



CERTIFICATION TEST REPORT

Report Number. : 4790379967-E2V2

Applicant : SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA

Model : SM-A236U, SM-A236U1/DS, SM-S236DL

FCC ID : A3LSMA236U

EUT Description : GSM/WCDMA/LTE 5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac and
NFC

Test Standard(s) : FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART D,F,H,L,M,N,O,Q
FCC CFR47 PART 90 SUBPART R,S

Date Of Issue:

2022-06-30

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TL-637

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2022-06-27	Initial issue	Yeonhee Lim
V2	2022-06-30	Updated to address TCB's question	Yeonhee Lim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC.

MODEL NUMBER: SM-A236U, SM-A236U1/DS, SM-S236DL

SERIAL NUMBER: R3CT40ETHZE, R3CT50DAV0M, R3CT40ETYKB, R3CT40ETYPK (CONDUCTED);
R3CT40DASJH, R3CT50DATGM, R3CT50DCEDZ, R3CT50DCD0D (RADIATED);

DATE TESTED: 2022-05-07 - 2022-06-27;

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27H,L,D,F,H,M,N,O,Q and 90R,S	Pass

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

Tested By:



Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Yeonhee Lim
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 22.
3. FCC CFR 47 Part 24.
4. FCC CFR 47 Part 27.
5. FCC CFR 47 Part 90.
6. ANSI TIA-603-E, 2016
7. ANSI C63.26, 2015
8. KDB 971168 D01 Power Meas License Digital Systems v03r01

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
<input checked="" type="checkbox"/>	Chamber 1(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 2(3m semi-anechoic chamber)
<input type="checkbox"/>	Chamber 3(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 4(3m Full-anechoic chamber)
<input type="checkbox"/>	Chamber 5(3m Full-anechoic chamber)

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$EIRP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$

$ERP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)}$

(Path loss = Signal generator output – PSA reading with substitution antenna)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.02 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.58 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2007.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC.
 This test report addresses the WWAN operational mode.

This report covers the Samsung models SM-A236U, SM-A236U1/DS, SM-S236DL.
 These models are identical in hardware except SM-A236U1/DS is supported dual SIM tray and SM-A236U has single SIM tray, SM-S236DL is same hardware.

All series model was same hardware thus, SM-A236U was set for final test.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum average radiated ERP / EIRP output powers as follows:

Note : Conducted output power results were excerpted from RF exposure test report.
 (4790379967-S1 FCC Report SAR)

GSM

FCC Part 22/24						
Band	Frequency Range [MHz]	Modulation	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
GSM850	824~849	GPRS	32.89	1945.70	27.02	503.50
		EGPRS	26.93	493.06	23.75	237.14
GSM1900	1850~1910	GPRS	29.59	909.91	29.73	939.72
		EGPRS	25.58	361.41	29.59	909.91

WCDMA

FCC Part 22/24/27						
Band	Frequency Range [MHz]	Modulation	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 5	824~849	Rel. 99	24.53	283.67	18.64	73.11
		HSDPA	23.53	225.32	17.80	60.26
Band 4	1710~1755	Rel. 99	24.06	254.68	22.47	176.60
		HSDPA	23.07	202.77	21.21	132.13
Band 2	1850~1910	Rel. 99	24.17	261.47	24.47	279.90
		HSDPA	23.17	207.54	23.45	221.31

LTE Band 7

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 7	2506 - 2680	20	QPSK	22.90	194.98	23.70	234.42
			16QAM	22.52	178.65	22.73	187.50
			64QAM	21.56	143.22		
			256QAM	18.16	65.46		
	2503.5 - 2682.5	15	QPSK	22.88	194.09	24.08	255.86
			16QAM	22.25	167.88	23.68	233.35
			64QAM	21.24	133.05		
			256QAM	18.50	70.79		
	2501 - 2685	10	QPSK	23.18	207.97	24.37	273.53
			16QAM	22.38	172.98	23.78	238.78
			64QAM	21.49	140.93		
			256QAM	18.73	74.64		
	2498.5 - 2687.5	5	QPSK	23.11	204.64	24.51	282.49
			16QAM	22.50	177.83	23.65	231.74
			64QAM	21.47	140.28		
			256QAM	18.30	67.61		

LTE Band 12

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 12	704 - 711	10	QPSK	24.78	300.61	20.37	108.89
			16QAM	24.32	270.52	19.38	86.70
			64QAM	23.10	204.17		
			256QAM	20.02	100.50		
	701.5 - 707.5	5	QPSK	24.95	312.69	20.23	105.44
			16QAM	24.36	272.70	19.44	87.90
			64QAM	23.18	207.74		
			256QAM	20.06	101.40		
	700.5 - 714.5	3	QPSK	24.89	308.28	20.33	107.89
			16QAM	24.18	261.93	19.32	85.51
			64QAM	23.25	211.45		
			256QAM	20.27	106.45		
	699.7 - 715.3	1.4	QPSK	24.89	308.61	19.96	99.08
			16QAM	24.30	268.93	19.05	80.35
			64QAM	23.32	214.96		
			256QAM	20.09	102.11		

LTE Band 13

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 13	782	10	QPSK	24.49	281.19	20.66	116.41
			16QAM	23.77	238.13	19.70	93.33
			64QAM	22.96	197.60		
			256QAM	20.03	100.80		
	779.5 - 784.5	5	QPSK	24.87	306.96	20.56	113.76
			16QAM	23.92	246.33	19.96	99.08
			64QAM	22.53	179.05		
			256QAM	19.79	95.30		

LTE Band 14

FCC Part 90							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 14	793	10	QPSK	24.52	283.14	19.68	92.90
			16QAM	23.67	232.93	19.05	80.35
			64QAM	23.06	202.38		
			256QAM	20.12	102.71		
	790.5 - 795.5	5	QPSK	24.63	290.73	19.87	97.05
			16QAM	23.76	237.76	18.92	77.98
			64QAM	22.53	179.06		
			256QAM	19.60	91.24		

LTE Band 25(Main ANT)

FCC Part 24							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 25	1860 - 1905	20	QPSK	24.25	266.07	24.52	283.14
			16QAM	23.72	235.28	23.76	237.68
			64QAM	22.48	177.18		
			256QAM	19.55	90.08		
	1857.5 - 1907.5	15	QPSK	24.17	261.09	24.91	309.74
			16QAM	23.65	231.94	24.45	278.61
			64QAM	22.62	183.01		
			256QAM	19.73	94.04		
	1855 - 1910	10	QPSK	24.37	273.71	24.75	298.54
			16QAM	23.52	224.99	24.39	274.79
			64QAM	22.62	182.82		
			256QAM	19.89	97.42		
	1852.5 - 1912.5	5	QPSK	24.33	271.27	24.85	305.49
			16QAM	23.52	224.85	24.20	263.03
			64QAM	22.51	178.41		
			256QAM	19.77	94.94		
	1851.5 - 1913.5	3	QPSK	24.15	260.24	24.77	299.92
			16QAM	23.19	208.55	23.98	250.03
			64QAM	22.01	158.97		
			256QAM	19.69	93.13		
	1850.7 - 1914.3	1.4	QPSK	24.24	265.31	24.78	300.61
			16QAM	23.36	216.68	24.25	266.07
			64QAM	21.99	158.18		
			256QAM	19.62	91.55		

LTE Band 25(Sub ANT)

FCC Part 24							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 25	1860 - 1905	20	QPSK	23.05	201.84		
			16QAM	22.09	161.81		
			64QAM	21.29	134.59		
			256QAM	18.17	65.61		
	1857.5 - 1907.5	15	QPSK	23.13	205.59	19.81	95.72
			16QAM	22.21	166.34	19.35	86.10
			64QAM	21.03	126.77		
			256QAM	18.03	63.53		
	1855 - 1910	10	QPSK	22.94	196.79		
			16QAM	22.16	164.44		
			64QAM	21.12	129.45		
			256QAM	18.04	63.68		
	1852.5 - 1912.5	5	QPSK	22.91	195.43		
			16QAM	22.21	166.34		
			64QAM	21.11	129.12		
			256QAM	18.02	63.39		
	1851.5 - 1913.5	3	QPSK	22.91	195.43		
			16QAM	22.19	165.58		
			64QAM	21.08	128.23		
			256QAM	18.01	63.24		
	1850.7 - 1914.3	1.4	QPSK	22.94	196.79		
			16QAM	21.96	157.04		
			64QAM	21.02	126.47		
			256QAM	17.92	61.94		

LTE Band 26 (Part 90)

FCC Part 90							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 26	821.5	15	QPSK	24.45	278.490	16.33	42.95
			16QAM	23.41	219.227	15.16	32.81
			64QAM	23.15	206.355		
			256QAM	19.86	96.870		
	819	10	QPSK	24.04	253.513	18.27	67.14
			16QAM	23.11	204.644	17.58	57.28
			64QAM	22.32	170.608		
			256QAM	19.23	83.753		
	816.5 - 821.5	5	QPSK	24.13	258.821	17.63	57.94
			16QAM	23.23	210.378	16.80	47.86
			64QAM	22.55	179.887		
			256QAM	19.32	85.507		
	815.5 - 822.5	3	QPSK	24.03	252.930	18.07	64.12
			16QAM	23.17	207.491	16.83	48.19
			64QAM	22.19	165.577		
			256QAM	19.20	83.176		
814.7 - 823.3	1.4	QPSK	24.03	252.930	17.41	55.08	
		16QAM	23.23	210.378	16.43	43.95	
		64QAM	22.60	181.970			
		256QAM	19.25	84.140			

LTE Band 26 (Part 22)

FCC Part 22							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 26	831.5 ~ 841.5	15	QPSK	24.52	283.228	19.40	87.10
			16QAM	23.97	249.592	18.58	72.11
			64QAM	23.13	205.573		
			256QAM	19.97	99.273		
	829 ~ 844	10	QPSK	24.20	263.027	19.79	95.28
			16QAM	23.65	231.739	18.89	77.45
			64QAM	22.49	177.419		
			256QAM	19.79	95.280		
	826.5 ~ 846.5	5	QPSK	24.31	269.774	19.93	98.40
			16QAM	23.66	232.274	19.12	81.66
			64QAM	22.72	187.068		
			256QAM	19.45	88.105		
	825.5 ~ 847.5	3	QPSK	24.23	264.850	19.56	90.36
			16QAM	23.49	223.357	18.36	68.55
			64QAM	22.39	173.380		
			256QAM	19.31	85.310		
824.7 ~ 848.3	1.4	QPSK	24.22	264.241	19.53	89.74	
		16QAM	23.64	231.206	18.44	69.82	
		64QAM	22.60	181.970			
		256QAM	19.32	85.507			

LTE Band 26 (Straddle)

Straddle							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 26	824	15	QPSK	24.29	268.534	16.14	41.11
			16QAM	23.72	235.505	15.89	38.82
			64QAM	22.48	177.011		
			256QAM	19.58	90.782		
		10	QPSK	24.33	271.019	16.33	42.95
			16QAM	23.94	247.742	15.95	39.36
			64QAM	22.61	182.390		
			256QAM	19.58	90.782		
		5	QPSK	24.42	276.694	16.73	47.10
			16QAM	23.60	229.087	16.12	40.93
			64QAM	22.82	191.426		
			256QAM	19.62	91.622		
		3	QPSK	24.39	274.789	17.13	51.64
			16QAM	23.78	238.781	16.24	42.07
			64QAM	22.49	177.419		
			256QAM	19.46	88.308		
		1.4	QPSK	24.24	265.461	16.96	49.66
			16QAM	23.57	227.510	15.85	38.46
			64QAM	22.60	181.970		
			256QAM	19.56	90.365		

