



PART 1 Test Under Static Transmission Scenario

Test Report No.: 14131461H-B-R2

Customer	Panasonic Corporation of North America
Description of EUT	Radio Module (Tested inside of Panasonic Personal Computer FZ-40)
Model Number of EUT	WW21A
FCC ID	ACJ9TGWW21A
Test Regulation	FCC47CFR 2.1093
Test Result	Complied (Refer to SECTION 10)
Reported SAR Value and TER	The highest reported SAR Body: 0.055 W/kg (1 g) Extremity: 0.313 W/kg (10g) Worst TER: 0.378
Issue Date	June 1, 2022
Remarks	-

Representative test engineer

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Engineer

Approved by

Takayuki Shimada
Leader



CERTIFICATE 5107.02

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 There is no testing item of "Non-accreditation".

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1 Introduction

This device uses Qualcomm® Smart Transmit feature. These modem(s) is enabled in Qualcomm® Smart Transmit Feature to control and manage transmitting power in real time and to ensure at all times the averaged RF exposure is in compliance with FCC/ISED requirements.

This report (part 1) demonstrates that Qualcomm® Reference Design (QRD) complies with FCC/ISED RF exposure limits at these maximum time averaged power limits.

Note: WLAN operations are not enabled with Smart Transmit.

2 Customer information

Company Name	Panasonic Corporation of North America
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Telephone Number	+1-201-348-7760
Contact Person	Ben Botros

The information provided from the customer is as follows;

- Customer, Description of EUT, Model No. FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 2: Customer information
- SECTION 3: Equipment under test (EUT) other than the Receipt Date
- SECTION 11: Tune-up tolerance information and software information

* The laboratory is exempted from liability of any test results affected from the above information in section 3.

3 Equipment under test (EUT)

3.1 Identification of EUT

Description	Radio Module
Model Number	WW21A
Serial number	1LTSA00156 (Used for the test below 1900 MHz) 1LTSA00153 (Used for the test above 1900 MHz) 1LTSA00169 (ULCA) 1LTSA00080 (DLCA)
Rating	DC 3.0 to 3.6 V
Condition	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab.
Receipt Date	February 4, 2022
Test Date	February 22 to February 25, 2022 (including system validation)

<Information of Host device>

Type	Personal Computer FZ-40 Intel Core i7-1185G7 (1.20 GHz Max 4.8 GHz), 4 core / 8 thread 14-inch LCD (1920 x 1080)
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3.2 Product description

Model: WW21A (referred to as the EUT in this report) is a Radio Module.

Wireless technologies	Dup.	Band	Mode	
WCDMA	FDD		2 UMTS Rel. 99 (Data) HSDPA (Rel. 5)	
	FDD		4 HSUPA (Rel. 6), HSPA+ (Rel. 7), DC-HSDPA (Rel. 8)	
	FDD		5	
LTE	FDD		2 QPSK, 16QAM, 64AQM, 256QAM	
	FDD		4	
	FDD		5	
	*B42: not used in US (FCC)	FDD	7	Downlink MIMO Support: Yes(2x2, 4x4)
		FDD	12	Supported band : B2, B4, B7, B25, B38, B41, B42, B48, B66
	*B48: not used in Canada(ISED)	FDD	13	Uplink MIMO Support: No
		FDD	14	Uplink transmission is limited to a single output stream.
		FDD	17	
		FDD	25	
		FDD	26	
		FDD(Rx only)	29	
		TDD	38	
		TDD	41	
		TDD	42	
		TDD(Rx only)	46	
		TDD	48	
	FDD	66		
	FDD	71		
LTE CA	Downlink		Uplink	
	Maximum 7 carriers		*B42: not used in US (FCC) / B48: not used in Canada(ISED) Maximum 2 carriers Supported combination: <Intra-band contiguous> 7C, 41C, 42C, 48C <Inter-band>2A-5A, 2A-12A, 2A-13A, 4A-5A, 4A-12A, 4A-13A, 5A-7A,5A-66A, 12A-66A, 13A-66A	
5G NR (FR1)	FDD	15 kHz	n2 Pi/2 BPSK (DFT-s-OFDM),	
	FDD	15 kHz	n5 QPSK (CP-OFDM/DFT-s-OFDM),	
	TDD	15 kHz	n41 16QAM (CP-OFDM/DFT-s-OFDM),	
	FDD	15 kHz	n66 64QAM (CP-OFDM/DFT-s-OFDM),	
	FDD	15 kHz	n71 256QAM (CP-OFDM/DFT-s-OFDM)	
	TDD	30 kHz	n77 Downlink MIMO Support: Yes(2x2, 4x4)	
	TDD	30 kHz	n78 Supported band : n2, n41, n66, n77, n78	
	-	-	-	Uplink MIMO Support: No
	-	-	Uplink transmission is limited to a single output stream.	
EN-DC(LTE-FR1 Sub6) (NSA mode only)	Supported combination		*n77, n78: not used in US (FCC)	
	LTE Anchor Bands for NR band n2		LTE Band 5/12/13	
	LTE Anchor Bands for NR band n5		LTE Band 2/7/66	
	LTE Anchor Bands for NR band n41		LTE Band 2/25/26/66	
	LTE Anchor Bands for NR band n66		LTE Band 5/12/13/14/71	
	LTE Anchor Bands for NR band n71		LTE Band 2/7/66	
	LTE Anchor Bands for NR band n77*		LTE Band 41	
LTE Anchor Bands for NR band n78*		LTE Band 2/5/7/12/38/66		

Downlink CA combination is listed in section 14.

Wireless module (Tested inside of Panasonic Personal Computer FZ-40)

Model: WL20B (FCC ID ACJ9TGWL20B / ISED certification number 216H-CFWL20B)

Wireless technologies	Dup.	Band	Mode
WLAN	TDD	2.4GHz	2412-2472 802.11b for US 802.11g 2412-2462 802.11n(20,40) for Canada 802.11ax(20,40)
			5GHz
Bluetooth	TDD	2.4GHz	2402-2480 BR/EDR/LE

4 References

Federal Communications Commission. (October 23, 2015). *447498 D01 General RF Exposure Guidance v06*.
International Electrotechnical Commission. (2018). *IEC TR 63170:2018*.
SPEAG. (August 2018). *5G Module V1.2 Application Note: 5G Compliance Testing*.

5 Time averaging for SAR and PD

The Qualcomm® Smart Transmit algorithm controls and manages the instantaneous Tx power to maintain the time-averaged Tx power (in turn, time-averaged RF exposure) is in compliance with regulatory limits.

6 General LTE/NR SAR Test and Reporting Considerations

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band		Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth[MHz]					
2		20	15	10	5	3	1.4
Low	Ch	18700	18675	18650	18625	18625	18607
	Freq[MHz]	1860	1857.5	1855	1852.5	18625	1850.7
Mid	Ch	18900	18900	18900	18900	18900	18900
	Freq[MHz]	1880	1880	1880	1880	1880	1880
High	Ch	19100	19125	19150	19175	19185	19193
	Freq[MHz]	1900	1902.5	1905	1907.5	1908.5	1909.3
Band		Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth[MHz]					
4		20	15	10	5	3	1.4
Low	Ch	20050	20025	20000	19975	19965	19957
	Freq[MHz]	1720	1717.5	1715	1712.5	1711.5	1710.7
Mid	Ch	20175	20175	20175	20175	20175	20175
	Freq[MHz]	1732.5	1732.5	1732.5	1732.5	1732.5	1732.5
High	Ch	20300	20325	20350	20375	20385	20393
	Freq[MHz]	1745	1747.5	1750	1752.5	1753.5	1754.3
Band		Frequency range: 824 - 849 MHz					
		Channel Bandwidth[MHz]					
5				10 *1	5	3	1.4
Low	Ch			20450	20425	20415	20407
	Freq[MHz]			829	826.5	825.5	824.7
Mid	Ch			20525	20525	20525	20525
	Freq[MHz]			836.5	836.5	836.5	836.5
High	Ch			20600	20625	20635	20643
	Freq[MHz]			844	846.5	847.5	848.3
Band		Frequency range: 2500 - 2570 MHz					
		Channel Bandwidth[MHz]					
7		20	15	10	5		
Low	Ch	20850	20825	20800	20775		
	Freq[MHz]	2510	2507.5	2505	2502.5		
Mid	Ch	21100	21100	21100	21100		
	Freq[MHz]	2535	2535	2535	2535		
High	Ch	21350	21375	21400	21425		
	Freq[MHz]	2560	2562.5	2565	2567.5		
Band		Frequency range: 699 - 716 MHz					
		Channel Bandwidth[MHz]					
12				10 *1	5	3	1.4
Low	Ch			23060	23035	23025	23017
	Freq[MHz]			704	701.5	700.5	699.7
Mid	Ch			23095	23095	23095	23095
	Freq[MHz]			707.5	707.5	707.5	707.5
High	Ch			23130	23155	23165	23173
	Freq[MHz]			711	713.5	714.5	715.3

Band		Frequency range: 777 - 787 MHz					
Band		Channel Bandwidth[MHz]					
13				10 *1	5 *1		
Low	Ch				23205		
	Freq[MHz]				779.5		
Mid	Ch			23230	23230		
	Freq[MHz]			782	782		
High	Ch				23255		
	Freq[MHz]				784.5		
Band		Frequency range: 788 - 798 MHz					
Band		Channel Bandwidth[MHz]					
14				10 *1	5 *1		
Low	Ch				23305		
	Freq[MHz]				790.5		
Mid	Ch			23330	23330		
	Freq[MHz]			793	793		
High	Ch				23355		
	Freq[MHz]				795.5		
Band		Frequency range: 704 - 716 MHz					
Band		Channel Bandwidth[MHz]					
17		20	15	10 *1	5 *1	3	1.4
Low	Ch			23780	23755		
	Freq[MHz]			709	706.5		
Mid	Ch			23790	23790		
	Freq[MHz]			710	710		
High	Ch			23800	23825		
	Freq[MHz]			711	713.5		
Band		Frequency range: 1850 - 1915 MHz					
Band		Channel Bandwidth[MHz]					
25		20	15	10	5	3	1.4
Low	Ch	26140	26115	26090	26065	26055	26047
	Freq[MHz]	1860	1857.5	1855	1882.5	1851.5	1850.7
Mid	Ch	26365	26365	26365	26365	26365	26365
	Freq[MHz]	1882.5	1882.5	1882.5	1882.5	1882.5	1882.5
High	Ch	26590	26615	26640	26665	26675	26683
	Freq[MHz]	1905	1907.5	1910	1912.5	1913.5	1914.3
Band		Frequency range: 814 - 849 MHz					
Band		Channel Bandwidth[MHz]					
26			15 *1	10	5	3	1.4
Low	Ch		26765	26740	26715	26705	26697
	Freq[MHz]		821.5	819	816.5	815.5	814.7
Mid	Ch		26865	26865	26865	26865	26865
	Freq[MHz]		831.5	831.5	831.5	831.5	831.5
High	Ch		26965	26990	27015	27025	27033
	Freq[MHz]		841.5	844	846.5	847.5	848.3

Band		Frequency range: 2570 - 2620 MHz					
		Channel Bandwidth[MHz]					
38		20	15	10	5		
Low	Ch	37850	37825	37800	37775		
	Freq[MHz]	2580	2577.5	2575	2572.5		
Mid	Ch	38000	38000	38000	38000		
	Freq[MHz]	2595	2595	2595	2595		
High	Ch	38150	38175	38200	38225		
	Freq[MHz]	2610	2612.5	2615	2617.5		
Band		Frequency range: 2496 - 2690 MHz					
		Channel Bandwidth[MHz]					
41		20	15	10	5		
Low	Ch	39750	39725	39700	39675		
	Freq[MHz]	2506	2503.5	2501	2498.5		
Low-Mid	Ch	40185	40173	40160	40148		
	Freq[MHz]	2549.5	2548.3	2547	2545.8		
Mid	Ch	40620	40620	40620	40620		
	Freq[MHz]	2593	2593	2593	2593		
Mid-High	Ch	41055	41068	41080	41093		
	Freq[MHz]	2636.5	2637.8	2639	2640.3		
High	Ch	41490	41515	41540	41565		
	Freq[MHz]	2680	2682.5	2685	2687.5		
Band		Frequency range: 3550 - 3700 MHz					
		Channel Bandwidth[MHz]					
48		20	15	10	5		
Low	Ch	55340	55315	55290	55265		
	Freq[MHz]	3560	3557.5	3555	3552.5		
Low-Mid	Ch	55773	55765	55757	55748		
	Freq[MHz]	3603.3	3602.5	3601.7	3600.8		
Mid-High	Ch	56207	56215	56223	56232		
	Freq[MHz]	3646.7	3647.5	3648.3	3649.2		
High	Ch	56640	56665	56690	56715		
	Freq[MHz]	3690	3692.5	3695	3697.5		
Band		Frequency range: 1710 - 1780 MHz					
		Channel Bandwidth[MHz]					
66		20	15	10	5	3	1.4
Low	Ch	132072	132047	132022	131997	131987	131979
	Freq[MHz]	1720	1717.5	1715	1712.5	1711.5	1710.7
Mid	Ch	132322	132322	132322	132322	132322	132322
	Freq[MHz]	1745	1745	1745	1745	1745	1745
High	Ch	132572	132597	132622	132647	132657	132665
	Freq[MHz]	1770	1772.5	1775	1777.5	1778.5	1779.3
Band		Frequency range: 663 - 698 MHz					
		Channel Bandwidth[MHz]					
71		20 *1	15 *1	10	5		
Low	Ch	133222	133197	133172	133147		
	Freq[MHz]	673	670.5	668	665.5		
Mid	Ch	133297	133297	133297	133297		
	Freq[MHz]	680.5	680.5	680.5	680.5		
High	Ch	133372	133397	133422	133447		
	Freq[MHz]	688	690.5	693	695.5		

*1 : This bandwidth does not support at least three non-overlapping channels. 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 per KDB 941225 D05 for LTE Devices.

Maximum power reduction (MPR)

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

MPR Built-in by design

The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values. A-MPR (additional MPR) was disabled during SAR testing

Spectrum plots for RB configurations

A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.

6.1 LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

LTE TDD Bands support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink downlink configurations and Table 4.2-1 for Special subframe configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration n	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$	$7680 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$	$20480 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-		
9	$13168 \cdot T_s$			-		
10	$13168 \cdot T_s$	$13152 \cdot T_s$	$12800 \cdot T_s$	-	-	-

Table 4.2-2: Uplink-downlink configurations & Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number											Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9		
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.3%	
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.3%	
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.3%	
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.7%	
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.7%	
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.7%	
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.3%	

Calculated Duty Cycle = Extended cyclic prefix in uplink * (T_s) * # of S + # of U / period

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle = $\{[(2+0) * 2560] * [1/(15000 * 2048)] * 2 + 6 \text{ ms}\} / 10 \text{ ms} = 63.3\%$

Where

D = Downlink subframe

S = Special subframe

U = Uplink subframe

$T_s = 1/(15000 \times 2048)$ seconds

$X = 0$

Note(s):

This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3%(Power Class 3) and Special Subframe 7 with Extended cyclic prefix in uplink.

6.2 General 5G NR(FR1) SAR Test and Reporting Considerations

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band		Frequency range: 1850 - 1910 MHz												
		Channel Bandwidth[MHz]												
n2		100	90	80	70	60	50	40	30	25	20	15	10	5
Low	Ch										372000	371500	371000	370500
	Freq[MHz]										1860	1857.5	1855	1852.5
Mid	Ch										376000	376000	376000	376000
	Freq[MHz]										1880	1880	1880	1880
High	Ch										380000	380500	381000	381500
	Freq[MHz]										1900	1902.5	1905	1907.5
Band		Frequency range: 824 - 849 MHz												
		Channel Bandwidth[MHz]												
n5		100	90	80	70	60	50	40	30	25	20 *1	15 *1	10 *1	5
Low	Ch										166800	166300	165800	165300
	Freq[MHz]										834	831.5	829	826.5
Mid	Ch										167300	167300	167300	167300
	Freq[MHz]										836.5	836.5	836.5	836.5
High	Ch										167800	168300	168800	169300
	Freq[MHz]										839	841.5	844	846.5
Band		Frequency range: 2500 - 2690 MHz												
		Channel Bandwidth[MHz]												
n41		100 *1	90 *1	80 *1	70	60 *2	50 *2	40 *2	30	25	20	15	10	5
Low	Ch	510000	509000	508000		506000	505000	504000			502000			
	Freq[MHz]	2550	2545	2540		2530	2525	2520			2510			
Low-Mid	Ch	513900	513400	512900		511900	511400	510900			509900			
	Freq[MHz]	2569.5	2567	2564.5		2559.5	2557	2554.5			2549.5			
Mid	Ch	518600	518600	518600		518600	518600	518600			518600			
	Freq[MHz]	2593	2593	2593		2593	2593	2593			2593			
Mid-High	Ch	523300	523800	524300		525300	525800	526300			527300			
	Freq[MHz]	2616.5	2619	2621.5		2626.5	2629	2631.5			2636.5			
High	Ch	528000	529000	530000		532000	533000	534000			536000			
	Freq[MHz]	2640	2645	2650		2660	2665	2670			2680			
Band		Frequency range: 1710 - 1780 MHz												
		Channel Bandwidth[MHz]												
n66		100	90	80	70	60	50	40	30	25	20	15	10	5
Low	Ch										344000	343500	343000	342500
	Freq[MHz]										1720	1717.5	1715	1712.5
Mid	Ch										349000	349000	349000	349000
	Freq[MHz]										1745	1745	1745	1745
High	Ch										354000	354500	355000	355500
	Freq[MHz]										1770	1772.5	1775	1777.5
Band		Frequency range: 663 - 698 MHz												
		Channel Bandwidth[MHz]												
n71		100	90	80	70	60	50	40	30	25	20 *1	15 *1	10	5
Low	Ch										134600	134100	133600	133100
	Freq[MHz]										673	670.5	668	665.5
Mid	Ch										136100	136100	136100	136100
	Freq[MHz]										680.5	680.5	680.5	680.5
High	Ch										137600	138100	138600	139100
	Freq[MHz]										688	690.5	693	695.5

* : SAR test for NR bands and LTE anchor Bands were performed separately due to limitations in SAR probe calibration factors. And, due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.

*1 : This bandwidth does not support at least three non-overlapping channels. 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 per KDB 941225 D05 for LTE Devices.

*2 : For this channel bandwidth, available non-over-lapping channels were tested.

Sub-Carrier Spacing (SCS)

n2	n5	n66	n71	n41	n77	n78
15kHz				30kHz		

A-MPR(Additional MPR) disabled for SAR testing

Yes

EN-DC Carrier Aggregation Possible Combinations

See section 3.2 Product description

6.3 NR (FDD/TDD) Considerations

Factory Test Mode (FTM) is used for SAR testing, 100 % duty.

6.4 WWAN Antenna configuration

The WWAN transmitter operates independently of the WLAN/BT wireless transmitter in the device, and it only supports data transmission.

The 4G LTE antenna configuration consists of WWAN-main TX/RX antenna and WWAN-aux – 3rd RX only antennas.

The 5G NR(FR1) antenna configuration consists of

- WWAN-main antenna: Tx except n41, and Rx
- WWAN-4th antenna: Tx for n41 only, and Rx
- WWAN-aux – 3rd antennas: Rx only

WWAN Antennas	4G LTE		5G NR(FR1)	
	Tx	Rx	Tx	Rx
WWAN-Main	All bands	All bands	All bands except n41	All bands
WWAN-aux	-	All bands	-	All bands
WWAN-3rd	-	All bands	-	All bands
WWAN-4th	-	All bands	n41 only	All bands

6.5 Time averaging for SAR and PD

The Qualcomm® Smart Transmit algorithm controls and manages the instantaneous Tx power to maintain the time-averaged Tx power (in turn, time-averaged RF exposure) is in compliance with regulatory limits.

This device uses Qualcomm® Smart Transmit feature and cannot operate without RF exposure characterization at the device level, beforehand. The parameters obtained from SAR and PD characterization (char), if any, is used as input for Smart Transmit. Both SAR char and PD char will be entered via the Embedded File System (EFS) to enable the Smart Transmit feature.

7 Test standard information

7.1 Test Specification

	Title	
<input checked="" type="checkbox"/>	FCC47CFR 2.1093	RF Exposure Procedures and Equipment Authorization Policies for Portable Devices

7.2 Published RF exposure KDB procedures

	Name of documents	Title
<input checked="" type="checkbox"/>	KDB447498D01(v06)	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
<input type="checkbox"/>	KDB447498D02(v02r01)	SAR Measurement Procedures for USB Dongle Transmitters
<input type="checkbox"/>	KDB648474D04(v01r04)	SAR Evaluation Considerations for Wireless Handsets
<input checked="" type="checkbox"/>	KDB941225D01(v03r01)	3G SAR Measurement Procedures
<input checked="" type="checkbox"/>	KDB941225D05(v02r05)	SAR Evaluation Considerations for LTE Devices
<input type="checkbox"/>	KDB941225D06(v02r01)	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
<input type="checkbox"/>	KDB941225D07(v01r02)	SAR Evaluation Procedures for UMPC Mini-Tablet Devices
<input checked="" type="checkbox"/>	KDB616217D04(v01r02)	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
<input checked="" type="checkbox"/>	KDB865664D01(v01r04)	SAR Measurement Requirements for 100MHz to 6 GHz
<input checked="" type="checkbox"/>	KDB248227D01(v02r02)	SAR Guidance for IEEE 802.11 (Wi-Fi) transmitters

7.3 SAR Work Procedures Procedure

	Name of documents	Title or details
<input checked="" type="checkbox"/>	C/N: Work Instructions- ULID-003598 Name:13-EM-W0429	UL Japan, Inc.'s SAR Work Procedures Procedure
<input checked="" type="checkbox"/>	C/N: Work Instructions- ULID-003599 Name:13-EM-W0430	UL Japan, Inc.'s SAR Work Procedures Procedure
<input type="checkbox"/>	C/N: Work Instructions- ULID-003619 Name: 13-EM-W0863	UL Japan, Inc.'s PD Work Procedures Procedure
<input checked="" type="checkbox"/>	IEEE Std 1528-2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.
<input type="checkbox"/>	IEC TR 63170 Edition 1.0	Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz

7.4 Additions or deviations to standard

No addition, exclusion nor deviation has been made from the standard.

7.5 References

SPEAG. (August 2018). *5G Module V1.2 Application Note: 5G Compliance Testing*.
SPEAG. (n.d.). *SPEAG uncertainty document (AN 15-7/AN19-17)*.

7.6 Limit

7.6.1 Below 6 GHz

(A) Limits for Occupational/Controlled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.4	8.0	20.0

(B) Limits for General population/Uncontrolled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.08	1.6	4.0

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. because of employment or occupation).

General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

7.6.2 Above 6 GHz

Frequency Range [MHz]	Power Density [mW/cm ²]	Average Time [Minutes]
(A) Limits For Occupational / Controlled Environments		
1,500 – 100,000	5	6
(B) Limits For General Population / Uncontrolled Environments		
1,500 – 100,000	1	30

Note: 1.0 mW/cm² is 10 W/m²

10 W/m² limit is applied

8 Location

UL Japan, Inc. Ise EMC Lab.
Shielded room for SAR testings
A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919
ISED SAR Lab Company Number: 2973C / CAB identifier: JP0002
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone: +81-596-24-8999

9 Definitions, symbols, and abbreviations

9.1 Definitions

SAR_design_target	: The SAR_design_target shall be less than regulatory SAR limit (i.e., 1gSAR limit for FCC) after accounting for all device design related uncertainties.
SAR_design_target_extremity	: SAR_design_target for limbs
Tx_power_at_SAR_design_target	: Transmit level that matches SAR_design_target (P_{limit} in dBm)
Δ_{min}	: housing material influence
PD_design_target	: The design target for PD compliance. It should be less than regulatory power density limit to account for all device design related uncertainties
<i>input.power.limit</i>	: For a PD characterized wireless device, the input power level at antenna port(s) for each beam corresponding to PD_design_target.
PD char	: the table that contains input.power.limit fed to antenna port(s) for all supported beams.
N beams	: The mmW device supports total N beams, where M out of N are single beams and the rest of (N-M) are beam pairs (where 2 single beams are excited at the same time).
power density (PD) or S_{av}	: energy per unit time and unit area crossing a surface of area A characterized by the normal unit vector $\hat{\mathbf{n}}$ and averaging time.

$$S_{\text{av}} = \frac{1}{AT} \iint (\mathbf{E} \times \mathbf{H}) \cdot \hat{\mathbf{n}} dA dT$$

Specific Absorption Rate (SAR)	: The time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ), as shown in the following equation:
--------------------------------	--

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

Reported SAR	: Measured SAR is scaled to the maximum tune-up tolerance limit and the maximum duty by the following formulas.
--------------	---

$$\begin{aligned} \text{Reported SAR [w/kg]} \\ &= \text{Measured SAR [w/kg]} \times \text{scale factor for power} \\ &\times \text{Scaled factor for duty (if needed)} \end{aligned}$$

Where

$$\text{Scaled factor for power} = \frac{\text{Maximum tune up tolerance limit [mW]}}{\text{Measured power [mW]}}$$

And

$$\text{Scaled factor for duty} = \frac{1}{\text{Duty}}$$

Maximum Tune-up tolerance limit : Tolerance power specified by customer (P_{\max} or P_{limit})

9.2 Symbols

Symbol	Quantity	Unit	Dimensions
E	Electric field	volt per meter	V / m
f	Frequency	hertz	Hz
H	Magnetic field	ampere per meter	A / m
λ	Wavelength	meter	m
S	Local power density	watt per square meter	W / m ²
PD or S_{av}	Spatial-average power density	watt per square meter	W / m ² (mW / cm ²)
SAR	Specific Absorption Rate	watt per square meter	W / kg

9.3 Abbreviations

□	NOT applicable.	GPS	Global Positioning System
☒	applicable.	Hori.	Horizontal
A2LA	The American Association for Laboratory Accreditation	IEC	International Electrotechnical Commission
AC	Alternating Current	IEEE	Institute of Electrical and Electronics Engineers
AFH	Adaptive Frequency Hopping	IF	Intermediate Frequency
AM	Amplitude Modulation	ILAC	International Laboratory Accreditation Conference
Amp, AMP	Amplifier	ISED	Innovation, Science and Economic Development Canada
ANSI	American National Standards Institute	ISO	International Organization for Standardization
Ant, ANT	Antenna	KDB	Knowledge data base from Federal communication committee
AP	Access Point	LAN	Local Area Network
Atten., ATT	Attenuator	LIMS	Laboratory Information Management System
AV	Average	MCS	Modulation and Coding Scheme
BPSK	Binary Phase-Shift Keying	MRA	Mutual Recognition Arrangement
BR	Bluetooth Basic Rate	nG	n generation (e.g. 3G,4G and 5G)
BS	base station	NIST	National Institute of Standards and Technology
BT	Bluetooth	NR	New radio
BT LE	Bluetooth Low Energy	OBW	Occupied Band Width
BW	BandWidth	OFDM	Orthogonal Frequency Division Multiplexing
Cal Int	Calibration Interval	P/M	Power meter
CCK	Complementary Code Keying	PCB	Printed Circuit Board
Ch., CH	Channel	PD	Power density
CISPR	Comite International Special des Perturbations Radioelectriques	PER	Packet Error Rate
CW	Continuous Wave	PHY	Physical Layer
DBPSK	Differential BPSK	PK	Peak
DC	Direct Current	PN	Pseudo random Noise
DFS	Dynamic Frequency Selection	PRBS	Pseudo-Random Bit Sequence
DQPSK	Differential QPSK	PSD	Power Spectral Density
DSI	Device state index	QAM	Quadrature Amplitude Modulation
DSSS	Direct Sequence Spread Spectrum	QP	Quasi-Peak
DUT	Device under test	QPSK	Quadri-Phase Shift Keying
EDR	Enhanced Data Rate	RBW	Resolution Band Width
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	RDS	Radio Data System
EMC	ElectroMagnetic Compatibility	RE	Radio Equipment
EMI	ElectroMagnetic Interference	RF	Radio Frequency
EN	European Norm	RMS	Root Mean Square
ERP, e.r.p.	Effective Radiated Power	Rx	Receiving
EU	European Union	SA, S/A	Spectrum Analyzer
EUT	Equipment Under Test	SG	Signal Generator
Fac.	Factor	S _n	Surface number
FCC	Federal Communications Commission	SVSWR	Site-Voltage Standing Wave Ratio
FHSS	Frequency Hopping Spread Spectrum	TER	Total exposure ratio
FM	Frequency Modulation	TR	Test Receiver
Freq.	Frequency	Tx	Transmitting
GFSK	Gaussian Frequency-Shift Keying	VBW	Video BandWidth
GNSS	Global Navigation Satellite System	Vert.	Vertical
EN-DC	E-UTRAN New Radio - Dual Connectivity	WLAN	Wireless LAN

10 Test result

10.1 verdict

Complied

Highest values at each band are listed next section.

10.2 Stand-alone SAR result

RAT	Ant#	Band	Position	Mode	Dist. [mm]	Ch#	Freq. [MHz]	RB num-pos.	Tune up [dBm]	Meas.Pow [dBm]	1-g SAR		10-g SAR	
											Mesa. [W/kg]	Scaled [W/kg]	Mesa. [W/kg]	Scaled [W/kg]
NR	WWAN-4th	n41	Bottom	BPSK	0	518600	2593	1/1	24.50	23.23	0.041	0.055	-	-
NR	WWAN-4th	n41	Keyboard	BPSK	0	518600	2593	1/1	24.50	23.23	-	-	0.234	0.313

The sample used for the SAR is not more than 2 dB lower than the maximum tune-up tolerance limit. Measured power is within the tune-up tolerance range.

10.3 Simultaneous transmission SAR result

Worst TER is 0.426

See section 15

10.4 Measurement uncertainty

Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std.Unc. (10g)
Measurement System Errors							
Probe Calibration	± 14.00 %	N	2	1	1	±7.0%	±7.0%
Probe Calibration Drift	± 1.7 %	R	√3	1	1	±1.0%	±1.0%
Probe Linearity	± 4.7 %	R	√3	1	1	±2.7%	±2.7%
Broadband Signal	± 2.6 %	R	√3	1	1	±1.5%	±1.5%
Probe Isotropy	± 7.6 %	R	√3	1	1	±4.4%	±4.4%
Data Acquisition	± 0.3 %	N	1	1	1	±0.3%	±0.3%
RF Ambient	± 1.8 %	N	1	1	1	±1.8%	±1.8%
Probe Positioning	± 0.2 %	N	1	0.33	0.33	±0.1%	±0.1%
Data Processing	± 2.3 %	N	1	1	1	±2.3%	±2.3%
Phantom and Device Errors							
Conductivity (meas.)DAK	± 10.0 %	N	1	0.78	0.71	±7.8%	±7.1%
Conductivity (temp.)BB	± 3.4 %	R	√3	0.78	0.71	±1.5%	±1.4%
Phantom Permittivity	± 14.0 %	R	√3	0.25	0.25	±2.0%	±2.0%
Distance DUT - TSL	± 2.0 %	N	1	2	2	±4.0%	±4.0%
Device Positioning (+/- 0.5mm)	± 1.0 %	N	1	1	1	±1.0%	±1.0%
Device Holder	± 3.6 %	N	1	1	1	±3.6%	±3.6%
DUT Modulationm	± 2.4 %	R	√3	1	1	±1.4%	±1.4%
Time-average SAR	± 2.6 %	R	√3	1	1	±1.5%	±1.5%
DUT drift	± 2.5 %	N	1	1	1	±2.5%	±2.5%
Val Antenna Unc.val	± 0.0 %	N	1	1	1	±0.0%	±0.0%
Unc. Input Powerval	± 0.0 %	N	1	1	1	±0.0%	±0.0%
Correction to the SAR results							
Deviation to Target	± 1.9 %	N	1	1	0.84	±1.9%	±1.6%
SAR scalingp	± 0.0 %	R	√3	1	1	±0.0%	±0.0%
Combined Std. Uncertainty						±14.1%	±13.7%
Expanded STD Uncertainty (κ =2)						±28.2%	±27.4%

11 Software information, Tune up tolerance limit, P_{limit} and input.power.limit

11.1 Software information

*The power value of the EUT was set for testing as follows (setting value might be different from product specification value);
Software: QRCT version 4.0

*This setting of software is the worst case.

The test was performed with condition that obtained the maximum average power (Burst) in pre-check.

Any conditions under the normal use do not exceed the condition of setting.

In addition, end users cannot change the settings of the output power of the product.

11.2 Tune up tolerance limit and P_{limit}

The P_{limit} used in this report are determined and listed in Part 0 report.

If $P_{max} < P_{limit}$ then
 P_{max} is used for test
 Else P_{limit} is used for test

Device uncertainty is 1.0 dB (k=2) provided from customer.

DSI	<i>SAR design target</i> [W / kg]
0	1.0 All band

Table 11-1 P_{limit} FCC

RAT	Band	DSI=0		P_{max} (Tune up limit) (Burst power Average) [dBm] +/-1dB
		SAR_{design_target} [W/kg]	P_{limit} [dBm]	
WCDMA	2	1.0	24.5	24.5
WCDMA	4	1.0	24.5	24.5
WCDMA	5	1.0	24.5	24.5
LTE	2	1.0	24.0	24.0
LTE	4	1.0	24.0	24.0
LTE	5	1.0	24.0	24.0
LTE	7	1.0	24.0	24.0
LTE	12	1.0	24.0	24.0
LTE	13	1.0	24.0	24.0
LTE	14	1.0	24.0	24.0
LTE	17	1.0	24.0	24.0
LTE	25	1.0	24.0	24.0
LTE	26	1.0	24.0	24.0
LTE	38	1.0	24.0	24.0
LTE	41	1.0	24.0	24.0
LTE	48*	1.0	12.3	12.3
LTE	66	1.0	24.0	24.0
LTE	71	1.0	24.0	24.0
NR	n2	1.0	24.5	24.5
NR	n5	1.0	24.5	24.5
NR	n41	0.8	24.5	24.5
NR	n66	1.0	24.5	24.5
NR	n71	1.0	24.5	24.5

*Powers are specified as burst average.

For LTE B48

Uplink Downlink config (UDC)	Special sub frame (SSF)	Burst ave tune up DSI=0 [dBm]	P_{max} burst ave [dBm]	Time ave DSI=0 [dBm]
0	0 to 7	12.3	11.09	9.4
1	0 to 7	13.8	12.66	9.4
2	0 to 7	16.6	15.57	9.4
3	0 to 7	15.3	14.10	9.4
4	0 to 7	16.8	15.69	9.4
5	0 to 7	19.7	18.56	9.4
6	0 to 7	12.9	11.64	9.4

LTE band 48 doesn't have a same burst tune up for UDC/SSF but has same time average tune up limit. Highest burst ave tune up limit is used for exclusion calculation and tested with highest time average details are shown in the power measurement section.

12 SAR Exposure Conditions (Test Configurations)

12.1 Summary of the distance between antenna and surface of EUT

Table 12-1 summary of distance

Test position	Distance[mm] WWAN-main	Distance[mm] WWAN-4th
Rear	5.2	4.6
Top	2.1	134.4
Left Side (Edge 2)	24.9	2.1
Right Side (Edge 4)	227.9	343.3
Bottom	276.8	96.4
Keyboard	233.7	53.3

Notes

- Details are shown in appendix

12.2 Test Configurations for the WWAN-main

Test Configurations	Test distance	SAR Required	Note
Front	-	No	SAR is not required as this is not a typical use scenario and also the front side SAR test is not required because of overall diagonal dimension >20cm based on KDB 616217D04.
Rear	-	No	In normal use case this surface does not face to user.
Top	-	No	In normal use case this surface does not face to user
Left Side (Edge 2)	-	No	In normal use case this surface does not face to user.
Right Side (Edge 4)	-	No	Since distance from antenna to person is >20cm, so this surface is omitted from SAR testing.
Bottom	-	No	Since distance from antenna to person is >20cm, so this surface is omitted from SAR testing.
Keyboard	-	No	Since distance from antenna to person is >20cm, so this surface is omitted from SAR testing.

