93
		12	6	24.10	24.09	24.06
		12	13	23.99	23.91	23.91
		25	0	23.94	23.98	24.08
	QPSK	1	0	21.30	21.21	21.17
		1	12	20.93	20.97	21.07
		1	24	21.04	21.00	21.06
		12	0	21.10	20.93	20.91
		12	6	20.93	20.93	20.93
		12	13	20.96	21.03	20.97
		25	0	21.09	21.10	20.97
	16QAM	1	0	21.18	21.15	21.11
		1	12	20.97	21.06	21.10
		1	24	21.00	21.07	21.07
		12	0	21.01	21.08	20.90
		12	6	21.03	20.93	20.91
		12	13	21.01	20.91	20.93
		25	0	21.08	20.96	21.08
	64QAM	1	0	20.71	20.72	20.62
		1	12	20.55	20.47	20.47
		1	24	20.58	20.54	20.56
		12	0	20.46	20.50	20.48
		12	6	20.42	20.40	20.54
		12	13	20.45	20.45	20.44
		25	0	20.54	20.40	20.52
	256QAM	1	0	17.76	17.64	17.69
		1	12	17.50	17.43	17.43
1		24	17.51	17.47	17.60	
12		0	17.51	17.51	17.47	
12		6	17.50	17.54	17.58	
12		13	17.60	17.57	17.59	
25		0	17.53	17.47	17.53	

According to February 2021 TCB Workshop:

- For 5G-FR1 SAR evaluations are being generally based on adapting the existing LTE SAR procedures (KDB 941225 D05A)

SAR testing has been performed based on FCC KDB 941225 D05, Paragraph 5.2 guidance, adapting LTE SAR procedure to 5G-FR1:

- 1RB allocation:
Start with the largest channel bandwidth then measure SAR for PI/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
- 50% RB allocation
The procedures required for 1 RB allocation are applied to measure the SAR for PI/2 BPSK with 50% RB allocation.
- 100% RB allocation
For PI/2 BPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
- Higher order modulations
SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.
- Other channel bandwidth standalone SAR test requirements
Measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration, or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.