LTE Band 30

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 30	2310	10	QPSK	23.31	214.14	21.06	127.64
			16QAM	22.43	174.98	19.78	95.06
			64QAM	21.80	151.47		
			256QAM	18.92	77.99		
	2307.5 - 2312.5	5	QPSK	23.39	218.36	20.88	122.46
			16QAM	22.49	177.41	20.17	103.99
			64QAM	21.46	140.01		
			256QAM	18.44	69.82		

LTE Band 40

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 40	2310	10	QPSK	11.68	14.72	12.17	16.48
			16QAM	11.65	14.62		
			64QAM	11.78	15.07		
			256QAM	11.96	15.70	11.57	14.35
	2355	10	QPSK	12.12	16.29	11.57	14.35
			16QAM	11.99	15.81		
			64QAM	12.11	16.26		
			256QAM	12.22	16.67	10.71	11.78
	2307.5 - 2312.5	5	QPSK	11.70	14.79	12.21	16.63
			16QAM	11.66	14.66		
			64QAM	11.72	14.86		
			256QAM	11.81	15.17	11.93	15.60
	2352.5 - 2357.5	5	QPSK	11.99	15.81	11.43	13.90
			16QAM	12.15	16.41		
64QAM			12.13	16.33			
256QAM			12.44	17.54	11.19	13.15	

LTE Band 41(PC2)

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 41	2506 - 2680	20	QPSK	26.40	436.52	27.71	590.20
			16QAM	25.97	395.37	27.01	502.34
			64QAM	24.89	308.32		
			256QAM	21.88	154.17		
	2503.5 - 2682.5	15	QPSK	26.41	437.52	27.67	584.79
			16QAM	25.81	381.07	27.11	514.04
			64QAM	24.69	294.44		
			256QAM	21.72	148.59		
	2501 - 2685	10	QPSK	26.49	445.66	27.79	601.17
			16QAM	25.96	394.46	27.35	543.25
			64QAM	24.95	312.61		
			256QAM	21.89	154.53		
	2498.5 - 2687.5	5	QPSK	26.48	444.63	27.46	557.19
			16QAM	25.75	375.84	27.01	502.34
			64QAM	25.00	316.23		
			256QAM	21.93	155.96		

LTE Band 41 (Uplink CA)

Part 27			
EIRP Limit (dBm)	33	ANT Gain (dBi)	0.12

Frequency Range (MHz)	Bandwidth (MHz)	Modulation	Output Power				
			Conducted Average Power	Antenna Gain	EIRP Average Power		Margin
			(dBm)	dBi	dBm	mW	
2496 - 2690	40MHz (20+20)	QPSK	25.11	0.12	25.23	333.43	-7.77
		16QAM	24.12		24.24	265.46	-8.76
	35MHz (15+20)	QPSK	25.05		25.17	328.85	-7.83
		16QAM	24.12		24.24	265.46	-8.76
	30MHz (15+15)	QPSK	25.03		25.15	327.34	-7.85
		16QAM	24.06		24.18	261.82	-8.82
	25MHz (5+20)	QPSK	25.08		25.2	331.13	-7.8
		16QAM	24.17		24.29	268.53	-8.71

Note. The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results It was found that QPSK and 16QAM results were worst case.

LTE Band 66 (Main ANT)

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 66	1720 - 1770	20	QPSK	22.90	194.98	23.33	215.28
			16QAM	22.75	188.20	22.45	175.79
			64QAM	21.96	156.95		
			256QAM	19.39	86.82		
	1717.5 - 1772.5	15	QPSK	22.89	194.74	23.36	216.77
			16QAM	22.90	194.95	22.55	179.89
			64QAM	21.53	142.17		
			256QAM	19.50	89.04		
	1715 - 1775	10	QPSK	22.97	198.28	23.26	211.84
			16QAM	22.86	193.02	22.83	191.87
			64QAM	21.70	148.03		
			256QAM	19.71	93.52		
	1712.5 - 1777.5	5	QPSK	23.01	200.20	23.35	216.27
			16QAM	22.76	189.01	22.60	181.97
			64QAM	21.45	139.78		
			256QAM	19.35	86.12		
	1711.5 - 1778.5	3	QPSK	22.87	193.58	23.07	202.77
			16QAM	22.54	179.45	22.47	176.60
			64QAM	21.65	146.17		
			256QAM	19.44	87.97		
1710.7 - 1779.3	1.4	QPSK	22.92	195.75	22.93	196.34	
		16QAM	22.38	173.06	22.35	171.79	
		64QAM	21.46	139.99			
		256QAM	19.37	86.47			

LTE Band 66 (Sub ANT)

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 66	1720 - 1770	20	QPSK	23.04	201.37	17.11	51.37
			16QAM	22.49	177.42	16.42	43.85
			64QAM	21.45	139.64		
			256QAM	18.15	65.31		
	1717.5 - 1772.5	15	QPSK	23.01	199.99		
			16QAM	22.17	164.82		
			64QAM	21.15	130.32		
			256QAM	18.08	64.27		
	1715 - 1775	10	QPSK	22.72	187.07		
			16QAM	21.91	155.24		
			64QAM	20.95	124.45		
			256QAM	17.83	60.67		
	1712.5 - 1777.5	5	QPSK	22.73	187.50		
			16QAM	21.98	157.76		
			64QAM	20.99	125.60		
			256QAM	17.86	61.09		
	1711.5 - 1778.5	3	QPSK	22.83	191.87		
			16QAM	21.95	156.68		
			64QAM	20.93	123.88		
			256QAM	17.78	59.98		
1710.7 - 1779.3	1.4	QPSK	22.77	189.23			
		16QAM	21.92	155.60			
		64QAM	20.92	123.59			
		256QAM	17.82	60.53			

LTE Band 71

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 71	673.0 - 688.0	20	QPSK	24.83	304.31	20.16	103.75
			16QAM	24.25	265.77	18.90	77.62
			64QAM	23.18	208.16		
			256QAM	19.98	99.62		
	670.5 - 690.5	15	QPSK	24.18	261.82	20.11	102.57
			16QAM	23.16	207.01	19.23	83.75
			64QAM	22.51	178.24		
			256QAM	19.72	93.76		
	668.0 - 693.0	10	QPSK	24.33	271.02	21.16	130.62
			16QAM	23.75	237.14	20.02	100.46
			64QAM	22.78	189.67		
			256QAM	19.47	88.51		
	665.5 - 695.5	5	QPSK	24.45	278.61	20.42	110.15
			16QAM	23.83	241.55	19.20	83.18
			64QAM	22.72	187.07		
			256QAM	19.50	89.13		

NR Band n5

FCC Part 22									
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated		
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]	
n5	834 - 839	20	DFT-s OFDM	$\pi/2$ BPSK	24.55	285.10			
				QPSK	24.66	292.42	19.00	79.43	
				16QAM	23.53	225.42	17.89	61.52	
				64QAM	22.21	166.34			
				256QAM	19.57	90.57			
	831.5 - 841.5	15	DFT-s OFDM	CP-OFDM	QPSK	23.40	218.78		
					$\pi/2$ BPSK	24.36	272.90		
					QPSK	24.41	276.06	19.41	87.30
					16QAM	23.29	213.30	18.25	66.83
					64QAM	21.98	157.76		
	829 - 844	10	DFT-s OFDM	CP-OFDM	256QAM	19.19	82.99		
					QPSK	22.82	191.43		
					$\pi/2$ BPSK	24.49	281.19		
					QPSK	24.49	281.19	18.26	66.99
					16QAM	23.33	215.28	17.70	58.88
	826.5 - 846.5	5	DFT-s OFDM	CP-OFDM	64QAM	22.00	158.49		
					256QAM	19.16	82.41		
					QPSK	22.80	190.55		
					$\pi/2$ BPSK	24.57	286.42		
					QPSK	24.61	289.07	18.61	72.61
			DFT-s OFDM	16QAM	23.56	226.99	18.37	68.71	
				64QAM	22.21	166.34			
				256QAM	19.38	86.70			
				QPSK	23.02	200.45			

NR Band n25

FCC Part 24								
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n25	1870.0 - 1895.0	40	DFT-s OFDM	$\pi/2$ BPSK	24.53	283.69		
				QPSK	24.49	281.24	24.40	275.42
				16QAM	23.72	235.57	23.72	235.50
				64QAM	22.42	174.58		
			256QAM	19.95	98.86			
	CP-OFDM	QPSK	23.05	201.84				
	1865.0 - 1900.0	30	DFT-s OFDM	$\pi/2$ BPSK	24.57	286.42		
				QPSK	24.94	311.89	24.31	269.77
				16QAM	23.41	219.28	23.69	233.88
				64QAM	22.18	165.20		
			256QAM	19.55	90.16			
	CP-OFDM	QPSK	22.89	194.54				
	1862.5 - 1902.5	25	DFT-s OFDM	$\pi/2$ BPSK	24.45	278.61		
				QPSK	24.51	282.49	24.23	264.85
				16QAM	23.36	216.77	23.56	226.99
				64QAM	22.18	165.20		
			256QAM	19.61	91.41			
	CP-OFDM	QPSK	22.92	195.88				
	1860 - 1905	20	DFT-s OFDM	$\pi/2$ BPSK	24.52	283.14		
				QPSK	24.43	277.33	25.74	374.97
				16QAM	23.33	215.28	25.04	319.15
				64QAM	22.49	177.42		
			256QAM	20.01	100.23			
	CP-OFDM	QPSK	23.26	211.84				
	1857.5 - 1907.5	15	DFT-s OFDM	$\pi/2$ BPSK	24.48	280.54		
				QPSK	24.47	279.90	25.57	360.58
				16QAM	23.35	216.27	24.81	302.69
				64QAM	22.46	176.20		
			256QAM	20.05	101.16			
	CP-OFDM	QPSK	23.10	204.17				
	1855 - 1910	10	DFT-s OFDM	$\pi/2$ BPSK	24.39	274.79		
				QPSK	24.32	270.40	25.59	362.24
16QAM				23.39	218.27	24.83	304.09	
64QAM				22.46	176.20			
256QAM			19.89	97.50				
CP-OFDM	QPSK	23.17	207.49					
1852.5 - 1912.5	5	DFT-s OFDM	$\pi/2$ BPSK	24.47	279.90			
			QPSK	24.23	264.85	25.91	389.94	
			16QAM	23.28	212.81	25.20	331.13	
			64QAM	22.15	164.06			
		256QAM	20.04	100.93				
CP-OFDM	QPSK	23.14	206.06					

NR Band n30

FCC Part 27								
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n30	2310.0	10	DFT-s OFDM	$\pi/2$ BPSK	23.29	213.30		
				QPSK	23.34	215.77	20.86	121.90
				16QAM	22.34	171.40	20.01	100.23
				64QAM	21.05	127.35		
				256QAM	18.25	66.83		
	CP-OFDM	QPSK	21.77	150.31				
	2307.5 - 2312.5	5	DFT-s OFDM	$\pi/2$ BPSK	23.33	215.28		
				QPSK	23.58	228.03	21.92	155.60
				16QAM	22.26	168.27	20.92	123.59
				64QAM	20.95	124.45		
256QAM				18.26	66.99			
CP-OFDM	QPSK	21.70	147.91					

NR Band n41(PC2)