12.3 Test Configurations for the WWAN-4th Antenna

Test Configurations	Test distance	SAR Required	Note
Front	-	No	SAR is not required as this is not a typical use scenario and also the front side SAR test is not required because of overall diagonal dimension >20cm based on KDB 616217D04.
Rear	-	No	In normal use case this surface does not face to user.
Top	-	No	In normal use case this surface does not face to user.
Left Side (Edge 2)	-	No	In normal use case this surface does not face to user.
Right Side (Edge 4)	-	No	Since distance from antenna to person is >20cm, so this surface is omitted from SAR testing.
Bottom	0 mm	Yes	-
Keyboard	0 mm	Yes	-

12.4 SAR-based Exemption - FCC section 1.1307

Exception condition as per section 1.1307 (b)(3)(i)(B)

the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} (mW) = \begin{cases} ERP_{20dm} (d/20 cm)^x & d \leq 20 cm \\ ERP_{20cm} & 20 cm < d \leq 40cm \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20dm} \sqrt{f}} \right) \text{ and } f \text{ is in GHz};$$

And

$$ERP_{20cm} (mW) = \begin{cases} 2040 f & 0.3 GHz \leq f < 1.5 GHz \\ 3060 & 1.5 GHz \leq f \leq 6 GHz \end{cases}$$

d = the separation distance.

When separation distance is less than 0.5 cm, no exemption condition, so test is required.

As per section 1.1307 (b)(2)

Separation distance is the minimum distance in any direction from any part of a radiating structure and any part of the body of a nearby person.

Radiating structure is an unshielded RF current-carrying conductor that generates an RF reactive near electric or magnetic field and/or radiates an RF electromagnetic wave. It is the component of an RF source that transmits, generates, or reradiates an RF fields, such as an antenna, aperture, coil, or plate.

Table 12-2 For full power exemption FCC

Antenna	RAT	Band	Frequency [MHz]	Output Power or ERP		Separation Distances (mm)			Calculated Threshold Value	
				dBm	mW	Bottom	Keyboard	Rear	Bottom	Keyboard
WWAN-Main	WCDMA	B2	1910	24.50	282	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	WCDMA	B4	1755	24.50	282	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	WCDMA	B5	849	24.50	282	276.80	233.70	25.00	1731.96 mW -EXEMPT-	1731.96 mW -EXEMPT-
WWAN-Main	LTE	B2	1910	24.00	251	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B4	1755	24.00	251	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B5	849	24.00	251	276.80	233.70	25.00	1731.96 mW -EXEMPT-	1731.96 mW -EXEMPT-
WWAN-Main	LTE	B7	2570	23.65	232	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B12	716	24.00	251	276.80	233.70	25.00	1460.64 mW -EXEMPT-	1460.64 mW -EXEMPT-
WWAN-Main	LTE	B13	787	24.00	251	276.80	233.70	25.00	1605.48 mW -EXEMPT-	1605.48 mW -EXEMPT-
WWAN-Main	LTE	B14	798	24.00	251	276.80	233.70	25.00	1627.92 mW -EXEMPT-	1627.92 mW -EXEMPT-
WWAN-Main	LTE	B17	716	24.00	251	276.80	233.70	25.00	1460.64 mW -EXEMPT-	1460.64 mW -EXEMPT-
WWAN-Main	LTE	B25	1915	24.00	251	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B26	849	24.00	251	276.80	233.70	25.00	1731.96 mW -EXEMPT-	1731.96 mW -EXEMPT-
WWAN-Main	LTE	B38	2620	24.00	251	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B41	2690	24.15	260	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B48	3700	12.30	17	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B66	1780	24.00	251	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	LTE	B71	698	24.00	251	276.80	233.70	25.00	1423.92 mW -EXEMPT-	1423.92 mW -EXEMPT-
WWAN-Main	NR	n2	1910	24.50	282	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	NR	n5	849	24.50	282	276.80	233.70	25.00	1731.96 mW -EXEMPT-	1731.96 mW -EXEMPT-
WWAN-4th	NR	n41	2690	24.50	282	96.40	53.30	25.00	752 mW -EXEMPT-	241 mW -MEASURE-
WWAN-Main	NR	n66	1780	24.50	282	276.80	233.70	25.00	3060 mW -EXEMPT-	3060 mW -EXEMPT-
WWAN-Main	NR	n71	698	24.50	282	276.80	233.70	25.00	1423.92 mW -EXEMPT-	1423.92 mW -EXEMPT-

	: measurement is NOT required
	: measurement is required

13 SAR System Check

13.1 Dielectric Property

The dielectric parameters were checked prior to assessment using the DAK dielectric probe kit.

According to KDB865664 D01, the dielectric constant (ϵ_r) and conductivity (σ) of typical tissue-equivalent media recipes are expected to be within 5% of the required target values for a range of approximately 50 MHz at frequencies below 300 MHz. At above 3 GHz, 5% tolerance can usually be maintained for ± 100 MHz or more.

For SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for ϵ_r and σ may be relaxed to $\pm 10\%$ (≤ 3 GHz).

The dielectric parameters were linearly interpolated between the closest pair of target frequencies defined in KDB 865664D01 to determine the applicable dielectric parameters corresponding to the device test frequency for measurement.

Listed conductivity and relative permittivity values including the target are rounded one or two decimal places due to significant digit, so some differences might be observed, and actual SAR calculation is done four decimal places.

Table 13-1 standard parameters on the KDB 865664D01

Target Frequency (MHz)	Head		Body	
	ϵ_r	σ (S/m)	ϵ_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ϵ_r = relative permittivity, σ = conductivity and $\rho = 1000$ kg/m³)

Table 13-2 Dielectric Property Measurements Result:

DIELECTRIC PARAMETERS MEASUREMENT RESULTS													
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Target [σ]	Target [εr]	Measure [σ]	Measure [εr]	Deviation σ [%]	Deviation εr [%]	Limit [%]	Remark
2022/2/22	20.0	32	HBBL600-10000	20.0	5250.0	4.71	35.93	4.59	35.69	-2.55	-0.66	+/- 5	
2022/2/22	20.0	32	HBBL600-10000	20.0	5350.0	4.81	35.81	4.73	35.40	-1.75	-1.15	+/- 5	
2022/2/22	20.0	32	HBBL600-10000	20.0	5500.0	4.96	35.64	4.83	35.51	-2.58	-0.37	+/- 5	
2022/2/22	20.0	32	HBBL600-10000	20.0	5600.0	5.07	35.53	4.87	35.19	-3.93	-0.94	+/- 5	
2022/2/22	20.0	32	HBBL600-10000	20.0	5700.0	5.17	35.41	5.05	34.96	-2.30	-1.27	+/- 5	
2022/2/22	20.0	32	HBBL600-10000	20.0	5800.0	5.27	35.30	5.18	34.76	-1.78	-1.52	+/- 5	
2022/2/25	20.0	33	HBBL600-10000	20.0	2350.0	1.71	39.38	1.67	39.46	-2.16	0.22	+/- 5	
2022/2/25	20.0	33	HBBL600-10000	20.0	2450.0	1.80	39.20	1.75	39.35	-2.89	0.39	+/- 5	
2022/2/25	20.0	33	HBBL600-10000	20.0	2500.0	1.86	39.14	1.80	39.32	-3.07	0.47	+/- 5	
2022/2/25	20.0	33	HBBL600-10000	20.0	2600.0	1.96	39.01	1.88	39.06	-4.28	0.13	+/- 5	
2022/3/1	23.0	35	HBBL600-10000	23.0	2500.0	1.86	39.14	1.83	38.58	-1.62	-1.43	+/- 5	
2022/3/1	23.0	35	HBBL600-10000	23.0	2600.0	1.96	39.01	1.90	38.41	-3.16	-1.53	+/- 5	

13.2 System check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

13.2.1 System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ± 0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

The target(reference) SAR values can be obtained from the calibration certificate of system validation dipoles(Refer to Appendix). The target SAR values are SAR measured value in the calibration certificate scaled to 1W.

13.2.2 System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within $\pm 10\%$ of the manufacturer calibrated dipole SAR target. Refer to Appendix for the SAR System Check Plots.

Conditions				Liquid Temp		Meas value 250mW (100mW for 5G)		Meas value Normalized to 1W		Daily Reference value of regulation			
Date	Frequency [MHz]	Temp [deg. C]	Humid [% RH]	Before Daily [deg. C]	After Daily [deg. C]	1g [W/kg]	10g [W/kg]	1g [W/kg]	10g [W/kg]	(SPEAG) 1g [W/kg]	(SPEAG) 10g[W/kg]	[%]	[%]
2/22	5250	20.0	32.0	20.0	20.0	8.05	2.29	80.50	22.90	77.90	22.30	3.23	2.62
2/22	5600	20.0	32.0	20.0	20.0	8.47	2.42	84.70	24.20	81.80	23.30	3.42	3.72
2/22	5800	20.0	32.0	20.0	20.0	8.26	2.40	82.60	24.00	78.00	22.10	5.57	7.92
2/25	2600	20.0	33.0	20.0	20.0	14.20	6.47	56.80	25.88	57.20	25.16	-0.70	2.78
2/25	2450	20.0	33.0	20.0	20.0	13.50	6.42	54.00	25.68	54.80	25.40	-1.48	1.09
3/1	2600	23.0	35.0	23.0	23.0	13.90	6.20	55.60	24.80	57.20	25.16	-2.88	-1.45

14 Conducted Output Power / SAR / PD Measurements

14.1 Measurement configuration for conducted output power

WWAN average output power was measured with burst power (on time).

14.1.1 WCDMA configuration

Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.10.2.4: β values for transmitter characteristics tests with HS-DPCCH

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	11/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
$A_{hs}=\beta_{hs}/\beta_c$	30/15				

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

The following 5 Sub-tests were completed according to Release 6 procedures in table C.11.1.3 of 3GPP TS 34.121-1
A summary of these settings are illustrated below:

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	β_{ed}	1309/225	94/75	47/15	56/75	47/15
CM (dB)	1	3	2	3	1	
MPR (dB)	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	A _{hs} = β_{hs}/β_c	30/15				
HSUPA Specific Settings	E-DPDCCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFICI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
Reference E-TFCI PO	27	27	27	27	27	
Maximum Channelization Codes	2xSF2				SF4	

DC-HSDPA Setup Procedures used to establish the test signals

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

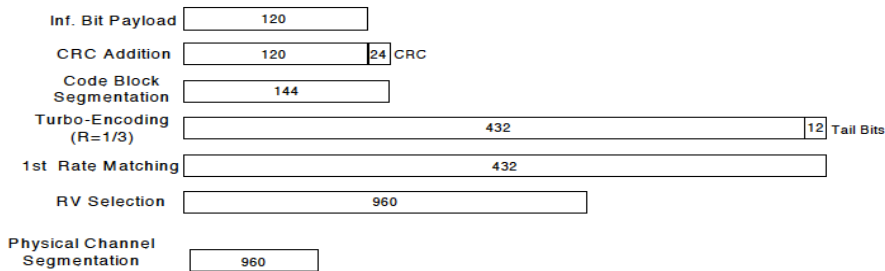


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121.

A summary of subtest settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm2			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	β_d (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
β_{hs}	4/15	24/15	30/15	30/15	
MPR (dB)	0	0	0.5	0.5	
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
Ahs = β_{hs}/β_c	30/15				

HSPA+

The following 1 Sub-test was completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105
<p>Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.</p> <p>Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).</p> <p>Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.</p> <p>Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.</p> <p>Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.</p>											

14.1.2 LTE single configuration

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is 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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A

14.1.3 LTE CA configuration

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

For intra-band contiguous carrier aggregation the allowed Maximum Power Reduction (MPR) for the maximum output power applicable to the DUT in table below. In case the modulation format is different on different component carriers then the MPR is determined by the rules applied to higher order of those modulations.

Modulation	CA bandwidth Class B and C / Smallest Component Carrier Transmission Bandwidth Configuration				MPR (dB)
	25 RB	50 RB	75 RB	100 RB	
QPSK	> 8 and ≤ 25	> 12 and ≤ 50	> 16 and ≤ 75	> 18 and ≤ 100	≤ 1
QPSK	> 25	> 50	> 75	> 100	≤ 2
16 QAM	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 8 and ≤ 25	> 12 and ≤ 50	> 16 and ≤ 75	> 18 and ≤ 100	≤ 2
16 QAM	> 25	> 50	> 75	> 100	≤ 3
64 QAM	≤ 8 and allocation wholly contained within a single CC	≤ 12 and allocation wholly contained within a single CC	≤ 16 and allocation wholly contained within a single CC	≤ 18 and allocation wholly contained within a single CC	≤ 2
64 QAM	> 8 or allocation extends across two CC's	> 12 or allocation extends across two CC's	> 16 or allocation extends across two CC's	> 18 or allocation extends across two CC's	≤ 3

For PUCCH and SRS transmissions, the allowed MPR is according to that specified for PUSCH WPKD modulation for the corresponding transmission bandwidth.

14.1.4 LTE CA power measurement combination

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number of component carriers (CCs) supported by the product implementation. Per April 2018 TCBC Workshop Notes, the following test reduction methodology was applied to determine the combinations required for conducted power measurements.

LTE DLCA Test Reduction Methodology:

- The supported combinations were arranged by the number of component carriers in columns.
- Any limitations on the PCC or SCC for each combination were identified alongside the combination.
- Power measurements were performed for "supersets" (LTE CA combinations with multiple components carriers) and any "subsets" (LTE CA combinations with fewer component carriers) that were not completely covered by the supersets.
- Only subsets that have the exact same components as a superset were excluded for measurement.
- When there were certain restrictions on component carriers that existed in the superset that were not applied for the subset, the subset configuration was additionally evaluated.
- Both inter-band and intra-band downlink carrier aggregation scenarios were considered.
- Downlink CA combinations for SISO and 4x4 Downlink MIMO operations were measured independently, per May 2017 TCBC Workshop notes.
- All bands required for SAR testing per FCC KDB procedures were considered.

General PCC and SCC configuration selection procedure:

- PCC uplink channel, channel bandwidth, modulation and RB configurations were selected based on section C)3)b)ii) of KDB 941225 D05 V01r02. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.
- To maximize aggregated bandwidth, highest channel bandwidth available for that CA combination was selected for SCC. For inter-band CA, the SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers.
- All selected PCC and SCC(s) remained fully within the uplink/downlink transmission band of the respective component carrier.

Downlink CA with Downlink 4x4 MIMO RF Conducted Powers:

This device supports downlink 4x4 MIMO operations for some LTE bands. Uplink transmission is limited to a single output stream. When carrier aggregation was applicable, the general test selection and setup procedures described above were applied.

Uplink CA Conducted Powers:

This device supports uplink carrier aggregation for some LTE bands with a maximum of two component carriers. For intra-band contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when noncontiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.

Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

Downlink CA with Uplink CA Enabled:

This device supports uplink carrier aggregation (ULCA) with additional Carrier Aggregation configurations active in the downlink. 4x4 DL MIMO is only operating in the downlink. Uplink transmission is limited to a single output stream for each component carrier of ULCA.

Power measurements were performed with ULCA active and additional CA configurations active in the downlink for the configuration per Fall 2017 TCB Workshop Notes.

14.1.5 New radio(NR) configuration

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.2-1 of the 3GPP TS36.101.

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0^2
	Pi/2 BPSK w Pi/2 BPSK DMRS	$\leq 0.5^2$	$\leq 0^2$	0^2
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

The allowed A-MPR values specified below in Table 6.2.3.1-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Network signalling label	Requirements (clause)	NR Band	Channel bandwidth (MHz)	Resources blocks (N_{RB})	A-MPR (dB)
NS_01		Table 5.2-1	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	Table 5.3.2-1	N/A

14.2 WCDMA
14.2.1 WCDMA Band 2

R99

Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band 2	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	24.50	23.50
		9400	1880.0	24.50	23.59
		9538	1907.6	24.50	23.58

HSDPA

Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band 2	Subtest 1	9262	1852.4	23.50	22.66
		9400	1880.0	23.50	22.70
		9538	1907.6	23.50	22.72
	Subtest 2	9262	1852.4	23.50	22.61
		9400	1880.0	23.50	22.77
		9538	1907.6	23.50	22.69
	Subtest 3	9262	1852.4	23.00	22.10
		9400	1880.0	23.00	22.19
		9538	1907.6	23.00	22.21
	Subtest 4	9262	1852.4	23.00	22.15
		9400	1880.0	23.00	22.26
		9538	1907.6	23.00	22.19

DC-HSDPA

Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band II	Subtest 1	9262	1852.4	23.50	22.70
		9400	1880.0	23.50	22.72
		9538	1907.6	23.50	22.71
	Subtest 2	9262	1852.4	23.50	22.65
		9400	1880.0	23.50	22.72
		9538	1907.6	23.50	22.74
	Subtest 3	9262	1852.4	23.00	22.16
		9400	1880.0	23.00	22.26
		9538	1907.6	23.00	22.27
	Subtest 4	9262	1852.4	23.00	22.13
		9400	1880.0	23.00	22.25
		9538	1907.6	23.00	22.25

HSDPA

Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
WCDMA (UMTS) Band 2	Subtest 1	9262	1852.4	23.50	22.64
		9400	1880.0	23.50	22.71
		9538	1907.6	23.50	22.72
	Subtest 2	9262	1852.4	21.50	20.69
		9400	1880.0	21.50	20.73
		9538	1907.6	21.50	20.71
	Subtest 3	9262	1852.4	22.50	21.62
		9400	1880.0	22.50	21.68
		9538	1907.6	22.50	21.64
	Subtest 4	9262	1852.4	21.50	20.68
		9400	1880.0	21.50	20.74
		9538	1907.6	21.50	20.67
	Subtest 5	9262	1852.4	23.50	22.66
		9400	1880.0	23.50	22.72
		9538	1907.6	23.50	22.69

HSPA+

Band	Mode	UL Ch No.	Freq. (MHz)	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band 2	Subtest 1	9262	1852.4	21.00	20.28
		9400	1880.0	21.00	20.31
		9538	1907.6	21.00	20.36

14.2.2 WCMDA Band 4

R99	Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)
						Full Power
W-CDMA (UMTS) Band 4	Rel 99 (RMC, 12.2 kbps)		1312	1712.4	24.50	23.51
			1413	1732.6	24.50	23.52
			1513	1752.6	24.50	23.74

HSDPA	Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)	
						Full Power	
W-CDMA (UMTS) Band 4	Subtest 1		1312	1712.4	23.50	22.63	
			1413	1732.6	23.50	22.65	
			1513	1752.6	23.50	22.82	
			1312	1712.4	23.50	22.62	
			1413	1732.6	23.50	22.68	
			1513	1752.6	23.50	22.71	
	Subtest 2			1312	1712.4	23.00	22.10
				1413	1732.6	23.00	22.11
				1513	1752.6	23.00	22.29
	Subtest 3			1312	1712.4	23.00	22.17
				1413	1732.6	23.00	22.29
				1513	1752.6	23.00	22.35

DC-HSDPA	Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)	
						Full Power	
W-CDMA (UMTS) Band 4	Subtest 1			1312	1712.4	23.50	22.66
				1413	1732.6	23.50	22.65
				1513	1752.6	23.50	22.78
				1312	1712.4	23.50	22.62
				1413	1732.6	23.50	22.65
				1513	1752.6	23.50	22.75
	Subtest 2			1312	1712.4	23.00	22.08
				1413	1732.6	23.00	22.14
				1513	1752.6	23.00	22.32
	Subtest 3			1312	1712.4	23.00	22.17
				1413	1732.6	23.00	22.21
				1513	1752.6	23.00	22.33

HSDPA	Band	Mode	UL Ch No.	Freq.	Full Power mode Tune-up Upper	Avg Pwr (dBm)				
						Full Power				
WCDMA (UMTS) Band 4	Subtest 1			1312	1712.4	23.50	22.51			
				1413	1732.6	23.50	22.59			
				1513	1752.6	23.50	22.49			
				1312	1712.4	21.50	20.63			
				1413	1732.6	21.50	20.44			
				1513	1752.6	21.50	20.40			
				Subtest 2			1312	1712.4	22.50	21.57
							1413	1732.6	22.50	21.38
							1513	1752.6	22.50	21.51
	Subtest 3			1312	1712.4	21.50	20.62			
				1413	1732.6	21.50	20.66			
				1513	1752.6	21.50	20.53			
	Subtest 4			1312	1712.4	23.50	22.32			
				1413	1732.6	23.50	22.72			
				1513	1752.6	23.50	22.60			

HSPA+	Band	Mode	UL Ch No.	Freq. (MHz)	Full Power mode Tune-up Upper	Avg Pwr (dBm)	
						Full Power	
W-CDMA (UMTS) Band 4	Subtest 1					1312	20.24
						1413	20.32
						1513	20.45

14.2.3 WCDMA Band 5

R99

Band	Mode	UL Ch No.	Freq. (MHz)	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band 5	Rel 99 (RMC, 12.2 kbps)	4132	826.4	24.50	23.53
		4183	836.6	24.50	23.77
		4233	846.6	24.50	23.91

HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band 5	Subtest 1	4132	826.4	23.50	22.58
		4183	836.6	23.50	22.82
		4233	846.6	23.50	22.94
	Subtest 2	4132	826.4	23.50	22.54
		4183	836.6	23.50	22.80
		4233	846.6	23.50	22.95
	Subtest 3	4132	826.4	23.00	22.05
		4183	836.6	23.00	22.33
		4233	846.6	23.00	22.45
	Subtest 4	4132	826.4	23.00	22.13
		4183	836.6	23.00	22.32
		4233	846.6	23.00	22.49

DC-HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band 5	Subtest 1	4132	826.4	23.50	22.47
		4183	836.6	23.50	22.70
		4233	846.6	23.50	22.89
	Subtest 2	4132	826.4	23.50	22.57
		4183	836.6	23.50	22.81
		4233	846.6	23.50	22.94
	Subtest 3	4132	826.4	23.00	22.10
		4183	836.6	23.00	22.30
		4233	846.6	23.00	22.44
	Subtest 4	4132	826.4	23.00	22.09
		4183	836.6	23.00	22.31
		4233	846.6	23.00	22.42

HSDPA+

Band	Mode	UL Ch No.	Freq. (MHz)	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
WCDMA (UMTS) Band 5	Subtest 1	4132	826.4	23.50	22.49
		4183	836.6	23.50	22.81
		4233	846.6	23.50	22.77
	Subtest 2	4132	826.4	21.50	20.40
		4183	836.6	21.50	20.79
		4233	846.6	21.50	20.98
	Subtest 3	4132	826.4	22.50	21.47
		4183	836.6	22.50	21.64
		4233	846.6	22.50	21.76
	Subtest 4	4132	826.4	21.50	20.42
		4183	836.6	21.50	20.73
		4233	846.6	21.50	20.93
	Subtest 5	4132	826.4	23.50	22.58
		4183	836.6	23.50	22.78
		4233	846.6	23.50	22.83

HSPA+

Band	Mode	UL Ch No.	Freq. (MHz)	Full Power mode Tune-up Upper	Avg Pwr (dBm)
					Full Power
W-CDMA (UMTS) Band 5	Subtest 1	4132	826.4	21.00	20.29
		4183	836.6	21.00	20.41
		4233	846.6	21.00	20.53

14.3 LTE single
14.3.1 LTE band 2

Band						Meas. Pwr Avg (dBm)		
2						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	18700	18900	19100
						Freq(MHz)		
						1860	1880	1900
20	QPSK	1	0	0	24.0	22.92	22.95	23.01
		1	49	0	24.0	22.87	22.96	22.96
		1	99	0	24.0	22.89	22.99	22.97
		50	0	1	23.0	21.85	21.90	21.94
		50	24	1	23.0	21.94	21.96	22.08
		50	50	1	23.0	21.97	22.03	22.05
		100	0	1	23.0	21.95	21.92	21.93
	16QAM	1	0	1	23.0	22.25	22.32	22.39
		1	49	1	23.0	22.25	22.33	22.35
		1	99	1	23.0	22.26	22.28	22.34
		50	0	2	22.0	20.86	20.86	20.93
		50	24	2	22.0	20.94	20.93	21.05
		50	50	2	22.0	20.96	21.04	21.05
		100	0	2	22.0	20.94	20.96	20.99
	64QAM	1	0	2	22.0	20.97	20.99	21.07
		1	49	2	22.0	21.01	21.03	21.04
		1	99	2	22.0	21.02	21.12	21.06
		50	0	3	21.0	19.90	19.95	19.96
		50	24	3	21.0	19.99	19.98	20.09
		50	50	3	21.0	19.98	20.06	20.09
		100	0	3	21.0	20.01	20.00	20.03
	256QAM	1	0	5	19.0	17.94	18.06	18.11
		1	49	5	19.0	18.03	18.13	18.11
		1	99	5	19.0	18.05	18.17	18.18
50		0	5	19.0	17.90	17.92	18.02	
50		24	5	19.0	18.02	17.99	18.09	
50		50	5	19.0	17.99	18.08	18.11	
100		0	5	19.0	18.00	18.02	18.00	

Band						Meas. Pwr Avg (dBm)		
2						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	18675	18900	19125
						Freq(MHz)		
						1857.5	1880	1902.5
15	QPSK	1	0	0	24.0	22.76	22.92	22.94
		1	37	0	24.0	22.79	22.93	22.96
		1	74	0	24.0	22.89	22.95	22.95
		36	0	1	23.0	21.83	21.91	21.96
		36	19	1	23.0	21.98	21.96	21.98
		36	39	1	23.0	21.96	22.05	22.05
		75	0	1	23.0	21.92	21.93	21.94
	16QAM	1	0	1	23.0	22.12	22.21	22.23
		1	37	1	23.0	22.16	22.21	22.17
		1	74	1	23.0	22.24	22.20	22.20
		36	0	2	22.0	20.88	20.96	20.95
		36	19	2	22.0	20.98	20.98	21.00
		36	39	2	22.0	20.99	21.10	21.07
		75	0	2	22.0	20.95	20.90	20.91
	64QAM	1	0	2	22.0	21.24	21.49	21.56
		1	37	2	22.0	21.26	21.54	21.59
		1	74	2	22.0	21.30	21.55	21.57
		36	0	3	21.0	19.83	19.98	20.00
		36	19	3	21.0	19.92	19.98	20.00
		36	39	3	21.0	19.96	20.08	20.08
		75	0	3	21.0	19.93	19.90	19.92
	256QAM	1	0	5	19.0	18.16	17.89	17.89
		1	37	5	19.0	18.22	17.96	18.00
		1	74	5	19.0	18.24	18.06	18.05
36		0	5	19.0	17.80	17.97	18.03	
36		19	5	19.0	17.90	18.01	18.04	
36		39	5	19.0	17.93	18.09	18.14	
75		0	5	19.0	17.96	17.95	17.99	

Band						Meas. Pwr Avg (dBm)		
2						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	18650	18900	19150
						Freq(MHz)		
						1855	1880	1905
10	QPSK	1	0	0	24.0	22.78	22.82	22.79
		1	24	0	24.0	22.75	22.80	22.81
		1	49	0	24.0	22.74	22.83	22.78
		25	0	1	23.0	21.91	21.92	21.89
		25	12	1	23.0	21.92	21.95	21.88
		25	25	1	23.0	21.95	22.02	22.01
		50	0	1	23.0	21.94	21.91	21.89
	16QAM	1	0	1	23.0	22.16	22.03	22.06
		1	24	1	23.0	22.06	22.03	22.02
		1	49	1	23.0	22.17	22.09	22.06
		25	0	2	22.0	20.90	20.94	20.88
		25	12	2	22.0	20.96	20.97	20.92
		25	25	2	22.0	20.98	21.04	21.01
		50	0	2	22.0	20.94	20.91	20.88
	64QAM	1	0	2	22.0	21.29	21.22	21.34
		1	24	2	22.0	21.26	21.32	21.31
		1	49	2	22.0	21.31	21.34	21.28
		25	0	3	21.0	19.94	19.94	19.93
		25	12	3	21.0	19.97	19.99	19.96
		25	25	3	21.0	19.97	20.04	20.07
		50	0	3	21.0	19.94	19.95	19.97
	256QAM	1	0	5	19.0	18.19	18.23	18.23
		1	24	5	19.0	18.14	18.18	18.12
		1	49	5	19.0	18.22	18.27	18.28
25		0	5	19.0	17.86	17.91	17.92	
25		12	5	19.0	17.90	17.97	17.91	
25		25	5	19.0	17.90	18.03	17.99	
50		0	5	19.0	17.94	17.91	17.90	

Band						Meas. Pwr Avg (dBm)		
2						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	18625	18900	19175
						Freq(MHz)		
						1852.5	1880	1907.5
5	QPSK	1	0	0	24.0	22.80	22.74	22.74
		1	12	0	24.0	22.83	22.82	22.77
		1	24	0	24.0	22.87	22.86	22.83
		12	0	1	23.0	21.94	21.95	21.99
		12	6	1	23.0	21.93	21.99	22.01
		12	13	1	23.0	21.98	22.00	22.00
		25	0	1	23.0	21.91	21.94	21.95
	16QAM	1	0	1	23.0	22.23	22.19	22.19
		1	12	1	23.0	22.27	22.30	22.26
		1	24	1	23.0	22.30	22.28	22.24
		12	0	2	22.0	21.00	20.97	21.00
		12	6	2	22.0	20.99	21.03	21.03
		12	13	2	22.0	21.00	21.06	21.04
		25	0	2	22.0	20.98	20.94	20.95
	64QAM	1	0	2	22.0	21.30	21.11	21.13
		1	12	2	22.0	21.35	21.22	21.18
		1	24	2	22.0	21.35	21.23	21.20
		12	0	3	21.0	19.87	19.98	19.99
		12	6	3	21.0	19.91	20.05	20.04
		12	13	3	21.0	19.92	20.08	20.03
		25	0	3	21.0	20.00	19.98	20.04
	256QAM	1	0	5	19.0	17.99	18.37	18.42
		1	12	5	19.0	18.03	18.48	18.46
		1	24	5	19.0	18.07	18.48	18.48
		12	0	5	19.0	17.98	17.92	17.95
		12	6	5	19.0	18.00	17.97	17.98
		12	13	5	19.0	18.02	17.99	17.99
25		0	5	19.0	17.91	17.95	17.93	

Band						Meas. Pwr Avg (dBm)		
2						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	18615	18900	19185
						Freq(MHz)		
						1851.5	1880	1908.5
3	QPSK	1	0	0	24.0	22.75	22.73	22.77
		1	7	0	24.0	22.77	22.92	22.85
		1	14	0	24.0	22.80	22.85	22.80
		8	0	1	23.0	21.91	21.94	21.95
		8	4	1	23.0	21.96	22.02	22.01
		8	7	1	23.0	21.92	22.01	21.97
		15	0	1	23.0	21.90	21.91	21.93
	16QAM	1	0	1	23.0	22.11	21.97	21.99
		1	7	1	23.0	22.13	22.07	22.04
		1	14	1	23.0	22.22	22.07	22.02
		8	0	2	22.0	21.02	20.85	20.89
		8	4	2	22.0	21.02	20.97	20.90
		8	7	2	22.0	20.98	20.90	20.90
		15	0	2	22.0	20.99	20.88	20.96
	64QAM	1	0	2	22.0	21.18	21.22	21.29
		1	7	2	22.0	21.31	21.28	21.28
		1	14	2	22.0	21.30	21.30	21.28
		8	0	3	21.0	19.97	20.03	20.07
		8	4	3	21.0	19.99	20.14	20.10
		8	7	3	21.0	19.98	20.12	20.05
		15	0	3	21.0	19.93	19.96	20.03
	256QAM	1	0	5	19.0	18.20	18.14	18.09
		1	7	5	19.0	18.19	18.20	18.10
		1	14	5	19.0	18.27	18.23	18.14
		8	0	5	19.0	17.89	18.03	17.98
		8	4	5	19.0	17.97	18.13	18.04
		8	7	5	19.0	17.95	18.09	18.00
15		0	5	19.0	17.88	17.89	17.97	

Band						Meas. Pwr Avg (dBm)		
2						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	18607	18900	19193
						Freq(MHz)		
						1850.7	1880	1909.3
1.4	QPSK	1	0	0	24.0	22.78	22.76	22.72
		1	2	0	24.0	22.83	22.82	22.77
		1	5	0	24.0	22.72	22.77	22.70
		3	0	0	24.0	22.78	22.81	22.73
		3	1	0	24.0	22.83	22.85	22.83
		3	3	0	24.0	22.77	22.84	22.79
		6	0	1	23.0	21.84	21.89	21.85
	16QAM	1	0	1	23.0	21.85	22.02	21.98
		1	2	1	23.0	21.93	22.18	22.15
		1	5	1	23.0	21.85	22.03	21.98
		3	0	1	23.0	21.80	22.06	22.04
		3	1	1	23.0	21.84	22.14	22.09
		3	3	1	23.0	21.77	22.09	22.04
		6	0	2	22.0	20.95	20.95	20.92
	64QAM	1	0	2	22.0	21.21	21.30	21.25
		1	2	2	22.0	21.28	21.40	21.38
		1	5	2	22.0	21.26	21.29	21.29
		3	0	2	22.0	21.00	20.98	20.95
		3	1	2	22.0	21.04	20.99	21.00
		3	3	2	22.0	21.02	20.99	20.88
		6	0	3	21.0	19.92	20.07	20.04
	256QAM	1	0	5	19.0	17.71	18.15	18.13
		1	2	5	19.0	17.78	18.20	18.13
		1	5	5	19.0	17.73	18.16	17.99
		3	0	5	19.0	17.76	17.98	17.94
		3	1	5	19.0	17.82	18.04	18.07
		3	3	5	19.0	17.74	18.01	17.94
6		0	5	19.0	17.78	18.00	17.95	

14.3.2 LTE band 4

Band						Meas. Pwr Avg (dBm)		
4						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20050	20175	20300
						Freq(MHz)		
						1720	1732.5	1745
20	QPSK	1	0	0	24.0	-	22.99	-
		1	49	0	24.0	-	22.81	-
		1	99	0	24.0	-	22.89	-
		50	0	1	23.0	-	21.95	-
		50	24	1	23.0	-	21.94	-
		50	50	1	23.0	-	21.88	-
		100	0	1	23.0	-	21.95	-
	16QAM	1	0	1	23.0	-	22.29	-
		1	49	1	23.0	-	22.21	-
		1	99	1	23.0	-	22.26	-
		50	0	2	22.0	-	20.94	-
		50	24	2	22.0	-	20.97	-
		50	50	2	22.0	-	20.90	-
		100	0	2	22.0	-	20.98	-
	64QAM	1	0	2	22.0	-	21.02	-
		1	49	2	22.0	-	20.96	-
		1	99	2	22.0	-	20.98	-
		50	0	3	21.0	-	19.95	-
		50	24	3	21.0	-	20.00	-
		50	50	3	21.0	-	19.94	-
		100	0	3	21.0	-	20.03	-
	256QAM	1	0	5	19.0	-	18.10	-
		1	49	5	19.0	-	17.96	-
		1	99	5	19.0	-	18.13	-
50		0	5	19.0	-	18.00	-	
50		24	5	19.0	-	18.04	-	
50		50	5	19.0	-	17.97	-	
100		0	5	19.0	-	18.04	-	

Band						Meas. Pwr Avg (dBm)		
4						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20025	20175	20325
						Freq(MHz)		
						1717.5	1732.5	1747.5
15	QPSK	1	0	0	24.0	22.88	22.90	22.89
		1	37	0	24.0	22.76	22.78	22.78
		1	74	0	24.0	22.79	22.79	22.85
		36	0	1	23.0	22.03	21.90	21.90
		36	19	1	23.0	21.97	21.94	21.94
		36	39	1	23.0	21.95	21.91	21.92
		75	0	1	23.0	21.98	21.93	21.85
	16QAM	1	0	1	23.0	22.24	22.12	22.16
		1	37	1	23.0	22.15	21.97	22.04
		1	74	1	23.0	22.15	22.06	22.02
		36	0	2	22.0	21.01	20.95	20.95
		36	19	2	22.0	21.00	20.98	20.99
		36	39	2	22.0	20.93	20.91	20.97
		75	0	2	22.0	20.96	20.90	20.81
	64QAM	1	0	2	22.0	21.38	21.48	21.54
		1	37	2	22.0	21.21	21.35	21.45
		1	74	2	22.0	21.29	21.43	21.46
		36	0	3	21.0	20.00	19.95	19.95
		36	19	3	21.0	19.90	19.98	20.01
		36	39	3	21.0	19.94	19.94	19.97
		75	0	3	21.0	20.00	19.91	19.90
	256QAM	1	0	5	19.0	18.39	17.93	17.95
		1	37	5	19.0	18.20	17.88	17.90
		1	74	5	19.0	18.25	17.89	18.01
		36	0	5	19.0	17.99	17.98	17.97
		36	19	5	19.0	17.95	18.00	18.03
		36	39	5	19.0	17.93	17.96	17.99
75		0	5	19.0	18.03	17.98	17.91	