FCC Part 27								
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n41	2546.0~2640.0	100	DFT-s OFDM	$\pi/2$ BPSK	26.02	399.94	25.46	351.56
				QPSK	26.00	398.11		
				16QAM	25.07	321.37	24.79	301.30
				64QAM	23.49	223.36		
				256QAM	21.16	130.62		
	CP-OFDM	QPSK	24.31	269.77				
	2541.0~2645.0	90	DFT-s OFDM	$\pi/2$ BPSK	26.04	401.79	25.30	338.84
				QPSK	26.04	401.79		
				16QAM	25.04	319.15	24.60	288.40
				64QAM	23.56	226.99		
				256QAM	21.29	134.59		
	CP-OFDM	QPSK	24.42	276.69				
	2536.0~2650.0	80	DFT-s OFDM	$\pi/2$ BPSK	26.07	404.58	25.05	319.89
				QPSK	26.04	401.79		
				16QAM	24.88	307.61	24.52	283.14
				64QAM	24.97	314.05		
				256QAM	25.01	316.96		
	CP-OFDM	QPSK	25.01	316.96				
	2526.0~2660.0	60	DFT-s OFDM	$\pi/2$ BPSK	26.07	404.58	25.40	346.74
				QPSK	26.04	401.79		
				16QAM	25.01	316.96	24.70	295.12
				64QAM	23.48	222.84		
				256QAM	21.24	133.05		
	CP-OFDM	QPSK	24.35	272.27				
	2521.0~2665.0	50	DFT-s OFDM	$\pi/2$ BPSK	26.22	418.79	25.59	362.24
				QPSK	26.21	417.83		
				16QAM	25.23	333.43	24.90	309.03
				64QAM	23.62	230.14		
				256QAM	21.31	135.21		
	CP-OFDM	QPSK	24.53	283.79				
	2516.0~2670.0	40	DFT-s OFDM	$\pi/2$ BPSK	26.23	419.76	25.50	354.81
				QPSK	26.19	415.91		
16QAM				25.25	334.97	24.93	311.17	
64QAM				23.69	233.88			
256QAM				21.35	136.46			
CP-OFDM	QPSK	24.47	279.90					
2511.0~2675.0	30	DFT-s OFDM	$\pi/2$ BPSK	26.32	428.55	25.00	316.23	
			QPSK	26.27	423.64			
			16QAM	25.36	343.56	24.30	269.15	
			64QAM	23.82	240.99			
			256QAM	21.53	142.23			
CP-OFDM	QPSK	24.63	290.40					
2506.0~2680.0	20	DFT-s OFDM	$\pi/2$ BPSK	26.24	420.73	24.90	309.03	
			QPSK	26.18	414.95			
			16QAM	25.29	338.06	24.30	269.15	
			64QAM	23.79	239.33			
			256QAM	21.45	139.64			
CP-OFDM	QPSK	24.73	297.17					

NR Band n66

FCC Part 27										
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated			
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]		
n66	1730.0 - 1760.0	40	DFT-s OFDM	$\pi/2$ BPSK	24.39	274.48				
				QPSK	24.27	267.58	23.27	212.18		
				16QAM	23.17	207.39	22.37	172.47		
				64QAM	22.18	165.34				
			256QAM	19.78	95.06					
			CP-OFDM	QPSK	22.27	168.66				
			1725.0 - 1765.0	30	DFT-s OFDM	$\pi/2$ BPSK	24.73	297.17		
						QPSK	24.76	299.23	23.43	220.14
	16QAM	23.66				232.27	22.44	175.27		
	64QAM	22.43				174.98				
	256QAM	19.84			96.38					
	CP-OFDM	QPSK			23.23	210.38				
	1720.0 - 1770.0	20	DFT-s OFDM	$\pi/2$ BPSK	24.62	290.03				
				QPSK	24.64	291.29	22.43	174.92		
				16QAM	23.67	232.71	21.36	136.72		
				64QAM	22.30	169.82				
			256QAM	19.64	92.04					
			CP-OFDM	QPSK	23.10	204.17				
	1717.5 - 1772.5	15	DFT-s OFDM	$\pi/2$ BPSK	24.59	288.06				
				QPSK	24.67	292.83	22.54	179.35		
				16QAM	23.52	225.14	21.70	147.81		
				64QAM	22.33	171.00				
			256QAM	19.61	91.41					
			CP-OFDM	QPSK	23.10	204.17				
	1715.0 - 1775.0	10	DFT-s OFDM	$\pi/2$ BPSK	24.74	298.13				
				QPSK	24.71	295.60	22.35	171.67		
				16QAM	23.69	234.09	21.59	144.11		
				64QAM	22.53	179.06				
256QAM			19.79	95.28						
CP-OFDM			QPSK	23.23	210.38					
1712.5 - 1777.5	5	DFT-s OFDM	$\pi/2$ BPSK	24.71	295.72					
			QPSK	24.65	291.55	23.03	200.91			
			16QAM	23.77	238.40	22.30	169.82			
			64QAM	22.49	177.42					
		256QAM	19.76	94.62						
		CP-OFDM	QPSK	23.19	208.45					

NR Band n70

FCC Part 27								
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n70	1702.5	15	DFT-s OFDM	$\pi/2$ BPSK	22.85	192.75		
				QPSK	22.83	191.87	21.77	150.31
				16QAM	21.82	152.05	21.69	147.57
				64QAM	20.43	110.41		
			256QAM	17.56	57.02			
			CP-OFDM	QPSK	21.19	131.52		
	1700.0 - 1705.0	10	DFT-s OFDM	$\pi/2$ BPSK	22.98	198.61		
				QPSK	22.99	199.07	22.02	159.22
				16QAM	21.84	152.76	21.58	143.88
				64QAM	20.49	111.94		
			256QAM	17.66	58.34			
			CP-OFDM	QPSK	21.31	135.21		
	1697.5 - 1707.5	5	DFT-s OFDM	$\pi/2$ BPSK	22.71	186.64		
				QPSK	22.77	189.23	21.72	148.59
				16QAM	21.70	147.91	21.38	137.40
				64QAM	20.61	115.08		
			256QAM	17.75	59.57			
			CP-OFDM	QPSK	21.17	130.92		

NR Band n71

FCC Part 27								
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n71	673.0 - 688.0	20	DFT-s OFDM	$\pi/2$ BPSK	23.24	210.86		
				QPSK	23.30	213.80	19.61	91.41
				16QAM	22.28	169.04	18.76	75.16
				64QAM	20.80	120.23		
			256QAM	17.55	56.89			
			CP-OFDM	QPSK	21.67	146.89		
	670.5 - 690.5	15	DFT-s OFDM	$\pi/2$ BPSK	23.14	206.06		
				QPSK	23.20	208.93	19.64	92.04
				16QAM	22.18	165.20	18.80	75.86
				64QAM	20.85	121.62		
			256QAM	18.03	63.53			
			CP-OFDM	QPSK	21.74	149.28		
	668.0 - 693.0	10	DFT-s OFDM	$\pi/2$ BPSK	23.33	215.28		
				QPSK	23.40	218.78	20.03	100.69
				16QAM	22.27	168.66	18.97	78.89
				64QAM	20.97	125.03		
			256QAM	18.17	65.61			
			CP-OFDM	QPSK	21.81	151.71		
	665.5 - 695.5	5	DFT-s OFDM	$\pi/2$ BPSK	23.36	216.77		
				QPSK	23.41	219.28	19.78	95.06
16QAM				22.22	166.72	18.82	76.21	
64QAM				20.98	125.31			
256QAM			18.23	66.53				
CP-OFDM			QPSK	21.77	150.31			

NR Band n77(PC2)(3450 - 3550 MHz)

FCC Part 27								
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3499.98	100	DFT-s OFDM	$\pi/2$ BPSK	25.54	358.10	25.25	334.97
				QPSK	25.21	331.89		
				16QAM	24.29	268.53	21.40	138.04
				64QAM	22.75	188.36		
				256QAM	20.92	123.59		
	CP-OFDM	QPSK	23.72	235.50				
	3495.0 - 3504.99	90	DFT-s OFDM	$\pi/2$ BPSK	25.64	366.44	25.56	359.72
				QPSK	25.24	334.20		
				16QAM	24.33	271.02	24.19	262.42
				64QAM	22.88	194.09		
				256QAM	20.99	125.60		
	CP-OFDM	QPSK	23.77	238.23				
	3490.02 - 3510.0	80	DFT-s OFDM	$\pi/2$ BPSK	25.67	368.98	24.75	298.54
				QPSK	25.29	338.06		
				16QAM	24.48	280.54	24.04	253.51
				64QAM	24.47	279.90		
				256QAM	24.47	279.90		
	CP-OFDM	QPSK	24.47	279.90				
	3485.01 - 3514.98	70	DFT-s OFDM	$\pi/2$ BPSK	25.65	367.28	24.78	300.61
				QPSK	25.42	348.34		
				16QAM	24.56	285.76	24.05	254.10
				64QAM	23.10	204.17		
				256QAM	21.08	128.23		
	CP-OFDM	QPSK	23.83	241.55				
	3480 - 3519.99	60	DFT-s OFDM	$\pi/2$ BPSK	25.70	371.54	25.25	334.97
				QPSK	25.40	346.74		
				16QAM	24.51	282.49	24.43	277.33
				64QAM	23.19	208.45		
				256QAM	21.16	130.62		
	CP-OFDM	QPSK	23.99	250.61				
	3475.02 - 3525	50	DFT-s OFDM	$\pi/2$ BPSK	25.70	371.54	25.18	329.61
				QPSK	25.38	345.14		
16QAM				24.55	285.10	24.31	269.77	
64QAM				23.26	211.84			
256QAM				21.16	130.62			
CP-OFDM	QPSK	24.01	251.77					
3470.01 - 3529.98	40	DFT-s OFDM	$\pi/2$ BPSK	25.70	371.54	25.45	350.75	
			QPSK	25.64	366.44			
			16QAM	24.80	302.00	24.60	288.40	
			64QAM	23.38	217.77			
			256QAM	21.45	139.64			
CP-OFDM	QPSK	24.24	265.46					
3465.0 - 3535.02	30	DFT-s OFDM	$\pi/2$ BPSK	25.71	372.39	25.53	357.27	
			QPSK	25.68	369.83			
			16QAM	24.84	304.79	25.03	318.42	
			64QAM	23.39	218.27			
			256QAM	21.39	137.72			
CP-OFDM	QPSK	24.19	262.42					
3460.02 - 3540.0	20	DFT-s OFDM	$\pi/2$ BPSK	25.71	372.39	25.70	371.54	
			QPSK	25.71	372.39			
			16QAM	24.76	299.23	24.60	288.40	
			64QAM	23.37	217.27			
			256QAM	21.42	138.68			
CP-OFDM	QPSK	24.22	264.24					

NR Band n77(PC2)(3450 - 3550 MHz, SRS1)

FCC Part 27						
Band	Frequency Range [MHz]	BandWidth [MHz]	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3499.98	100	15.00	31.62		
	3495.0 - 3504.99	90	15.01	31.70		
	3490.02 - 3510.0	80	15.00	31.62		
	3485.01 - 3514.98	70	14.92	31.05		
	3480 - 3519.99	60	15.00	31.62		
	3475.02 - 3525	50	15.00	31.62		
	3470.01 - 3529.98	40	15.26	33.57		
	3465.0 - 3535.02	30	15.28	33.73	6.32	4.29
	3460.02 - 3540.0	20	15.21	33.19		

NR Band n77(PC2)(3450 - 3550 MHz, SRS2)

FCC Part 27						
Band	Frequency Range [MHz]	BandWidth [MHz]	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3499.98	100	20.45	110.92		
	3495.0 - 3504.99	90	20.48	111.69		
	3490.02 - 3510.0	80	20.45	110.92		
	3485.01 - 3514.98	70	20.45	110.92		
	3480 - 3519.99	60	20.39	109.40		
	3475.02 - 3525	50	21.02	126.47		
	3470.01 - 3529.98	40	21.14	130.02		
	3465.0 - 3535.02	30	21.18	131.22	17.71	59.02
	3460.02 - 3540.0	20	21.38	137.40		

NR Band n77(PC2)(3450 - 3550 MHz, SRS3)

FCC Part 27						
Band	Frequency Range [MHz]	BandWidth [MHz]	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3499.98	100	18.05	63.83		
	3495.0 - 3504.99	90	17.90	61.66		
	3490.02 - 3510.0	80	17.80	60.26		
	3485.01 - 3514.98	70	17.87	61.24		
	3480 - 3519.99	60	17.76	59.70		
	3475.02 - 3525	50	17.89	61.52		
	3470.01 - 3529.98	40	18.01	63.24		
	3465.0 - 3535.02	30	18.70	74.13	13.27	21.23
	3460.02 - 3540.0	20	18.23	66.53		

NR Band n77(PC2)(3700 - 3980 MHz)

FCC Part 27								
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3750.0 - 3930.0	100	DFT-s OFDM	$\pi/2$ BPSK	26.04	401.79	25.63	365.59
				QPSK	26.01	399.02		
				16QAM	24.99	315.50	24.79	301.30
				64QAM	23.10	204.17		
				256QAM	20.89	122.74		
	CP-OFDM	QPSK	23.78	238.78				
	3745.02 - 3934.98	90	DFT-s OFDM	$\pi/2$ BPSK	25.96	394.46	25.70	371.54
				QPSK	25.91	389.94		
				16QAM	25.02	317.69	24.83	304.09
				64QAM	23.10	204.17		
				256QAM	20.89	122.74		
	CP-OFDM	QPSK	23.86	243.22				
	3740.01 - 3939.99	80	DFT-s OFDM	$\pi/2$ BPSK	25.95	393.55	25.83	382.82
				QPSK	25.91	389.94		
				16QAM	25.05	319.89	24.77	299.92
				64QAM	24.82	303.39		
				256QAM	25.04	319.15		
	CP-OFDM	QPSK	25.04	319.15				
	3735.02 - 3944.98	70	DFT-s OFDM	$\pi/2$ BPSK	25.93	391.74	25.74	374.97
				QPSK	25.87	386.37		
				16QAM	25.01	316.96	24.82	303.39
				64QAM	23.05	201.84		
				256QAM	20.88	122.46		
	CP-OFDM	QPSK	23.95	248.31				
	3730.02 - 3949.98	60	DFT-s OFDM	$\pi/2$ BPSK	26.06	403.65	25.89	388.15
				QPSK	25.99	397.19		
				16QAM	25.17	328.85	24.98	314.77
				64QAM	23.19	208.45		
				256QAM	21.00	125.89		
	CP-OFDM	QPSK	24.09	256.45				
	3725.01 - 3954.99	50	DFT-s OFDM	$\pi/2$ BPSK	26.02	399.94	25.73	374.11
				QPSK	25.96	394.46		
				16QAM	25.11	324.34	24.86	306.20
				64QAM	23.56	226.99		
				256QAM	21.38	137.40		
	CP-OFDM	QPSK	24.47	279.90				
	3720.02 - 3960.0	40	DFT-s OFDM	$\pi/2$ BPSK	26.34	430.53	25.81	381.07
				QPSK	26.23	419.76		
				16QAM	25.42	348.34	25.06	320.63
				64QAM	23.71	234.96		
256QAM				21.49	140.93			
CP-OFDM	QPSK	24.65	291.74					
3715.02 - 3964.98	30	DFT-s OFDM	$\pi/2$ BPSK	26.12	409.26	25.73	374.11	
			QPSK	26.00	398.11			
			16QAM	25.21	331.89	24.35	272.27	
			64QAM	23.57	227.51			
			256QAM	21.47	140.28			
CP-OFDM	QPSK	24.58	287.08					
3710.01 - 3969.99	20	DFT-s OFDM	$\pi/2$ BPSK	25.89	388.15	25.55	358.92	
			QPSK	25.80	380.19			
			16QAM	24.98	314.77	24.67	293.09	
			64QAM	23.36	216.77			
			256QAM	21.31	135.21			
CP-OFDM	QPSK	24.33	271.02					

NR Band n77(PC2)(3700 - 3980 MHz, SRS1)

FCC Part 27						
Band	Frequency Range [MHz]	BandWidth [MHz]	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3750.0 - 3930.0	100	16.07	40.46		
	3745.02 - 3934.98	90	16.07	40.46		
	3740.01 - 3939.99	80	15.99	39.72		
	3735.02 - 3944.98	70	15.95	39.36		
	3730.02 - 3949.98	60	16.10	40.74		
	3725.01 - 3954.99	50	16.12	40.93		
	3720.02 - 3960.0	40	16.31	42.76	5.17	3.29
	3715.02 - 3964.98	30	16.22	41.88		
	3710.01 - 3969.99	20	15.85	38.46		

NR Band n77(PC2)(3700 - 3980 MHz, SRS2)

FCC Part 27						
Band	Frequency Range [MHz]	BandWidth [MHz]	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3750.0 - 3930.0	100	21.86	153.46		
	3745.02 - 3934.98	90	21.95	156.68		
	3740.01 - 3939.99	80	21.93	155.96		
	3735.02 - 3944.98	70	22.10	162.18		
	3730.02 - 3949.98	60	22.04	159.96		
	3725.01 - 3954.99	50	22.39	173.38		
	3720.02 - 3960.0	40	22.66	184.50	21.35	136.46
	3715.02 - 3964.98	30	22.59	181.55		
	3710.01 - 3969.99	20	22.53	179.06		

NR Band n77(PC2)(3700 - 3980 MHz, SRS3)

FCC Part 27						
Band	Frequency Range [MHz]	BandWidth [MHz]	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n77	3750.0 - 3930.0	100	20.92	123.59		
	3745.02 - 3934.98	90	21.03	126.77		
	3740.01 - 3939.99	80	21.22	132.43		
	3735.02 - 3944.98	70	21.31	135.21		
	3730.02 - 3949.98	60	21.48	140.60		
	3725.01 - 3954.99	50	21.60	144.54		
	3720.02 - 3960.0	40	21.80	151.36	14.45	27.86
	3715.02 - 3964.98	30	21.77	150.31		
	3710.01 - 3969.99	20	21.34	136.14		

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a internal antenna for the supported bands with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
GSM1900 / WCDMA Band 2 / LTE Band 2/ LTE Band 25 / NR Band n2 / NR Band n25 1850 - 1915 MHz	0.66 (Main ANT) -0.76 (Sub ANT)
WCDMA Band 4 / LTE Band 4 / LTE Band 66 / NR Band n66 1710 - 1780 MHz	-0.55 (Main ANT) 0.27 (Sub ANT)
GSM850 / WCDMA Band 5 / LTE Band 5 / LTE Band 26 / NR Band n5 814 - 849 MHz	-4.05
LTE Band 12 / NR Band n12 699 - 716 MHz	-3.98
LTE Band 13 777 - 787 MHz	-3.92
LTE Band 14 788 – 798 MHz	-3.68
LTE Band 30 / NR Band n30 2305 – 2315 MHz	0.37
LTE Band 40 2300 – 2400 MHz	-0.57
LTE Band 7/ LTE Band 38/ LTE Band 41(PC2) / NR Band n41(PC2) 2496 - 2690 MHz	0.12
LTE Band 71 / NR Band n71 663 – 698 MHz	-3.52
NR Band 77(PC2)(Lower) 3450 - 3550 MHz	-0.06
NR Band 77(PC2)(Lower, SRS1) 3450 - 3550 MHz	-3.53
NR Band 77(PC2)(Lower, SRS2) 3450 - 3550 MHz	-0.06
NR Band 77(PC2)(Lower, SRS3) 3450 - 3550 MHz	-4.78
NR Band 77(PC2)(Upper) 3700 - 3980 MHz	-0.06
NR Band 77(PC2)(Upper, SRS1) 3700 - 3980 MHz	-3.53
NR Band 77(PC2)(Upper, SRS2) 3700 - 3980 MHz	-0.06
NR Band 77(PC2)(Upper, SRS3) 3700 - 3980 MHz	-4.78

5.4. WORST-CASE ORIENTATION

Following modes should be considered as worst-case scenario for all other measurements.

- GSM GPRS/EGPRS
- UMTS REL 99/HSDPA

For all LTE Bands the worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM, 64QAM and 256QAM modulations. However, the out of band emissions and spurious radiation were only performed on bandwidth and RB offset(with RB size 1) with the highest power in QPSK.

The LTE Band 40 that out of band emissions and spurious radiation were only performed on bandwidth and RB offset(with RB size 1) with the highest power in 256QAM..

For all 5G NR Bands, the worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on $\pi/2$ BPSK, QPSK, 16QAM, 64QAM and 256QAM modulations. It was found that QPSK and 16QAM results were worst case.

Both NSA and SA modes were tested and worst case is reported.

All testing was performed using QPSK and 16QAM modulations to represent the worst case. However, the out of band emissions and spurious radiation were only performed on bandwidth and RB offset(with RB size 1) with the highest conducted power in QPSK

This device supports SRS (sounding reference signal) 1, 2, 3 mode for NR TDD bands. For each SRS 1, 2 and 3, Conducted power and radiated measurement were performed through FTM mode provide by the customer.

Both 'Main ANT' and 'Sub ANT' were tested and the worst case of either 'Main ANT' or 'Sub ANT' is reported.

LTE Band 2

LTE Band 2 (Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 4

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 5

LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 25 (Sub Antenna)

Sub Antenna of LTE Band 25 (Frequency range: 1850-1915 MHz) is covered by Main Antenna of LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, lower maximum tune-up limit and same channel bandwidth

LTE Band 66 (Sub Antenna)

Sub Antenna of NR Band 66 (Frequency range: 1710-1780 MHz) is covered by Main Antenna of NR Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, lower maximum tune-up limit and same channel bandwidth

LTE Band 38

LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41(PC2) (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 41(PC3)

LTE Band 41(PC3, Frequency range : 2496-2690 MHz) is covered by LTE Band 41(PC2) (Frequency range: 2496-2690 MHz) due to same frequency range, same channel bandwidth and maximum tune-up limit is higher than LTE Band41(PC3).

NR Band 2

NR Band 2 (Frequency range: 1850-1910 MHz) is covered by NR Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

NR Band 41(PC3)

NR Band 41(PC3, Frequency range : 2496-2690 MHz) is covered by NR Band 41(PC2) (Frequency range: 2496-2690 MHz) due to same frequency range, same channel bandwidth and maximum tune-up limit is higher than NR Band 41(PC3).

NR Band 77(PC3)

NR Band 77(PC3, Frequency range : 3450-3550 MHz, 3700-3980 MHz) is covered by NR Band 77(PC2, Frequency range : 3450-3550 MHz, 3700-3980 MHz) due to same frequency range, same channel bandwidth and maximum tune-up limit is higher than NR Band 77(PC3).