Band						Meas. Pwr Avg (dBm)		
4						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20000	20175	20350
						Freq(MHz)		
						1715	1732.5	1750
10	QPSK	1	0	0	24.0	22.80	22.69	22.75
		1	24	0	24.0	22.78	22.66	22.77
		1	49	0	24.0	22.79	22.77	22.82
		25	0	1	23.0	21.88	21.80	21.87
		25	12	1	23.0	21.87	21.92	21.86
		25	25	1	23.0	21.89	21.91	21.96
	50	0	1	23.0	21.87	21.89	21.88	
	16QAM	1	0	1	23.0	22.16	21.98	21.99
		1	24	1	23.0	22.12	21.96	22.01
		1	49	1	23.0	22.17	22.06	22.08
		25	0	2	22.0	20.94	20.82	20.83
		25	12	2	22.0	20.94	20.96	20.91
		25	25	2	22.0	20.95	20.96	20.99
	50	0	2	22.0	20.91	20.93	20.88	
	64QAM	1	0	2	22.0	21.30	21.20	21.24
		1	24	2	22.0	21.30	21.29	21.35
		1	49	2	22.0	21.33	21.30	21.35
		25	0	3	21.0	19.92	19.89	19.89
		25	12	3	21.0	19.95	19.99	19.96
		25	25	3	21.0	19.95	20.00	20.05
	50	0	3	21.0	19.91	19.95	19.91	
	256QAM	1	0	5	19.0	18.20	18.07	18.09
		1	24	5	19.0	18.19	18.00	18.17
		1	49	5	19.0	18.23	18.18	18.10
25		0	5	19.0	17.87	17.85	17.89	
25		12	5	19.0	17.92	17.96	17.95	
25		25	5	19.0	17.92	17.95	18.04	
50	0	5	19.0	17.91	17.91	17.90		

Band						Meas. Pwr Avg (dBm)		
4						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	19975	20175	20375
						Freq(MHz)		
						1712.5	1732.5	1752.5
5	QPSK	1	0	0	24.0	22.83	22.69	22.81
		1	12	0	24.0	22.84	22.68	22.80
		1	24	0	24.0	22.85	22.78	22.82
		12	0	1	23.0	21.91	21.84	21.97
		12	6	1	23.0	21.95	21.90	22.03
		12	13	1	23.0	21.90	21.85	22.01
		25	0	1	23.0	21.95	21.86	21.99
	16QAM	1	0	1	23.0	22.27	22.04	22.26
		1	12	1	23.0	22.30	22.09	22.08
		1	24	1	23.0	22.34	22.16	22.09
		12	0	2	22.0	21.00	20.92	21.00
		12	6	2	22.0	21.01	20.92	21.04
		12	13	2	22.0	20.98	20.94	21.05
		25	0	2	22.0	20.95	20.87	20.99
	64QAM	1	0	2	22.0	21.35	21.06	21.22
		1	12	2	22.0	21.34	21.11	21.23
		1	24	2	22.0	21.39	21.13	21.25
		12	0	3	21.0	19.82	19.91	20.01
		12	6	3	21.0	19.91	19.98	20.03
		12	13	3	21.0	19.86	19.98	20.08
		25	0	3	21.0	19.96	19.93	20.02
	256QAM	1	0	5	19.0	18.03	18.30	18.40
		1	12	5	19.0	18.03	18.35	18.39
		1	24	5	19.0	18.07	18.38	18.41
		12	0	5	19.0	18.00	17.90	17.96
		12	6	5	19.0	18.02	17.93	18.02
		12	13	5	19.0	18.00	17.95	18.03
		25	0	5	19.0	17.95	17.94	17.98

Band						Meas. Pwr Avg (dBm)		
4						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	19965	20175	20385
						Freq(MHz)		
						1711.5	1732.5	1753.5
3	QPSK	1	0	0	24.0	22.83	22.69	22.74
		1	7	0	24.0	22.81	22.87	22.92
		1	14	0	24.0	22.85	22.74	22.85
		8	0	1	23.0	21.93	21.91	21.93
		8	4	1	23.0	21.95	21.93	21.98
		8	7	1	23.0	21.91	21.87	21.97
		15	0	1	23.0	21.92	21.85	21.91
	16QAM	1	0	1	23.0	22.14	21.94	21.98
		1	7	1	23.0	22.11	22.00	22.02
		1	14	1	23.0	22.20	22.00	22.02
		8	0	2	22.0	20.96	20.79	20.86
		8	4	2	22.0	21.04	20.88	20.91
		8	7	2	22.0	21.00	20.78	20.89
		15	0	2	22.0	20.98	20.88	20.93
	64QAM	1	0	2	22.0	21.28	21.23	21.37
		1	7	2	22.0	21.27	21.17	21.32
		1	14	2	22.0	21.33	21.28	21.35
		8	0	3	21.0	19.96	19.97	20.02
		8	4	3	21.0	19.96	20.02	20.09
		8	7	3	21.0	19.95	20.02	20.04
		15	0	3	21.0	19.95	19.96	19.99
	256QAM	1	0	5	19.0	18.22	18.10	18.11
		1	7	5	19.0	18.19	18.04	17.96
		1	14	5	19.0	18.29	18.15	18.11
		8	0	5	19.0	17.91	18.01	18.02
		8	4	5	19.0	17.97	18.02	18.09
		8	7	5	19.0	17.98	18.02	18.08
15		0	5	19.0	17.92	17.90	17.94	

Band						Meas. Pwr Avg (dBm)		
4						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	19957	20175	20393
						Freq(MHz)		
						1710.7	1732.5	1754.3
1.4	QPSK	1	0	0	24.0	22.72	22.62	22.71
		1	2	0	24.0	22.80	22.71	22.79
		1	5	0	24.0	22.73	22.64	22.75
		3	0	0	24.0	22.79	22.76	22.76
		3	1	0	24.0	22.76	22.78	22.82
		3	3	0	24.0	22.77	22.69	22.80
		6	0	1	23.0	21.83	21.81	21.85
	16QAM	1	0	1	23.0	21.86	22.00	21.90
		1	2	1	23.0	21.95	22.06	22.07
		1	5	1	23.0	21.87	22.00	21.93
		3	0	1	23.0	21.81	21.91	22.01
		3	1	1	23.0	21.83	21.98	22.06
		3	3	1	23.0	21.78	21.93	22.04
		6	0	2	22.0	20.88	20.85	20.86
	64QAM	1	0	2	22.0	21.20	21.01	21.30
		1	2	2	22.0	21.30	21.11	21.37
		1	5	2	22.0	21.24	21.05	21.28
		3	0	2	22.0	21.00	20.76	20.91
		3	1	2	22.0	21.05	20.80	20.97
		3	3	2	22.0	21.00	20.79	20.93
		6	0	3	21.0	19.86	19.72	20.02
	256QAM	1	0	5	19.0	17.70	17.93	18.05
		1	2	5	19.0	17.81	17.97	18.12
		1	5	5	19.0	17.67	17.95	18.06
		3	0	5	19.0	17.76	17.84	17.91
		3	1	5	19.0	17.78	17.91	17.96
		3	3	5	19.0	17.69	17.85	17.93
6		0	5	19.0	17.71	17.69	17.93	

14.3.3 LTE band 5

Band						Meas. Pwr Avg (dBm)		
5						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	20525	-
						Freq(MHz)		
						-	836.5	-
10	QPSK	1	0	0	24.0	-	22.88	-
		1	24	0	24.0	-	22.95	-
		1	49	0	24.0	-	23.01	-
		25	0	1	23.0	-	22.09	-
		25	12	1	23.0	-	22.10	-
		25	25	1	23.0	-	22.08	-
		50	0	1	23.0	-	22.07	-
	16QAM	1	0	1	23.0	-	22.25	-
		1	24	1	23.0	-	22.25	-
		1	49	1	23.0	-	22.33	-
		25	0	2	22.0	-	21.11	-
		25	12	2	22.0	-	21.15	-
		25	25	2	22.0	-	21.17	-
		50	0	2	22.0	-	21.09	-
	64QAM	1	0	2	22.0	-	21.46	-
		1	24	2	22.0	-	21.53	-
		1	49	2	22.0	-	21.58	-
		25	0	3	21.0	-	20.15	-
		25	12	3	21.0	-	20.13	-
		25	25	3	21.0	-	20.20	-
		50	0	3	21.0	-	20.11	-
	256QAM	1	0	5	19.0	-	18.20	-
		1	24	5	19.0	-	18.40	-
		1	49	5	19.0	-	18.56	-
25		0	5	19.0	-	18.11	-	
25		12	5	19.0	-	18.15	-	
25		25	5	19.0	-	18.13	-	
50		0	5	19.0	-	18.10	-	

Band						Meas. Pwr Avg (dBm)		
5						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20425	20525	20625
						Freq(MHz)		
						826.5	836.5	846.5
5	QPSK	1	0	0	24.0	22.90	22.99	23.08
		1	12	0	24.0	22.80	22.97	23.12
		1	24	0	24.0	22.81	23.02	23.07
		12	0	1	23.0	21.94	22.13	22.23
		12	6	1	23.0	21.91	22.11	22.21
		12	13	1	23.0	21.92	22.12	22.19
		25	0	1	23.0	21.93	22.05	22.20
	16QAM	1	0	1	23.0	22.42	22.41	22.50
		1	12	1	23.0	22.25	22.45	22.49
		1	24	1	23.0	22.30	22.42	22.45
		12	0	2	22.0	21.01	21.08	21.31
		12	6	2	22.0	20.99	21.16	21.25
		12	13	2	22.0	21.00	21.20	21.26
		25	0	2	22.0	20.98	21.07	21.20
	64QAM	1	0	2	22.0	21.43	21.32	21.38
		1	12	2	22.0	21.33	21.38	21.24
		1	24	2	22.0	21.35	21.40	20.77
		12	0	3	21.0	19.91	20.13	20.32
		12	6	3	21.0	19.90	20.20	20.23
		12	13	3	21.0	19.86	20.21	20.03
		25	0	3	21.0	20.01	20.16	20.18
	256QAM	1	0	5	19.0	18.15	18.58	18.75
		1	12	5	19.0	18.01	18.61	18.75
		1	24	5	19.0	18.04	18.62	18.70
		12	0	5	19.0	18.06	18.11	18.27
		12	6	5	19.0	18.02	18.14	18.28
		12	13	5	19.0	17.97	18.13	18.26
		25	0	5	19.0	17.98	18.09	18.22

Band						Meas. Pwr Avg (dBm)		
5						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20415	20525	20635
						Freq(MHz)		
						825.5	836.5	847.5
3	QPSK	1	0	0	24.0	22.86	22.96	23.14
		1	7	0	24.0	22.79	23.09	23.13
		1	14	0	24.0	22.75	22.97	23.04
		8	0	1	23.0	21.96	22.08	22.23
		8	4	1	23.0	21.92	22.17	22.30
		8	7	1	23.0	21.85	22.09	22.20
		15	0	1	23.0	21.89	22.04	22.16
	16QAM	1	0	1	23.0	22.23	22.19	22.30
		1	7	1	23.0	22.14	22.26	22.34
		1	14	1	23.0	22.10	22.21	22.22
		8	0	2	22.0	21.03	21.04	21.16
		8	4	2	22.0	21.02	21.10	21.16
		8	7	2	22.0	20.98	21.01	21.16
	64QAM	15	0	2	22.0	20.99	21.07	21.17
		1	0	2	22.0	21.36	21.48	21.56
		1	7	2	22.0	21.28	21.47	21.41
		1	14	2	22.0	21.23	21.47	21.14
		8	0	3	21.0	19.98	20.19	20.20
		8	4	3	21.0	19.97	20.24	20.12
		8	7	3	21.0	19.89	20.22	20.05
	256QAM	15	0	3	21.0	19.96	20.12	20.10
1		0	5	19.0	18.29	18.33	18.51	
1		7	5	19.0	18.21	18.38	18.46	
1		14	5	19.0	18.23	18.38	18.44	
8		0	5	19.0	17.94	18.23	18.35	
8		4	5	19.0	17.98	18.26	18.39	
8		7	5	19.0	17.90	18.22	18.37	
	15	0	5	19.0	17.88	18.08	18.19	

Band						Meas. Pwr Avg (dBm)		
5						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20407	20525	20643
						Freq(MHz)		
						824.7	836.5	848.3
1.4	QPSK	1	0	0	24.0	22.79	22.83	23.04
		1	2	0	24.0	22.85	23.00	23.07
		1	5	0	24.0	22.69	22.91	22.97
		3	0	0	24.0	22.77	22.90	23.04
		3	1	0	24.0	22.76	22.95	23.06
		3	3	0	24.0	22.74	22.93	23.00
		6	0	1	23.0	21.81	22.04	22.10
	16QAM	1	0	1	23.0	21.86	22.14	22.21
		1	2	1	23.0	21.96	22.30	22.36
		1	5	1	23.0	21.81	22.13	22.16
		3	0	1	23.0	21.82	22.18	22.30
		3	1	1	23.0	21.84	22.23	22.34
		3	3	1	23.0	21.75	22.25	22.28
		6	0	2	22.0	20.93	21.01	21.10
	64QAM	1	0	2	22.0	21.26	21.38	21.23
		1	2	2	22.0	21.31	21.51	21.28
		1	5	2	22.0	21.16	21.44	21.10
		3	0	2	22.0	21.02	21.10	20.89
		3	1	2	22.0	21.07	21.15	20.94
		3	3	2	22.0	20.97	21.12	20.83
		6	0	3	21.0	19.84	20.16	19.96
	256QAM	1	0	5	19.0	17.73	18.24	18.39
		1	2	5	19.0	17.79	18.33	18.45
		1	5	5	19.0	17.68	18.28	18.34
		3	0	5	19.0	17.78	18.04	18.24
		3	1	5	19.0	17.80	18.12	18.27
		3	3	5	19.0	17.72	18.11	18.18
		6	0	5	19.0	17.77	18.13	18.22

14.3.4 LTE band 7

Band						Meas. Pwr Avg (dBm)		
7						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20850	21100	21350
						Freq(MHz)		
						2510	2535	2560
20	QPSK	1	0	0	24.0	22.94	23.07	23.11
		1	49	0	24.0	22.95	23.03	23.12
		1	99	0	24.0	22.98	23.09	23.13
		50	0	1	23.0	22.00	22.05	22.10
		50	24	1	23.0	22.08	22.07	22.19
		50	50	1	23.0	22.07	22.11	22.17
		100	0	1	23.0	22.08	22.11	22.10
	16QAM	1	0	1	23.0	22.38	22.45	22.49
		1	49	1	23.0	22.38	22.42	22.48
		1	99	1	23.0	22.40	22.39	22.48
		50	0	2	22.0	21.05	21.04	21.10
		50	24	2	22.0	21.15	21.00	21.25
		50	50	2	22.0	21.14	21.09	21.19
		100	0	2	22.0	21.13	21.15	21.13
	64QAM	1	0	2	22.0	21.18	21.13	21.18
		1	49	2	22.0	21.23	21.14	21.21
		1	99	2	22.0	21.23	21.15	21.22
		50	0	3	21.0	20.02	20.09	20.16
		50	24	3	21.0	20.13	20.08	20.27
		50	50	3	21.0	20.16	20.15	20.23
		100	0	3	21.0	20.11	20.15	20.18
	256QAM	1	0	5	19.0	18.01	18.18	18.16
		1	49	5	19.0	18.11	18.19	18.28
		1	99	5	19.0	18.23	18.20	18.28
50		0	5	19.0	18.02	18.05	18.18	
50		24	5	19.0	18.16	18.06	18.25	
50		50	5	19.0	18.14	18.15	18.20	
100		0	5	19.0	18.13	18.15	18.16	

Band						Meas. Pwr Avg (dBm)		
7						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20825	21100	21375
						Freq(MHz)		
						2507.5	2535	2562.5
15	QPSK	1	0	0	24.0	22.97	23.03	23.12
		1	37	0	24.0	22.96	22.99	23.08
		1	74	0	24.0	23.00	23.01	23.10
		36	0	1	23.0	22.03	22.06	22.13
		36	19	1	23.0	22.13	22.07	22.19
		36	39	1	23.0	22.11	22.11	22.16
		75	0	1	23.0	22.10	22.08	22.09
	16QAM	1	0	1	23.0	22.26	22.33	22.34
		1	37	1	23.0	22.33	22.29	22.39
		1	74	1	23.0	22.39	22.28	22.34
		36	0	2	22.0	21.05	21.10	21.16
		36	19	2	22.0	21.14	21.09	21.23
		36	39	2	22.0	21.15	21.16	21.19
		75	0	2	22.0	21.11	21.08	21.09
	64QAM	1	0	2	22.0	21.41	21.41	21.48
		1	37	2	22.0	21.44	21.43	21.40
		1	74	2	22.0	21.48	21.45	21.41
		36	0	3	21.0	20.00	20.12	20.16
		36	19	3	21.0	20.09	20.10	20.24
		36	39	3	21.0	20.11	20.18	20.20
		75	0	3	21.0	20.15	20.14	20.10
	256QAM	1	0	5	19.0	18.31	17.99	18.07
		1	37	5	19.0	18.38	18.07	18.11
		1	74	5	19.0	18.42	18.14	18.14
		36	0	5	19.0	17.98	18.12	18.14
		36	19	5	19.0	18.08	18.08	18.25
		36	39	5	19.0	18.06	18.13	18.21
		75	0	5	19.0	18.14	18.14	18.11

Band						Meas. Pwr Avg (dBm)		
7						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20800	21100	21400
						Freq(MHz)		
						2505	2535	2565
10	QPSK	1	0	0	24.0	22.89	22.86	22.92
		1	24	0	24.0	22.85	22.83	22.89
		1	49	0	24.0	22.94	22.85	22.93
		25	0	1	23.0	22.03	22.04	22.09
		25	12	1	23.0	22.07	22.05	22.08
		25	25	1	23.0	22.04	22.11	22.16
		50	0	1	23.0	22.07	22.10	22.09
	16QAM	1	0	1	23.0	22.25	22.15	22.20
		1	24	1	23.0	22.18	22.08	22.16
		1	49	1	23.0	22.25	22.14	22.23
		25	0	2	22.0	21.06	21.08	21.14
		25	12	2	22.0	21.09	21.06	21.15
		25	25	2	22.0	21.09	21.12	21.19
		50	0	2	22.0	21.06	21.08	21.11
	64QAM	1	0	2	22.0	21.44	21.39	21.48
		1	24	2	22.0	21.39	21.35	21.49
		1	49	2	22.0	21.42	21.42	21.44
		25	0	3	21.0	20.08	20.09	20.17
		25	12	3	21.0	20.11	20.08	20.17
		25	25	3	21.0	20.09	20.15	20.19
		50	0	3	21.0	20.06	20.13	20.13
	256QAM	1	0	5	19.0	18.38	18.36	18.46
		1	24	5	19.0	18.27	18.24	18.31
		1	49	5	19.0	18.35	18.33	18.44
		25	0	5	19.0	18.03	18.02	18.14
		25	12	5	19.0	18.06	18.04	18.14
		25	25	5	19.0	18.00	18.10	18.21
		50	0	5	19.0	18.07	18.09	18.10

Band						Meas. Pwr Avg (dBm)		
7						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	20775	21100	21425
						Freq(MHz)		
						2502.5	2535	2567.5
5	QPSK	1	0	0	24.0	22.89	22.90	22.93
		1	12	0	24.0	22.90	22.96	22.92
		1	24	0	24.0	22.88	22.97	22.95
		12	0	1	23.0	22.00	22.00	22.17
		12	6	1	23.0	22.01	22.01	22.16
		12	13	1	23.0	22.05	22.11	22.12
		25	0	1	23.0	22.04	22.10	22.16
	16QAM	1	0	1	23.0	22.37	22.36	22.35
		1	12	1	23.0	22.31	22.37	22.36
		1	24	1	23.0	22.36	22.39	22.35
		12	0	2	22.0	21.08	21.16	21.22
		12	6	2	22.0	21.09	21.13	21.20
		12	13	2	22.0	21.10	21.19	21.19
		25	0	2	22.0	21.08	21.14	21.16
	64QAM	1	0	2	22.0	21.42	21.19	21.32
		1	12	2	22.0	21.43	21.23	21.29
		1	24	2	22.0	21.43	21.25	21.33
		12	0	3	21.0	19.97	20.22	20.20
		12	6	3	21.0	19.97	20.22	20.23
		12	13	3	21.0	19.97	20.23	20.25
		25	0	3	21.0	20.10	20.16	20.22
	256QAM	1	0	5	19.0	18.17	18.13	18.27
		1	12	5	19.0	18.08	18.10	18.26
		1	24	5	19.0	18.17	18.16	18.23
		12	0	5	19.0	18.10	18.10	18.18
		12	6	5	19.0	18.10	18.08	18.19
		12	13	5	19.0	18.10	18.13	18.16
		25	0	5	19.0	18.07	18.12	18.14

14.3.5 LTE band 12

Band						Meas. Pwr Avg (dBm)		
12						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	23095	-
						Freq(MHz)		
						-	707.5	-
10	QPSK	1	0	0	24.0	-	22.68	-
		1	24	0	24.0	-	22.51	-
		1	49	0	24.0	-	22.59	-
		25	0	1	23.0	-	21.78	-
		25	12	1	23.0	-	21.82	-
		25	25	1	23.0	-	21.76	-
		50	0	1	23.0	-	21.82	-
	16QAM	1	0	1	23.0	-	21.95	-
		1	24	1	23.0	-	21.84	-
		1	49	1	23.0	-	21.84	-
		25	0	2	22.0	-	20.83	-
		25	12	2	22.0	-	20.84	-
		25	25	2	22.0	-	20.81	-
		50	0	2	22.0	-	20.82	-
	64QAM	1	0	2	22.0	-	21.24	-
		1	24	2	22.0	-	21.11	-
		1	49	2	22.0	-	21.08	-
		25	0	3	21.0	-	19.83	-
		25	12	3	21.0	-	19.86	-
		25	25	3	21.0	-	19.80	-
		50	0	3	21.0	-	19.85	-
	256QAM	1	0	5	19.0	-	18.04	-
		1	24	5	19.0	-	17.91	-
		1	49	5	19.0	-	18.14	-
		25	0	5	19.0	-	17.81	-
		25	12	5	19.0	-	17.85	-
		25	25	5	19.0	-	17.76	-
50		0	5	19.0	-	17.79	-	

Band						Meas. Pwr Avg (dBm)		
12						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	23035	23095	23155
						Freq(MHz)		
						701.5	707.5	713.5
5	QPSK	1	0	0	24.0	22.82	22.68	22.53
		1	12	0	24.0	22.74	22.57	22.55
		1	24	0	24.0	22.69	22.60	22.58
		12	0	1	23.0	21.87	21.89	21.76
		12	6	1	23.0	21.90	21.83	21.73
		12	13	1	23.0	21.85	21.76	21.75
		25	0	1	23.0	21.90	21.80	21.71
	16QAM	1	0	1	23.0	22.29	22.03	21.94
		1	12	1	23.0	22.17	22.02	22.00
		1	24	1	23.0	22.13	22.06	21.97
		12	0	2	22.0	20.94	20.91	20.82
		12	6	2	22.0	20.98	20.87	20.83
		12	13	2	22.0	20.92	20.81	20.82
		25	0	2	22.0	20.94	20.79	20.71
	64QAM	1	0	2	22.0	21.35	21.05	20.97
		1	12	2	22.0	21.26	20.98	20.96
		1	24	2	22.0	21.21	20.97	20.95
		12	0	3	21.0	19.82	19.94	19.87
		12	6	3	21.0	19.84	19.88	19.82
		12	13	3	21.0	19.80	19.80	19.87
		25	0	3	21.0	19.95	19.87	19.84
	256QAM	1	0	5	19.0	18.02	18.28	18.28
		1	12	5	19.0	17.95	18.21	18.19
		1	24	5	19.0	17.92	18.26	18.22
		12	0	5	19.0	17.96	17.86	17.79
		12	6	5	19.0	18.00	17.81	17.76
		12	13	5	19.0	17.90	17.74	17.80
		25	0	5	19.0	17.88	17.78	17.78

Band						Meas. Pwr Avg (dBm)		
12						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	23025	23095	23165
						Freq(MHz)		
						700.5	707.5	714.5
3	QPSK	1	0	0	24.0	22.76	22.64	22.58
		1	7	0	24.0	22.71	22.70	22.69
		1	14	0	24.0	22.69	22.59	22.55
		8	0	1	23.0	21.84	21.83	21.75
		8	4	1	23.0	21.88	21.78	21.77
		8	7	1	23.0	21.83	21.76	21.73
		15	0	1	23.0	21.88	21.78	21.71
	16QAM	1	0	1	23.0	22.13	21.87	21.85
		1	7	1	23.0	22.14	21.82	21.85
		1	14	1	23.0	22.04	21.82	21.84
		8	0	2	22.0	20.96	20.74	20.66
		8	4	2	22.0	20.99	20.76	20.73
		8	7	2	22.0	20.93	20.69	20.68
		15	0	2	22.0	20.98	20.74	20.72
	64QAM	1	0	2	22.0	21.09	21.13	21.12
		1	7	2	22.0	21.25	21.05	21.07
		1	14	2	22.0	21.22	21.04	21.07
		8	0	3	21.0	19.94	19.93	19.86
		8	4	3	21.0	19.94	19.90	19.87
		8	7	3	21.0	19.91	19.85	19.84
		15	0	3	21.0	19.95	19.86	19.75
	256QAM	1	0	5	19.0	18.22	18.05	17.98
		1	7	5	19.0	18.17	17.94	17.91
		1	14	5	19.0	18.18	18.01	17.94
		8	0	5	19.0	17.90	17.91	17.85
		8	4	5	19.0	17.96	17.90	17.92
		8	7	5	19.0	17.87	17.87	17.87
15		0	5	19.0	17.85	17.74	17.68	

Band						Meas. Pwr Avg (dBm)		
12						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	23017	23095	23173
						Freq(MHz)		
						699.7	707.5	715.3
1.4	QPSK	1	0	0	24.0	22.70	22.57	22.46
		1	2	0	24.0	22.77	22.56	22.52
		1	5	0	24.0	22.68	22.46	22.51
		3	0	0	24.0	22.73	22.60	22.51
		3	1	0	24.0	22.71	22.61	22.55
		3	3	0	24.0	22.66	22.59	22.53
		6	0	1	23.0	21.78	21.69	21.60
	16QAM	1	0	1	23.0	21.75	21.79	21.74
		1	2	1	23.0	21.90	21.92	21.85
		1	5	1	23.0	21.75	21.77	21.76
		3	0	1	23.0	21.78	21.85	21.81
		3	1	1	23.0	21.79	21.90	21.80
		3	3	1	23.0	21.71	21.83	21.83
		6	0	2	22.0	20.88	20.67	20.63
	64QAM	1	0	2	22.0	21.14	21.05	20.97
		1	2	2	22.0	21.29	21.17	21.06
		1	5	2	22.0	21.15	21.05	20.99
		3	0	2	22.0	20.95	20.74	20.68
		3	1	2	22.0	21.01	20.79	20.70
		3	3	2	22.0	20.99	20.71	20.69
		6	0	3	21.0	19.86	19.83	19.80
	256QAM	1	0	5	19.0	17.65	17.96	17.90
		1	2	5	19.0	17.76	17.98	17.93
		1	5	5	19.0	17.65	17.89	17.89
		3	0	5	19.0	17.75	17.76	17.70
		3	1	5	19.0	17.77	17.82	17.73
		3	3	5	19.0	17.65	17.76	17.73
6		0	5	19.0	17.73	17.77	17.67	

14.3.6 LTE band 13

Band						Meas. Pwr Avg (dBm)		
13						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	23230	-
						Freq(MHz)		
						782		
10	QPSK	1	0	0	24.0	-	23.03	-
		1	24	0	24.0	-	23.14	-
		1	49	0	24.0	-	23.07	-
		25	0	1	23.0	-	22.18	-
		25	12	1	23.0	-	22.21	-
		25	25	1	23.0	-	22.23	-
		50	0	1	23.0	-	22.22	-
	16QAM	1	0	1	23.0	-	22.41	-
		1	24	1	23.0	-	22.49	-
		1	49	1	23.0	-	22.48	-
		25	0	2	22.0	-	21.26	-
		25	12	2	22.0	-	21.25	-
		25	25	2	22.0	-	21.25	-
		50	0	2	22.0	-	21.20	-
	64QAM	1	0	2	22.0	-	21.63	-
		1	24	2	22.0	-	21.65	-
		1	49	2	22.0	-	21.68	-
		25	0	3	21.0	-	20.24	-
		25	12	3	21.0	-	20.26	-
		25	25	3	21.0	-	20.26	-
		50	0	3	21.0	-	20.20	-
	256QAM	1	0	5	19.0	-	18.42	-
		1	24	5	19.0	-	18.53	-
		1	49	5	19.0	-	18.63	-
		25	0	5	19.0	-	18.23	-
		25	12	5	19.0	-	18.22	-
		25	25	5	19.0	-	18.22	-
50		0	5	19.0	-	18.19	-	

Band						Meas. Pwr Avg (dBm)		
13						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	23205	23230	23255
						Freq(MHz)		
						779.5	782	784.5
5	QPSK	1	0	0	24.0	23.04	23.01	23.07
		1	12	0	24.0	23.12	23.09	23.09
		1	24	0	24.0	23.18	23.10	23.08
		12	0	1	23.0	22.16	22.25	22.26
		12	6	1	23.0	22.24	22.28	22.24
		12	13	1	23.0	22.25	22.23	22.25
		25	0	1	23.0	22.21	22.23	22.24
	16QAM	1	0	1	23.0	22.48	22.39	22.46
		1	12	1	23.0	22.47	22.52	22.58
		1	24	1	23.0	22.48	22.50	22.46
		12	0	2	22.0	21.27	21.28	21.27
		12	6	2	22.0	21.36	21.29	21.30
		12	13	2	22.0	21.33	21.31	21.28
		25	0	2	22.0	21.32	21.21	21.23
	64QAM	1	0	2	22.0	21.59	21.39	21.42
		1	12	2	22.0	21.69	21.50	21.50
		1	24	2	22.0	21.69	21.47	21.39
		12	0	3	21.0	20.07	20.31	20.31
		12	6	3	21.0	20.16	20.30	20.33
		12	13	3	21.0	20.21	20.33	20.32
		25	0	3	21.0	20.29	20.30	20.34
	256QAM	1	0	5	19.0	18.31	18.72	18.77
		1	12	5	19.0	18.33	18.73	18.71
		1	24	5	19.0	18.45	18.80	18.78
12		0	5	19.0	18.32	18.26	18.25	
12		6	5	19.0	18.37	18.31	18.30	
12		13	5	19.0	18.36	18.29	18.29	
25		0	5	19.0	18.35	18.29	18.31	

14.3.7 LTE band 14

Band						Meas. Pwr Avg (dBm)		
14						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	23330	-
						Freq(MHz)		
						-	793	-
10	QPSK	1	0	0	24.0	-	23.11	-
		1	24	0	24.0	-	23.02	-
		1	49	0	24.0	-	22.91	-
		25	0	1	23.0	-	22.09	-
		25	12	1	23.0	-	22.10	-
		25	25	1	23.0	-	22.04	-
		50	0	1	23.0	-	22.10	-
	16QAM	1	0	1	23.0	-	22.45	-
		1	24	1	23.0	-	22.38	-
		1	49	1	23.0	-	22.26	-
		25	0	2	22.0	-	21.15	-
		25	12	2	22.0	-	21.14	-
		25	25	2	22.0	-	21.08	-
		50	0	2	22.0	-	21.08	-
	64QAM	1	0	2	22.0	-	21.60	-
		1	24	2	22.0	-	21.56	-
		1	49	2	22.0	-	21.42	-
		25	0	3	21.0	-	20.16	-
		25	12	3	21.0	-	20.16	-
		25	25	3	21.0	-	20.08	-
		50	0	3	21.0	-	20.08	-
	256QAM	1	0	5	19.0	-	18.41	-
		1	24	5	19.0	-	18.47	-
		1	49	5	19.0	-	18.38	-
25		0	5	19.0	-	18.10	-	
25		12	5	19.0	-	18.10	-	
25		25	5	19.0	-	18.04	-	
50		0	5	19.0	-	18.09	-	

Band						Meas. Pwr Avg (dBm)		
14						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	23305	23330	23355
						Freq(MHz)		
						790.5	793	795.5
5	QPSK	1	0	0	24.0	23.16	23.00	23.02
		1	12	0	24.0	23.14	23.02	22.95
		1	24	0	24.0	23.04	22.88	22.91
		12	0	1	23.0	22.20	22.16	22.18
		12	6	1	23.0	22.27	22.15	22.14
		12	13	1	23.0	22.18	22.06	22.10
		25	0	1	23.0	22.19	22.07	22.09
	16QAM	1	0	1	23.0	22.63	22.42	22.36
		1	12	1	23.0	22.58	22.45	22.37
		1	24	1	23.0	22.55	22.32	22.33
		12	0	2	22.0	21.29	21.17	21.22
		12	6	2	22.0	21.29	21.21	21.19
		12	13	2	22.0	21.21	21.15	21.11
		25	0	2	22.0	21.24	21.09	21.10
	64QAM	1	0	2	22.0	21.68	21.36	21.37
		1	12	2	22.0	21.63	21.41	21.35
		1	24	2	22.0	21.62	21.28	21.28
		12	0	3	21.0	20.15	20.20	20.20
		12	6	3	21.0	20.20	20.21	20.25
		12	13	3	21.0	20.13	20.15	20.12
		25	0	3	21.0	20.27	20.15	20.18
	256QAM	1	0	5	19.0	18.35	18.65	18.66
		1	12	5	19.0	18.32	18.68	18.61
		1	24	5	19.0	18.27	18.57	18.56
		12	0	5	19.0	18.29	18.15	18.17
		12	6	5	19.0	18.31	18.19	18.13
		12	13	5	19.0	18.24	18.10	18.09
25		0	5	19.0	18.21	18.12	18.09	

14.3.8 LTE band 17

Band						Meas. Pwr Avg (dBm)		
17						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	23790	-
						Freq(MHz)		
						710		
10	QPSK	1	0	0	24.0	-	22.55	-
		1	24	0	24.0	-	22.51	-
		1	49	0	24.0	-	22.47	-
		25	0	1	23.0	-	21.74	-
		25	12	1	23.0	-	21.70	-
		25	25	1	23.0	-	21.76	-
		50	0	1	23.0	-	21.76	-
	16QAM	1	0	1	23.0	-	21.97	-
		1	24	1	23.0	-	21.82	-
		1	49	1	23.0	-	21.83	-
		25	0	2	22.0	-	20.73	-
		25	12	2	22.0	-	20.76	-
		25	25	2	22.0	-	20.81	-
		50	0	2	22.0	-	20.77	-
	64QAM	1	0	2	22.0	-	21.16	-
		1	24	2	22.0	-	21.09	-
		1	49	2	22.0	-	21.06	-
		25	0	3	21.0	-	19.76	-
		25	12	3	21.0	-	19.80	-
		25	25	3	21.0	-	19.80	-
		50	0	3	21.0	-	19.81	-
	256QAM	1	0	5	19.0	-	17.91	-
		1	24	5	19.0	-	17.87	-
		1	49	5	19.0	-	18.02	-
25		0	5	19.0	-	17.73	-	
25		12	5	19.0	-	17.73	-	
25		25	5	19.0	-	17.73	-	
50		0	5	19.0	-	17.78	-	