Highest power setting for each bands				
LTE Band	Frequency (MHz)	Bandwidth (MHz)	RB size	RB offset
7	2510.0	10	1	99
	2535.0		1	0
	2560.0		1	0
12	701.5	5	1	0
	707.5		1	12
	713.5		1	0
13	779.5	5	1	12
	782.0		1	0
	784.5		1	12
14	790.5	5	1	0
	793.0		1	0
	795.5		1	0
25 (Main ANT)	1855.0	10	1	49
	1882.5		1	0
	1910.0		1	0
25 (Sub ANT)	1857.5	15	1	74
	1882.5		1	0
	1907.5		1	0
26 (Part 90)	821.5	15	1	74
26 (Straddle)	824.0	15	1	74
26 (Part 22)	831.5	15	1	37
	841.5		1	0
30	2307.5	5	1	12
	2310		1	0
	2312.5		1	24
40	2307.5	5	1	24
	2310.0		1	0
	2312.5		1	12
	2352.5		1	24
	2355.0		1	24
	2357.5		1	12
41(PC2)	2498.5	5	1	0
	2593.0		1	12
	2687.5		1	24

66 (Main ANT)	1712.5	5	1	12
	1745.0		1	0
	1777.5		1	24
66 (Sub ANT)	1720.0	20	1	99
	1745.0		1	0
	1770.0		1	0
71	673.0	20	1	49
	680.5		1	0
	688.0		1	0

Highest power setting for each bands				
NR Band	Frequency (MHz)	Bandwidth (MHz)	RB size	RB offset
5	831.5	15	1	0
	836.5		1	0
	841.5		1	0
25	1865.0	30	1	80
	1882.5		1	158
	1900.0		1	1
30	2307.5	5	1	23
	2310.0		1	1
	2312.5		1	1
41(PC2)	2511.01	30	1	1
	2592.99		1	1
	2675.00		1	1
66	1725.0	30	1	158
	1745.0		1	80
	1765.0		1	80
70	1700.0	10	1	50
	1702.5		1	26
	1705.0		1	26
71	665.5	5	1	1
	680.5		1	13
	695.5		1	13
77(PC2) (3450-3550 MHz)	3460.02	20	1	1
	3499.98		1	1
	3540.00		1	1
77(PC2) (3700-3980 MHz)	3720.02	40	1	104
	3840.00		1	1
	3960.00		1	1

For LTE anchor, the band with highest output power was chosen among the possible combinations with NR Bands.

NR Band	LTE Band
5	<u>2</u> , 30, 48, 66
25	<u>12</u> , 48
30	5, <u>12</u> , 14
66	5, <u>12</u> , 13, 14, 48, 71
71	<u>2</u> , 66
77(PC2) (3450-3550 MHz)	2, 5, 7, <u>12</u> , 13, 14, 30, 66
77(PC2) (3700-3980 MHz)	2, 5, 7, <u>12</u> , 13, 14, 30, 66

Highest power setting for each bands					
LTE Band	Component Carrier	Frequency (MHz)	Bandwidth (MHz)	RB size	RB offset
41 (Uplink CA)	PCC	2583.1	20	1	99
	SCC	2602.9	20	1	0

- Radiated spurious emissions

For LTE CA_41C, the spurious emissions was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation.

Note : For EIRP testing, the EUT didn't attached with travel adapter. But radiated spurious testing, the EUT attached with travel adapter for the worst case condition. The EUT is continuously communicated with the call box during the tests.

The fundamental and radiated spurious emission were investigated in three orthogonal orientations X, Y and Z, it was determined that below orientation was worst-case orientation for each band.

Band	ERP/EIRP			RSE		
	X	Y	Z	X	Y	Z
GSM850	O	-	-	-	O	-
GSM1900	-	O	-	-	-	O
WCDMA B5	-	O	-	-	O	-
WCDMA B4	O	-	-	O	-	-
WCDMA B2	-	O	-	-	O	-
LTE B7	O	-	-	-	-	O
LTE B12	O	-	-	-	O	-
LTE B13	O	-	-	O	-	-
LTE B14	-	O	-	-	O	-
LTE B25 (Main ANT)	-	O	-	-	-	O
LTE B25 (Sub ANT)	-	O	-	-	-	O
LTE B26	O	-	-	-	O	-
LTE B30	-	O	-	-	-	O
LTE B40	-	O	-	O	-	-
LTE B41(PC2)	O	-	-	-	O	-
LTE B66 (Main ANT)	O	-	-	-	O	-
LTE B66 (Sub ANT)	-	O	-	-	-	O
LTE B71	O	-	-	-	O	-
NR n5	O	-	-	O	-	-
NR n25	-	O	-	-	O	-
NR n30	-	O	-	-	-	O
NR n41(PC2)	-	-	O	-	-	O
NR n66	-	O	-	-	-	O
NR n70	O	-	-	-	-	O
NR n71	O	-	-	-	-	O

NR n77(PC2) (3450 - 3550 MHz)	-	-	O			
NR n77(PC2) (SRS1) (3450 - 3550 MHz)	-	-	O	-	-	O
NR n77(PC2) (SRS2) (3450 - 3550 MHz)	-	O	-	-	O	-
NR n77(PC2) (SRS3) (3450 - 3550 MHz)	-	O	-	-	O	-
NR n77(PC2) (3700 - 3980 MHz)	O	-	-			
NR n77(PC2) (SRS1) (3700 - 3980 MHz)	-	-	O	-	-	O
NR n77(PC2) (SRS2) (3700 - 3980 MHz)	-	O	-	-	O	-
NR n77(PC2) (SRS3) (3700 - 3980 MHz)	-	-	O	-	-	O

Note : For ERP/EIRP testing, the EUT didn't attached with travel adapter. But radiated spurious testing, the EUT attached with travel adapter for the worst case condition. The EUT is continuously communicated with the call box during the tests.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacture	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37MANQ1E72SE3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02115A BWE	N/A
Earphone	SAMSUNG	GH59-15055A	EHS64AVFWE	N/A

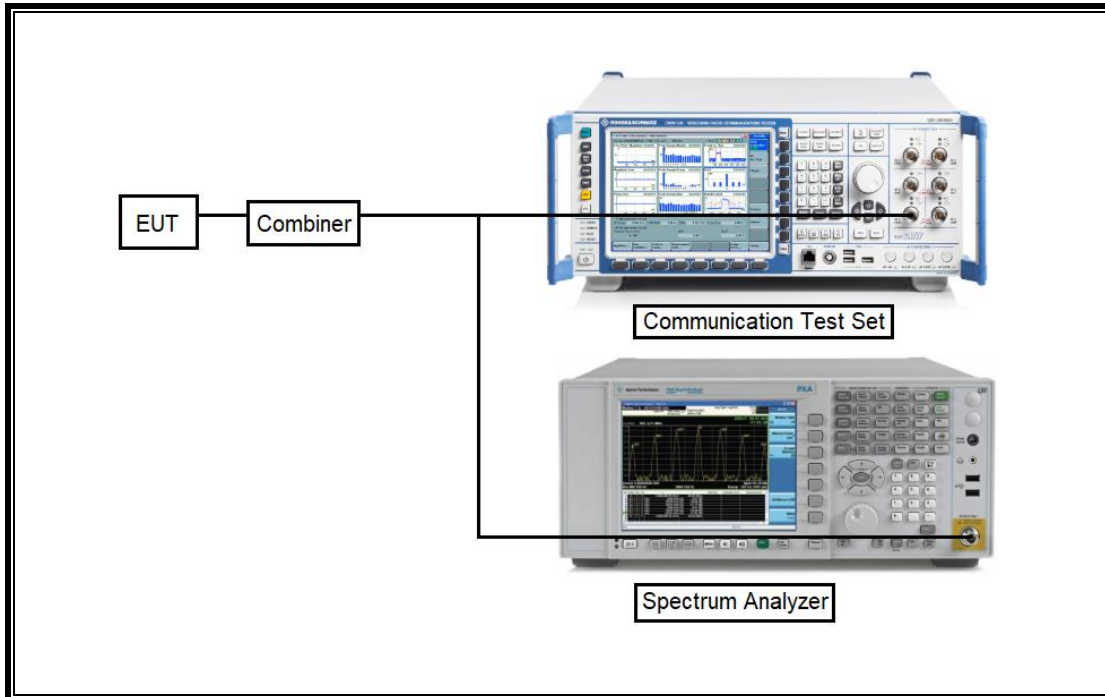
I/O CABLE

I/O Cable List						
Cable No.	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C Type	Shielded	1.0 m	N/A
2	Audio	2	Mini-jack	Unshielded	0.7 m	N/A

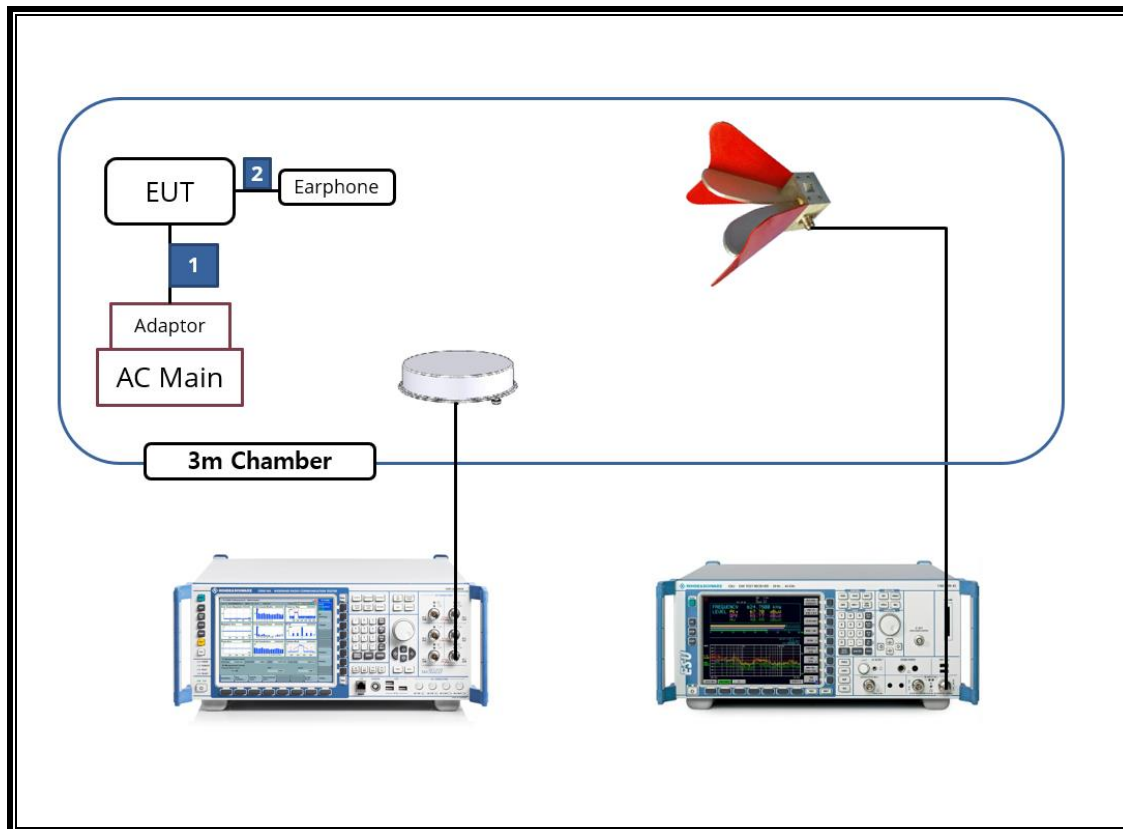
TEST SETUP

The EUT is continuously communicated with the call box during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121D DB4	00164753	2023-02-08
Directional Antenna	Cobham	FPA3-0.8-6.0R/1329	110367-0003	N/A
Directional Antenna	Cobham	FPA3-0.8-6.0R/1329	80108-0004	N/A
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2022-08-04
Antenna, Horn, 40 GHz	ETS	3116C	00168645	2023-10-13
Preamplifier	ETS	3116C-PA	00168841	2022-08-04
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	2022-08-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2022-08-13
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2022-08-13
Antenna, Horn, 18 GHz	ETS	3115	00167211	2022-07-27
Antenna, Horn, 18 GHz	ETS	3115	00161451	2022-08-15
Antenna, Horn, 18 GHz	ETS	3117	00168724	2022-07-27
Antenna, Horn, 18 GHz	ETS	3117	00168717	2022-08-15
Communications Test Set	R&S	CMW500	169796	2023-01-07
DC Power Supply	Agilent / HP	E3640A	MY54226395	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	341282	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	370599	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029168	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2022-08-02
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2022-08-04
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2022-08-04
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2022-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2022-08-02
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G005	2022-08-03
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G006	2022-08-02
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	010	2022-08-03
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	011	2022-08-02
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G001	2022-08-03
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G002	2022-08-02
Attenuator	PASTERNAK	PE7087-10	A009	2022-08-03
Attenuator	PASTERNAK	PE7087-10	A001	2022-08-03
Attenuator	PASTERNAK	PE7087-10	A008	2022-08-03
Attenuator	PASTERNAK	PE7004-10	2	2022-08-02
Attenuator	PASTERNAK	PE7395-10	A011	2022-08-03
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06
Temperature Chamber	ESPEC	SH-642	93001109	2022-08-02
Power Splitter	MINI-CIRCUITS	WA1534	UL003	2023-01-11
Power Splitter	MINI-CIRCUITS	WA1534	UL004	2023-01-11
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58120110	2023-01-07
UL Software				
Description	Manufacturer	Model	Version	
Antenna port test software	UL	CLT	Ver 3.4	
Radiated software	UL	UL EMC	Ver 9.5	
Antenna port test software (5G NR FR1)	UL	UL iM	Ver 1.06	