Band						Meas. Pwr Avg (dBm)		
17						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	23790	-
						Freq(MHz)		
						-	710	-
5	QPSK	1	0	0	24.0	-	22.61	-
		1	12	0	24.0	-	22.64	-
		1	24	0	24.0	-	22.65	-
		12	0	1	23.0	-	21.73	-
		12	6	1	23.0	-	21.74	-
		12	13	1	23.0	-	21.75	-
		25	0	1	23.0	-	21.74	-
	16QAM	1	0	1	23.0	-	22.11	-
		1	12	1	23.0	-	22.10	-
		1	24	1	23.0	-	22.18	-
		12	0	2	22.0	-	20.79	-
		12	6	2	22.0	-	20.84	-
		12	13	2	22.0	-	20.80	-
		25	0	2	22.0	-	20.85	-
	64QAM	1	0	2	22.0	-	21.14	-
		1	12	2	22.0	-	21.16	-
		1	24	2	22.0	-	21.20	-
		12	0	3	21.0	-	19.65	-
		12	6	3	21.0	-	19.71	-
		12	13	3	21.0	-	19.74	-
		25	0	3	21.0	-	19.83	-
	256QAM	1	0	5	19.0	-	17.90	-
		1	12	5	19.0	-	17.88	-
		1	24	5	19.0	-	17.89	-
		12	0	5	19.0	-	17.82	-
		12	6	5	19.0	-	17.82	-
		12	13	5	19.0	-	17.84	-
		25	0	5	19.0	-	17.83	-

14.3.9 LTE band 25

Band						Meas. Pwr Avg (dBm)		
25						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26140	26365	26590
						Freq(MHz)		
						1860	1882.5	1905
20	QPSK	1	0	0	24.0	22.84	22.93	22.98
		1	49	0	24.0	22.86	22.94	22.94
		1	99	0	24.0	22.85	22.95	22.92
		50	0	1	23.0	21.92	21.99	21.99
		50	24	1	23.0	22.03	22.03	22.00
		50	50	1	23.0	21.99	22.05	22.08
		100	0	1	23.0	21.99	22.03	22.01
	16QAM	1	0	1	23.0	22.28	22.33	22.37
		1	49	1	23.0	22.25	22.35	22.36
		1	99	1	23.0	22.25	22.35	22.34
		50	0	2	22.0	20.94	21.04	21.04
		50	24	2	22.0	21.06	21.04	21.06
		50	50	2	22.0	21.01	21.10	21.09
		100	0	2	22.0	21.00	21.00	21.05
	64QAM	1	0	2	22.0	21.10	21.16	21.19
		1	49	2	22.0	21.15	21.20	21.25
		1	99	2	22.0	21.12	21.22	21.20
		50	0	3	21.0	19.99	20.04	20.06
		50	24	3	21.0	20.06	20.06	20.07
		50	50	3	21.0	20.03	20.14	20.12
		100	0	3	21.0	20.01	20.00	20.00
	256QAM	1	0	5	19.0	18.03	17.96	18.05
		1	49	5	19.0	18.05	18.05	18.07
		1	99	5	19.0	17.96	18.06	18.03
		50	0	5	19.0	17.97	18.04	18.10
		50	24	5	19.0	18.07	18.06	18.07
		50	50	5	19.0	18.04	18.10	18.14
100		0	5	19.0	18.00	18.00	18.08	

Band						Meas. Pwr Avg (dBm)		
25						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26115	26365	26615
						Freq(MHz)		
						1857.5	1882.5	1907.5
15	QPSK	1	0	0	24.0	22.85	22.96	23.01
		1	37	0	24.0	22.83	22.94	22.95
		1	74	0	24.0	22.84	22.95	22.96
		36	0	1	23.0	21.95	21.98	22.01
		36	19	1	23.0	22.04	21.99	22.09
		36	39	1	23.0	21.96	22.04	22.05
		75	0	1	23.0	21.97	21.96	21.98
	16QAM	1	0	1	23.0	22.22	22.21	22.18
		1	37	1	23.0	22.24	22.25	22.20
		1	74	1	23.0	22.25	22.29	22.15
		36	0	2	22.0	20.92	21.03	21.03
		36	19	2	22.0	21.02	21.04	21.13
		36	39	2	22.0	20.98	21.07	21.03
		75	0	2	22.0	20.99	20.92	20.95
	64QAM	1	0	2	22.0	21.20	21.58	21.56
		1	37	2	22.0	21.29	21.57	21.56
		1	74	2	22.0	21.28	21.59	21.53
		36	0	3	21.0	19.92	20.04	20.07
		36	19	3	21.0	19.99	20.02	20.09
		36	39	3	21.0	19.96	20.08	20.06
		75	0	3	21.0	20.00	19.96	19.95
	256QAM	1	0	5	19.0	18.22	17.93	17.97
		1	37	5	19.0	18.26	17.97	17.99
		1	74	5	19.0	18.29	18.01	18.01
		36	0	5	19.0	17.88	18.01	18.05
		36	19	5	19.0	17.96	18.03	18.11
		36	39	5	19.0	17.91	18.05	18.06
		75	0	5	19.0	18.00	17.97	18.00

Band						Meas. Pwr Avg (dBm)		
25						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26090	26365	26640
						Freq(MHz)		
						1855	1882.5	1910
10	QPSK	1	0	0	24.0	22.84	22.87	22.76
		1	24	0	24.0	22.80	22.78	22.77
		1	49	0	24.0	22.83	22.86	22.78
		25	0	1	23.0	21.95	21.96	21.92
		25	12	1	23.0	21.99	22.00	21.94
		25	25	1	23.0	21.96	22.04	22.01
		50	0	1	23.0	21.98	21.94	21.93
	16QAM	1	0	1	23.0	22.23	22.07	22.08
		1	24	1	23.0	22.11	22.08	22.03
		1	49	1	23.0	22.21	22.12	22.08
		25	0	2	22.0	20.98	20.98	20.96
		25	12	2	22.0	21.00	21.01	20.99
		25	25	2	22.0	20.99	21.06	21.05
		50	0	2	22.0	20.98	20.96	20.98
	64QAM	1	0	2	22.0	21.35	21.28	21.31
		1	24	2	22.0	21.37	21.34	21.34
		1	49	2	22.0	21.38	21.37	21.41
		25	0	3	21.0	19.96	19.98	19.96
		25	12	3	21.0	20.02	19.99	19.99
		25	25	3	21.0	19.99	20.10	20.05
		50	0	3	21.0	19.96	19.98	19.96
	256QAM	1	0	5	19.0	18.26	18.28	18.26
		1	24	5	19.0	18.21	18.19	18.16
		1	49	5	19.0	18.26	18.24	18.22
25		0	5	19.0	17.95	17.93	17.95	
25		12	5	19.0	17.96	17.98	17.96	
25		25	5	19.0	17.96	18.06	18.06	
50		0	5	19.0	17.95	17.93	17.95	

Band						Meas. Pwr Avg (dBm)		
25						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26065	26365	26665
						Freq(MHz)		
						1852.5	1882.5	1912.5
5	QPSK	1	0	0	24.0	22.87	22.77	22.79
		1	12	0	24.0	22.88	22.83	22.81
		1	24	0	24.0	22.89	22.84	22.82
		12	0	1	23.0	21.93	21.92	21.92
		12	6	1	23.0	21.99	21.96	21.99
		12	13	1	23.0	22.00	22.04	22.00
		25	0	1	23.0	21.92	21.93	22.00
	16QAM	1	0	1	23.0	22.30	22.17	22.23
		1	12	1	23.0	22.31	22.28	22.22
		1	24	1	23.0	22.31	22.24	22.18
		12	0	2	22.0	21.00	20.96	21.03
		12	6	2	22.0	21.01	21.06	21.04
		12	13	2	22.0	21.08	21.08	21.08
		25	0	2	22.0	21.01	20.95	20.97
	64QAM	1	0	2	22.0	21.37	21.14	21.22
		1	12	2	22.0	21.38	21.22	21.19
		1	24	2	22.0	21.41	21.25	21.18
		12	0	3	21.0	19.83	19.97	20.05
		12	6	3	21.0	19.91	20.03	20.13
		12	13	3	21.0	19.96	20.14	20.11
		25	0	3	21.0	20.03	20.03	20.07
	256QAM	1	0	5	19.0	18.07	18.41	18.51
		1	12	5	19.0	18.05	18.48	18.47
		1	24	5	19.0	18.10	18.50	18.47
		12	0	5	19.0	17.98	17.93	17.95
		12	6	5	19.0	18.04	17.96	18.06
		12	13	5	19.0	18.09	18.07	18.07
25		0	5	19.0	17.98	17.99	18.02	

Band						Meas. Pwr Avg (dBm)		
25						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26055	26365	26675
						Freq(MHz)		
						1851.5	1882.5	1913.5
3	QPSK	1	0	0	24.0	22.79	22.75	22.77
		1	7	0	24.0	22.83	23.01	22.90
		1	14	0	24.0	22.90	22.94	22.86
		8	0	1	23.0	21.88	21.88	21.93
		8	4	1	23.0	21.98	22.03	22.03
		8	7	1	23.0	21.99	22.04	22.04
		15	0	1	23.0	21.96	21.95	21.98
	16QAM	1	0	1	23.0	22.11	22.06	22.02
		1	7	1	23.0	22.16	22.15	22.07
		1	14	1	23.0	22.26	22.22	22.11
		8	0	2	22.0	20.97	20.95	20.86
		8	4	2	22.0	21.07	21.09	20.97
		8	7	2	22.0	21.12	20.96	20.93
		15	0	2	22.0	21.02	20.92	20.98
	64QAM	1	0	2	22.0	21.28	21.22	21.32
		1	7	2	22.0	21.33	21.33	21.31
		1	14	2	22.0	21.38	21.39	21.24
		8	0	3	21.0	19.98	20.00	20.02
		8	4	3	21.0	20.05	20.16	20.10
		8	7	3	21.0	20.06	20.16	20.13
		15	0	3	21.0	20.01	19.98	20.06
	256QAM	1	0	5	19.0	18.21	18.17	18.20
		1	7	5	19.0	18.24	18.23	18.19
		1	14	5	19.0	18.37	18.34	18.28
		8	0	5	19.0	17.96	18.02	18.07
		8	4	5	19.0	18.04	18.16	18.16
		8	7	5	19.0	18.05	18.16	18.15
15		0	5	19.0	17.96	17.97	18.02	

Band						Meas. Pwr Avg (dBm)		
25						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26047	26365	26683
						Freq(MHz)		
						1850.7	1882.5	1914.3
1.4	QPSK	1	0	0	24.0	22.74	22.72	22.68
		1	2	0	24.0	22.81	22.81	22.79
		1	5	0	24.0	22.83	22.82	22.75
		3	0	0	24.0	22.76	22.75	22.74
		3	1	0	24.0	22.81	22.81	22.76
		3	3	0	24.0	22.78	22.82	22.77
		6	0	1	23.0	21.87	21.91	21.88
	16QAM	1	0	1	23.0	21.84	21.98	22.02
		1	2	1	23.0	21.94	22.15	22.08
		1	5	1	23.0	21.93	22.04	22.09
		3	0	1	23.0	21.81	22.07	21.97
		3	1	1	23.0	21.85	22.13	22.03
		3	3	1	23.0	21.84	22.07	22.06
		6	0	2	22.0	20.95	20.91	20.99
	64QAM	1	0	2	22.0	21.22	21.25	21.15
		1	2	2	22.0	21.32	21.39	21.35
		1	5	2	22.0	21.28	21.31	21.19
		3	0	2	22.0	20.99	20.99	20.94
		3	1	2	22.0	21.07	21.00	20.98
		3	3	2	22.0	21.04	20.97	20.94
		6	0	3	21.0	19.87	20.04	20.06
	256QAM	1	0	5	19.0	17.69	18.14	18.11
		1	2	5	19.0	17.78	18.22	18.20
		1	5	5	19.0	17.76	18.19	18.20
		3	0	5	19.0	17.74	17.95	17.97
		3	1	5	19.0	17.80	18.05	18.03
		3	3	5	19.0	17.77	18.05	18.03
6		0	5	19.0	17.77	17.99	18.01	

14.3.10 LTE band 26

Band						Meas. Pwr Avg (dBm)		
26						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	26865	-
						Freq(MHz)		
						-	831.5	-
15	QPSK	1	0	0	24.0	-	22.68	-
		1	37	0	24.0	-	22.73	-
		1	74	0	24.0	-	22.92	-
		36	0	1	23.0	-	21.84	-
		36	19	1	23.0	-	21.98	-
		36	39	1	23.0	-	22.00	-
		75	0	1	23.0	-	21.94	-
	16QAM	1	0	1	23.0	-	21.99	-
		1	37	1	23.0	-	22.12	-
		1	74	1	23.0	-	22.26	-
		36	0	2	22.0	-	20.89	-
		36	19	2	22.0	-	21.02	-
		36	39	2	22.0	-	21.02	-
		75	0	2	22.0	-	21.00	-
	64QAM	1	0	2	22.0	-	21.18	-
		1	37	2	22.0	-	21.28	-
		1	74	2	22.0	-	21.33	-
		36	0	3	21.0	-	19.87	-
		36	19	3	21.0	-	19.96	-
		36	39	3	21.0	-	20.00	-
		75	0	3	21.0	-	20.01	-
	256QAM	1	0	5	19.0	-	18.11	-
		1	37	5	19.0	-	18.17	-
		1	74	5	19.0	-	18.35	-
36		0	5	19.0	-	17.82	-	
36		19	5	19.0	-	17.94	-	
36		39	5	19.0	-	17.97	-	
75		0	5	19.0	-	18.01	-	

Band						Meas. Pwr Avg (dBm)		
26						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26740	26865	26990
						Freq(MHz)		
						819	831.5	844
10	QPSK	1	0	0	24.0	22.72	22.72	22.99
		1	24	0	24.0	22.73	22.78	22.98
		1	49	0	24.0	22.77	22.86	22.97
		25	0	1	23.0	21.78	21.91	22.18
		25	12	1	23.0	21.84	21.96	22.17
		25	25	1	23.0	21.77	21.87	22.19
		50	0	1	23.0	21.83	21.95	22.17
	16QAM	1	0	1	23.0	22.03	22.04	22.29
		1	24	1	23.0	22.05	22.09	22.32
		1	49	1	23.0	22.11	22.13	22.25
		25	0	2	22.0	20.81	20.92	21.20
		25	12	2	22.0	20.89	21.01	21.24
		25	25	2	22.0	20.86	20.94	21.22
		50	0	2	22.0	20.82	20.96	21.17
	64QAM	1	0	2	22.0	21.24	21.29	21.53
		1	24	2	22.0	21.30	21.34	21.60
		1	49	2	22.0	21.31	21.44	21.14
		25	0	3	21.0	19.81	19.91	20.26
		25	12	3	21.0	19.91	20.03	20.28
		25	25	3	21.0	19.84	19.94	20.02
		50	0	3	21.0	19.85	19.99	20.21
	256QAM	1	0	5	19.0	18.02	18.04	18.34
		1	24	5	19.0	18.14	18.15	18.39
		1	49	5	19.0	18.19	18.31	18.47
		25	0	5	19.0	17.78	17.97	18.20
		25	12	5	19.0	17.86	18.04	18.19
		25	25	5	19.0	17.77	17.98	18.20
		50	0	5	19.0	17.84	17.99	18.16

Band						Meas. Pwr Avg (dBm)		
26						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26715	26865	27015
						Freq(MHz)		
						816.5	831.5	846.5
5	QPSK	1	0	0	24.0	22.67	22.72	23.06
		1	12	0	24.0	22.74	22.76	23.05
		1	24	0	24.0	22.70	22.86	23.01
		12	0	1	23.0	21.76	21.96	22.24
		12	6	1	23.0	21.84	21.93	22.29
		12	13	1	23.0	21.77	21.92	22.17
		25	0	1	23.0	21.77	21.95	22.19
	16QAM	1	0	1	23.0	22.16	22.11	22.38
		1	12	1	23.0	22.15	22.19	22.42
		1	24	1	23.0	22.18	22.29	22.38
		12	0	2	22.0	20.82	20.95	21.28
		12	6	2	22.0	20.92	20.96	21.35
		12	13	2	22.0	20.85	20.95	21.25
		25	0	2	22.0	20.81	20.93	21.21
	64QAM	1	0	2	22.0	21.21	21.10	21.39
		1	12	2	22.0	21.25	21.16	21.23
		1	24	2	22.0	21.25	21.24	20.95
		12	0	3	21.0	19.69	19.98	20.23
		12	6	3	21.0	19.79	19.99	20.24
		12	13	3	21.0	19.70	19.98	19.99
		25	0	3	21.0	19.83	20.00	20.13
	256QAM	1	0	5	19.0	17.90	18.42	18.70
		1	12	5	19.0	17.93	18.45	18.71
		1	24	5	19.0	17.91	18.44	18.62
		12	0	5	19.0	17.87	17.97	18.27
		12	6	5	19.0	17.91	17.96	18.33
		12	13	5	19.0	17.90	17.98	18.23
		25	0	5	19.0	17.82	17.96	18.21

Band						Meas. Pwr Avg (dBm)		
26						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26705	26865	27025
						Freq(MHz)		
						815.5	831.5	847.5
3	QPSK	1	0	0	24.0	22.63	22.74	23.11
		1	7	0	24.0	22.65	22.88	23.12
		1	14	0	24.0	22.64	22.86	23.06
		8	0	1	23.0	21.73	21.91	22.26
		8	4	1	23.0	21.82	21.95	22.29
		8	7	1	23.0	21.77	21.96	22.15
		15	0	1	23.0	21.81	21.94	22.19
	16QAM	1	0	1	23.0	22.00	21.99	22.35
		1	7	1	23.0	22.05	22.04	22.28
		1	14	1	23.0	22.00	22.10	22.27
		8	0	2	22.0	20.82	20.86	21.18
		8	4	2	22.0	20.91	20.90	21.17
		8	7	2	22.0	20.88	20.86	21.10
		15	0	2	22.0	20.82	20.94	21.22
	64QAM	1	0	2	22.0	20.98	21.29	21.51
		1	7	2	22.0	21.03	21.27	21.33
		1	14	2	22.0	21.00	21.32	21.13
		8	0	3	21.0	19.88	20.01	20.19
		8	4	3	21.0	19.89	20.09	20.12
		8	7	3	21.0	19.87	20.03	20.04
		15	0	3	21.0	19.83	20.01	20.04
	256QAM	1	0	5	19.0	18.07	18.19	18.50
		1	7	5	19.0	18.09	18.24	18.40
		1	14	5	19.0	18.09	18.23	18.39
		8	0	5	19.0	17.79	18.05	18.35
		8	4	5	19.0	17.87	18.08	18.37
		8	7	5	19.0	17.79	18.07	18.32
		15	0	5	19.0	17.79	17.95	18.18

Band						Meas. Pwr Avg (dBm)		
26						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	26697	26865	27033
						Freq(MHz)		
						814.7	831.5	848.3
1.4	QPSK	1	0	0	24.0	22.61	22.70	22.97
		1	2	0	24.0	22.70	22.82	23.03
		1	5	0	24.0	22.59	22.69	22.92
		3	0	0	24.0	22.63	22.76	23.04
		3	1	0	24.0	22.65	22.79	23.06
		3	3	0	24.0	22.59	22.82	23.03
		6	0	1	23.0	21.72	21.86	22.12
	16QAM	1	0	1	23.0	21.69	21.93	22.17
		1	2	1	23.0	21.83	22.15	22.33
		1	5	1	23.0	21.70	21.96	22.13
		3	0	1	23.0	21.65	22.04	22.31
		3	1	1	23.0	21.70	22.06	22.32
		3	3	1	23.0	21.64	22.05	22.26
		6	0	2	22.0	20.77	20.90	21.10
	64QAM	1	0	2	22.0	21.08	21.22	21.19
		1	2	2	22.0	21.20	21.38	21.24
		1	5	2	22.0	21.08	21.25	21.07
		3	0	2	22.0	20.87	20.91	20.89
		3	1	2	22.0	20.91	20.94	20.91
		3	3	2	22.0	20.87	20.91	20.80
		6	0	3	21.0	19.69	20.02	19.94
	256QAM	1	0	5	19.0	17.53	18.11	18.36
		1	2	5	19.0	17.64	18.23	18.44
		1	5	5	19.0	17.56	18.17	18.30
		3	0	5	19.0	17.62	17.92	18.16
		3	1	5	19.0	17.65	17.97	18.24
		3	3	5	19.0	17.62	17.97	18.17
		6	0	5	19.0	17.62	17.98	18.22

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Band						Meas. Pwr Avg (dBm)		
38						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	38000	-
						Freq(MHz)		
						-	2595	-
20	QPSK	1	0	0	24.0	-	23.08	-
		1	49	0	24.0	-	23.04	-
		1	99	0	24.0	-	23.07	-
		50	0	1	23.0	-	22.19	-
		50	24	1	23.0	-	22.18	-
		50	50	1	23.0	-	22.21	-
		100	0	1	23.0	-	22.13	-
	16QAM	1	0	1	23.0	-	22.21	-
		1	49	1	23.0	-	22.23	-
		1	99	1	23.0	-	22.24	-
		50	0	2	22.0	-	21.23	-
		50	24	2	22.0	-	21.18	-
		50	50	2	22.0	-	21.23	-
		100	0	2	22.0	-	21.17	-
	64QAM	1	0	2	22.0	-	20.98	-
		1	49	2	22.0	-	21.01	-
		1	99	2	22.0	-	21.00	-
		50	0	3	21.0	-	20.22	-
		50	24	3	21.0	-	20.25	-
		50	50	3	21.0	-	20.28	-
		100	0	3	21.0	-	20.24	-
	256QAM	1	0	5	19.0	-	18.38	-
		1	49	5	19.0	-	18.25	-
		1	99	5	19.0	-	18.38	-
50		0	5	19.0	-	18.20	-	
50		24	5	19.0	-	18.21	-	
50		50	5	19.0	-	18.26	-	
100		0	5	19.0	-	18.21	-	

Band						Meas. Pwr Avg (dBm)		
38						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	37825	38000	38175
						Freq(MHz)		
						2577.5	2595	2612.5
15	QPSK	1	0	0	24.0	23.03	22.97	23.02
		1	37	0	24.0	22.99	22.93	22.97
		1	74	0	24.0	23.07	22.94	22.96
		36	0	1	23.0	22.07	22.07	22.01
		36	19	1	23.0	22.11	22.06	21.97
		36	39	1	23.0	22.09	22.08	22.02
		75	0	1	23.0	22.10	22.03	21.93
	16QAM	1	0	1	23.0	21.77	21.95	21.69
		1	37	1	23.0	21.68	21.95	21.65
		1	74	1	23.0	21.75	21.92	21.68
		36	0	2	22.0	21.08	21.12	21.02
		36	19	2	22.0	21.11	21.09	20.99
		36	39	2	22.0	21.10	21.16	21.03
		75	0	2	22.0	21.12	21.04	20.98
	64QAM	1	0	2	22.0	20.57	20.85	20.54
		1	37	2	22.0	20.57	20.75	20.53
		1	74	2	22.0	20.54	20.79	20.51
		36	0	3	21.0	20.13	20.16	20.07
		36	19	3	21.0	20.17	20.10	19.97
		36	39	3	21.0	20.11	20.17	20.06
		75	0	3	21.0	20.16	20.11	19.97
	256QAM	1	0	5	19.0	17.55	18.37	17.55
		1	37	5	19.0	17.55	18.37	17.46
		1	74	5	19.0	17.65	18.49	17.62
36		0	5	19.0	18.06	18.08	18.02	
36		19	5	19.0	18.15	18.08	18.00	
36		39	5	19.0	18.21	18.12	18.05	
75		0	5	19.0	18.23	18.12	17.98	

Band						Meas. Pwr Avg (dBm)		
38						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	37800	38000	38200
						Freq(MHz)		
						2575	2595	2615
10	QPSK	1	0	0	24.0	23.19	23.17	23.05
		1	24	0	24.0	23.03	23.15	23.00
		1	49	0	24.0	23.14	23.16	22.97
		25	0	1	23.0	22.17	22.16	22.02
		25	12	1	23.0	22.15	22.15	22.11
		25	25	1	23.0	22.10	22.21	22.08
		50	0	1	23.0	22.17	22.14	22.00
	16QAM	1	0	1	23.0	21.80	21.76	22.32
		1	24	1	23.0	21.87	21.80	22.41
		1	49	1	23.0	21.68	21.78	22.30
		25	0	2	22.0	21.12	21.11	21.10
		25	12	2	22.0	21.11	21.16	21.16
		25	25	2	22.0	21.10	21.18	21.13
		50	0	2	22.0	21.18	21.20	21.05
	64QAM	1	0	2	22.0	20.76	20.74	20.83
		1	24	2	22.0	20.66	20.73	20.84
		1	49	2	22.0	20.74	20.83	20.86
		25	0	3	21.0	20.22	20.21	20.04
		25	12	3	21.0	20.22	20.23	20.10
		25	25	3	21.0	20.16	20.28	20.14
		50	0	3	21.0	20.18	20.16	20.09
	256QAM	1	0	5	19.0	17.64	17.73	17.93
		1	24	5	19.0	17.54	17.60	17.85
		1	49	5	19.0	17.68	17.72	17.89
		25	0	5	19.0	18.22	18.14	18.02
		25	12	5	19.0	18.19	18.13	18.06
		25	25	5	19.0	18.20	18.21	18.06
50		0	5	19.0	18.19	18.20	18.06	

Band						Meas. Pwr Avg (dBm)		
38						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	37775	38000	38225
						Freq(MHz)		
						2572.5	2595	2617.5
5	QPSK	1	0	0	24.0	23.06	23.04	22.99
		1	12	0	24.0	23.04	23.06	22.94
		1	24	0	24.0	23.07	23.09	22.97
		12	0	1	23.0	22.15	22.15	22.08
		12	6	1	23.0	22.16	22.18	22.07
		12	13	1	23.0	22.10	22.22	22.04
		25	0	1	23.0	22.11	22.14	22.02
	16QAM	1	0	1	23.0	22.01	21.94	22.21
		1	12	1	23.0	21.93	21.95	22.20
		1	24	1	23.0	22.01	21.98	22.21
		12	0	2	22.0	21.09	21.09	21.12
		12	6	2	22.0	21.12	21.16	21.13
		12	13	2	22.0	21.10	21.17	21.08
		25	0	2	22.0	21.09	21.12	21.07
	64QAM	1	0	2	22.0	20.97	20.91	21.40
		1	12	2	22.0	20.94	20.94	21.33
		1	24	2	22.0	20.95	20.95	21.38
		12	0	3	21.0	20.26	20.26	20.14
		12	6	3	21.0	20.27	20.28	20.14
		12	13	3	21.0	20.24	20.28	20.09
		25	0	3	21.0	20.18	20.15	19.99
	256QAM	1	0	5	19.0	17.99	17.96	18.29
		1	12	5	19.0	18.03	18.01	18.21
		1	24	5	19.0	17.96	17.98	18.28
12		0	5	19.0	18.20	18.12	17.98	
12		6	5	19.0	18.22	18.18	18.02	
12		13	5	19.0	18.15	18.21	17.94	
25		0	5	19.0	18.12	18.07	17.98	

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Band						Meas. Pwr Avg (dBm)				
41						UL Ch #				
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	39750	40185	40620	41055	41490
						Freq(MHz)				
						2506	2549.5	2593	2636.5	2680
20	QPSK	1	0	0	24.0	22.94	22.89	23.12	23.02	22.99
		1	49	0	24.0	22.88	22.88	22.97	22.88	22.84
		1	99	0	24.0	22.91	22.87	23.06	22.97	22.95
		50	0	1	23.0	22.03	22.04	22.05	22.10	21.98
		50	24	1	23.0	22.09	22.11	22.14	22.07	21.99
		50	50	1	23.0	22.05	22.10	22.09	22.04	22.03
		100	0	1	23.0	22.05	22.11	22.10	22.08	21.98
	16QAM	1	0	1	23.0	22.09	21.83	21.93	22.14	22.15
		1	49	1	23.0	22.01	21.70	21.76	22.06	22.03
		1	99	1	23.0	22.05	21.74	21.83	22.13	22.08
		50	0	2	22.0	21.08	21.03	21.04	21.12	21.04
		50	24	2	22.0	21.11	21.08	21.11	21.09	21.00
		50	50	2	22.0	21.11	21.09	21.08	21.08	21.06
		100	0	2	22.0	21.10	21.13	21.13	21.08	20.98
	64QAM	1	0	2	22.0	20.89	20.99	21.09	20.94	20.87
		1	49	2	22.0	20.81	20.91	20.99	20.82	20.81
		1	99	2	22.0	20.85	21.01	21.03	20.93	20.90
		50	0	3	21.0	20.07	20.08	20.10	20.14	20.07
		50	24	3	21.0	20.12	20.18	20.15	20.11	20.06
		50	50	3	21.0	20.09	20.13	20.12	20.12	20.06
		100	0	3	21.0	20.17	20.15	20.11	20.13	20.10
	256QAM	1	0	5	19.0	18.24	18.05	18.17	18.12	18.13
		1	49	5	19.0	18.17	18.03	18.06	18.12	18.10
		1	99	5	19.0	18.24	18.17	18.15	18.17	18.17
50		0	5	19.0	18.06	18.02	18.09	18.07	18.03	
50		24	5	19.0	18.18	18.13	18.13	18.12	18.04	
50		50	5	19.0	18.12	18.09	18.08	18.05	18.09	
100		0	5	19.0	18.15	18.12	18.07	18.08	18.00	

Band						Meas. Pwr Avg (dBm)				
41						UL Ch #				
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	39725	40173	40620	41068	41515
						Freq(MHz)				
						2503.5	2548.3	2593	2637.8	2682.5
15	QPSK	1	0	0	24.0	22.92	22.84	23.02	22.96	22.92
		1	37	0	24.0	22.85	22.83	22.94	22.88	22.85
		1	74	0	24.0	22.90	22.90	23.06	23.00	22.93
		36	0	1	23.0	21.94	22.00	21.97	22.00	21.90
		36	19	1	23.0	21.98	22.04	22.00	21.95	21.89
		36	39	1	23.0	21.99	22.05	22.03	21.96	21.94
		75	0	1	23.0	21.95	22.02	22.03	21.96	21.87
	16QAM	1	0	1	23.0	21.65	21.82	21.71	21.58	21.68
		1	37	1	23.0	21.56	21.80	21.62	21.63	21.59
		1	74	1	23.0	21.73	21.87	21.70	21.68	21.66
		36	0	2	22.0	20.96	21.04	20.98	20.99	20.90
		36	19	2	22.0	20.99	21.10	21.04	20.99	20.90
		36	39	2	22.0	20.97	21.10	21.01	20.99	20.94
		75	0	2	22.0	20.99	21.04	21.02	20.99	20.88
	64QAM	1	0	2	22.0	20.40	20.75	20.53	20.49	20.40
		1	37	2	22.0	20.46	20.66	20.49	20.44	20.39
		1	74	2	22.0	20.47	20.83	20.53	20.45	20.46
		36	0	3	21.0	19.98	20.04	20.05	20.04	19.98
		36	19	3	21.0	20.04	20.10	20.06	20.01	19.94
		36	39	3	21.0	20.02	20.09	20.07	20.02	20.06
		75	0	3	21.0	20.02	20.11	20.08	20.03	19.92
	256QAM	1	0	5	19.0	17.43	18.24	17.47	17.31	17.41
		1	37	5	19.0	17.36	18.13	17.44	17.37	17.34
		1	74	5	19.0	17.56	18.37	17.58	17.55	17.44
		36	0	5	19.0	17.94	18.00	18.01	17.99	17.91
		36	19	5	19.0	18.04	18.02	18.08	17.95	17.96
		36	39	5	19.0	18.05	18.03	18.07	17.95	17.94
		75	0	5	19.0	18.06	18.06	18.11	17.98	17.93

Band						Meas. Pwr Avg (dBm)				
41						UL Ch #				
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	39700	40160	40620	41080	41540
						Freq(MHz)				
						2501	2547	2593	2639	2685
10	QPSK	1	0	0	24.0	22.98	23.02	23.10	22.98	22.94
		1	24	0	24.0	22.93	22.98	23.09	22.94	22.84
		1	49	0	24.0	22.97	23.01	23.04	22.96	22.86
		25	0	1	23.0	22.01	21.98	21.99	21.91	21.88
		25	12	1	23.0	22.03	22.07	22.10	22.01	21.92
		25	25	1	23.0	22.00	22.04	22.08	21.99	21.95
	16QAM	50	0	1	23.0	22.02	22.07	22.08	22.01	21.89
		1	0	1	23.0	21.63	21.64	21.74	21.53	21.69
		1	24	1	23.0	21.41	21.72	21.78	21.68	21.59
		1	49	1	23.0	21.66	21.70	21.72	21.57	21.54
		25	0	2	22.0	21.01	20.95	20.93	20.89	20.87
		25	12	2	22.0	21.00	21.04	21.01	20.99	20.88
	64QAM	25	25	2	22.0	20.99	20.98	21.04	20.93	20.91
		50	0	2	22.0	21.07	21.07	21.10	20.99	20.91
		1	0	2	22.0	20.68	20.48	20.53	20.64	20.38
		1	24	2	22.0	20.58	20.55	20.59	20.52	20.47
		1	49	2	22.0	20.50	20.53	20.54	20.47	20.50
		25	0	3	21.0	20.05	20.03	20.07	19.97	19.91
	256QAM	25	12	3	21.0	20.04	20.12	20.14	20.10	19.93
		25	25	3	21.0	20.06	20.09	20.07	20.06	19.99
		50	0	3	21.0	20.07	20.07	20.09	20.02	19.92
		1	0	5	19.0	17.52	17.47	17.50	17.41	17.39
		1	24	5	19.0	17.41	17.45	17.53	17.45	17.36
		1	49	5	19.0	17.51	17.58	17.54	17.48	17.41
		25	0	5	19.0	17.98	17.99	17.99	17.98	17.90
		25	12	5	19.0	18.04	18.08	18.10	18.04	17.91
		25	25	5	19.0	18.03	18.02	18.07	18.05	17.96
		50	0	5	19.0	18.07	18.07	18.13	18.03	17.94

Band						Meas. Pwr Avg (dBm)				
41						UL Ch #				
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	39675	40148	40620	41093	41565
						Freq(MHz)				
						2498.5	2545.8	2593	2640.3	2687.5
5	QPSK	1	0	0	24.0	22.93	22.90	23.01	22.84	22.83
		1	12	0	24.0	22.83	22.96	22.96	22.92	22.84
		1	24	0	24.0	22.88	22.95	23.00	22.86	22.81
		12	0	1	23.0	22.03	22.07	22.10	22.03	21.98
		12	6	1	23.0	22.04	22.09	22.09	22.05	21.96
		12	13	1	23.0	22.02	22.08	22.08	21.99	21.94
		25	0	1	23.0	22.00	22.05	22.07	22.01	21.95
	16QAM	1	0	1	23.0	21.85	21.79	21.84	21.73	21.75
		1	12	1	23.0	21.74	21.81	21.88	21.78	21.88
		1	24	1	23.0	21.80	21.87	21.89	21.76	21.67
		12	0	2	22.0	20.99	21.03	21.04	20.98	20.91
		12	6	2	22.0	21.00	21.09	21.06	20.97	20.94
		12	13	2	22.0	21.00	21.01	21.07	20.97	20.90
		25	0	2	22.0	21.01	21.06	21.09	20.97	20.92
	64QAM	1	0	2	22.0	20.88	20.82	20.79	20.71	20.70
		1	12	2	22.0	20.76	20.81	20.85	20.77	20.70
		1	24	2	22.0	20.79	20.84	20.85	20.77	20.62
		12	0	3	21.0	20.12	20.17	20.20	20.10	20.06
		12	6	3	21.0	20.16	20.20	20.21	20.13	20.04
		12	13	3	21.0	20.09	20.15	20.20	20.10	20.07
		25	0	3	21.0	20.04	20.10	20.13	20.03	19.99
	256QAM	1	0	5	19.0	17.81	17.75	17.83	17.71	17.75
		1	12	5	19.0	17.79	17.85	17.84	17.81	17.74
		1	24	5	19.0	17.77	17.83	17.84	17.76	17.72
		12	0	5	19.0	18.05	18.07	18.07	18.03	17.95
		12	6	5	19.0	18.07	18.10	18.11	18.01	18.00
		12	13	5	19.0	18.04	18.09	18.10	18.00	17.97
25		0	5	19.0	17.99	18.03	18.08	17.97	17.92	

14.3.13 LTE band 48

For B48, the Tune-up limits were different depending on the TDD configurations (see Section 3.4), so the worst power configurations were checked as follows.