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Band width (99%)	N/A	Conducted	Pass
22.917(a) 24.238(a) 27.53(g),(h), 27.53(l)(2) 27.53(n)(2) 90.543(c) 90.691	Band Edge / Conducted Spurious Emission	-13dBm		Pass
90.543(e)		-35 dBm		Pass
27.53(m)	Conducted Spurious Emission	-25dBm		Pass
27.53(a),(m) 90.691	Emission mask	Section 9.2.2		Pass
2.1046	Conducted output power	N/A		Pass
90.635(b)		50 dBm		Pass
22.355 24.235 27.54 90.213 90.539	Frequency Stability	2.5PPM		Pass
22.913(a)(5)	Effective Radiated Power	38.5dBm		Pass
27.50(c)(10) 27.50(b)(10) 90.542(a)(7) 90.635(b)		34.77dBm		Pass
24.232(c) 27.50(h)(2) 27.50(j)(3) 27.50(k)(3)	Equivalent Isotropic Radiated Power	33dBm	Pass	
27.50(d)(4)		30dBm	Pass	
22.917(a) 24.238(a) 27.53 (g),(h) 90.543(c),(f) 90.691	Radiated Spurious Emission	-13dBm	Pass	
27.53(f)		-40dBm	Pass	
27.53(m) 27.53(l)(2) 27.53(n)(2)		-25dBm	Pass	
			Radiated	

8. LIMITS AND CONDUCTED RESULTS

8.1. RF OUTPUT POWER VERIFICATION (CONDUCTED AND EIRP)

Rule Part(s)

FCC: §2.1046, §27.50

EIRP Limit

FCC: §27.50(h)

(h) The following power limits shall apply in the BRS and EBS:

(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

Test Procedure

TIA-603-E Clause 2.2.17
KDB 971168 Section 5.6

$$\text{ERP/EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as P_{Meas} , typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_{T} = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_{C} = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

RESULTS

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted and ERP/EIRP output powers as follows:

OUTPUT POWER FOR LTE BAND 41C (5 MHz + 20 MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average Power (dBm)	
			Size	Offset	Size	Offset	QPSK	16QAM
25MHz (5MHz / 20MHz)	2498.5	2510.2	1	24	1	0	24.73	23.72
			1	0	1	99	15.85	16.03
			25	0	100	0	21.90	21.38
	2583.8	2595.5	1	24	1	0	25.08	24.17
			1	0	1	99	16.84	16.99
			25	0	100	0	23.39	22.40
	2668.3	2680	1	24	1	0	24.53	23.75
			1	0	1	99	17.56	16.97
			25	0	100	0	23.15	22.21

OUTPUT POWER FOR LTE BAND 41C (15 MHz + 15 MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average Power (dBm)	
			Size	Offset	Size	Offset	QPSK	16QAM
30MHz (15MHz / 15MHz)	2503.5	2518.5	1	74	1	0	24.65	23.88
			1	0	1	74	16.26	16.42
			75	0	75	0	22.91	21.88
	2585.5	2600.5	1	74	1	0	25.03	24.06
			1	0	1	74	16.84	16.85
			75	0	75	0	23.31	22.33
	2667.5	2682.5	1	74	1	0	24.56	23.75
			1	0	1	74	16.61	16.72
			75	0	75	0	23.14	22.17

OUTPUT POWER FOR LTE BAND 41C (15 MHz + 20 MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average Power (dBm)	
			Size	Offset	Size	Offset	QPSK	16QAM
35MHz (15MHz / 20MHz)	2503.5	2520.6	1	74	1	0	24.67	23.95
			1	0	1	99	16.27	16.39
			75	0	100	0	20.90	21.07
	2583.3	2600.4	1	74	1	0	25.05	24.12
			1	0	1	99	16.87	16.81
			75	0	100	0	23.35	22.34
	2662.9	2680	1	74	1	0	24.55	23.85
			1	0	1	99	16.55	16.74
			75	0	100	0	23.15	22.16

OUTPUT POWER FOR LTE BAND 41C (20 MHz + 20 MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average Power (dBm)	
			Size	Offset	Size	Offset	QPSK	16QAM
40MHz (20MHz / 20MHz)	2506	2525.8	1	99	1	0	24.37	23.33
			1	0	1	99	15.79	15.97
			100	0	100	0	21.96	21.04
	2583.1	2602.9	1	99	1	0	25.11	24.12
			1	0	1	99	16.77	16.86
			100	0	100	0	23.28	22.31
	2660.2	2680	1	99	1	0	24.54	23.69
			1	0	1	99	16.99	16.71
			100	0	100	0	23.16	22.14

8.2. PEAK TO AVERAGE RATIO

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v03r01;

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The PAR were measured on the Spectrum Analyzer.

Test Spec

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

NOTE

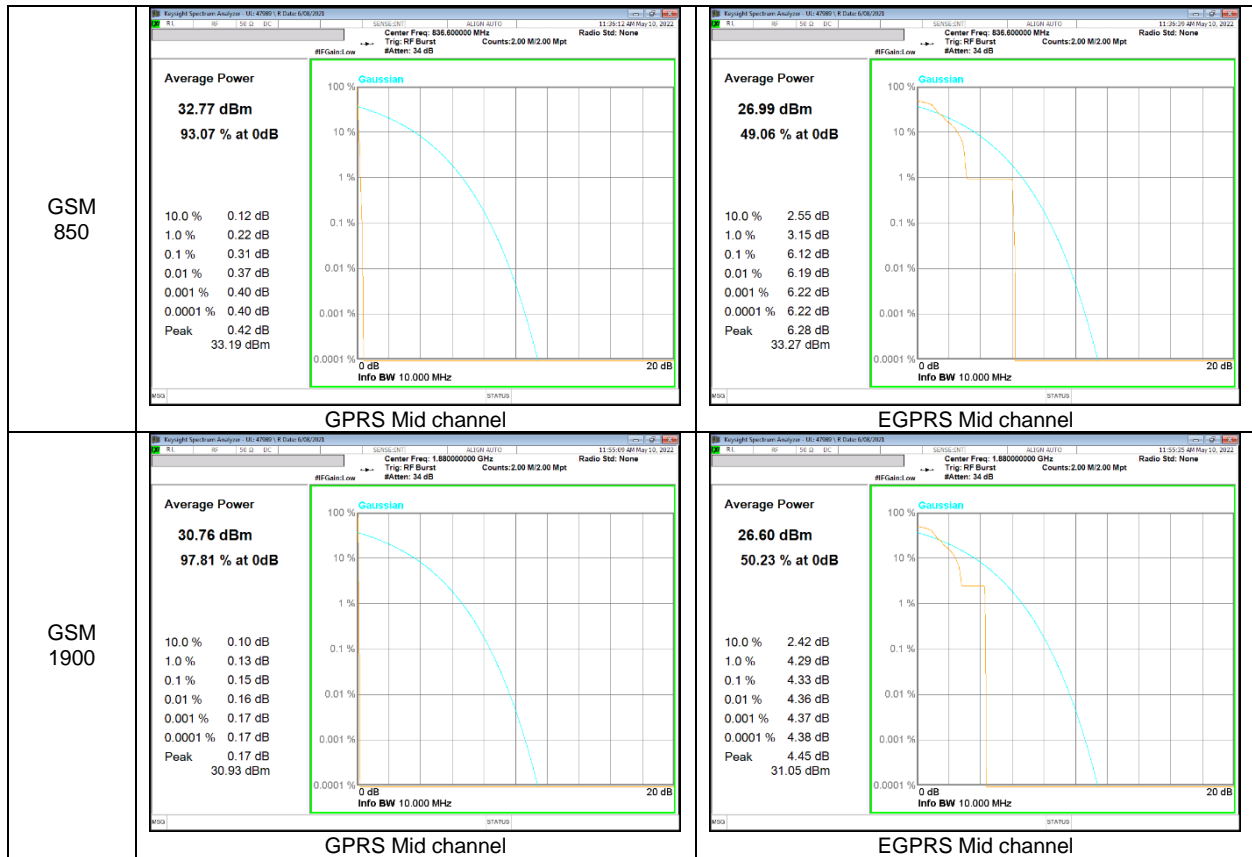
5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations ($\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

RESULTS

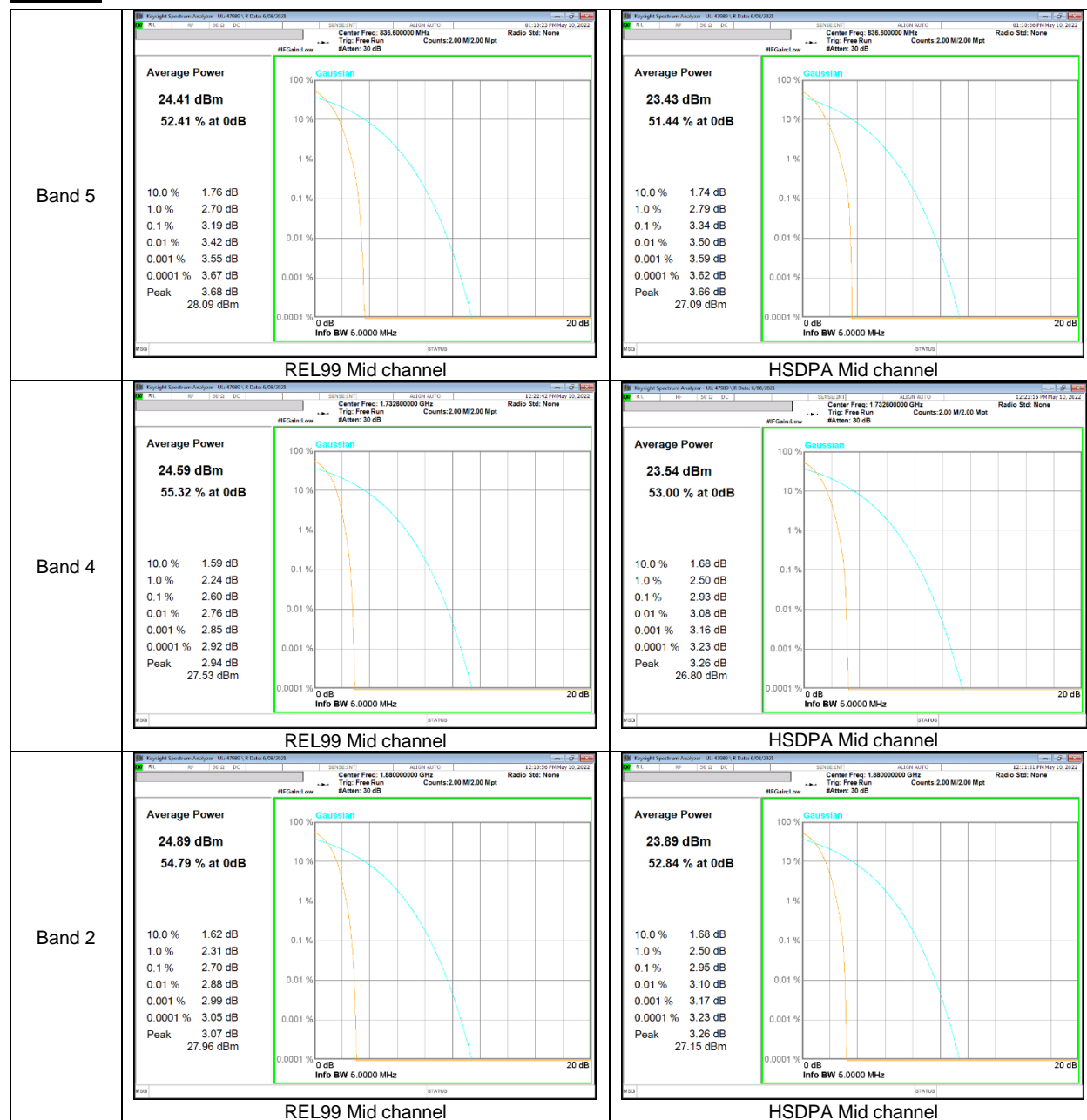
See the following pages.