Worst power configuration check

Band								Burst Pwr Avg (dBm)	Timed Pwr Avg (dBm)
48								UL Ch #	
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Tune-up Limit Burst Pwr Avg (dBm)	Tune-up Limit Timed Pwr Avg (dBm)	Uplink/Downlink Configuration	Special Subframe	56207	
								Freq(MHz)	
								3646.7	
20	QPSK	1	49	12.3	9.4	0	0	11.49	8.84
							7	11.30	8.93
20	QPSK	1	49	13.8	9.4	1	0	13.06	8.72
							7	12.76	8.54
20	QPSK	1	49	16.6	9.4	2	0	15.97	8.49
							7	15.80	8.52
20	QPSK	1	49	15.3	9.4	3	0	14.50	8.91
							7	14.26	8.71
20	QPSK	1	49	16.8	9.4	4	0	16.09	8.72
							7	15.90	8.52
20	QPSK	1	49	19.7	9.4	5	0	18.96	8.34
							7	18.63	8.10
20	QPSK	1	49	12.9	9.4	6	0	12.04	8.71
							7	11.92	8.70

*Cyclic prefix "Extended" was used.

Band						Meas. Pwr Avg (dBm)				
48						UL Ch #				
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	55340	55773	-	56207	56640
						Freq(MHz)				
						3560	3603.3	-	3646.7	3690
20	QPSK	1	0	-	12.3	11.39	11.39	-	11.37	11.30
		1	49	-	12.3	11.28	11.31	-	11.30	11.15
		1	99	-	12.3	11.44	11.43	-	11.31	11.24
		50	0	-	12.3	11.47	11.39	-	11.45	11.37
		50	24	-	12.3	11.53	11.45	-	11.43	11.35
		50	50	-	12.3	11.51	11.44	-	11.33	11.22
	16QAM	100	0	-	12.3	11.41	11.43	-	11.37	11.30
		1	0	-	12.3	11.14	11.51	-	11.16	11.10
		1	49	-	12.3	11.09	11.49	-	11.07	10.98
		1	99	-	12.3	11.19	11.56	-	11.13	11.00
		50	0	-	12.3	11.43	11.44	-	11.42	11.33
		50	24	-	12.3	11.40	11.51	-	11.40	11.31
	64QAM	50	50	-	12.3	11.43	11.50	-	11.31	11.19
		100	0	-	12.3	11.47	11.49	-	11.45	11.35
		1	0	-	12.3	11.38	11.29	-	11.43	11.32
		1	49	-	12.3	11.37	11.26	-	11.34	11.26
		1	99	-	12.3	11.47	11.42	-	11.36	11.17
		50	0	-	12.3	11.50	11.46	-	11.50	11.38
	256QAM	50	24	-	12.3	11.51	11.54	-	11.46	11.35
		50	50	-	12.3	11.47	11.55	-	11.35	11.25
		100	0	-	12.3	11.49	11.58	-	11.45	11.33
1		0	-	12.3	11.38	11.53	-	11.51	11.39	
1		49	-	12.3	11.44	11.50	-	11.37	11.29	
1		99	-	12.3	11.48	11.67	-	11.33	11.20	
256QAM	50	0	-	12.3	11.42	11.43	-	11.36	11.28	
	50	24	-	12.3	11.44	11.52	-	11.41	11.30	
	50	50	-	12.3	11.39	11.48	-	11.34	11.16	
	100	0	-	12.3	11.43	11.55	-	11.43	11.30	

*U/D Config. = "0", SSF = "7" and CP = "Extended" were used to measure the highest transmission implemented for the device according to KDB 941225 D05 (Worst Timed Power AV Mode).

*MPR is disabled with U/D Config. = "0", SSF = "7" and CP = "Extended" mode.

Band						Meas. Pwr Avg (dBm)				
48						UL Ch #				
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	55315	55765	-	56215	56665
						Freq(MHz)				
						3557.5	3602.5	-	3647.5	3692.5
15	QPSK	1	0	-	12.3	11.42	11.44	-	11.39	11.33
		1	37	-	12.3	11.33	11.39	-	11.32	11.21
		1	74	-	12.3	11.46	11.54	-	11.40	11.27
		36	0	-	12.3	11.51	11.43	-	11.41	11.33
		36	19	-	12.3	11.47	11.51	-	11.42	11.32
		36	39	-	12.3	11.49	11.50	-	11.35	11.34
		75	0	-	12.3	11.44	11.48	-	11.40	11.29
	16QAM	1	0	-	12.3	11.09	11.10	-	11.04	10.94
		1	37	-	12.3	11.04	11.08	-	11.02	10.89
		1	74	-	12.3	11.20	11.19	-	11.09	10.97
		36	0	-	12.3	11.42	11.36	-	11.45	11.33
		36	19	-	12.3	11.46	11.49	-	11.41	11.30
		36	39	-	12.3	11.39	11.48	-	11.28	11.28
		75	0	-	12.3	11.45	11.48	-	11.40	11.28
	64QAM	1	0	-	12.3	10.89	10.82	-	10.90	10.80
		1	37	-	12.3	10.88	10.97	-	10.89	10.79
		1	74	-	12.3	10.99	11.12	-	10.84	10.68
		36	0	-	12.3	11.55	11.50	-	11.50	11.38
		36	19	-	12.3	11.51	11.51	-	11.46	11.33
		36	39	-	12.3	11.51	11.55	-	11.42	11.34
		75	0	-	12.3	11.49	11.55	-	11.48	11.34
	256QAM	1	0	-	12.3	10.86	10.89	-	10.83	10.73
		1	37	-	12.3	10.87	10.91	-	10.80	10.67
		1	74	-	12.3	10.97	11.03	-	10.78	10.67
36		0	-	12.3	11.47	11.40	-	11.45	11.31	
36		19	-	12.3	11.50	11.54	-	11.48	11.36	
36		39	-	12.3	11.49	11.52	-	11.36	11.28	
75		0	-	12.3	11.47	11.53	-	11.48	11.35	

*U/D Config. = "0", SSF = "7" and CP = "Extended" were used to measure the highest transmission implemented for the device according to KDB 941225 D05 (Worst Timed Power AV Mode).

*MPR is disabled with U/D Config. = "0", SSF = "7" and CP = "Extended" mode.

Band						Meas. Pwr Avg (dBm)				
48						UL Ch #				
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	55290	55757	-	56223	56690
						Freq(MHz)				
						3555	3601.7	-	3648.3	3695
10	QPSK	1	0	-	12.3	11.41	11.41	-	11.52	11.44
		1	24	-	12.3	11.33	11.36	-	11.43	11.29
		1	49	-	12.3	11.44	11.45	-	11.44	11.33
		25	0	-	12.3	11.42	11.43	-	11.51	11.41
		25	12	-	12.3	11.46	11.53	-	11.53	11.40
		25	25	-	12.3	11.48	11.49	-	11.50	11.35
	16QAM	50	0	-	12.3	11.43	11.42	-	11.49	11.38
		1	0	-	12.3	11.06	10.97	-	11.14	11.04
		1	24	-	12.3	10.98	10.91	-	10.90	10.84
		1	49	-	12.3	11.03	11.08	-	11.07	11.00
		25	0	-	12.3	11.39	11.43	-	11.48	11.38
		25	12	-	12.3	11.44	11.45	-	11.52	11.42
	64QAM	25	25	-	12.3	11.40	11.43	-	11.48	11.39
		50	0	-	12.3	11.41	11.52	-	11.51	11.39
		1	0	-	12.3	10.95	11.03	-	11.09	10.89
		1	24	-	12.3	10.87	10.94	-	11.04	10.88
		1	49	-	12.3	10.93	10.97	-	10.94	10.87
		25	0	-	12.3	11.44	11.48	-	11.57	11.45
	256QAM	25	12	-	12.3	11.46	11.50	-	11.58	11.45
		25	25	-	12.3	11.48	11.52	-	11.52	11.41
		50	0	-	12.3	11.40	11.46	-	11.46	11.40
		1	0	-	12.3	10.93	10.87	-	10.97	10.87
		1	24	-	12.3	10.85	10.84	-	10.95	10.85
		1	49	-	12.3	10.96	10.98	-	10.96	10.90
	25	0	-	12.3	11.49	11.49	-	11.55	11.43	
	25	12	-	12.3	11.48	11.51	-	11.54	11.44	
	25	25	-	12.3	11.44	11.49	-	11.54	11.43	
	50	0	-	12.3	11.43	11.51	-	11.55	11.40	

*U/D Config. = "0", SSF = "7" and CP = "Extended" were used to measure the highest transmission implemented for the device according to KDB 941225 D05 (Worst Timed Power AV Mode).

*MPR is disabled with U/D Config. = "0", SSF = "7" and CP = "Extended" mode.

Band						Meas. Pwr Avg (dBm)								
48						UL Ch #								
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	55265	55748	-	56232	56715				
						Freq(MHz)								
						3552.5	3600.8	-	3649.2	3697.5				
5	QPSK	1	0	-	12.3	11.33	11.33	-	11.33	11.18				
		1	12	-	12.3	11.23	11.26	-	11.24	11.07				
		1	24	-	12.3	11.31	11.34	-	11.26	11.15				
		12	0	-	12.3	11.39	11.39	-	11.37	11.26				
		12	6	-	12.3	11.42	11.45	-	11.36	11.23				
		12	13	-	12.3	11.37	11.46	-	11.35	11.24				
	16QAM	25	0	-	12.3	11.30	11.32	-	11.33	11.06				
		1	0	-	12.3	11.27	11.28	-	11.61	11.07				
		1	12	-	12.3	11.20	11.20	-	11.46	11.00				
		1	24	-	12.3	11.23	11.25	-	11.58	11.11				
		12	0	-	12.3	11.41	11.39	-	11.39	11.23				
		12	6	-	12.3	11.41	11.44	-	11.44	11.24				
	64QAM	12	13	-	12.3	11.42	11.45	-	11.41	11.21				
		25	0	-	12.3	11.40	11.42	-	11.36	11.24				
		1	0	-	12.3	11.19	11.17	-	11.75	11.02				
		1	12	-	12.3	11.10	11.13	-	11.67	10.93				
		1	24	-	12.3	11.20	11.22	-	11.66	10.99				
		12	0	-	12.3	11.47	11.51	-	11.43	11.29				
	256QAM	12	6	-	12.3	11.52	11.47	-	11.41	11.29				
		12	13	-	12.3	11.50	11.47	-	11.42	11.27				
		25	0	-	12.3	11.41	11.47	-	11.28	11.23				
		1	0	-	12.3	11.23	11.26	-	11.63	11.08				
		1	12	-	12.3	11.13	11.14	-	11.52	10.94				
		1	24	-	12.3	11.27	11.27	-	11.59	11.09				
						12	0	-	12.3	11.43	11.40	-	11.30	11.27
						12	6	-	12.3	11.41	11.45	-	11.26	11.24
						12	13	-	12.3	11.41	11.48	-	11.27	11.25
						25	0	-	12.3	11.33	11.38	-	11.31	11.15

*U/D Config. = "0", SSF = "7" and CP = "Extended" were used to measure the highest transmission implemented for the device according to KDB 941225 D05 (Worst Timed Power AV Mode).

*MPR is disabled with U/D Config. = "0", SSF = "7" and CP = "Extended" mode.

14.3.14 LTE band 66

Band						Meas. Pwr Avg (dBm)		
66						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	132072	132322	132572
						Freq(MHz)		
						1720	1745	1770
20	QPSK	1	0	0	24.0	22.69	22.81	22.88
		1	49	0	24.0	22.65	22.82	22.78
		1	99	0	24.0	22.73	22.83	22.79
		50	0	1	23.0	21.69	21.80	21.80
		50	24	1	23.0	21.81	21.81	21.81
		50	49	1	23.0	21.80	21.86	21.87
		100	0	1	23.0	21.79	21.80	21.81
	16QAM	1	0	1	23.0	22.10	22.17	22.23
		1	49	1	23.0	22.09	22.18	22.18
		1	99	1	23.0	22.13	22.14	22.15
		50	0	2	22.0	20.73	20.78	20.82
		50	24	2	22.0	20.87	20.77	20.81
		50	49	2	22.0	20.84	20.84	20.87
		100	0	2	22.0	20.85	20.83	20.83
	64QAM	1	0	2	22.0	20.93	20.91	20.95
		1	49	2	22.0	20.97	20.90	20.93
		1	99	2	22.0	21.03	20.94	20.90
		50	0	3	21.0	19.77	19.85	19.86
		50	24	3	21.0	19.86	19.86	19.86
		50	49	3	21.0	19.88	19.91	19.91
		100	0	3	21.0	19.82	19.86	19.88
	256QAM	1	0	5	19.0	17.77	17.95	17.95
		1	49	5	19.0	17.79	17.95	17.97
		1	99	5	19.0	17.88	18.01	17.95
50		0	5	19.0	17.76	17.79	17.87	
50		24	5	19.0	17.87	17.84	17.86	
50		49	5	19.0	17.87	17.89	17.87	
100		0	5	19.0	17.85	17.81	17.86	

Band						Meas. Pwr Avg (dBm)		
66						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	132047	132322	132597
						Freq(MHz)		
						1717.5	1745	1772.5
15	QPSK	1	0	0	24.0	22.72	22.84	22.95
		1	37	0	24.0	22.71	22.86	22.91
		1	74	0	24.0	22.76	22.87	22.90
		36	0	1	23.0	21.83	21.88	21.91
		36	19	1	23.0	21.93	21.91	21.94
		36	39	1	23.0	21.90	21.96	21.97
		75	0	1	23.0	21.91	21.87	21.90
	16QAM	1	0	1	23.0	22.03	22.05	22.13
		1	37	1	23.0	22.09	22.16	22.18
		1	74	1	23.0	22.10	22.08	22.12
		36	0	2	22.0	20.86	20.92	20.97
		36	19	2	22.0	20.94	20.97	20.97
		36	39	2	22.0	20.92	21.01	21.02
		75	0	2	22.0	20.88	20.82	20.86
	64QAM	1	0	2	22.0	21.15	21.46	21.51
		1	37	2	22.0	21.22	21.47	21.53
		1	74	2	22.0	21.26	21.51	21.49
		36	0	3	21.0	19.81	19.93	19.97
		36	19	3	21.0	19.92	19.96	20.01
		36	39	3	21.0	19.88	20.01	20.02
		75	0	3	21.0	19.90	19.89	19.92
	256QAM	1	0	5	19.0	18.12	17.93	17.93
		1	37	5	19.0	18.17	17.94	17.97
		1	74	5	19.0	18.21	18.04	18.02
36		0	5	19.0	17.79	17.94	17.97	
36		19	5	19.0	17.91	17.96	17.98	
36		39	5	19.0	17.87	18.00	18.04	
75		0	5	19.0	17.94	17.91	17.94	

Band						Meas. Pwr Avg (dBm)		
66						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	132022	132322	132622
						Freq(MHz)		
						1715	1745	1775
10	QPSK	1	0	0	24.0	22.76	22.72	22.84
		1	24	0	24.0	22.68	22.69	22.77
		1	49	0	24.0	22.69	22.73	22.76
		25	0	1	23.0	21.85	21.85	21.91
		25	12	1	23.0	21.84	21.87	21.89
		25	25	1	23.0	21.81	21.88	21.94
		50	0	1	23.0	21.84	21.83	21.87
	16QAM	1	0	1	23.0	22.07	22.02	22.09
		1	24	1	23.0	22.03	21.97	22.06
		1	49	1	23.0	22.06	22.02	22.06
		25	0	2	22.0	20.86	20.88	20.86
		25	12	2	22.0	20.85	20.90	20.91
		25	25	2	22.0	20.83	20.92	20.98
		50	0	2	22.0	20.81	20.83	20.85
	64QAM	1	0	2	22.0	21.24	21.21	21.29
		1	24	2	22.0	21.21	21.24	21.31
		1	49	2	22.0	21.22	21.24	21.33
		25	0	3	21.0	19.86	19.86	19.93
		25	12	3	21.0	19.88	19.90	19.93
		25	25	3	21.0	19.84	19.94	20.01
		50	0	3	21.0	19.88	19.88	19.91
	256QAM	1	0	5	19.0	18.15	18.14	18.21
		1	24	5	19.0	18.15	18.02	18.19
		1	49	5	19.0	18.15	18.06	18.06
		25	0	5	19.0	17.82	17.88	17.92
		25	12	5	19.0	17.84	17.88	17.94
		25	25	5	19.0	17.80	17.95	17.98
50		0	5	19.0	17.82	17.85	17.88	

Band						Meas. Pwr Avg (dBm)		
66						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	131997	132322	132647
						Freq(MHz)		
						1712.5	1745	1777.5
5	QPSK	1	0	0	24.0	22.69	22.64	22.81
		1	12	0	24.0	22.73	22.69	22.83
		1	24	0	24.0	22.68	22.67	22.76
		12	0	1	23.0	21.82	21.87	22.02
		12	6	1	23.0	21.88	21.91	22.01
		12	13	1	23.0	21.81	21.93	21.99
		25	0	1	23.0	21.83	21.88	21.97
	16QAM	1	0	1	23.0	22.16	22.06	22.24
		1	12	1	23.0	22.18	22.10	22.22
		1	24	1	23.0	22.13	22.10	22.11
		12	0	2	22.0	20.88	20.93	21.05
		12	6	2	22.0	20.92	20.98	21.06
		12	13	2	22.0	20.88	20.97	21.01
		25	0	2	22.0	20.85	20.86	20.97
	64QAM	1	0	2	22.0	21.24	21.05	21.24
		1	12	2	22.0	21.25	21.11	21.20
		1	24	2	22.0	21.21	21.08	21.14
		12	0	3	21.0	19.76	19.95	20.05
		12	6	3	21.0	19.78	19.97	20.04
		12	13	3	21.0	19.75	19.96	20.02
		25	0	3	21.0	19.91	19.92	20.06
	256QAM	1	0	5	19.0	17.98	18.31	18.45
		1	12	5	19.0	17.92	18.32	18.39
		1	24	5	19.0	17.92	18.31	18.33
		12	0	5	19.0	17.90	17.87	17.96
		12	6	5	19.0	17.94	17.90	18.02
		12	13	5	19.0	17.88	17.93	17.97
		25	0	5	19.0	17.87	17.85	17.97

Band						Meas. Pwr Avg (dBm)		
66						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	131987	132322	132657
						Freq(MHz)		
						1711.5	1745	1778.5
3	QPSK	1	0	0	24.0	22.70	22.67	22.83
		1	7	0	24.0	22.73	22.79	22.90
		1	14	0	24.0	22.72	22.75	22.80
		8	0	1	23.0	21.85	21.86	21.97
		8	4	1	23.0	21.84	21.97	22.02
		8	7	1	23.0	21.83	21.89	21.96
		15	0	1	23.0	21.84	21.81	21.95
	16QAM	1	0	1	23.0	22.10	21.90	22.11
		1	7	1	23.0	22.01	21.99	22.06
		1	14	1	23.0	22.04	21.96	22.05
		8	0	2	22.0	20.91	20.76	20.89
		8	4	2	22.0	20.93	20.88	20.94
		8	7	2	22.0	20.89	20.85	20.87
		15	0	2	22.0	20.87	20.82	20.96
	64QAM	1	0	2	22.0	21.21	21.18	21.34
		1	7	2	22.0	21.19	21.20	21.25
		1	14	2	22.0	21.22	21.24	21.32
		8	0	3	21.0	19.90	19.92	20.10
		8	4	3	21.0	19.92	20.02	20.06
		8	7	3	21.0	19.89	19.99	20.03
		15	0	3	21.0	19.88	19.88	20.02
	256QAM	1	0	5	19.0	18.18	18.07	18.16
		1	7	5	19.0	18.11	17.92	17.98
		1	14	5	19.0	18.16	18.06	18.10
		8	0	5	19.0	17.89	17.94	18.09
		8	4	5	19.0	17.93	18.06	18.10
		8	7	5	19.0	17.90	18.00	18.09
15		0	5	19.0	17.84	17.82	17.96	

Band						Meas. Pwr Avg (dBm)		
66						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	131979	132322	132665
						Freq(MHz)		
						1710.7	1745	1779.3
1.4	QPSK	1	0	0	24.0	22.72	22.63	22.80
		1	2	0	24.0	22.73	22.72	22.84
		1	5	0	24.0	22.69	22.62	22.75
		3	0	0	24.0	22.70	22.74	22.80
		3	1	0	24.0	22.71	22.80	22.89
		3	3	0	24.0	22.66	22.72	22.84
		6	0	1	23.0	21.77	21.84	21.87
	16QAM	1	0	1	23.0	21.75	21.94	21.98
		1	2	1	23.0	21.88	22.05	22.11
		1	5	1	23.0	21.74	21.91	21.98
		3	0	1	23.0	21.76	22.00	22.05
		3	1	1	23.0	21.75	22.04	22.10
		3	3	1	23.0	21.72	22.01	22.11
		6	0	2	22.0	20.86	20.85	20.89
	64QAM	1	0	2	22.0	21.14	21.17	21.27
		1	2	2	22.0	21.25	21.27	21.33
		1	5	2	22.0	21.12	21.15	21.22
		3	0	2	22.0	20.90	20.90	20.94
		3	1	2	22.0	20.97	20.93	21.01
		3	3	2	22.0	20.94	20.89	20.92
		6	0	3	21.0	19.82	19.95	20.03
	256QAM	1	0	5	19.0	17.64	18.04	18.08
		1	2	5	19.0	17.70	18.09	18.12
		1	5	5	19.0	17.62	18.02	18.07
		3	0	5	19.0	17.73	17.88	17.96
		3	1	5	19.0	17.74	17.94	17.98
		3	3	5	19.0	17.65	17.88	17.95
6		0	5	19.0	17.67	17.95	17.99	

14.3.15 LTE band 71

Band						Meas. Pwr Avg (dBm)		
71						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	-	133297	-
						Freq(MHz)		
						-	680.5	-
20	QPSK	1	0	0	24.0	-	22.99	-
		1	49	0	24.0	-	23.07	-
		1	99	0	24.0	-	22.84	-
		50	0	1	23.0	-	22.06	-
		50	24	1	23.0	-	22.04	-
		50	49	1	23.0	-	21.98	-
		100	0	1	23.0	-	22.01	-
	16QAM	1	0	1	23.0	-	22.34	-
		1	49	1	23.0	-	22.41	-
		1	99	1	23.0	-	22.22	-
		50	0	2	22.0	-	21.02	-
		50	24	2	22.0	-	21.05	-
		50	49	2	22.0	-	20.98	-
		100	0	2	22.0	-	21.04	-
	64QAM	1	0	2	22.0	-	21.10	-
		1	49	2	22.0	-	21.17	-
		1	99	2	22.0	-	20.96	-
		50	0	3	21.0	-	20.07	-
		50	24	3	21.0	-	20.07	-
		50	49	3	21.0	-	20.03	-
		100	0	3	21.0	-	20.08	-
	256QAM	1	0	5	19.0	-	18.03	-
		1	49	5	19.0	-	18.18	-
		1	99	5	19.0	-	18.04	-
50		0	5	19.0	-	18.07	-	
50		24	5	19.0	-	18.07	-	
50		49	5	19.0	-	18.03	-	
100		0	5	19.0	-	18.07	-	

Band						Meas. Pwr Avg (dBm)		
71						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	133197	133297	133397
						Freq(MHz)		
						670.5	680.5	690.5
15	QPSK	1	0	0	24.0	-	23.03	-
		1	37	0	24.0	-	22.93	-
		1	74	0	24.0	-	22.87	-
		36	0	1	23.0	-	22.12	-
		36	19	1	23.0	-	22.13	-
		36	39	1	23.0	-	22.08	-
		75	0	1	23.0	-	22.06	-
	16QAM	1	0	1	23.0	-	22.28	-
		1	37	1	23.0	-	22.32	-
		1	74	1	23.0	-	22.15	-
		36	0	2	22.0	-	21.12	-
		36	19	2	22.0	-	21.14	-
		36	39	2	22.0	-	21.08	-
		75	0	2	22.0	-	21.09	-
	64QAM	1	0	2	22.0	-	21.42	-
		1	37	2	22.0	-	21.49	-
		1	74	2	22.0	-	21.33	-
		36	0	3	21.0	-	20.10	-
		36	19	3	21.0	-	20.09	-
		36	39	3	21.0	-	20.07	-
		75	0	3	21.0	-	20.10	-
256QAM	1	0	5	19.0	-	18.39	-	
	1	37	5	19.0	-	18.46	-	
	1	74	5	19.0	-	18.36	-	
	36	0	5	19.0	-	18.09	-	
	36	19	5	19.0	-	18.06	-	
	36	39	5	19.0	-	18.03	-	
	75	0	5	19.0	-	18.10	-	

Band						Meas. Pwr Avg (dBm)		
71						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	133172	133297	133422
						Freq(MHz)		
						668	680.5	693
10	QPSK	1	0	0	24.0	23.07	22.94	22.87
		1	24	0	24.0	22.91	22.92	22.69
		1	49	0	24.0	22.90	22.83	22.61
		25	0	1	23.0	22.05	22.11	21.88
		25	12	1	23.0	22.02	22.10	21.86
		25	25	1	23.0	21.95	22.08	21.87
		50	0	1	23.0	22.02	22.08	21.85
	16QAM	1	0	1	23.0	22.38	22.21	22.09
		1	24	1	23.0	22.18	22.20	21.96
		1	49	1	23.0	22.17	22.12	21.91
		25	0	2	22.0	21.08	21.12	20.92
		25	12	2	22.0	21.03	21.15	20.94
		25	25	2	22.0	20.98	21.16	20.93
		50	0	2	22.0	21.01	21.08	20.89
	64QAM	1	0	2	22.0	21.58	21.43	21.31
		1	24	2	22.0	21.45	21.55	21.25
		1	49	2	22.0	21.40	21.41	21.16
		25	0	3	21.0	20.09	20.16	19.96
		25	12	3	21.0	20.08	20.15	19.98
		25	25	3	21.0	20.03	20.17	19.94
		50	0	3	21.0	20.04	20.11	19.93
	256QAM	1	0	5	19.0	18.43	18.36	18.17
		1	24	5	19.0	18.32	18.33	18.11
		1	49	5	19.0	18.32	18.31	17.97
		25	0	5	19.0	18.13	18.14	17.95
		25	12	5	19.0	18.05	18.11	17.91
		25	25	5	19.0	17.97	18.06	17.88
		50	0	5	19.0	18.05	18.08	17.87

Band						Meas. Pwr Avg (dBm)		
71						UL Ch #		
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Target MPR	Tune-up Limit (dBm)	133147	133297	133447
						Freq(MHz)		
						665.5	680.5	695.5
5	QPSK	1	0	0	24.0	23.05	22.99	22.81
		1	12	0	24.0	22.99	22.98	22.71
		1	24	0	24.0	22.89	22.91	22.62
		12	0	1	23.0	22.18	22.12	21.90
		12	6	1	23.0	22.14	22.13	21.91
		12	13	1	23.0	22.02	22.09	21.81
		25	0	1	23.0	22.08	22.09	21.86
	16QAM	1	0	1	23.0	22.53	22.45	22.23
		1	12	1	23.0	22.41	22.38	22.11
		1	24	1	23.0	22.38	22.33	22.00
		12	0	2	22.0	21.22	21.21	20.95
		12	6	2	22.0	21.17	21.17	20.93
		12	13	2	22.0	21.09	21.15	20.88
		25	0	2	22.0	21.17	21.06	20.85
	64QAM	1	0	2	22.0	21.59	21.41	21.23
		1	12	2	22.0	21.54	21.38	21.09
		1	24	2	22.0	21.44	21.31	21.03
		12	0	3	21.0	20.09	20.19	19.99
		12	6	3	21.0	20.07	20.20	19.92
		12	13	3	21.0	19.93	20.16	19.87
		25	0	3	21.0	20.12	20.13	19.91
	256QAM	1	0	5	19.0	18.33	18.67	18.45
		1	12	5	19.0	18.16	18.59	18.31
		1	24	5	19.0	18.10	18.53	18.24
		12	0	5	19.0	18.25	18.17	17.94
		12	6	5	19.0	18.20	18.15	17.89
		12	13	5	19.0	18.09	18.11	17.86
		25	0	5	19.0	18.11	18.12	17.87

14.4 LTE CA

14.4.1 SAR test exclusion for DL CA

The configurations that require power measurements as described in Section 15.1.4 "LTE DLCA Test Reduction Methodology" are highlighted in yellow in the table below. Only yellow highlighted cells need power measurement.

Index	2CC	Restriction	Completely Covered by Measurement Superset
2CC#1	CA_2C		3CC#12, 3CC#13, 3CC#14, 3CC#15, 4CC#7, 4CC#68
2CC#2	CA_5B		3CC#5, 3CC#16, 3CC#27, 3CC#28, 4CC#7, 4CC#13, 4CC#14, 4CC#37, 4CC#42, 4CC#50, 4CC#69, 4CC#83, 5CC#19, 5CC#20, 5CC#36, 5CC#37, 5CC#57,
2CC#3	CA_7B		No
2CC#4	CA_7C		3CC#6, 3CC#17, 3CC#21, 3CC#31, 3CC#32, 3CC#33, 4CC#16, 4CC#43, 4CC#53, 4CC#54, 4CC#86, 4CC#87, 5CC#60, 5CC#61
2CC#5	CA_12B		3CC#18, 3CC#22, 3CC#29, 3CC#36, 3CC#7, 4CC#38, 4CC#44, 4CC#45, 4CC#51, 4CC#56, 4CC#70, 4CC#71, 4CC#85, 4CC#88, 5CC#53, 5CC#59, 5CC#62
2CC#6	CA_38C		No
2CC#7	CA_41C		3CC#41, 3CC#43, 3CC#44, 3CC#47, 4CC#26, 4CC#27, 4CC#96, 4CC#97, 4CC#98, 5CC#12
2CC#9	CA_48C		3CC#9, 3CC#20, 3CC#24, 3CC#38, 3CC#52, 3CC#55, 3CC#56, 4CC#33, 4CC#34, 4CC#35, 4CC#47, 4CC#58, 4CC#63, 4CC#64, 4CC#72, 4CC#74, 4CC#79, 4CC#80, 4CC#90, 4CC#93, 4CC#104, 4CC#105, 5CC#15, 5CC#28, 5CC#41, 5CC#47, 5CC#48, 5CC#50, 5CC#64, 5CC#65, 5CC#70
2CC#10	CA_66B		3CC#10, 3CC#25, 3CC#39, 3CC#53, 3CC#57, 4CC#13, 4CC#34, 4CC#40, 4CC#48, 4CC#59, 4CC#65, 4CC#75, 4CC#81, 4CC#91, 4CC#94, 4CC#102, 5CC#19, 5CC#36, 5CC#47, 5CC#51, 5CC#54, 5CC#66
2CC#11	CA_66C		3CC#11, 3CC#26, 3CC#35, 3CC#40, 3CC#49, 3CC#54, 3CC#58, 3CC#59, 4CC#14, 4CC#35, 4CC#41, 4CC#49, 4CC#55, 4CC#60, 4CC#66, 4CC#67, 4CC#76, 4CC#82, 4CC#92, 4CC#95, 4CC#103, 5CC#20, 5CC#37, 5CC#48, 5CC#52, 5CC#55, 5CC#67
2CC#12	CA_2A-2A		3CC#60, 3CC#61, 3CC#62, 3CC#63, 3CC#64, 3CC#65, 3CC#66, 3CC#67, 3CC#68, 3CC#69, 4CC#37, 4CC#38, 4CC#39, 4CC#40, 4CC#41, 4CC#106, 4CC#107, 4CC#108, 4CC#109, 4CC#110, 4CC#111, 4CC#112, 4CC#113, 4CC#114, 4CC#115, 4CC#116, 4CC#117, 4CC#118, 4CC#119, 4CC#120, 5CC#17, 5CC#51, 5CC#52, 5CC#53, 5CC#54, 5CC#55, 5CC#72, 5CC#73, 5CC#74, 5CC#75, 5CC#76
2CC#13	CA_2A-4A		3CC#60, 3CC#70, 3CC#71, 3CC#72, 3CC#73, 3CC#74, 3CC#75, 3CC#76, 4CC#42, 4CC#43, 4CC#44, 4CC#106, 4CC#107, 4CC#108, 4CC#109, 4CC#110, 4CC#121, 4CC#122, 4CC#123, 4CC#124, 4CC#125, 4CC#126
2CC#14	CA_2A-5A		3CC#61, 3CC#77, 3CC#78, 3CC#79, 3CC#80, 3CC#81, 4CC#45, 4CC#46, 4CC#47, 4CC#48, 4CC#49, 4CC#111, 4CC#112, 4CC#127, 4CC#128, 4CC#129, 4CC#130, 4CC#131, 5CC#18, 5CC#51, 5CC#52, 5CC#56, 5CC#72, 5CC#73, 5CC#77, 6CC#1, 6CC#8, 6CC#14, 7CC#1, 7CC#4
2CC#15	CA_2A-7A		3CC#62, 3CC#82, 3CC#83, 3CC#84, 3CC#85, 3CC#86, 3CC#87, 4CC#51, 4CC#52, 4CC#113, 4CC#114, 4CC#132, 4CC#133, 4CC#134, 4CC#135, 4CC#136, 4CC#137, 4CC#138, 4CC#139, 5CC#21, 5CC#58, 5CC#59, 5CC#74, 5CC#78, 5CC#79, 6CC#2,
2CC#16	CA_2A-12A		3CC#63, 3CC#88, 3CC#89, 3CC#110, 4CC#55, 4CC#115, 4CC#116, 4CC#126, 4CC#140, 4CC#153, 5CC#75, 6CC#1, 6CC#2, 6CC#3, 6CC#4, 6CC#5, 6CC#6, 6CC#7, 6CC#8, 6CC#9, 6CC#10, 6CC#11, 6CC#12, 6CC#13, 6CC#14, 6CC#15
2CC#17	CA_2A-13A		3CC#64, 3CC#90, 3CC#91, 3CC#92, 4CC#57, 4CC#58, 4CC#59, 4CC#60, 4CC#117, 4CC#141, 5CC#23, 5CC#24, 5CC#63, 5CC#64, 5CC#65, 5CC#66, 5CC#67, 5CC#80, 5CC#81, 6CC#10, 6CC#15, 7CC#5
2CC#18	CA_2A-14A		3CC#65, 3CC#93, 4CC#118, 4CC#145, 5CC#76, 5CC#82
2CC#19	CA_2A-17A		No
2CC#20	CA_2A-29A	B29 SCC only	3CC#66, 3CC#94