8.2.1. CONDUCTED PEAK TO AVERAGE RESULT

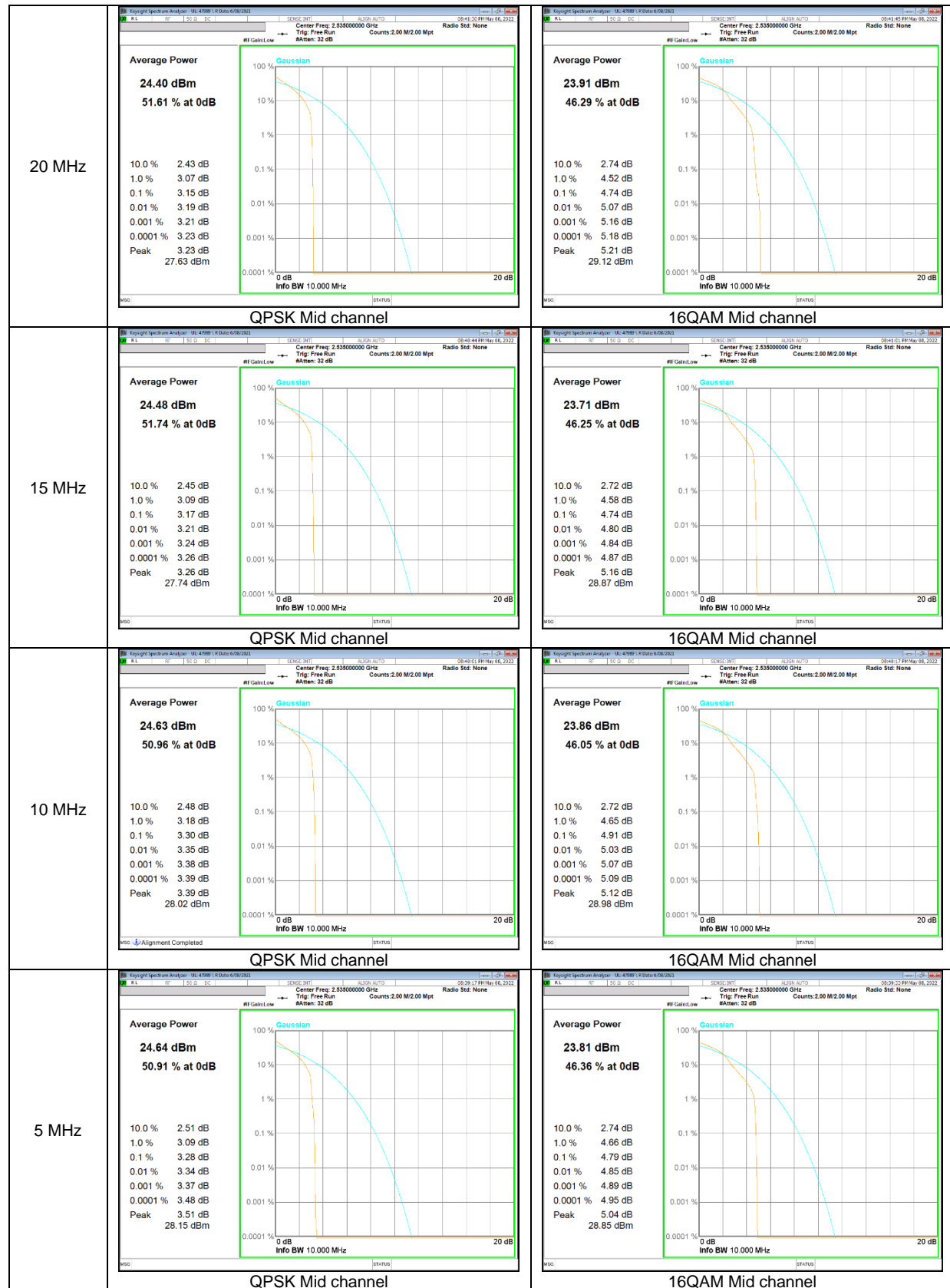
GSM



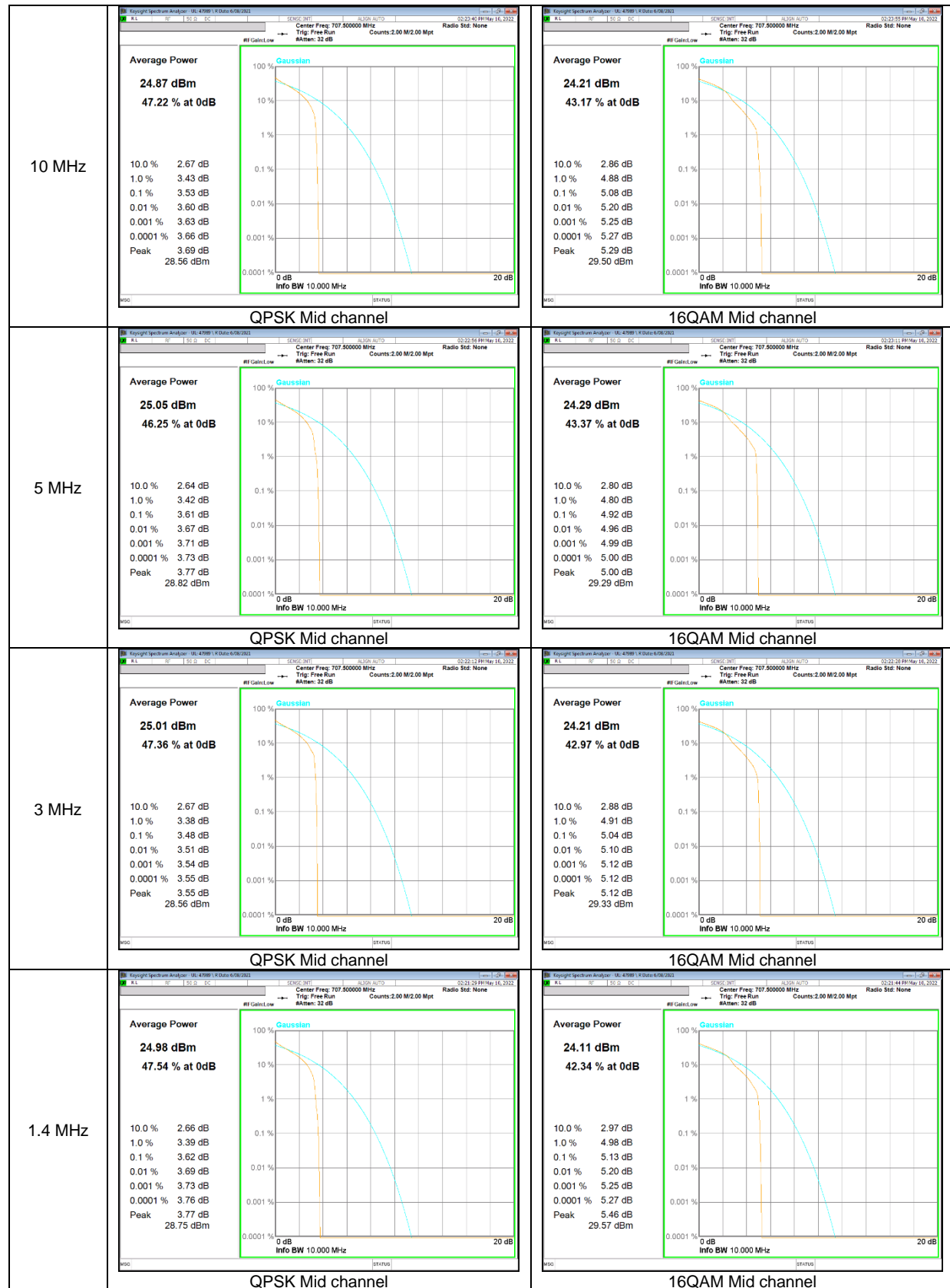
WCDMA



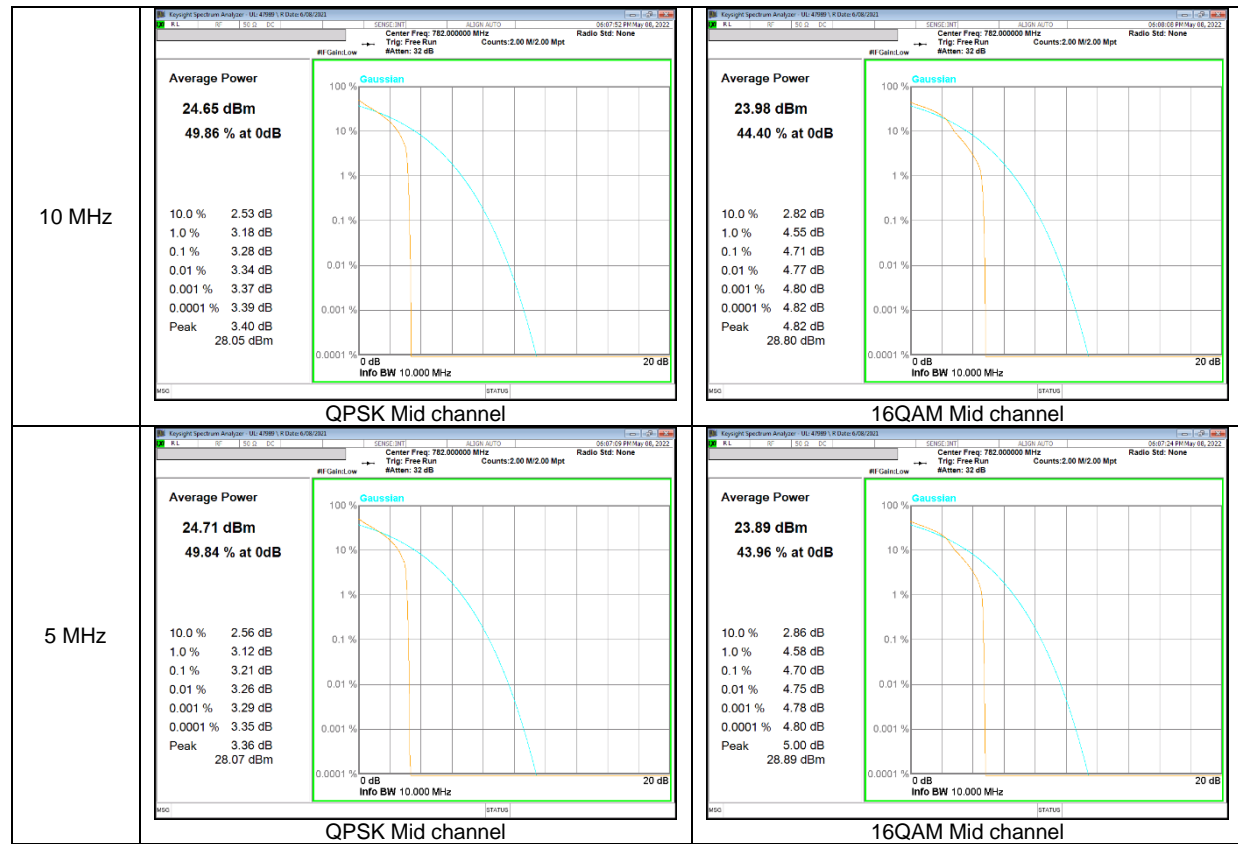