Index	2CC	Restriction	Completely Covered by Measurement Superset
2CC#21	CA_2A-46A	B46 SCC only	3CC#67, 3CC#95, 3CC#96, 4CC#61, 4CC#146, 4CC#147, 5CC#25, 5CC#68
2CC#22	CA_2A-48A		3CC#97, 3CC#98, 4CC#63, 4CC#148, 4CC#149, 5CC#27, 5CC#70
2CC#23	CA_2A-66A		3CC#68, 3CC#89, 3CC#99, 3CC#100, 3CC#117, 3CC#126, 3CC#130, 4CC#65, 4CC#66, 4CC#116, 4CC#119, 4CC#120, 4CC#127, 4CC#136, 4CC#140, 4CC#150, 4CC#151, 5CC#54, 5CC#55, 5CC#72, 5CC#74, 5CC#75
2CC#24	CA_2A-71A		3CC#69
2CC#25	CA_4A-4A		3CC#70, 3CC#101, 3CC#102, 3CC#103, 3CC#104, 3CC#105, 3CC#106, 4CC#69, 4CC#70, 4CC#106, 4CC#121, 4CC#122, 4CC#152, 4CC#153
2CC#26	CA_4A-5A		3CC#101, 3CC#107, 3CC#71, 4CC#107, 4CC#121, 4CC#123, 4CC#152, 4CC#71
2CC#27	CA_4A-7A		3CC#72, 3CC#102, 3CC#108, 3CC#109, 4CC#124, 4CC#125
2CC#28	CA_4A-12A		3CC#73, 3CC#103, 3CC#110, 4CC#108, 4CC#122, 4CC#126, 4CC#153
2CC#29	CA_4A-13A		3CC#74, 3CC#104, 3CC#111, 4CC#72, 4CC#109,
2CC#30	CA_4A-17A		No
2CC#31	CA_4A-29A	B29 SCC only	3CC#75, 3CC#105
2CC#32	CA_4A-46A	B46 SCC only	3CC#112, 4CC#73, 5CC#30
2CC#33	CA_4A-48A		3CC#113, 4CC#74
2CC#34	CA_4A-71A		3CC#76, 3CC#106, 4CC#110
2CC#35	CA_5A-5A		3CC#114, 4CC#75, 4CC#76, 4CC#154
2CC#36	CA_5A-7A		3CC#77, 3CC#115, 3CC#116, 4CC#77, 5CC#32
2CC#37	CA_5A-12A		3CC#78, 3CC#107, 3CC#117, 4CC#111, 4CC#123, 4CC#127, 4CC#152, 5CC#72
2CC#38	CA_5A-25A		No
2CC#39	CA_5A-38A		No
2CC#40	CA_5A-41A		No
2CC#41	CA_5A-46A	B46 SCC only	3CC#79, 3CC#116, 3CC#118, 4CC#128, 4CC#155, 5CC#77
2CC#42	CA_5A-48A		3CC#80, 3CC#119, 3CC#120, 4CC#79, 4CC#129, 4CC#130, 4CC#156, 5CC#34
2CC#43	CA_5A-66A		3CC#81, 3CC#114, 3CC#121, 4CC#81, 4CC#82, 4CC#112, 4CC#131, 4CC#154, 5CC#73
2CC#44	CA_7A-7A		3CC#82, 3CC#108, 3CC#115, 3CC#122, 3CC#123, 3CC#124, 3CC#125, 4CC#84, 4CC#124, 4CC#132, 4CC#133, 4CC#134, 4CC#135, 4CC#157, 4CC#158, 5CC#38, 5CC#58, 5CC#78, 5CC#79, 6CC#5, 6CC#9, 7CC#2
2CC#45	CA_7A-12A		3CC#83, 3CC#109, 3CC#126, 4CC#113, 4CC#125, 4CC#136, 5CC#74
2CC#46	CA_7A-13A		3CC#84, 3CC#122, 4CC#132
2CC#47	CA_7A-29A	B29 SCC only	3CC#85, 3CC#123, 3CC#127, 4CC#133, 4CC#137, 4CC#157, 5CC#78
2CC#49	CA_7A-46A	B46 SCC only	3CC#86, 3CC#116, 3CC#124, 3CC#128, 4CC#134, 4CC#138
2CC#50	CA_7A-66A		3CC#87, 3CC#125, 3CC#129, 4CC#114, 4CC#135, 4CC#139, 4CC#158, 5CC#79
2CC#51	CA_12A-12A		3CC#88, 3CC#110, 4CC#115, 4CC#126, 4CC#153
2CC#52	CA_12A-25A		No
2CC#53	CA_12A-46A	B46 SCC only	No
2CC#54	CA_12A-66A		3CC#89, 3CC#117, 3CC#126, 3CC#130, 4CC#116, 4CC#127, 4CC#136, 4CC#140, 5CC#72, 5CC#74, 5CC#75
2CC#55	CA_13A-46A	B46 SCC only	3CC#90, 3CC#131, 4CC#141, 4CC#159, 5CC#80
2CC#56	CA_13A-48A		3CC#90, 3CC#131, 4CC#141, 4CC#159, 5CC#80
2CC#57	CA_13A-66A		3CC#92, 3CC#134, 4CC#94, 4CC#95, 4CC#117, 4CC#144, 4CC#161, 5CC#66, 5CC#67
2CC#58	CA_14A-66A		3CC#93, 3CC#135, 4CC#118, 4CC#145, 4CC#162, 5CC#76, 5CC#82
2CC#59	CA_25A-25A		3CC#136, 3CC#137, 3CC#138, 4CC#96, 5CC#43
2CC#60	CA_25A-26A		3CC#137, 3CC#139, 4CC#97

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2CC#61	CA_25A-41A		3CC#138
2CC#62	CA_25A-46A	B46 SCC only	No
2CC#63	CA_26A-41A		3CC#139
2CC#64	CA_26A-46A	B46 SCC only	No
2CC#65	CA_29A-66A	B29 SCC only	3CC#94, 3CC#127, 3CC#140, 4CC#86, 4CC#137, 4CC#157, 5CC#60, 5CC#78
2CC#66	CA_41A-41A		3CC#141, 4CC#98
2CC#68	CA_41A-46A	B46 SCC only	No
2CC#69	CA_41A-48A		No
2CC#71	CA_46A-66A	B46 SCC only	3CC#96, 3CC#118, 3CC#128, 3CC#131, 3CC#143, 3CC#144, 4CC#128, 4CC#138, 4CC#141, 4CC#146, 4CC#147, 4CC#155, 4CC#159, 4CC#163, 5CC#77, 5CC#80
2CC#72	CA_46A-71A	B46 SCC only	No
2CC#73	CA_48A-48A		3CC#97, 3CC#113, 3CC#119, 3CC#132, 3CC#145, 3CC#146, 4CC#102, 4CC#103, 4CC#129, 4CC#142, 4CC#148, 4CC#156, 4CC#160, 4CC#164, 5CC#81
2CC#74	CA_48A-66A		3CC#98, 3CC#120, 3CC#133, 3CC#145, 3CC#147, 4CC#130, 4CC#143, 4CC#148, 4CC#149, 4CC#156, 4CC#160, 4CC#164, 4CC#165, 5CC#81
2CC#75	CA_48A-71A		3CC#146
2CC#76	CA_66A-66A		3CC#99, 3CC#121, 3CC#129, 3CC#130, 3CC#134, 3CC#135, 3CC#140, 3CC#144, 3CC#147, 3CC#148, 3CC#149, 4CC#68, 4CC#83, 4CC#87, 4CC#88, 4CC#101, 4CC#105, 4CC#119, 4CC#131, 4CC#139, 4CC#140, 4CC#144, 4CC#145, 4CC#147, 4CC#149, 4CC#150, 4CC#151, 4CC#154, 4CC#155, 4CC#158, 4CC#159, 4CC#161, 4CC#162, 4CC#163, 4CC#162, 4CC#163, 4CC#164, 4CC#165, 5CC#46, 5CC#57, 5CC#61, 5CC#62, 5CC#69, 5CC#71, 5CC#73, 5CC#75, 5CC#76, 5CC#77, 5CC#79, 5CC#80, 5CC#82, 6CC#7, 6CC#11, 6CC#12, 6CC#13, 6CC#14, 6CC#15, 7CC#3, 7CC#4, 7CC#5
2CC#77	CA_66A-71A		3CC#100, 3CC#149, 4CC#120, 4CC#151

Index	3CC	Restriction	Completely Covered by Measurement Superset
3CC#1	CA_41D		4CC#120, 4CC#151
3CC#3	CA_48D		4CC#5, 4CC#9, 4CC#11, 4CC#19, 4CC#32, 4CC#36, 5CC#15, 5CC#23, 5CC#27, 5CC#29, 5CC#34, 5CC#35, 5CC#40, 5CC#42, 5CC#49
3CC#4	CA_66D		4CC#6, 4CC#12, 4CC#20, 5CC#24
3CC#5	CA_2A-5B		4CC#37, 4CC#50, 5CC#19, 5CC#20, 5CC#57
3CC#6	CA_2A-7C		4CC#53, 4CC#54, 5CC#60, 5CC#61
3CC#7	CA_2A-12B		4CC#38, 4CC#56, 5CC#53, 5CC#62
3CC#8	CA_2A-46C	B46 SCC only	4CC#39, 4CC#62, 4CC#62
3CC#9	CA_2A-48C		4CC#64, 5CC#28
3CC#10	CA_2A-66B		4CC#40
3CC#11	CA_2A-66C		4CC#41, 4CC#55, 4CC#67
3CC#12	CA_2C-5A		No
3CC#13	CA_2C-12A		No
3CC#14	CA_2C-29A	B29 SCC only	No
3CC#15	CA_2C-66A		4CC#68
3CC#16	CA_4A-5B		4CC#42, 4CC#69
3CC#17	CA_4A-7C		4CC#43
3CC#18	CA_4A-12B		4CC#44, 4CC#70
3CC#19	CA_4A-46C	B46 SCC only	5CC#31
3CC#20	CA_4A-48C		4CC#72, 4CC#74
3CC#21	CA_5A-7C		No
3CC#22	CA_5A-12B		4CC#45, 4CC#71
3CC#23	CA_5A-46C	B46 SCC only	4CC#46, 4CC#78, 5CC#56, 6CC#14
3CC#24	CA_5A-48C		4CC#47, 4CC#80
3CC#25	CA_5A-66B		4CC#48, 4CC#75, 5CC#51
3CC#26	CA_5A-66C		4CC#49, 4CC#76, 5CC#52
3CC#27	CA_5B-46A	B46 SCC only	No
3CC#28	CA_5B-66A		4CC#50, 4CC#83, 5CC#36, 5CC#37, 5CC#57
3CC#29	CA_7A-12B		4CC#51, 4CC#85, 5CC#59
3CC#30	CA_7A-46C	B46 SCC only	4CC#52, 4CC#77, 4CC#84, 5CC#58
3CC#31	CA_7C-29A	B29 SCC only	4CC#53, 4CC#86, 5CC#60
3CC#32	CA_7C-46A	B46 SCC only	No
3CC#33	CA_7C-66A		4CC#54, 4CC#87, 5CC#61
3CC#34	CA_12A-46C	B46 SCC only	No
3CC#35	CA_12A-66C		4CC#55
3CC#36	CA_12B-66A		4CC#56, 4CC#85, 4CC#88, 5CC#53, 5CC#59, 5CC#62
3CC#37	CA_13A-46C	B46 SCC only	4CC#57, 4CC#89, 5CC#63, 5CC#71, 6CC#15
3CC#38	CA_13A-48C		4CC#58, 4CC#72, 4CC#93, 5CC#41, 5CC#65
3CC#39	CA_13A-66B		4CC#59
3CC#40	CA_13A-66C		4CC#60
3CC#41	CA_25A-41C		4CC#96
3CC#42	CA_25A-46C	B46 SCC only	No
3CC#43	CA_26A-41C		4CC#97
3CC#44	CA_41A-41C		4CC#98
3CC#46	CA_41A-46C	B46 SCC only	No
3CC#49	CA_46A-66C	B46 SCC only	No
3CC#50	CA_46C-66A	B46 SCC only	4CC#62, 4CC#78, 4CC#89, 4CC#100, 4CC#101, 5CC#56, 5CC#63, 5CC#68, 5CC#69, 5CC#71, 6CC#14, 6CC#15

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3CC#51	CA_46C-71A	B46 SCC only	No
3CC#52	CA_48A-48C		4CC#63, 4CC#74, 4CC#79, 4CC#90, 4CC#104, 5CC#47, 5CC#48, 5CC#64, 5CC#70
3CC#53	CA_48A-66B		4CC#91, 4CC#102
3CC#54	CA_48A-66C		4CC#92, 4CC#103
3CC#55	CA_48C-66A		4CC#64, 4CC#80, 4CC#93, 4CC#104, 4CC#105, 5CC#50, 5CC#65, 5CC#70
3CC#56	CA_48C-71A		No
3CC#57	CA_66A-66B		4CC#65, 4CC#81, 4CC#94, 5CC#36, 5CC#54, 5CC#66
3CC#58	CA_66A-66C		4CC#66, 4CC#82, 4CC#95, 5CC#37, 5CC#55, 5CC#67
3CC#59	CA_66C-71A		4CC#67
3CC#60	CA_2A-2A-4A		4CC#106, 4CC#107, 4CC#108, 4CC#109, 4CC#110
3CC#61	CA_2A-2A-5A		4CC#111, 4CC#112, 5CC#51, 5CC#52, 5CC#72, 5CC#73
3CC#62	CA_2A-2A-7A		4CC#113, 4CC#114, 5CC#74
3CC#63	CA_2A-2A-12A		4CC#115, 4CC#116, 5CC#75
3CC#64	CA_2A-2A-13A		4CC#117
3CC#65	CA_2A-2A-14A		4CC#118, 5CC#76
3CC#66	CA_2A-2A-29A	B29 SCC only	No
3CC#67	CA_2A-2A-46A	B46 SCC only	No
3CC#68	CA_2A-2A-66A		4CC#119, 4CC#120, 5CC#54, 5CC#55
3CC#69	CA_2A-2A-71A		4CC#110, 4CC#120
3CC#70	CA_2A-4A-4A		4CC#106, 4CC#121, 4CC#122
3CC#71	CA_2A-4A-5A		4CC#107, 4CC#123
3CC#72	CA_2A-4A-7A		4CC#124, 4CC#125
3CC#73	CA_2A-4A-12A		4CC#108, 4CC#126
3CC#74	CA_2A-4A-13A		4CC#109
3CC#75	CA_2A-4A-29A	B29 SCC only	No
3CC#76	CA_2A-4A-71A		4CC#110
3CC#77	CA_2A-5A-7A		No
3CC#78	CA_2A-5A-12A		4CC#111, 4CC#127, 5CC#72
3CC#79	CA_2A-5A-46A	B46 SCC only	4CC#128, 5CC#77
3CC#80	CA_2A-5A-48A		4CC#129, 4CC#130
3CC#81	CA_2A-5A-66A		4CC#112, 4CC#131, 5CC#73
3CC#82	CA_2A-7A-7A		4CC#132, 4CC#133, 4CC#134, 4CC#135, 5CC#58, 5CC#78, 5CC#79, 6CC#9, 7CC#2
3CC#83	CA_2A-7A-12A		4CC#113, 4CC#136, 5CC#74
3CC#84	CA_2A-7A-13A		4CC#132
3CC#85	CA_2A-7A-29A	B29 SCC only	4CC#137
3CC#86	CA_2A-7A-46A	B46 SCC only	4CC#138
3CC#87	CA_2A-7A-66A		4CC#114, 4CC#139
3CC#88	CA_2A-12A-12A		4CC#115
3CC#89	CA_2A-12A-66A		4CC#116, 4CC#140, 5CC#75
3CC#90	CA_2A-13A-46A	B46 SCC only	4CC#141, 5CC#80
3CC#91	CA_2A-13A-48A		4CC#142, 4CC#143, 5CC#64, 5CC#81
3CC#92	CA_2A-13A-66A		4CC#117, 4CC#144, 5CC#66, 5CC#67
3CC#93	CA_2A-14A-66A		4CC#118, 4CC#145, 5CC#76, 5CC#82
3CC#94	CA_2A-29A-66A	B29 SCC only	4CC#137, 5CC#60, 5CC#78
3CC#95	CA_2A-46A-46A	B46 SCC only	4CC#146
3CC#96	CA_2A-46A-66A	B46 SCC only	4CC#147
3CC#97	CA_2A-48A-48A		4CC#148
3CC#98	CA_2A-48A-66A		4CC#149
3CC#99	CA_2A-66A-66A		4CC#119, 4CC#140, 4CC#150, 4CC#151, 5CC#75
3CC#100	CA_2A-66A-71A		4CC#120

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3CC#101	CA_4A-4A-5A		4CC#121, 4CC#152
3CC#102	CA_4A-4A-7A		No
3CC#103	CA_4A-4A-12A		4CC#122, 4CC#153
3CC#104	CA_4A-4A-13A		No
3CC#105	CA_4A-4A-29A	B29 SCC only	No
3CC#106	CA_4A-4A-71A		No
3CC#107	CA_4A-5A-12A		4CC#123, 4CC#152
3CC#108	CA_4A-7A-7A		4CC#124
3CC#109	CA_4A-7A-12A		4CC#125
3CC#110	CA_4A-12A-12A		4CC#126, 4CC#153
3CC#111	CA_4A-13A-48A		No
3CC#112	CA_4A-46A-46A	B46 SCC only	No
3CC#113	CA_4A-48A-48A		No
3CC#114	CA_5A-5A-66A		4CC#154
3CC#115	CA_5A-7A-7A		No
3CC#116	CA_5A-7A-46A	B46 SCC only	No
3CC#117	CA_5A-12A-66A		4CC#127, 5CC#72
3CC#118	CA_5A-46A-66A	B46 SCC only	4CC#128, 4CC#155, 5CC#77
3CC#119	CA_5A-48A-48A		4CC#129, 4CC#156
3CC#120	CA_5A-48A-66A		4CC#130, 4CC#156
3CC#121	CA_5A-66A-66A		4CC#131, 4CC#154, 4CC#155, 5CC#73, 5CC#77, 6CC#12, 6CC#14, 7CC#3, 7CC#4
3CC#122	CA_7A-7A-13A		4CC#132
3CC#123	CA_7A-7A-29A	B29 SCC only	4CC#133, 4CC#157, 5CC#78
3CC#124	CA_7A-7A-46A	B46 SCC only	4CC#134
3CC#125	CA_7A-7A-66A		4CC#135, 4CC#157, 4CC#158, 5CC#78, 5CC#79
3CC#126	CA_7A-12A-66A		4CC#136, 5CC#74
3CC#127	CA_7A-29A-66A	B29 SCC only	4CC#137, 4CC#157, 5CC#78
3CC#128	CA_7A-46A-66A	B46 SCC only	4CC#138
3CC#129	CA_7A-66A-66A		4CC#139, 4CC#158, 5CC#79
3CC#130	CA_12A-66A-66A		4CC#140, 5CC#75
3CC#131	CA_13A-46A-66A	B46 SCC only	4CC#141, 4CC#159, 5CC#80
3CC#132	CA_13A-48A-48A		4CC#142, 4CC#160, 5CC#81
3CC#133	CA_13A-48A-66A		4CC#143, 4CC#160, 5CC#81
3CC#134	CA_13A-66A-66A		4CC#144, 4CC#159, 4CC#161, 5CC#71, 5CC#80, 6CC#13, 6CC#15, 7CC#5
3CC#135	CA_14A-66A-66A		4CC#145, 4CC#162, 5CC#76, 5CC#82
3CC#136	CA_25A-25A-25A		No
3CC#137	CA_25A-25A-26A		No
3CC#138	CA_25A-25A-41A		No
3CC#139	CA_25A-26A-41A		No
3CC#140	CA_29A-66A-66A	B29 SCC only	No
3CC#141	CA_41A-41A-41A		No
3CC#143	CA_46A-46A-66A	B46 SCC only	4CC#146
3CC#144	CA_46A-66A-66A	B46 SCC only	4CC#147, 4CC#155, 4CC#159, 4CC#163, 5CC#77, 5CC#80
3CC#145	CA_48A-48A-66A		4CC#148, 4CC#156, 4CC#160, 4CC#164, 5CC#81
3CC#146	CA_48A-48A-71A		No
3CC#147	CA_48A-66A-66A		4CC#149, 4CC#164, 4CC#165
3CC#148	CA_66A-66A-66A		4CC#150, 4CC#161, 4CC#162, 4CC#163, 4CC#165, 5CC#82
3CC#149	CA_66A-66A-71A		4CC#151

Index	4CC	Restriction	Completely Covered by Measurement Superset
4CC#1	CA_41E		No
4CC#3	CA_48E		5CC#3, 5CC#4, 5CC#10, 5CC#16, 6CC#6
4CC#4	CA_2A-46D	B46 SCC only	5CC#17, 5CC#18, 5CC#21, 5CC#22, 5CC#25, 5CC#26, 6CC#8, 6CC#9, 6CC#10, 6CC#11, 7CC#4, 7CC#5
4CC#5	CA_2A-48D		5CC#23, 5CC#27, 5CC#29
4CC#6	CA_2A-66D		5CC#24
4CC#7	CA_2C-5B		No
4CC#8	CA_4A-46D	B46 SCC only	5CC#30
4CC#9	CA_4A-48D		No
4CC#10	CA_5A-46D	B46 SCC only	5CC#18, 5CC#32, 5CC#33, 6CC#8, 6CC#12, 7CC#4
4CC#11	CA_5A-48D		5CC#34, 5CC#35
4CC#12	CA_5A-66D		No
4CC#13	CA_5B-66B		5CC#19, 5CC#36
4CC#14	CA_5B-66C		5CC#20, 5CC#37
4CC#15	CA_7A-46D	B46 SCC only	5CC#21, 5CC#32, 5CC#38, 6CC#9
4CC#16	CA_7C-46C	B46 SCC only	No
4CC#17	CA_12A-46D	B46 SCC only	No
4CC#18	CA_13A-46D	B46 SCC only	5CC#22, 5CC#39, 6CC#10, 6CC#13, 7CC#5
4CC#19	CA_13A-48D		5CC#23, 5CC#40, 5CC#42
4CC#20	CA_13A-66D		5CC#24
4CC#21	CA_25A-41D		5CC#43
4CC#22	CA_25A-46D	B46 SCC only	No
4CC#23	CA_41A-41D		No
4CC#25	CA_41A-46D	B46 SCC only	No
4CC#26	CA_41C-41C		No
4CC#31	CA_46D-66A	B46 SCC only	5CC#26, 5CC#33, 5CC#39, 5CC#45, 5CC#46, 6CC#8, 6CC#10, 6CC#11, 6CC#12, 6CC#13, 7CC#4, 7CC#5
4CC#32	CA_48A-48D		5CC#27, 5CC#34, 5CC#40, 5CC#49
4CC#33	CA_48C-48C		5CC#28, 5CC#41, 5CC#50
4CC#34	CA_48C-66B		5CC#47
4CC#35	CA_48C-66C		5CC#48
4CC#36	CA_48D-66A		5CC#29, 5CC#35, 5CC#42, 5CC#49
4CC#37	CA_2A-2A-5B		No
4CC#38	CA_2A-2A-12B		5CC#53
4CC#39	CA_2A-2A-46C	B46 SCC only	No
4CC#40	CA_2A-2A-66B		5CC#51, 5CC#54

Index	4CC	Restriction	Completely Covered by Measurement Superset
4CC#41	CA_2A-2A-66C		5CC#52, 5CC#55
4CC#42	CA_2A-4A-5B		No
4CC#43	CA_2A-4A-7C		No
4CC#44	CA_2A-4A-12B		No
4CC#45	CA_2A-5A-12B		No
4CC#46	CA_2A-5A-46C	B46 SCC only	5CC#56, 6CC#14
4CC#47	CA_2A-5A-48C		No
4CC#48	CA_2A-5A-66B		5CC#51
4CC#49	CA_2A-5A-66C		5CC#52
4CC#50	CA_2A-5B-66A		5CC#57
4CC#51	CA_2A-7A-12B		5CC#59
4CC#52	CA_2A-7A-46C	B46 SCC only	5CC#58
4CC#53	CA_2A-7C-29A	B29 SCC only	5CC#60
4CC#54	CA_2A-7C-66A		5CC#60
4CC#55	CA_2A-12A-66C		No
4CC#56	CA_2A-12B-66A		5CC#53, 5CC#59, 5CC#62
4CC#57	CA_2A-13A-46C	B46 SCC only	5CC#63, 6CC#15
4CC#58	CA_2A-13A-48C		5CC#64, 5CC#65
4CC#59	CA_2A-13A-66B		5CC#66
4CC#60	CA_2A-13A-66C		5CC#67
4CC#61	CA_2A-46A-46C	B46 SCC only	5CC#68
4CC#62	CA_2A-46C-66A	B46 SCC only	5CC#56, 5CC#63, 5CC#68, 5CC#69, 6CC#14, 6CC#15
4CC#63	CA_2A-48A-48C		5CC#64, 5CC#70
4CC#64	CA_2A-48C-66A		5CC#65, 5CC#70
4CC#65	CA_2A-66A-66B		5CC#54, 5CC#66
4CC#66	CA_2A-66A-66C		5CC#55, 5CC#67
4CC#67	CA_2A-66C-71A		No
4CC#68	CA_2C-66A-66A		No
4CC#69	CA_4A-4A-5B		No
4CC#70	CA_4A-4A-12B		No
4CC#71	CA_4A-5A-12B		No
4CC#72	CA_4A-13A-48C		No
4CC#73	CA_4A-46A-46C	B46 SCC only	No
4CC#74	CA_4A-48A-48C		No
4CC#75	CA_5A-5A-66B		No
4CC#76	CA_5A-5A-66C		No
4CC#77	CA_5A-7A-46C	B46 SCC only	No
4CC#78	CA_5A-46C-66A	B46 SCC only	5CC#56, 6CC#14
4CC#79	CA_5A-48A-48C		No
4CC#80	CA_5A-48C-66A		No

Index	4CC	Restriction	Completely Covered by Measurement Superset
4CC#81	CA_5A-66A-66B		No
4CC#82	CA_5A-66A-66C		No
4CC#83	CA_5B-66A-66A		5CC#57
4CC#84	CA_7A-7A-46C	B46 SCC only	5CC#58
4CC#85	CA_7A-12B-66A		5CC#59
4CC#86	CA_7C-29A-66A	B29 SCC only	5CC#60
4CC#87	CA_7C-66A-66A		5CC#61
4CC#88	CA_12B-66A-66A		5CC#62
4CC#89	CA_13A-46C-66A	B46 SCC only	5CC#63, 5CC#71, 6CC#15
4CC#90	CA_13A-48A-48C		5CC#64
4CC#91	CA_13A-48A-66B		No
4CC#92	CA_13A-48A-66C		No
4CC#93	CA_13A-48C-66A		5CC#65
4CC#94	CA_13A-66A-66B		5CC#65
4CC#95	CA_13A-66A-66C		5CC#67
4CC#96	CA_25A-25A-41C		No
4CC#97	CA_25A-26A-41C		No
4CC#98	CA_41A-41A-41C		No
4CC#100	CA_46A-46C-66A	B46 SCC only	5CC#68
4CC#101	CA_46C-66A-66A	B46 SCC only	5CC#69, 5CC#71, 6CC#14, 6CC#15
4CC#102	CA_48A-48A-66B		No
4CC#103	CA_48A-48A-66C		No
4CC#104	CA_48A-48C-66A		5CC#70
4CC#105	CA_48C-66A-66A		No
4CC#106	CA_2A-2A-4A-4A		No
4CC#107	CA_2A-2A-4A-5A		No
4CC#108	CA_2A-2A-4A-12A		No
4CC#109	CA_2A-2A-4A-13A		No
4CC#110	CA_2A-2A-4A-71A		No
4CC#111	CA_2A-2A-5A-12A		5CC#72
4CC#112	CA_2A-2A-5A-66A		5CC#72, 5CC#73
4CC#113	CA_2A-2A-7A-12A		5CC#74
4CC#114	CA_2A-2A-7A-66A		5CC#74
4CC#115	CA_2A-2A-12A-12A		No
4CC#116	CA_2A-2A-12A-66A		5CC#72, 5CC#74, 5CC#75
4CC#117	CA_2A-2A-13A-66A		No
4CC#118	CA_2A-2A-14A-66A		5CC#76
4CC#119	CA_2A-2A-66A-66A		5CC#73, 5CC#75, 5CC#76
4CC#120	CA_2A-2A-66A-71A		No

Index	4CC	Restriction	Completely Covered by Measurement Superset
4CC#121	CA_2A-4A-4A-5A		No
4CC#122	CA_2A-4A-4A-12A		No
4CC#123	CA_2A-4A-5A-12A		No
4CC#124	CA_2A-4A-7A-7A		No
4CC#125	CA_2A-4A-7A-12A		No
4CC#126	CA_2A-4A-12A-12A		No
4CC#127	CA_2A-5A-12A-66A		5CC#72
4CC#128	CA_2A-5A-46A-66A	B46 SCC only	5CC#77
4CC#129	CA_2A-5A-48A-48A		No
4CC#130	CA_2A-5A-48A-66A		No
4CC#131	CA_2A-5A-66A-66A		5CC#73, 5CC#77, 6CC#14, 7CC#4
4CC#132	CA_2A-7A-7A-13A		No
4CC#133	CA_2A-7A-7A-29A	B29 SCC only	5CC#78
4CC#134	CA_2A-7A-7A-46A	B46 SCC only	No
4CC#135	CA_2A-7A-7A-66A		5CC#78, 5CC#79
4CC#136	CA_2A-7A-12A-66A		5CC#74
4CC#137	CA_2A-7A-29A-66A	B29 SCC only	5CC#78
4CC#138	CA_2A-7A-46A-66A	B46 SCC only	No
4CC#139	CA_2A-7A-66A-66A		5CC#79
4CC#140	CA_2A-12A-66A-66A		5CC#75
4CC#141	CA_2A-13A-46A-66A	B46 SCC only	5CC#80
4CC#142	CA_2A-13A-48A-48A		5CC#81
4CC#143	CA_2A-13A-48A-66A		5CC#81
4CC#144	CA_2A-13A-66A-66A		5CC#80, 6CC#15, 7CC#5
4CC#145	CA_2A-14A-66A-66A		5CC#76, 5CC#82
4CC#146	CA_2A-46A-46A-66A	B46 SCC only	No
4CC#147	CA_2A-46A-66A-66A	B46 SCC only	5CC#77, 5CC#80
4CC#148	CA_2A-48A-48A-66A		5CC#81
4CC#149	CA_2A-48A-66A-66A		No
4CC#150	CA_2A-66A-66A-66A		5CC#82
4CC#151	CA_2A-66A-66A-71A		No
4CC#152	CA_4A-4A-5A-12A		No
4CC#153	CA_4A-4A-12A-12A		No
4CC#154	CA_5A-5A-66A-66A		No
4CC#155	CA_5A-46A-66A-66A	B46 SCC only	5CC#77
4CC#156	CA_5A-48A-48A-66A		No
4CC#157	CA_7A-7A-29A-66A	B29 SCC only	5CC#78
4CC#158	CA_7A-7A-66A-66A		5CC#79
4CC#159	CA_13A-46A-66A-66A	B46 SCC only	5CC#80
4CC#160	CA_13A-48A-48A-66A		5CC#81
4CC#161	CA_13A-66A-66A-66A		No
4CC#162	CA_14A-66A-66A-66A		5CC#82
4CC#163	CA_46A-66A-66A-66A	B46 SCC only	No
4CC#164	CA_48A-48A-66A-66A		No
4CC#165	CA_48A-66A-66A-66A		No

Index	5CC	Restriction	Completely Covered by Measurement Superset
5CC#1	CA_48F		No
5CC#2	CA_2A-46E	B46 SCC only	6CC#1, 6CC#2, 6CC#3, 7CC#1, 7CC#2
5CC#3	CA_2A-48E		No
5CC#4	CA_4A-48E		No
5CC#5	CA_5A-46E	B46 SCC only	6CC#1, 6CC#4, 7CC#1, 7CC#3
5CC#6	CA_7A-46E	B46 SCC only	6CC#2, 6CC#5, 7CC#2
5CC#7	CA_7C-46D	B46 SCC only	No
5CC#8	CA_12A-46E	B46 SCC only	No
5CC#9	CA_13A-46E	B46 SCC only	No
5CC#10	CA_13A-48E		6CC#6
5CC#11	CA_41A-46E	B46 SCC only	No
5CC#12	CA_41C-41D		No
5CC#14	CA_46E-66A	B46 SCC only	6CC#3, 6CC#4, 6CC#7, 7CC#1, 7CC#3
5CC#15	CA_48C-48D		No
5CC#16	CA_48E-66A		6CC#6
5CC#17	CA_2A-2A-46D	B46 SCC only	No
5CC#18	CA_2A-5A-46D	B46 SCC only	6CC#8, 7CC#4
5CC#19	CA_2A-5B-66B		No
5CC#20	CA_2A-5B-66C		No
5CC#21	CA_2A-7A-46D	B46 SCC only	6CC#9
5CC#22	CA_2A-13A-46D	B46 SCC only	6CC#10, 7CC#5
5CC#23	CA_2A-13A-48D		No
5CC#24	CA_2A-13A-66D		No
5CC#25	CA_2A-46A-46D	B46 SCC only	No
5CC#26	CA_2A-46D-66A	B46 SCC only	6CC#8, 6CC#10, 6CC#11, 7CC#4, 7CC#5
5CC#27	CA_2A-48A-48D		No
5CC#28	CA_2A-48C-48C		No
5CC#29	CA_2A-48D-66A		No
5CC#30	CA_4A-46A-46D	B46 SCC only	No
5CC#31	CA_4A-46C-46C	B46 SCC only	No
5CC#32	CA_5A-7A-46D	B46 SCC only	No
5CC#33	CA_5A-46D-66A	B46 SCC only	6CC#8, 6CC#12, 7CC#4
5CC#34	CA_5A-48A-48D		No
5CC#35	CA_5A-48D-66A		No
5CC#36	CA_5B-66A-66B		No
5CC#37	CA_5B-66A-66C		No
5CC#38	CA_7A-7A-46D	B46 SCC only	6CC#9
5CC#39	CA_13A-46D-66A	B46 SCC only	6CC#10, 6CC#13, 7CC#5
5CC#40	CA_13A-48A-48D		No

Index	5CC	Restriction	Completely Covered by Measurement Superset
5CC#41	CA_13A-48C-48C		No
5CC#42	CA_13A-48D-66A		No
5CC#43	CA_25A-25A-41D		No
5CC#45	CA_46A-46D-66A	B46 SCC only	No
5CC#46	CA_46D-66A-66A	B46 SCC only	6CC#11, 6CC#12, 6CC#13, 7CC#4, 7CC#5
5CC#47	CA_48A-48C-66B		No
5CC#48	CA_48A-48C-66C		No
5CC#49	CA_48A-48D-66A		No
5CC#50	CA_48C-48C-66A		No
5CC#51	CA_2A-2A-5A-66B		No
5CC#52	CA_2A-2A-5A-66C		No
5CC#53	CA_2A-2A-12B-66A		No
5CC#54	CA_2A-2A-66A-66B		No
5CC#55	CA_2A-2A-66A-66C		No
5CC#56	CA_2A-5A-46C-66A	B46 SCC only	6CC#14
5CC#57	CA_2A-5B-66A-66A		No
5CC#58	CA_2A-7A-7A-46C	B46 SCC only	No
5CC#59	CA_2A-7A-12B-66A		No
5CC#60	CA_2A-7C-29A-66A	B29 SCC only	No
5CC#61	CA_2A-7C-66A-66A		No
5CC#62	CA_2A-12B-66A-66A		No
5CC#63	CA_2A-13A-46C-66A	B46 SCC only	6CC#15
5CC#64	CA_2A-13A-48A-48C		No
5CC#65	CA_2A-13A-48C-66A		No
5CC#66	CA_2A-13A-66A-66B		No
5CC#67	CA_2A-13A-66A-66C		No
5CC#68	CA_2A-46A-46C-66A	B46 SCC only	No
5CC#69	CA_2A-46C-66A-66A	B46 SCC only	6CC#14, 6CC#15
5CC#70	CA_2A-48A-48C-66A		No
5CC#71	CA_13A-46C-66A-66A	B46 SCC only	6CC#15
5CC#72	CA_2A-2A-5A-12A-66A		No
5CC#73	CA_2A-2A-5A-66A-66A		No
5CC#74	CA_2A-2A-7A-12A-66A		No
5CC#75	CA_2A-2A-12A-66A-66A		No
5CC#76	CA_2A-2A-14A-66A-66A		No
5CC#77	CA_2A-5A-46A-66A-66A	B46 SCC only	No
5CC#78	CA_2A-7A-7A-29A-66A	B29 SCC only	No
5CC#79	CA_2A-7A-7A-66A-66A		No
5CC#80	CA_2A-13A-46A-66A-66A	B46 SCC only	No

Index	5CC	Restriction	Completely Covered by Measurement Superset
5CC#81	CA_2A-13A-48A-48A-66A		No
5CC#82	CA_2A-14A-66A-66A-66A		No
5CC#83	CA_5A-46C-66A-66A	B46 SCC only	6CC#14

Index	6CC	Restriction	Completely Covered by Measurement Superset
6CC#1	CA_2A-5A-46E	B46 SCC only	7CC#1
6CC#2	CA_2A-7A-46E	B46 SCC only	7CC#2
6CC#3	CA_2A-46E-66A	B46 SCC only	7CC#1
6CC#4	CA_5A-46E-66A	B46 SCC only	7CC#1, 7CC#3
6CC#5	CA_7A-7A-46E	B46 SCC only	7CC#2
6CC#6	CA_13A-48E-66A		No
6CC#7	CA_46E-66A-66A	B46 SCC only	7CC#3
6CC#8	CA_2A-5A-46D-66A	B46 SCC only	7CC#4
6CC#9	CA_2A-7A-7A-46D	B46 SCC only	No
6CC#10	CA_2A-13A-46D-66A	B46 SCC only	7CC#5
6CC#11	CA_2A-46D-66A-66A	B46 SCC only	7CC#4, 7CC#5
6CC#12	CA_5A-46D-66A-66A	B46 SCC only	7CC#4
6CC#13	CA_13A-46D-66A-66A	B46 SCC only	7CC#5
6CC#14	CA_2A-5A-46C-66A-66A	B46 SCC only	No
6CC#15	CA_2A-13A-46C-66A-66A	B46 SCC only	No

Index	7CC	Restriction	Completely Covered by Measurement Superset
7CC#1	CA_2A-5A-46E-66A	B46 SCC only	
7CC#2	CA_2A-7A-7A-46E	B46 SCC only	
7CC#3	CA_5A-46E-66A-66A	B46 SCC only	
7CC#4	CA_2A-5A-46D-66A-66A	B46 SCC only	
7CC#5	CA_2A-13A-46D-66A-66A	B46 SCC only	

14.4.2 DL CA power measurement

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only.

All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

This device supports LAA with downlink carrier aggregation only. It uses carrier aggregation in the downlink to combine LTE in the unlicensed spectrum (i.e. LTE Band 46) with LTE in the licensed band (served as PCC). All uplink communications and acknowledgements on the PCC remain identical to specifications when downlink carrier aggregation is inactive.

Conducted power was evaluated as described in Sections 14.1.4 “General PCC and SCC configuration selection procedure:” and “Downlink CA with Downlink 4x4 MIMO RF Conducted Powers:”.

14.4.2.8 LTE Band 17 as PCC

Index	Combination	PCC											SCC 1					Power [dBm]				Delta [dB]	
		Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	UL#RB / Offset	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	DL CA Enabled		Single Carrier	PCC DL SISO	PCC DL 4x4 MIMO	PCC DL SISO	PCC DL 4x4 MIMO			
														PCC DL SISO	PCC DL 4x4 MIMO								
2CC#19	CA_2A-17A	17	5	23790	710	QPSK	1	24	5790	740	2	10	900	1960	22.62	22.65	-0.03						
2CC#30	CA_4A-17A	17	5	23790	710	QPSK	1	24	5790	740	4	10	2175	2132.5	22.61	22.65	-0.04						

14.4.2.9 LTE Band 25 as PCC

Index	Combination	PCC											SCC 1			SCC 2			SCC 3			SCC 4			Power [dBm]				Delta [dB]	
		Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	UL#RB / Offset	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	DL CA Enabled		Single Carrier	PCC DL SISO	PCC DL 4x4 MIMO	PCC DL SISO	PCC DL 4x4 MIMO		
																						PCC DL SISO	PCC DL 4x4 MIMO							
2CC#18	CA_5A-25A	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	12	10	2525	8615	--	--	--	--	--	--	--	23.06	23.04	23.01	0.05	0.03				
2CC#62	CA_12A-25A	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	46	20	50665	737.5	--	--	--	--	--	--	--	23.06	23.04	23.01	0.05	0.03				
2CC#62	CA_25A-46A	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	46	20	50665	537.5	--	--	--	--	--	--	--	23.03	23.05	23.01	0.02	0.04				
3CC#42	CA_25A-46C	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	46	20	50665	537.5	46	20	50467	5517.7	--	--	--	23.05	23.05	23.01	0.04	0.04				
3CC#138	CA_25A-25A-25A	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	25	20	8140	1940	25	20	8365	1962.5	--	--	--	23.04	23.07	23.01	0.03	0.06				
3CC#137	CA_25A-25A-26A	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	25	20	8140	1940	26	5	8865	876.5	--	--	--	23.04	23.07	23.01	0.03	0.06				
3CC#138	CA_25A-25A-41A	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	25	20	8140	1940	41	20	40820	2593	--	--	--	23.03	23.00	23.01	0.02	-0.01				
3CC#139	CA_25A-26A-41A	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	26	15	8865	876.5	41	20	40820	2593	--	--	--	23.00	23.05	23.01	-0.01	0.04				
4CC#22	CA_25A-46D	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	46	20	50467	5517.7	46	20	50663	5557.3	--	--	--	23.07	23.05	23.01	0.06	0.04				
4CC#66	CA_25A-25A-41C	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	26	15	8865	876.5	41	20	40422	2573.2	--	--	--	23.07	23.05	23.01	0.02	0.04				
4CC#97	CA_25A-25A-41C	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	26	15	8865	876.5	41	20	40422	2573.2	--	--	--	23.00	23.00	23.01	-0.01	-0.01				
5CC#43	CA_25A-25A-41D	25	15	26615	1907.5	QPSK	1	0	8615	1987.5	25	20	8140	1940	41	20	40820	2593	41	20	40818	2612.8	23.04	23.03	23.01	0.03	0.02			

14.4.2.10 LTE Band 26 as PCC

Index	Combination	PCC										SCC 1						SCC 2						SCC 3						Power [dBm]				Delta [dB]	
		Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	UL#RB / Offset	DL Ch.	DL Freq. [MHz]	Band	BW [MHz]	DL Ch.	DL Freq. [MHz]	Band	BW [MHz]	DL Ch.	DL Freq. [MHz]	Band	BW [MHz]	DL Ch.	DL Freq. [MHz]	DL CA Enabled		Single Carrier	PCC DL		Delta								
																						UL Freq. [MHz]	UL#RB / Offset		DL Freq. [MHz]	DL Ch.		DL Freq. [MHz]	DL Ch.	PCC DL	4x4 MIMO	SISO	4x4 MIMO		
2CC#64	CA_26A-46A	26	3	27025	847.5	QPSK	1	7	9025	892.5	46	20	50565	537.5	-	-	537.5	-	-	-	-	-	-	-	-	-	-	-	-	-	23.19	23.12	0.07	0.07	
3CC#137	CA_26A-26A-26A	26	3	27025	847.5	QPSK	1	7	9025	892.5	25	20	8365	1962.5	25	20	8140	1940	-	-	-	-	-	-	-	-	-	-	-	-	23.19	23.12	0.07	0.07	
3CC#139	CA_26A-26A-41A	26	3	27025	847.5	QPSK	1	7	9025	892.5	25	20	8365	1962.5	41	20	40620	2593	-	-	-	-	-	-	-	-	-	-	-	23.15	23.12	0.03	0.03		
4CC#97	CA_26A-26A-41C	26	3	27025	847.5	QPSK	1	7	9025	892.5	25	20	8365	1962.5	41	20	40620	2593	41	20	40422	2573.2	-	-	-	-	-	-	-	23.16	23.12	0.04	0.04		

14.4.2.11 LTE Band 38 as PCC

Index	Combination	PCC										SCC 1						Power [dBm]				Delta [dB]							
		Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	UL#RB / Offset	DL Ch.	DL Freq. [MHz]	Band	BW [MHz]	DL Ch.	DL Freq. [MHz]	Band	BW [MHz]	DL Ch.	DL Freq. [MHz]	DL CA Enabled		Single Carrier	PCC DL		Delta						
																		PCC DL	4x4 MIMO		SISO	4x4 MIMO							
2CC#6	CA_38C	38	15	37825	2577.5	QPSK	1	74	37825	2577.5	38	15	37975	2592.5	38	15	37975	2592.5	38	15	37975	2592.5	23.05	23.10	23.07	23.10	23.07	-0.02	0.03

14.4.2.12 LTE Band 41 as PCC

Index	Combination	PCC											SCC 1						SCC 2						SCC 3						SCC 4						Power (dBm)				Delta (dB)			
		Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	ULRE / Offset	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	DL CA Enabled	PCC DL SISO	PCC DL 4x4 MIMO	DL CA Enabled	PCC DL SISO	PCC DL 4x4 MIMO	Single Carrier	PCC DL SISO	PCC DL 4x4 MIMO						
2CC#68	CA 41A-46A	41	20	40620	2593	QPSK	1	0	40620	2593	46	20	50665	537.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.10	23.14	23.12	-0.02	0.02											
2CC#69	CA 41A-48A	41	20	40620	2593	QPSK	1	0	40620	2593	48	20	50990	537.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.01	23.01	23.12	-0.11	-0.11											
3CC#46	CA 41A-46C	41	20	40620	2593	QPSK	1	0	40620	2593	46	20	50665	537.5	46	20	42840	3525	46	20	42840	3525	46	20	42840	3525	46	20	23.02	23.01	23.12	-0.10	-0.11											
3CC#47	CA 41C-46A	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40936	262.6	42	20	42840	3525	41	20	42840	3525	41	20	42840	3525	41	20	23.02	23.03	23.12	-0.10	-0.09											
3CC#41	CA 41A-41A *1	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	39750	250.6	41	20	41490	2680	41	20	41490	2680	41	20	41490	2680	41	20	23.02	23.04	23.12	-0.09	-0.08											
3CC#43	CA 41A-41A *2	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	39790	253.0	41	20	41490	2680	41	20	41490	2680	41	20	41490	2680	41	20	23.08	23.12	23.12	-0.04	0.00											
3CC#42	CA 41A-42A-42A	41	20	40620	2593	QPSK	1	0	40620	2593	42	20	42840	3525	42	20	42390	3460	42	20	42390	3460	42	20	42390	3460	42	20	23.01	23.02	23.12	-0.11	-0.10											
4CC#1	CA 41E	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	40818	2612.8	41	20	40818	2612.8	41	20	40818	2612.8	41	20	23.16	23.12	23.12	0.04	0.00											
4CC#23	CA 41A-41D *1	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	40818	2612.8	41	20	40818	2612.8	41	20	40818	2612.8	41	20	23.13	23.11	23.12	0.01	-0.01											
4CC#24	CA 41A-41D *2	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	39790	250.6	41	20	39988	2593.8	41	20	39988	2593.8	41	20	39988	2593.8	41	20	23.14	23.07	23.12	0.02	-0.05											
4CC#25	CA 41A-42D	41	20	40620	2593	QPSK	1	0	40620	2593	42	20	42840	3525	42	20	42642	3505.2	42	20	42642	3505.2	42	20	42642	3505.2	42	20	23.10	23.06	23.12	-0.02	-0.06											
4CC#26	CA 41C-41C *1	41	20	40620	2593	QPSK	1	0	40620	2593	46	20	50665	537.5	46	20	50467	5517.7	46	20	50467	5517.7	46	20	50467	5517.7	46	20	23.13	23.06	23.12	0.01	-0.02											
4CC#28	CA 41C-41C *2	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	39750	250.6	41	20	39750	250.6	41	20	39750	250.6	41	20	23.13	23.10	23.12	0.01	-0.02											
4CC#27	CA 41D-42C	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	42840	3525	42	20	42840	3525	41	20	42840	3525	41	20	23.13	23.09	23.12	0.01	-0.03											
4CC#28	CA 41D-42A	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	40818	2612.8	42	20	42840	3525	41	20	42840	3525	41	20	23.02	23.02	23.12	-0.10	-0.10											
4CC#38	CA 41A-41A-41C *1	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	39750	250.6	41	20	41490	2680	41	20	41490	2680	41	20	41490	2680	41	20	23.09	23.06	23.12	-0.03	-0.06											
4CC#39	CA 41A-41A-41C *2	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	39790	253.0	41	20	41490	2680	41	20	41490	2680	41	20	41490	2680	41	20	23.08	23.05	23.12	-0.04	-0.07											
4CC#39	CA 41A-42A-42C	41	20	40620	2593	QPSK	1	0	40620	2593	42	20	42590	3500	42	20	42840	3525	42	20	42840	3525	42	20	42840	3525	42	20	23.01	23.04	23.12	-0.11	-0.08											
5CC#11	CA 41A-46E	41	20	40620	2593	QPSK	1	0	40620	2593	46	20	50665	537.5	46	20	50467	5517.7	46	20	50467	5517.7	46	20	50467	5517.7	46	20	50269	5497.9	23.13	23.12	0.01	0.01										
5CC#12	CA 41C-41D *1	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	39750	250.6	41	20	39750	250.6	41	20	39750	250.6	41	20	40146	2645.6	23.11	23.04	23.12	-0.01	-0.08									
5CC#12	CA 41C-41D *2	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	39790	253.0	41	20	39790	253.0	41	20	39790	253.0	41	20	39888	2593.8	23.10	23.07	-0.02	-0.05										
5CC#13	CA 41D-42C	41	20	40620	2593	QPSK	1	0	40620	2593	41	20	40422	257.2	41	20	40818	2612.8	41	20	40818	2612.8	41	20	40818	2612.8	41	20	23.05	23.07	23.12	-0.07	-0.05											
5CC#44	CA 41A-42C-42C	41	20	40620	2593	QPSK	1	0	40620	2593	42	20	42190	3460	42	20	41992	3460.2	42	20	41992	3460.2	42	20	41992	3460.2	42	20	23.04	23.08	23.12	-0.08	-0.04											

*1: FDC
*2: ISED

14.4.2.13 LTE Band 48 as PCC

Index	Combination	PCC											SCC 1						SCC 2						SCC 3						SCC 4						Power (dBm)				Delta (dB)			
		Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	ULRE / Offset	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	DL Ch	DL Freq. [MHz]	DL CA Enabled	PCC DL SISO	PCC DL 4x4 MIMO	DL CA Enabled	PCC DL SISO	PCC DL 4x4 MIMO	Single Carrier	PCC DL SISO	PCC DL 4x4 MIMO						
2CC#69	CA 41A-48A	48	15	55765	362.5	QPSK	1	74	55765	362.5	41	20	40620	2593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.53	11.56	11.54	-0.01	0.02											
5CC#1	CA 48F	48	15	55765	362.5	QPSK	1	74	55766	362.5	48	20	55994	3565.4	48	20	55994	3565.4	48	20	55994	3565.4	48	20	55994	3565.4	48	20	55996	3639.4	11.52	11.56	11.54	-0.02	0.02									
5CC#15	CA 48C-48D	48	15	55315	357.5	QPSK	1	36	0	55315	357.5	48	20	55994	3565.4	48	20	55994	3565.4	48	20	55994	3565.4	48	20	55994	3565.4	48	20	55994	3565.4	11.53	11.54	11.54	-0.01	0.00								

14.4.3 UL CA power measurement

This device supports LTE Carrier Aggregation (CA) for LTE B7, B41 and B48 with two component carriers in the uplink. Conducted power was evaluated as described in Sections 14.1.4 “Uplink CA Conducted Powers:” and “Downlink CA with Uplink CA Enabled:”

Full Power Mode

Combination	PCC							SCC1							Power [dBm]			Delta [dB]			
	Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	UL#RB / Offset	DL Ch	DL Freq. [MHz]	Band	BW [MHz]	UL Ch.	UL Freq. [MHz]	Mod.	UL#RB / Offset	DL Ch	DL Freq. [MHz]	UL CA Enabled		Single Carrier	PCC & SCC1 DLCA SISO *1	PCC & SCC1 DLCA 4x4 MIMO *2
																	PCC & SCC1 DLCA SISO	PCC & SCC1 DLCA 4x4 MIMO			
CA_7C	7	20	21350	2560	QPSK	1 0	3350	2680	7	20	21152	2540.2	QPSK	1 99	3152	2660.2	23.61	23.57	22.86	0.75	-0.04
CA_41C	41	20	40620	2593	QPSK	1 0	40620	2593	41	20	40422	2573.2	QPSK	1 99	40422	2573.2	23.25	23.24	23.12	0.13	-0.01
CA_48C	48	20	55340	3560	QPSK	50 24	55340	3560	48	20	55538	3579.8	QPSK	50 0	55538	3579.8	11.86	11.74	11.53	0.33	-0.12

*1 : Compared to Single Carrier
*2 : Compared to PCC & SCC1 DLCA SISO

Note(s):

PCC RB allocation setting for UL CA has been adjusted based on the worst-case power.

14.5 NR(new radio)

14.5.1 NR band n2

BW		20 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	372000 / 1860	376000 / 1880	380000 / 1900	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.17	23.06	22.96	
			0	53	1	24.5	22.97	23.16	23.09	
			0	104	1	24.5	23.06	23.13	23.00	
			0.5	0	50	24.0	22.48	22.56	22.44	
			0	28	50	24.5	23.00	23.09	23.03	
			0.5	56	50	24.0	22.57	22.57	22.54	
			0.5	0	100	24.0	22.56	22.60	22.46	
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.16	23.04	23.06	
			0	53	1	24.5	23.12	23.13	23.08	
			0	104	1	24.5	23.15	23.05	23.04	
			1	0	50	23.5	21.96	22.04	21.95	
			0	28	50	24.5	23.11	23.06	23.00	
			1	56	50	23.5	22.10	22.12	22.03	
			1	0	100	23.5	22.12	22.09	21.97	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.14	22.00	22.01	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.43	20.61	20.60	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.21	18.33	18.33	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.38	21.26	21.23	

BW		15 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	371500 / 1857.5	376000 / 1880	380500 / 1902.5	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.03	23.09	22.97	
			0	40	1	24.5	22.96	23.15	23.07	
			0	77	1	24.5	23.14	23.13	23.04	
			0.5	0	36	24.0	22.40	22.49	22.48	
			0	22	36	24.5	22.99	23.00	22.94	
			0.5	43	36	24.0	22.52	22.50	22.46	
			0.5	0	75	24.0	22.43	22.46	22.43	
DFTS-OFDM	QPSK	15	0	1	1	24.5	22.92	23.03	22.88	
			0	40	1	24.5	22.95	23.02	22.99	
			0	77	1	24.5	23.04	23.04	23.03	
			1	0	36	23.5	22.00	22.01	21.84	
			0	22	36	24.5	22.91	23.01	22.94	
			1	43	36	23.5	22.01	22.05	21.98	
			1	0	75	23.5	22.16	22.02	21.91	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.24	22.18	22.17	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.64	20.72	20.55	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.44	18.48	18.36	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.34	21.39	21.30	

OFDM	Modulation	10 MHz		RB offset	RB size	Tune-up limit [dBm]	ch/MHz		
		SCS [kHz]	Max. MPR [dB]				371000 / 1855 [dBm]	376000 / 1880 [dBm]	381000 / 1905 [dBm]
DFTS-OFDM	BPSK	15	0	1	1	24.5	22.97	22.99	22.95
			0	26	1	24.5	23.00	23.09	22.98
			0	50	1	24.5	22.92	23.01	22.99
			0.5	0	25	24.0	22.39	22.36	22.43
			0	14	25	24.5	22.94	22.86	22.91
			0.5	27	25	24.0	22.40	22.52	22.45
			0.5	0	50	24.0	22.44	22.39	22.45
DFTS-OFDM	QPSK	15	0	1	1	24.5	22.91	22.88	22.93
			0	26	1	24.5	22.93	22.90	22.92
			0	50	1	24.5	22.94	23.05	22.96
			1	0	25	23.5	21.90	21.90	21.94
			0	14	25	24.5	22.92	22.92	22.95
			1	27	25	23.5	21.95	22.00	21.98
			1	0	50	23.5	21.94	21.91	21.93
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.11	22.14	22.14
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.58	20.63	20.67
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.43	18.37	18.41
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.35	21.32	21.41

OFDM	Modulation	5 MHz		RB offset	RB size	Tune-up limit [dBm]	ch/MHz		
		SCS [kHz]	Max. MPR [dB]				370500 / 1852.5 [dBm]	376000 / 1880 [dBm]	381500 / 1907.5 [dBm]
DFTS-OFDM	BPSK	15	0	1	1	24.5	22.98	22.91	22.96
			0	13	1	24.5	22.95	23.09	22.99
			0	23	1	24.5	22.96	23.02	22.95
			0.5	0	12	24.0	22.38	22.39	22.43
			0	7	12	24.5	22.94	22.89	22.96
			0.5	13	12	24.0	22.47	22.54	22.42
			0.5	0	25	24.0	22.37	22.35	22.41
DFTS-OFDM	QPSK	15	0	1	1	24.5	22.86	22.87	22.87
			0	13	1	24.5	22.92	22.96	22.89
			0	23	1	24.5	22.93	23.03	22.94
			1	0	12	23.5	21.96	21.95	22.93
			0	7	12	24.5	22.88	22.94	22.90
			1	13	12	23.5	21.95	21.93	22.91
			1	0	25	23.5	21.96	21.90	21.96
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.12	22.10	22.14
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.55	20.58	20.60
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.37	18.40	18.36
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.25	21.27	21.28

14.5.2 NR band n5

BW		20 MHz					ch/MHz	
OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	167300 / 836.5 [dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.03	
			0	53	1	24.5	22.96	
			0	104	1	24.5	22.93	
			0.5	0	50	24.0	22.45	
			0	28	50	24.5	23.00	
			0.5	56	50	24.0	22.48	
			0.5	0	100	24.0	22.52	
DFTS-OFDM	QPSK	15	0	1	1	24.5	22.97	
			0	53	1	24.5	22.96	
			0	104	1	24.5	22.83	
			1	0	50	23.5	21.85	
			0	28	50	24.5	22.95	
			1	56	50	23.5	21.91	
			1	0	100	23.5	21.88	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.01	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.50	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.29	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.37	

BW		15 MHz					ch/MHz	
OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	167300 / 836.5 [dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	22.98	
			0	40	1	24.5	22.97	
			0	77	1	24.5	22.91	
			0.5	0	36	24.0	22.39	
			0	22	36	24.5	22.90	
			0.5	43	36	24.0	22.45	
			0.5	0	75	24.0	22.45	
DFTS-OFDM	QPSK	15	0	1	1	24.5	22.99	
			0	40	1	24.5	22.98	
			0	77	1	24.5	22.97	
			1	0	36	23.5	21.88	
			0	22	36	24.5	22.89	
			1	43	36	23.5	21.98	
			1	0	75	23.5	21.93	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.07	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.27	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.08	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.60	

OFDM	Modulation	10 MHz					ch/MHz	
		SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	167300 / 836.5 [dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	22.88	
			0	26	1	24.5	22.86	
			0	50	1	24.5	22.84	
			0.5	0	25	24.0	22.37	
			0	14	25	24.5	22.83	
			0.5	27	25	24.0	22.36	
			0.5	0	50	24.0	22.42	
DFTS-OFDM	QPSK	15	0	1	1	24.5	22.83	
			0	26	1	24.5	22.93	
			0	50	1	24.5	23.00	
			1	0	25	23.5	21.85	
			0	14	25	24.5	22.93	
			1	27	25	23.5	21.89	
			1	0	50	23.5	21.91	
DFTS-OFDM	16QAM	15	1	1	23.5	21.85		
DFTS-OFDM	64QAM	15	2.5	1	22.0	20.30		
DFTS-OFDM	256QAM	15	4.5	1	20.0	18.30		
CP-OFDM	QPSK	15	1.5	1	23.0	21.50		

OFDM	Modulation	5 MHz					ch/MHz		
		SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	165300 / 826.5 [dBm]	167300 / 836.5 [dBm]	169300 / 846.5 [dBm]
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.07	22.92	22.98
			0	13	1	24.5	23.06	22.86	22.84
			0	23	1	24.5	22.91	22.88	22.81
			0.5	0	12	24.0	22.51	22.39	22.38
			0	7	12	24.5	22.97	22.86	22.95
			0.5	13	12	24.0	22.40	22.44	22.33
			0.5	0	25	24.0	22.44	22.34	22.28
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.08	22.94	22.99
			0	13	1	24.5	23.00	22.82	22.84
			0	23	1	24.5	22.89	22.88	22.80
			1	0	12	23.5	22.05	21.86	21.93
			0	7	12	24.5	23.00	22.91	22.88
			1	13	12	23.5	21.91	21.83	21.83
			1	0	25	23.5	21.96	21.84	21.82
DFTS-OFDM	16QAM	15	1	1	23.5	21.98	22.02	21.82	
DFTS-OFDM	64QAM	15	2.5	1	22.0	20.53	20.31	20.41	
DFTS-OFDM	256QAM	15	4.5	1	20.0	18.48	18.04	18.30	
CP-OFDM	QPSK	15	1.5	1	23.0	21.57	21.50	21.50	

14.5.3 NR band n41

BW		100 MHz			ch/MHz		
OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	518600 / 2593 [dBm]
DFTS-OFDM	BPSK	30	0	1	1	24.5	23.23
			0	137	1	24.5	23.13
			0	271	1	24.5	23.17
			0.5	0	135	24.0	22.74
			0	69	135	24.5	23.12
			0.5	138	135	24.0	22.63
			0.5	0	270	24.0	22.67
DFTS-OFDM	QPSK	30	0	1	1	24.5	23.22
			0	137	1	24.5	23.09
			0	271	1	24.5	23.11
			1	0	135	23.5	22.23
			0	69	135	24.5	23.10
			1	138	135	23.5	22.12
			1	0	270	23.5	22.41
DFTS-OFDM	16QAM	30	1	1	1	23.5	22.44
DFTS-OFDM	64QAM	30	2.5	1	1	22.0	20.80
DFTS-OFDM	256QAM	30	4.5	1	1	20.0	18.80
CP-OFDM	QPSK	30	1.5	1	1	23.0	21.86

BW		90 MHz			ch/MHz		
OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	518600 / 2593 [dBm]
DFTS-OFDM	BPSK	30	0	1	1	24.5	23.28
			0	123	1	24.5	23.10
			0	243	1	24.5	23.05
			0.5	0	120	24.0	22.68
			0	63	120	24.5	23.20
			0.5	125	120	24.0	22.53
			0.5	0	243	24.0	22.69
DFTS-OFDM	QPSK	30	0	1	1	24.5	23.27
			0	123	1	24.5	23.04
			0	243	1	24.5	23.03
			1	0	120	23.5	22.12
			0	63	120	24.5	23.18
			1	125	120	23.5	22.17
			1	0	243	23.5	22.18
DFTS-OFDM	16QAM	30	1	1	1	23.5	22.11
DFTS-OFDM	64QAM	30	2.5	1	1	22.0	20.92
DFTS-OFDM	256QAM	30	4.5	1	1	20.0	18.74
CP-OFDM	QPSK	30	1.5	1	1	23.0	21.84

BW		80 MHz					ch/MHz	
OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	518600 / 2593 [dBm]	
DFTS-OFDM	BPSK	30	0	1	1	24.5	23.20	
			0	109	1	24.5	23.08	
			0	215	1	24.5	23.04	
			0.5	0	108	24.0	22.56	
			0	55	108	24.5	23.15	
			0.5	109	108	24.0	22.65	
			0.5	0	216	24.0	22.63	
DFTS-OFDM	QPSK	30	0	1	1	24.5	23.18	
			0	109	1	24.5	23.16	
			0	215	1	24.5	23.07	
			1	0	108	23.5	22.11	
			0	55	108	24.5	23.11	
			1	109	108	23.5	22.10	
			1	0	216	23.5	22.13	
DFTS-OFDM	16QAM	30	1	1	1	23.5	22.07	
DFTS-OFDM	64QAM	30	2.5	1	1	22.0	20.87	
DFTS-OFDM	256QAM	30	4.5	1	1	20.0	18.69	
CP-OFDM	QPSK	30	1.5	1	1	23.0	21.73	

BW		60 MHz					ch/MHz		
OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	505200 / 2526 [dBm]	518600 / 2593 [dBm]	532000 / 2660 [dBm]
DFTS-OFDM	BPSK	30	0	1	1	24.5	23.20	23.10	23.05
			0	81	1	24.5	23.06	23.08	22.96
			0	160	1	24.5	23.08	23.16	22.99
			0.5	0	81	24.0	22.71	22.60	22.57
			0	40	81	24.5	23.12	23.11	23.02
			0.5	81	81	24.0	22.71	22.63	22.41
			0.5	0	162	24.0	22.65	22.65	22.54
DFTS-OFDM	QPSK	30	0	1	1	24.5	23.17	23.03	23.00
			0	81	1	24.5	23.12	22.97	22.94
			0	160	1	24.5	23.08	23.00	23.03
			1	0	81	23.5	22.12	22.09	22.05
			0	40	81	24.5	23.11	23.15	23.01
			1	81	81	23.5	22.22	22.08	21.94
			1	0	162	23.5	22.14	22.03	22.01
DFTS-OFDM	16QAM	30	1	1	1	23.5	22.05	22.05	21.93
DFTS-OFDM	64QAM	30	2.5	1	1	22.0	21.00	20.65	20.83
DFTS-OFDM	256QAM	30	4.5	1	1	20.0	18.67	18.54	18.59
CP-OFDM	QPSK	30	1.5	1	1	23.0	21.78	21.55	21.61

BW		50 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	504200 / 2521	518600 / 2593	533000 / 2665	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	30	0	1	1	24.5	23.30	23.25	23.00	
			0	67	1	24.5	23.12	23.13	22.89	
			0	131	1	24.5	23.18	23.20	23.04	
			0.5	0	64	24.0	22.70	22.75	22.51	
			0	35	64	24.5	23.09	23.17	22.91	
			0.5	69	64	24.0	22.72	22.76	22.37	
			0.5	0	128	24.0	22.66	22.71	22.45	
DFTS-OFDM	QPSK	30	0	1	1	24.5	23.22	23.24	23.01	
			0	67	1	24.5	23.08	23.14	22.94	
			0	131	1	24.5	23.15	23.18	22.98	
			1	0	64	23.5	22.23	22.12	22.01	
			0	35	64	24.5	23.18	23.15	22.96	
			1	69	64	23.5	22.21	22.20	21.95	
			1	0	128	23.5	22.11	22.22	21.96	
DFTS-OFDM	16QAM	30	1	1	1	23.5	22.12	22.14	22.04	
DFTS-OFDM	64QAM	30	2.5	1	1	22.0	20.98	21.01	20.90	
DFTS-OFDM	256QAM	30	4.5	1	1	20.0	18.78	18.78	18.66	
CP-OFDM	QPSK	30	1.5	1	1	23.0	21.85	21.82	21.73	

BW		40 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	503200 / 2516	518600 / 2593	534000 / 2670	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	30	0	1	1	24.5	23.60	23.42	23.39	
			0	53	1	24.5	23.48	23.35	23.27	
			0	104	1	24.5	23.62	23.47	23.36	
			0.5	0	50	24.0	23.03	23.00	22.85	
			0	28	50	24.5	23.55	23.41	23.38	
			0.5	56	50	24.0	23.06	23.06	22.89	
			0.5	0	100	24.0	23.11	22.95	22.78	
DFTS-OFDM	QPSK	30	0	1	1	24.5	23.66	23.43	23.49	
			0	53	1	24.5	23.50	23.37	23.31	
			0	104	1	24.5	23.62	23.48	23.35	
			1	0	50	23.5	22.55	22.50	22.34	
			0	28	50	24.5	23.59	23.38	23.37	
			1	56	50	23.5	22.57	22.48	22.37	
			1	0	100	23.5	22.66	22.43	22.31	
DFTS-OFDM	16QAM	30	1	1	1	23.5	22.60	22.31	22.36	
DFTS-OFDM	64QAM	30	2.5	1	1	22.0	21.37	21.11	21.20	
DFTS-OFDM	256QAM	30	4.5	1	1	20.0	19.21	18.95	19.04	
CP-OFDM	QPSK	30	1.5	1	1	23.0	22.28	22.03	22.04	

OFDM	Modulation	20 MHz		ch/MHz							
		SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	501200 / 2506 [dBm]	509900 / 2549.5 [dBm]	518600 / 2593 [dBm]	527300 / 2636.5 [dBm]	536000 / 2680 [dBm]
DFTS-OFDM	BPSK	30	0	1	1	24.5	23.26	23.15	23.09	23.13	23.00
			0	26	1	24.5	23.24	23.05	23.11	23.03	22.92
			0	49	1	24.5	23.30	23.04	23.08	23.02	22.91
			0.5	0	25	24.0	22.78	22.67	22.61	22.60	22.43
			0	13	25	24.5	23.26	23.14	23.10	23.12	22.92
			0.5	26	25	24.0	22.82	22.59	22.63	22.52	22.39
DFTS-OFDM	QPSK	30	0	1	1	24.5	23.27	23.20	23.16	23.14	23.01
			0	26	1	24.5	23.13	23.04	23.01	23.04	22.85
			0	49	1	24.5	23.31	23.07	23.10	22.98	22.90
			1	0	25	23.5	22.30	22.22	22.12	22.16	21.95
			0	13	25	24.5	23.25	23.15	23.13	23.06	22.93
			1	26	25	23.5	22.34	22.08	22.19	22.09	21.90
DFTS-OFDM	16QAM	30	1	1	1	23.5	22.22	22.10	22.03	22.06	21.91
			1	1	1	22.0	21.02	20.95	20.90	20.60	20.72
			1	1	1	20.0	18.86	18.73	18.65	18.72	18.53
			1	1	1	23.0	21.88	21.76	21.72	21.71	21.57
			1	1	1	23.5	22.22	22.10	22.03	22.06	21.91
			1	1	1	22.0	21.02	20.95	20.90	20.60	20.72
DFTS-OFDM	64QAM	30	2.5	1	1	22.0	21.02	20.95	20.90	20.60	20.72
DFTS-OFDM	256QAM	30	4.5	1	1	20.0	18.86	18.73	18.65	18.72	18.53
CP-OFDM	QPSK	30	1.5	1	1	23.0	21.88	21.76	21.72	21.71	21.57

14.5.4 NR band n66

BW		20 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	344000 / 1720	349000 / 1745	354000 / 1770	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.21	23.18	23.19	
			0	53	1	24.5	23.12	23.20	23.15	
			0	104	1	24.5	23.25	23.25	23.22	
			0.5	0	50	24.0	22.66	22.73	22.63	
			0	28	50	24.5	23.12	23.23	23.10	
			0.5	56	50	24.0	22.73	22.76	22.66	
			0.5	0	100	24.0	22.64	22.72	22.58	
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.18	23.24	23.21	
			0	53	1	24.5	23.06	23.14	23.11	
			0	104	1	24.5	23.24	23.19	23.20	
			1	0	50	23.5	22.13	22.28	22.11	
			0	28	50	24.5	23.18	23.24	23.08	
			1	56	50	23.5	22.23	22.27	22.13	
			1	0	100	23.5	22.18	22.28	22.09	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.00	21.99	22.23	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.71	20.71	20.70	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.60	18.55	18.53	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.72	21.76	21.59	

BW		15 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	343500 / 1717.5	349000 / 1745	354500 / 1772.5	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.21	23.21	23.10	
			0	40	1	24.5	23.12	23.07	23.05	
			0	77	1	24.5	23.22	23.14	23.09	
			0.5	0	36	24.0	22.55	22.56	22.51	
			0	22	36	24.5	23.00	22.98	22.94	
			0.5	43	36	24.0	22.59	22.50	22.48	
			0.5	0	75	24.0	22.55	22.52	22.46	
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.11	23.08	23.02	
			0	40	1	24.5	23.07	23.02	22.97	
			0	77	1	24.5	23.19	23.06	23.04	
			1	0	36	23.5	22.07	22.05	21.98	
			0	22	36	24.5	23.00	22.99	22.94	
			1	43	36	23.5	22.04	21.97	21.96	
			1	0	75	23.5	22.07	22.07	22.02	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.26	22.40	22.31	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.75	20.84	20.80	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.67	18.65	18.59	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.50	21.50	21.45	

BW		10 MHz					ch/MHz		
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	343000 / 1715	349000 / 1745	355000 / 1775
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.12	23.10	23.11
			0	26	1	24.5	23.09	23.09	23.09
			0	50	1	24.5	23.11	23.07	23.05
			0.5	0	25	24.0	22.48	22.59	22.55
			0	14	25	24.5	23.05	23.06	23.02
			0.5	27	25	24.0	22.51	22.58	22.54
			0.5	0	50	24.0	22.58	22.63	22.57
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.04	23.05	23.09
			0	26	1	24.5	23.02	23.09	23.05
			0	50	1	24.5	23.03	23.04	23.06
			1	0	25	23.5	22.04	22.02	22.07
			0	14	25	24.5	23.02	23.08	23.06
			1	27	25	23.5	22.03	22.05	22.03
			1	0	50	23.5	21.99	22.06	22.06
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.25	22.24	22.27
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.73	20.69	20.77
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.52	18.44	18.57
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.48	21.43	21.47

BW		5 MHz					ch/MHz		
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	342500 / 1712.5	349000 / 1745	355500 / 1777.5
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.21	23.09	23.16
			0	13	1	24.5	23.19	23.14	23.13
			0	23	1	24.5	23.10	23.17	23.08
			0.5	0	12	24.0	22.64	22.53	22.58
			0	7	12	24.5	23.14	23.07	23.13
			0.5	13	12	24.0	22.61	22.57	22.61
			0.5	0	25	24.0	22.58	22.50	22.54
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.10	22.99	23.03
			0	13	1	24.5	23.13	23.00	23.06
			0	23	1	24.5	23.05	23.10	23.11
			1	0	12	23.5	22.09	22.08	22.12
			0	7	12	24.5	23.13	23.08	23.10
			1	13	12	23.5	22.10	22.10	22.14
			1	0	25	23.5	22.12	22.02	22.09
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.35	22.29	22.29
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.85	20.70	20.75
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.62	18.52	18.57
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.51	21.41	21.47

14.5.5 NR band n71

BW 20 MHz

OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	136100 / 680.5 [dBm]
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.08
			0	53	1	24.5	22.90
			0	104	1	24.5	22.87
			0.5	0	50	24.0	22.51
			0	28	50	24.5	23.04
			0.5	56	50	24.0	22.42
			0.5	0	100	24.0	22.49
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.07
			0	53	1	24.5	23.00
			0	104	1	24.5	22.88
			1	0	50	23.5	21.93
			0	28	50	24.5	22.97
			1	56	50	23.5	21.84
			1	0	100	23.5	21.96
DFTS-OFDM	16QAM	15	1	1	1	23.5	21.86
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.51
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.57
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.51

BW 15 MHz

OFDM	Modulation	SCS [kHz]	Max. MPR [dB]	RB offset	RB size	Tune-up limit [dBm]	136100 / 680.5 [dBm]
DFTS-OFDM	BPSK	15	0	1	1	24.5	22.98
			0	40	1	24.5	22.90
			0	77	1	24.5	22.91
			0.5	0	36	24.0	22.45
			0	22	36	24.5	22.92
			0.5	43	36	24.0	22.50
			0.5	0	75	24.0	22.45
DFTS-OFDM	QPSK	15	0	1	1	24.5	22.96
			0	40	1	24.5	22.95
			0	77	1	24.5	22.85
			1	0	36	23.5	21.91
			0	22	36	24.5	22.91
			1	43	36	23.5	21.88
			1	0	75	23.5	21.96
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.04
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.27
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.28
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.81

BW		10 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	133600 / 668	136100 / 680.5	138600 / 693	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	23.23	22.93	22.85	
			0	26	1	24.5	23.24	23.03	22.81	
			0	50	1	24.5	23.01	22.91	22.80	
			0.5	0	25	24.0	22.70	22.51	22.30	
			0	14	25	24.5	23.13	23.03	22.80	
			0.5	27	25	24.0	23.00	22.72	22.62	
			0.5	0	50	24.0	22.65	22.48	22.26	
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.25	22.99	22.82	
			0	26	1	24.5	23.22	23.10	22.88	
			0	50	1	24.5	23.02	23.00	22.81	
			1	0	25	23.5	22.19	21.97	21.79	
			0	14	25	24.5	23.10	22.99	22.72	
			1	27	25	23.5	22.20	22.30	22.32	
			1	0	50	23.5	22.12	22.02	21.77	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.33	22.03	21.89	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.55	20.55	20.18	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.56	18.52	18.16	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.99	21.74	21.58	

BW		5 MHz					ch/MHz			
OFDM	Modulation	SCS	Max. MPR	RB offset	RB size	Tune-up limit	133100 / 665.5	136100 / 680.5	139100 / 695.5	
		[kHz]	[dB]			[dBm]	[dBm]	[dBm]	[dBm]	
DFTS-OFDM	BPSK	15	0	1	1	24.5	22.98	22.89	22.76	
			0	13	1	24.5	22.95	22.85	22.61	
			0	23	1	24.5	22.89	22.75	22.66	
			0.5	0	12	24.0	22.55	22.52	22.23	
			0	7	12	24.5	22.95	22.88	22.71	
			0.5	13	12	24.0	22.47	22.35	22.09	
			0.5	0	25	24.0	22.49	22.38	22.15	
DFTS-OFDM	QPSK	15	0	1	1	24.5	23.07	22.89	22.80	
			0	13	1	24.5	22.99	22.90	22.63	
			0	23	1	24.5	22.89	22.91	22.61	
			1	0	12	23.5	22.08	22.01	21.73	
			0	7	12	24.5	23.04	22.87	22.69	
			1	13	12	23.5	21.93	21.89	21.63	
			1	0	25	23.5	21.92	21.89	21.63	
DFTS-OFDM	16QAM	15	1	1	1	23.5	22.13	22.00	21.92	
DFTS-OFDM	64QAM	15	2.5	1	1	22.0	20.40	20.17	20.11	
DFTS-OFDM	256QAM	15	4.5	1	1	20.0	18.43	18.25	18.07	
CP-OFDM	QPSK	15	1.5	1	1	23.0	21.91	21.80	21.69	

14.6 Measurement configuration for SAR and PD

14.6.1 SAR evaluation procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the E-field at a fixed location above the ear point or central position of flat phantom was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and the horizontal grid spacing was 15 mm x 15 mm, 12 mm x 12 mm or 10mm x 10mm. Based on these data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point found in the Step 2 (area scan), a volume of 30mm x 30mm x 30mm or more was assessed by measuring 7 x 7 x 7 points at least for below 3GHz and a volume of 28 mm x 28mm x 22.5mm or more was assessed by measuring 8 x 8 x 6(ratio step method (*1)) points at least for 5GHz band.

And for any secondary peaks found in the Step2 which are within 2dB of maximum peak and not with this Step3 (Zoom scan) is repeated. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

(1). The data at the surface were extrapolated, since the center of the dipoles is 1mm(EX3DV4) away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axis.

This polynomial was then used to evaluate the points between the surface and the probe tip.

(2). The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x, y and z-directions) [4], [5]. The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

(3). All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

*1. Ratio step method parameters used;

The first measurement point: 2mm from the phantom surface, the initial grid separation: 2mm, subsequent graded grid ratio: 1.5
These parameters comply with the requirement of the KDB 865664D01.

Step 4: Re-measurement of the E-field at the same location as in Step 1.

Confirmation after SAR testing

It was checked that the power drift [W] is within +/-5%.The verification of power drift during the SAR test is that DASY5 system calculates the power drift by measuring the e-field at the same location at beginning and the end of the scan measurement for each test position.

DASY5/6 system calculation Power drift value[dB] =20log(Ea)/(Eb)

Before SAR testing : Eb[V/m]

After SAR testing : Ea[V/m]

Limit of power drift[W] =+/-5%

X[dB]=10log[P]=10log(1.05/1)=10log(1.05)-10log(1)=0.212dB

from E-field relations with power.

$p=E^2/\eta=E^2/$

Therefore, The correlation of power and the E-filed

$XdB=10log(P)=10log(E)^2=20log(E)$

Therefore,

The calculated power drift of DASY5 System must be the less than +/-0.212dB.

Step size.

		≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location		50° ± 1°	20° ± 1°
Maximum area scan spatial resolution: ΔXarea, ΔYarea		≤ 2 GHz: ≤ 15 mm	3 - 4 GHz: ≤ 12 mm
		2 - 3 GHz: ≤ 12 mm	4 - 6 GHz: ≤ 10 mm
		When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with least one measurement point on the test device.	
Maximum zoom scan spatial resolution: ΔXzoom, ΔYzoom		≤ 2 GHz: ≤ 8 mm	3 - 4 GHz: ≤ 5 mm*
		2 - 3 GHz: ≤ 5 mm*	4 - 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal tophantom surface	uniform grid: ΔZzoom(n)	≤ 5 mm	3 - 4 GHz: ≤ 4 mm 4 - 5 GHz: ≤ 3 mm 5 - 6 GHz: ≤ 2 mm
	gradedgrid	ΔZzoom(1): between 1 st two points closestto phantom surface	≤ 4 mm
		ΔZzoom(n>1): between subsequentpoints	≤ 1.5·ΔZzoom(n-1) mm
Minimum zoomscan volume	x, y, z	≥ 30 mm	3 - 4 GHz: ≥ 28 mm 4 - 5 GHz: ≥ 25 mm 5 - 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std1528-2013 for details.

*When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures ofKDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

14.6.2 KDB 447498 D01 (General RF Exposure Guidance):

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

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

14.6.3 KDB 941225 D01 (SAR test for 3G device):

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ration of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

14.6.4 KDB 941225 D01 (SAR for LTE Devices):

SAR test reduction is applied using the following criteria:

- Beginning with QPSK modulation at the largest channel bandwidth, testing for 1 RB allocation configurations is initially performed for the channel/RB offset combination with the highest output power among 1 RB allocation configurations.
 - o When the reported SAR for the initial measurement is < 0.8 W/kg, no further assessment is required for 1 RB allocation configurations.
 - o When the reported SAR for the initial measurement is > 0.8 W/kg, the remaining channels are evaluated using the RB offset with the highest output power within the respective channels.
 - o For all reported SAR that is > 1.45 W/kg, SAR, SAR is required for the remaining RB offset configurations of the same channel.
- The same procedures apply to QPSK 50% RB allocation configurations at the largest channel bandwidth.
- Testing for 100% RB allocation configurations at the largest channel bandwidth is performed for the channel, across low, mid and high, with the highest output power, when the highest reported SAR for either 1 RB or 50% RB is ≥ 0.8 W/kg, or when the maximum output power among 100% RB allocation configurations is greater than the maximum output power among either 1 RB or 50% RB allocation configurations.
 - o Testing for the remaining channels in 100% RB allocation configurations is required only when reported SAR for the initial 100% RB allocation configuration is > 1.45 W/kg.
- Testing for higher order modulations (16-QAM or 64-QAM) is required only when the highest reported SAR for QPSK is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is required only when the highest reported SAR for the highest channel bandwidth is > 1.45 W/Kg or if its output power is more than 0.5 dB higher than that of the highest channel bandwidth.

14.6.5 KDB 447498 D01 (General RF Exposure Guidance):

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ◇ ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ◇ ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ◇ ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
- According to Notice 2016-DRS001 based on the IEEE1528 and IEC 62209 requirements, the low, mid and high frequency channels for the configuration with the highest SAR value must be tested regardless of the SAR value measured.
 - When reported SAR value is exceed 1.2W/kg(if any), device holder perturbation verification is required; however, since distance between device holder and antenna of EUT is enough, it was not conducted.
 - Reported SAR= Measured SAR [W/kg] · Scaled factor
* Scaled factor = Maximum tune-up tolerance limit [mW] / Measured power [mW]
 - Maximum tune-up tolerance limit is by the specification from a customer.

Note: Measured value is rounded round off to three decimal places

14.7 SAR result(FCC)

14.7.1 NR band n41

Test Position	Dist. (mm)	Modulation	UL CH #	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		Plot No.	Note
							Tune-up	Meas. Avg	Meas.	Scaled		
Bottom	0	BPSK	-	-	-	-	24.5	-				
			518600	2593	1	1	24.5	23.23	0.041	0.055	N41.1	
			-	-	-	-	24.5	-				
			-	-	-	-	24.0	-				
			518600	2593	135	69	24.0	23.12	0.022	0.027		
			-	-	-	-	24.0	-				
			518600	2593	270	0	24.0	22.67				

Test Position	Dist. (mm)	Modulation	UL CH #	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		10-g SAR (W/kg)		Plot No.	Note
							Tune-up	Meas. Avg	Meas.	Scaled		
Keyboard Limbs	0	BPSK	-	-	-	-	24.5	-				
			518600	2593	1	1	24.5	23.23	0.234	0.313	N41.2	
			-	-	-	-	24.5	-				
			-	-	-	-	24.0	-				
			518600	2593	135	69	24.0	23.12	0.200	0.245		
			-	-	-	-	24.0	-				
			518600	2593	270	0	24.0	22.67				

15 WLAN additional testing for simultaneous measurement

15.1 Output Power and SAR test required

According to KDB 248227 D01, The initial test configuration for 2.4 GHz and 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

1. The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
2. If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
3. If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
4. When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n.

15.1.1 WLAN

Mode	Ch #	Freq.	SISO		setting val		Measurement value (dBm)	
			Tune-up upper Power (dBm)					
			Main Ant	Aux Ant	Main Ant	Aux Ant	Main Ant	Aux Ant
802.11b	2	2417	21.00	21.00	21.000	21.125	21.00	20.99
	6	2437	21.00	21.00	21.125	21.125	20.99	20.95
	10	2457	21.00	21.00	20.875	21.125	20.97	20.97

Mode	Ch #	Freq.	SISO		setting val		Measurement value (dBm)	
			Tune-up upper Power (dBm)					
			Main Ant	Aux Ant	Main Ant	Aux Ant	Main Ant	Aux Ant
802.11a	52	5260	21.50	21.00	21.000	21.000	21.49	20.99
	56	5280	21.00	21.00	20.500	21.000	21.00	20.98
	60	5300	21.00	21.00	20.500	21.000	20.97	20.93
802.11ac (VHT80)	106	5530	18.00	18.00	17.250	17.375	18.00	18.00
	122	5610	20.50	20.00	20.000	19.125	20.49	19.89
	138	5690	21.00	20.00	20.250	19.000	21.00	20.00
802.11n (HT40)	151	5755	21.00	19.60	20.250	19.000	20.82	19.55
	159	5795	21.00	19.60	20.500	19.000	21.00	19.56

15.2 KDB 248227 D01 (SAR Guidance for 802.11(Wi-Fi) Transmitters):

SAR test reduction for 802.11 WLAN transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The *initial test position(s)* is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the *reported* SAR for the *initial test position* is:

- ◇ ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- ◇ > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the *initial test position* to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the *reported* SAR is ≤ 0.8 W/kg or all required test positions are tested.
 - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
 - When it is unclear, all equivalent conditions must be tested.
- ◇ For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.
 - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction
- ◇ When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- ◇ When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the *initial test position*, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the *initial test position*.

15.2.1 WLAN2.4 GHz

Test Position	Dist. (mm)	Modulation	Ant	UL CH #	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.	Note
						Tune-up	Meas.	Meas.	Scaled		
Keyboard	0	11b	Main	2	2417	21.0	21.00	0.226	0.226	W2.4	
				6	2437	21.0	20.99				
				10	2457	21.0	20.97				

15.2.2 WLAN5 GHz

Test Position	Dist. (mm)	Modulation	Ant	UL CH #	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.	Note
						Tune-up	Meas.	Meas.	Scaled		
Keyboard	0	802.11a	Main	52	5260	21.5	21.49	0.803	0.805	W5.3	
				56	5280	21.0	21.00				
				60	5300	21.0	20.97				
Keyboard	0	802.11ac (VHT80)	Main	106	5530	18.0	18.00				
				122	5610	20.5	20.49				
				138	5690	21.0	21.00	0.419	0.419	W5.5	
Keyboard	0	802.11n (HT40)	Main	151	5755	21.0	20.82				
				159	5795	21.0	21.00	0.205	0.205	W5.8	

16 Simultaneous transmission SAR test exclusion considerations

16.1 Sum and SPLSR

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based on sum of SAR, the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit, then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met. When a pair of the summation is above 1.58 W/kg for 1g SAR, then SAR to Peak Location Ratio (SPLSR) is performed, as conservative even though applicable limit is 1.6 W/kg. finally sum of SAR value is convert to TER, see next section.

Simultaneous transmission for ENDC mode is treated on part2 test report.

SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR_1 + SAR_2)^{1.5} / Ri$$

Where:

SAR₁ is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR₂ is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR_1 + SAR_2)^{1.5} / Ri \leq 0.04$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine **SAR₁**, or **SAR₂**. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

16.2 Total exposure ratio (TER)

Either SAR-based or MPE-based exemption may be considered for test exemption for fixed, mobile, or portable device exposure conditions; therefore, the contributions from each exemption in conjunction with the measured SAR (Evaluated_k term) shall be used to determine exemption for simultaneous transmission according to Formula [repeated from § 1.1307(b)(3)(ii)(B)].

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Where:

a: number of fixed, mobile, or portable RF sources claiming exemption using the § 1.1307(b)(3)(i)(B) formula for P_{th}, including existing exempt transmitters and those being added.

b: number of fixed, mobile, or portable RF sources claiming exemption using the applicable § 1.1307(b)(3)(i)(C) Table 1 formula for Threshold ERP, including existing exempt transmitters and those being added.

c: number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance.

P_i: the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source *i* at a distance between 0.5 cm and 40 cm (inclusive).

P_{th,i}: the exemption threshold power (P_{th}) according to the § 1.1307(b)(3)(i)(B) formula for fixed, mobile, or portable RF source *i*. Also, The P_{th} is described at section "SAR Exposure Conditions"

ERP_j: the available maximum time-averaged power or the ERP, whichever is greater, of fixed, mobile, or portable RF source *j*.

ERP_{th,j}: exemption threshold ERP for fixed, mobile, or portable RF source *j*, at a distance of at least $\lambda/2\pi$, according to the applicable § 1.1307(b)(3)(i)(C) Table 1 formula at the location in question.

Evaluated_k: the maximum reported SAR or MPE of fixed, mobile, or portable RF source *k* either in the device or at the transmitter site from an existing evaluation.

Exposure Limit_k: either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable sources, as applicable

16.3 Conclusion

All TER is less than 1, compliance.

16.4 Additional testing (WLAN) for simultaneous transmission and calc.

WLAN-BT Antenna Ratio for bottom

Antenna	RAT	BW	Frequency [MHz]	Output Power		Ant Gain dBi	ERP		Pth mW	Ratio P/Pth
				dBm	mW		dBm	mW		
WLAN-BT	WLAN	20M	2400	21.00	125.89	1.70	20.56	113.76	3060	0.0411
WLAN-BT	WLAN	20M	5150	21.00	125.89	3.26	22.12	162.93	3060	0.0532
WLAN-BT	WLAN	20M	5500	20.00	100.00	2.96	20.82	120.78	3060	0.0395
WLAN-BT	WLAN	40M	5745	19.60	91.20	3.68	21.14	130.02	3060	0.0425
WLAN-BT	BT	BR	2400	10.50	11.22	1.70	10.06	10.14	3060	0.0037

WLAN-BT Antenna Ratio for limbs

Antenna	RAT	BW	Frequency [MHz]	Output Power		Ant Gain dBi	ERP		Pth mW	Ratio P/Pth
				dBm	mW		dBm	mW		
WLAN-BT	WLAN	20M	2400	21.00	125.89	1.70	20.56	113.76	7650	0.0165
WLAN-BT	WLAN	20M	5150	21.00	125.89	3.26	22.12	162.93	7650	0.0213
WLAN-BT	WLAN	20M	5500	20.00	100.00	2.96	20.82	120.78	7650	0.0158
WLAN-BT	WLAN	40M	5745	19.60	91.20	3.68	21.14	130.02	7650	0.0170
WLAN-BT	BT	BR	2400	10.50	11.22	1.70	10.06	10.14	7650	0.0015

Note: To calculate the TER, output power is quoted from highest tune up limit for each band.

16.5 TER Bottom condition

WWAN Main, WLAN Main and WLAN-BT antenna for bottom condition

RAT	Band	Frequency [MHz]	Output Power		Ant Gain dBi	ERP		Pth mW	WWAN Main	WLAN Main	WLAN-BT	Total Sum of ratio
			dBm	mW		P/Pth	Eva./exp.limit		P/Pth			
WCDMA	B2	1850	24.50	281.84	1.99	24.35	272.27	3060	0.092	0.116	0.053	0.262
WCDMA	B4	1710	24.50	281.84	1.48	23.84	242.10	3060	0.092	0.116	0.053	0.262
WCDMA	B5	824	24.50	281.84	-0.09	22.27	168.66	1681	0.168	0.116	0.053	0.337
LTE	B2	1850	24.00	251.19	1.99	23.85	242.66	3060	0.082	0.116	0.053	0.252
LTE	B4	1710	24.00	251.19	1.48	23.34	215.77	3060	0.082	0.116	0.053	0.252
LTE	B5	824	24.00	251.19	-0.09	21.77	150.31	1681	0.149	0.116	0.053	0.319
LTE	B7	2500	23.50	223.87	2.29	23.65	231.74	3060	0.076	0.116	0.053	0.245
LTE	B12	699	24.00	251.19	0.26	22.12	162.93	1426	0.176	0.116	0.053	0.346
LTE	B13	777	24.00	251.19	0.11	21.97	157.40	1585	0.158	0.116	0.053	0.328
LTE	B14	788	24.00	251.19	-0.57	21.29	134.59	1608	0.156	0.116	0.053	0.326
LTE	B17	704	24.00	251.19	0.26	22.12	162.93	1436	0.175	0.116	0.053	0.344
LTE	B25	1850	24.00	251.19	1.99	23.85	242.66	3060	0.082	0.116	0.053	0.252
LTE	B26	814	24.00	251.19	-0.09	21.77	150.31	1661	0.151	0.116	0.053	0.321
LTE	B38	2570	24.00	251.19	2.29	24.15	260.02	3060	0.085	0.116	0.053	0.254
LTE	B41	2496	24.00	251.19	2.29	24.15	260.02	3060	0.085	0.116	0.053	0.254
LTE	B48	3550	12.30	16.98	1.40	11.56	14.32	3060	0.006	0.116	0.053	0.175
LTE	B66	1710	24.00	251.19	1.48	23.34	215.77	3060	0.082	0.116	0.053	0.252
LTE	B71	663	24.00	251.19	-0.68	21.18	131.22	1353	0.186	0.116	0.053	0.355
NR	n2	1850	24.50	281.84	1.99	24.35	272.27	3060	0.092	0.116	0.053	0.262
NR	n5	824	24.50	281.84	-0.09	22.27	168.66	1681	0.168	0.116	0.053	0.337
NR	n66	1710	24.50	281.84	1.48	23.84	242.10	3060	0.092	0.116	0.053	0.262
NR	n71	663	24.50	281.84	-0.68	21.68	147.23	1353	0.208	0.116	0.053	0.378

Note: The P/Pth value for WLAN-BT is from section 16.4.

WWAN-4th, WLAN Main and WLAN-BT antenna for bottom condition

RAT	Band	Meas. SAR [W/kg]	WWAN-4th	WLAN Main	WLAN-BT	Total
			Eva./exp.limit	Eva./exp.limit	P/Pth	Sum of ratio
NR	n41	0.055	0.034	0.116	0.053	0.204

Note: WLAN main result is from report number: HCT-SR-2112-FC005-R1 issued by HCT Co., Ltd

16.6 TER Limbs condition

WWAN Main, WLAN Main and WLAN-BT antenna for limbs condition

RAT	Band	Frequency [MHz]	Output Power		Ant Gain dBi	ERP		Pth mW	WWAN Main	WLAN Main	WLAN-BT	Total Sum of ratio
			dBm	mW		P/Pth	Eva./exp.limit		P/Pth			
WCDMA	B2	1850	24.50	281.84	1.99	24.35	272.27	7650	0.037	0.201	0.021	0.259
WCDMA	B4	1710	24.50	281.84	1.48	23.84	242.10	7650	0.037	0.201	0.021	0.259
WCDMA	B5	824	24.50	281.84	-0.09	22.27	168.66	4202	0.067	0.201	0.017	0.285
LTE	B2	1850	24.00	251.19	1.99	23.85	242.66	7650	0.033	0.201	0.021	0.255
LTE	B4	1710	24.00	251.19	1.48	23.34	215.77	7650	0.033	0.201	0.021	0.255
LTE	B5	824	24.00	251.19	-0.09	21.77	150.31	4202	0.060	0.201	0.011	0.272
LTE	B7	2500	23.50	223.87	2.29	23.65	231.74	7650	0.030	0.201	0.021	0.253
LTE	B12	699	24.00	251.19	0.26	22.12	162.93	3565	0.070	0.201	0.005	0.277
LTE	B13	777	24.00	251.19	0.11	21.97	157.40	3963	0.063	0.201	0.016	0.280
LTE	B14	788	24.00	251.19	-0.57	21.29	134.59	4019	0.063	0.201	0.016	0.280
LTE	B17	704	24.00	251.19	0.26	22.12	162.93	3590	0.070	0.201	0.016	0.287
LTE	B25	1850	24.00	251.19	1.99	23.85	242.66	7650	0.033	0.201	0.021	0.255
LTE	B26	814	24.00	251.19	-0.09	21.77	150.31	4151	0.061	0.201	0.016	0.278
LTE	B38	2570	24.00	251.19	2.29	24.15	260.02	7650	0.034	0.201	0.021	0.257
LTE	B41	2496	24.00	251.19	2.29	24.15	260.02	7650	0.034	0.201	0.021	0.257
LTE	B48	3550	12.30	16.98	1.40	11.56	14.32	7650	0.002	0.201	0.021	0.225
LTE	B66	1710	24.00	251.19	1.48	23.34	215.77	7650	0.033	0.201	0.021	0.255
LTE	B71	663	24.00	251.19	-0.68	21.18	131.22	3381	0.074	0.201	0.017	0.292
NR	n2	1850	24.50	281.84	1.99	24.35	272.27	7650	0.037	0.201	0.021	0.259
NR	n5	824	24.50	281.84	-0.09	22.27	168.66	4202	0.067	0.201	0.017	0.285
NR	n66	1710	24.50	281.84	1.48	23.84	242.10	7650	0.037	0.201	0.021	0.259
NR	n71	663	24.50	281.84	-0.68	21.68	147.23	3381	0.083	0.201	0.017	0.301

Note: The P/Pth value for WLAN-BT is from section 16.4.

WWAN-4th, WLAN Main and WLAN-BT antenna for bottom condition

RAT	Band	Meas. SAR [W/kg]	WWAN-4th	WLAN Main	WLAN-BT	Total
			Eva./exp.limit	Eva./exp.limit	P/Pth	Sum of ratio
NR	n41	0.313	0.078	0.201	0.021	0.301

17 Test instrument

17.1 For power measurement

Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
MURC-10	171763	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	165750	06/15/2021	12
MAT-86	141366	Attenuator	Weinschel Associates	WA56-20	56200213	05/14/2021	12
MHDC-30	196147	Directional Coupler	Agilent Technologies	87300B	MY39500119	04/21/2021	12
MPSE-23	141835	Power sensor	Keysight Technologies Inc	N1923A	MY54070004	08/11/2021	12
MPM-16	141812	Power Meter	Keysight Technologies Inc	8990B	MY51000271	08/11/2021	12
MPSE-26	165118	Power Sensor	Rohde & Schwarz	NRP6A	1424.6796K02-101379-dz	11/03/2021	12
MAT-21	141174	Attenuator(20dB) (above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	901247	01/23/2022	12
MCC-254	206585	2.4mm cable	Huber+Suhner	SF102/11PC24/11PC24/3000	SN 804182/2	04/18/2021	12
MHDC-32	206910	Directional Coupler	NARDA	4216-10	02871	04/16/2021	12
MRENT-146	185691	Spectrum Analyzer	Keysight Technologies Inc	N9020A	MY55400351	09/30/2021	12
MURC-13	196372	UXM 5G Wireless Test Platform	Keysight Technologies Inc	E7515B	MY59321679	03/29/2021	12

17.2 For SAR

(1/2)

Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
MDAE-01	141482	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	509	07/13/2021	12
MPB-07	141597	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3825	07/22/2021	12
MDA-07	141457	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	713	09/09/2019	36
MDA-19	141479	Dipole Antenna	Schmid&Partner Engineering AG	D2600V2	1030	03/14/2019	36
MPB-08	141598	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3917	05/20/2021	12
MPF-03	142057	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1203	05/28/2021	12
MDH-01	142484	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	11/01/2021	12
MDH-04	142489	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	11/01/2021	12
MOS-33	88581	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	07/08/2021	12
MRBT-02	142247	SAR robot	Schmid&Partner Engineering AG	TX60 Lspeag	F10/5E3LA1/A/01	04/20/2021	12
MOS-35	141573	Digital thermometer	HANNA	Checktemp 4	-	07/08/2021	12
MRBT-03	142248	SAR robot	Schmid&Partner Engineering AG	TX60 Lspeag	F13/5PP1D1/A/01	04/20/2021	12
MPF-02	142056	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1045	05/28/2021	12
COTS-MSAR-04	141182	Dielectric assessment software	Schmid&Partner Engineering AG	DAK	-	-	-
COTS-MPSE-02	173900	Software for MA24106A	Anritsu Corporation	Anritsu PowerXpert	-	-	-
MDPK-03	141471	Dielectric assessment kit	Schmid&Partner Engineering AG	DAKS-3.5	0008	04/14/2021	12
MAT-78	142313	Attenuator	Telegartner	J01156A0011	42294119	-	-

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Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
MPM-15	141811	Power Meter	Keysight Technologies Inc	N1914A	MY53060017	06/08/2021	12
MNA-03	141551	Vector Reflectometer	COPPER MOUNTAIN TECHNOLOGIES	PLANAR R140	0030913	04/19/2021	12
MOS-37	141574	Digital thermometer	LKM electronic	DTM3000	-	07/08/2021	12
MPSE-20	141833	Power sensor	Keysight Technologies Inc	N8482H	MY53050001	06/08/2021	12
MPSE-24	141843	Power sensor	Anritsu Corporation	MA24106A	1026164	08/17/2021	12
MPSE-25	141844	Power sensor	Anritsu Corporation	MA24106A	1031504	08/17/2021	12
MRFA-24	141875	Pre Amplifier	R&K	R&K CGA020M602-2633R	B30550	06/16/2021	12
MHBBL600-10000	176484	Head Simulating Liquid	Schmid & Partner Engineering AG	HBBL600-10000V6	SL AAH U16 BC	-	-
COTS-MSAR-03	141181	Dasy5	Schmid & Partner Engineering AG	DASY5	-	-	-
MSG-10	141890	Signal Generator	Keysight Technologies Inc	N5181A	MY47421098	11/18/2021	12
MWTR-01	142865	Water, distilled	KISHIDA CHEMICAL Co.,Ltd.	020-85566	K70244M	-	-
MDA-08	141467	Dipole Antenna	Schmid&Partner Engineering AG	D5GHzV2	1020	11/18/2021	12
MDAE-02	141483	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	1369	05/11/2021	12

*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

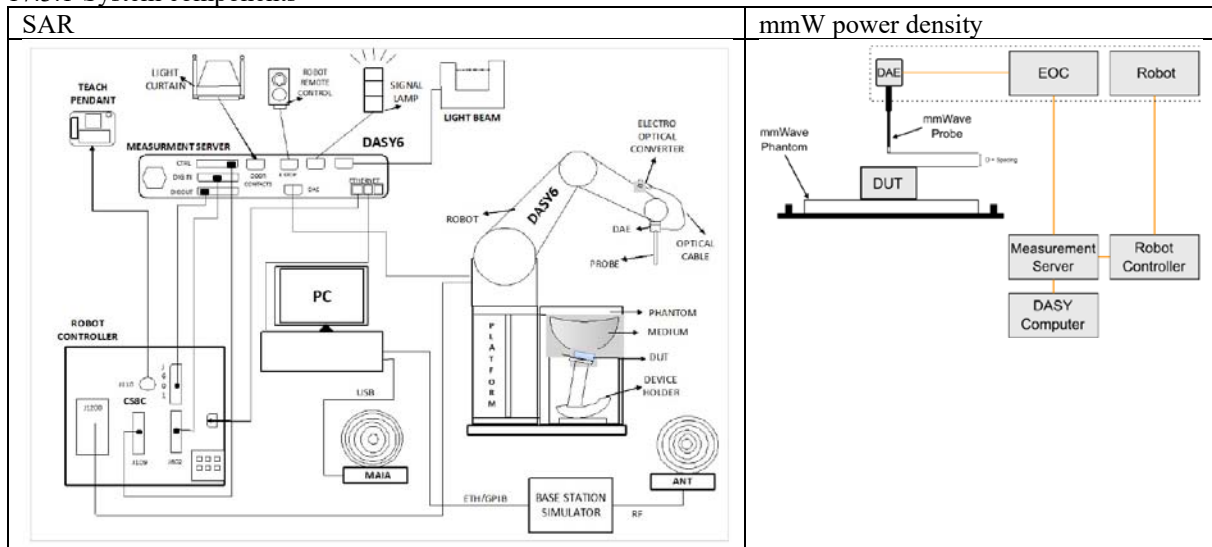
The expiration date of the calibration is the end of the expired month.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

17.3 Test system

17.3.1 System components



17.3.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE4 or DAE3) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter, and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

17.3.3 Probes (SAR)

Dosimetric Probes: These probes are specially designed and calibrated for use in liquids with high permittivities. They should not be used in air, since the spherical isotropy in air is poor (± 2 dB). The dosimetric probes are specially calibrated in various liquids at different frequencies.

17.3.4 EOC

The electrooptical converter (EOC), which is mounted on the robot arm. An internal data link is used from the EOC to the robot back panel. From there, a 10-meter cable connects to the measurement server DAE input.

17.3.5 Robot

The DASy6 system uses the high precision industrial robots TX60L from Stuaubli SA (France).

17.3.6 Simulated Tissues (Liquid)

series of tissue simulating liquids are available for various testing applications. The dielectric parameters of these liquids are matched to the target tissue parameters over a certain frequency range. A summary of available liquids is as follows:

HEAD TISSUE LIQUIDS	Dielectric parameters for simulating head-tissue parameters as defined in the SAR compliance standards (IEEE 1528, IEC 62209-1/2, etc.) Frequency range: 4 MHz – 10 GHz Tolerance to target: $\pm 5\%$ / $\pm 10\%$ Detailed specifications: HSL
BODY TISSUE LIQUIDS	Dielectric parameters for simulating body-tissue parameters as defined in the SAR measurement guidance (FCC KDB 865664) Frequency range: 150 MHz – 6 GHz Tolerance to target: $\pm 5\%$ / $\pm 10\%$ Detailed specifications: MSL
SPECIAL LIQUIDS	CTIA Applications: brain tissue simulating liquid for radiation measurements according to CTIA 2.2 Appx C.3 MRI Solutions: tissue simulating Media for RF safety evaluation at MR Frequencies

17.3.7 Others

The SAR phantom, mmW phantom, the device holder and other accessories according to the targeted measurement.

18 Appendixes

Refer to separated files for the following appendixes.

Appendix A: DUT and SAR Setup Photos

Appendix B: SAR Measurement data

Appendix C: System Check

Appendix D: Calibration data

Appendix E: Antenna location

19 Revision History

Original Test Report No.: 14131461H-B

This report is a revised version of 14131461H-B-R1. 14131461H-B-R1 is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	14131461H-B	May 9, 2022	-
1	14131461H-B-R1	May 23, 2022	Clause 13.2.2 Corrected System Check Results
2	14131461H-B-R2	June 1, 2022	Clause 3.2 Corrected the table for Model: WW21A Clause 7.4 Corrected the typo

End of Report