LTE Band 7



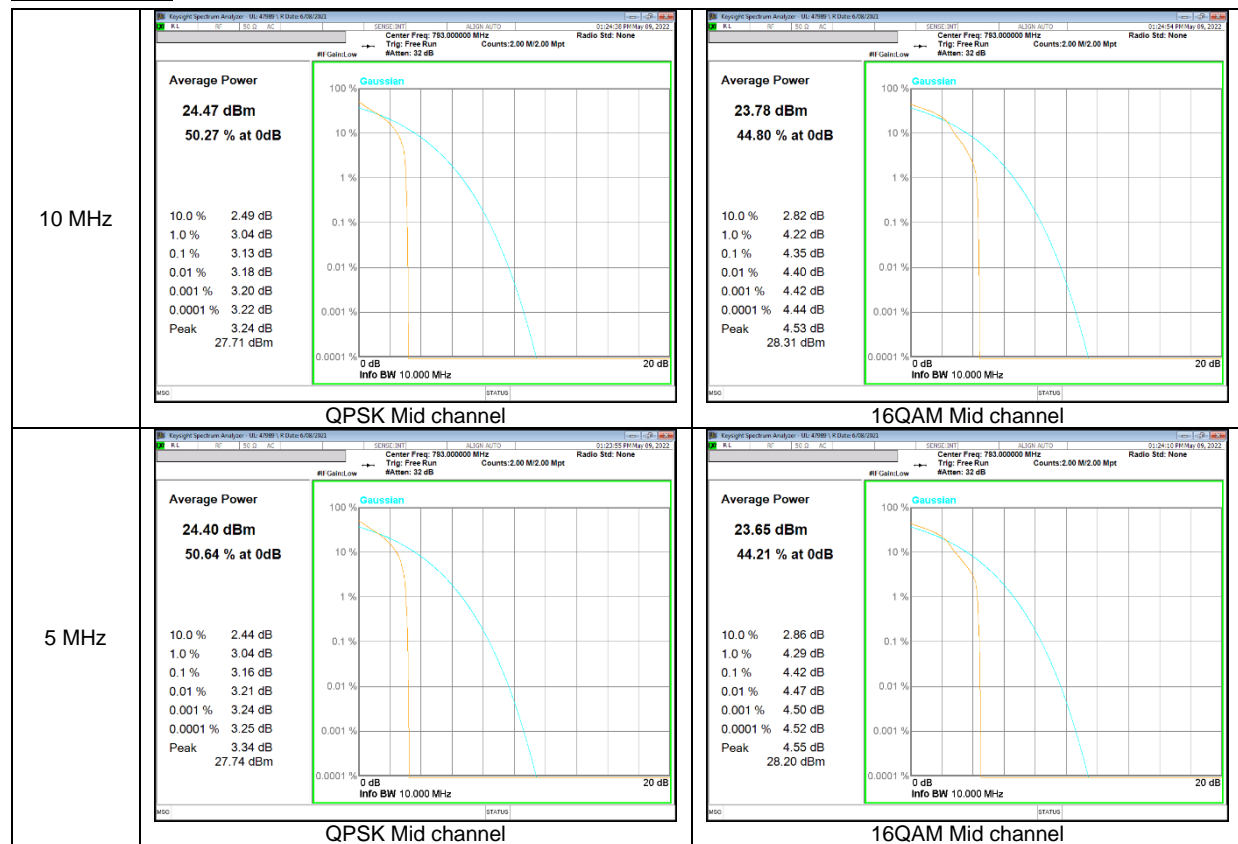
LTE Band 12



LTE Band 13

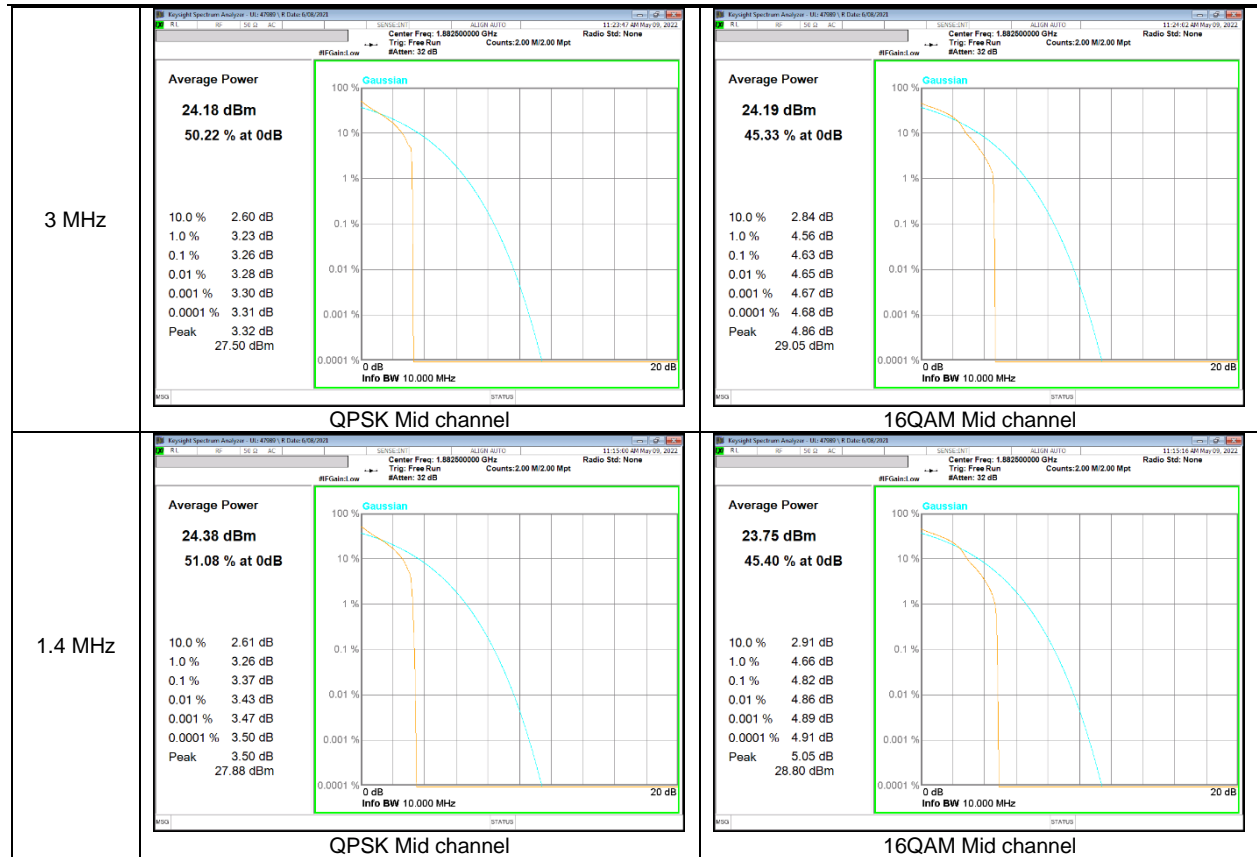


LTE Band 14

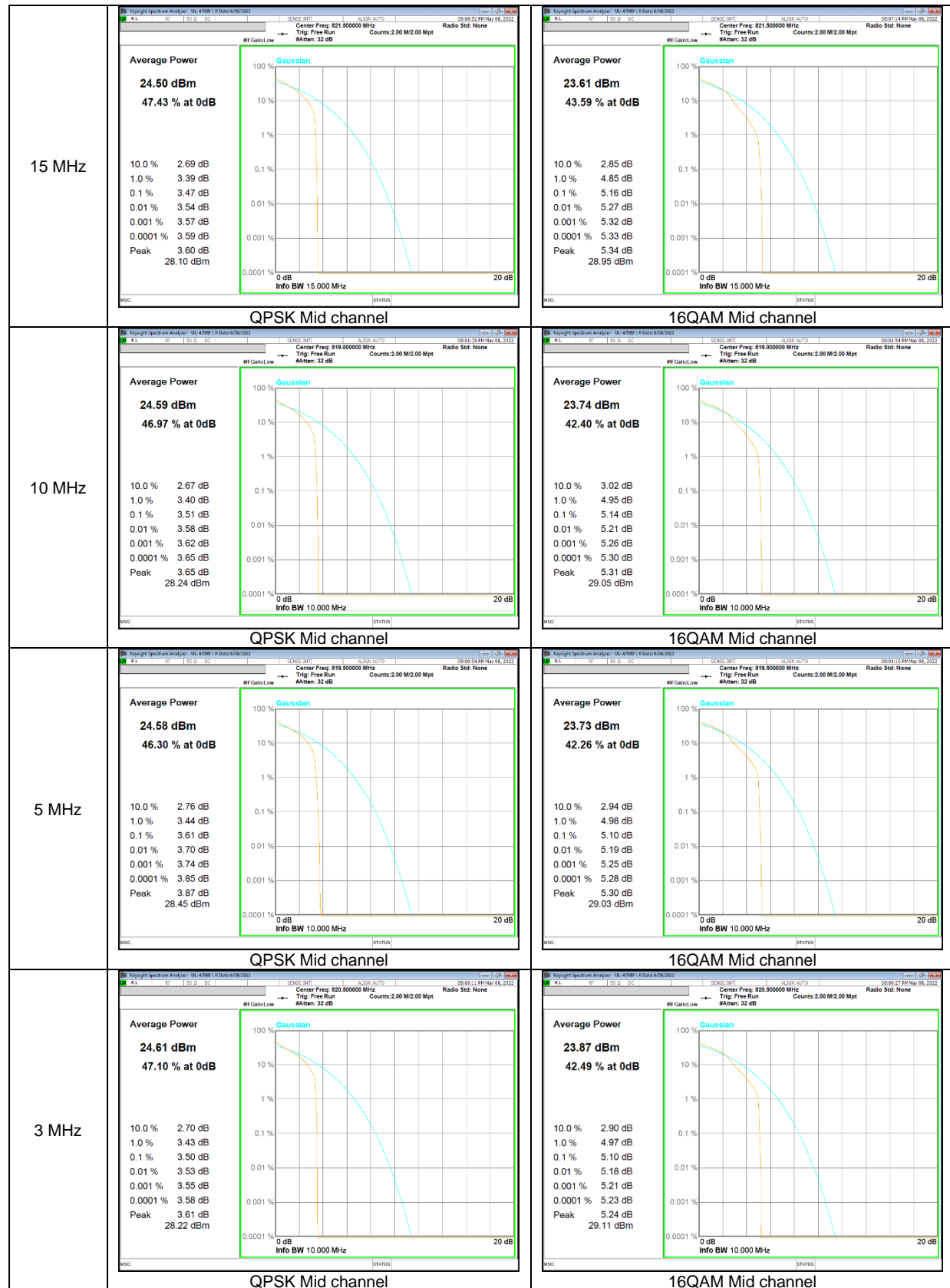


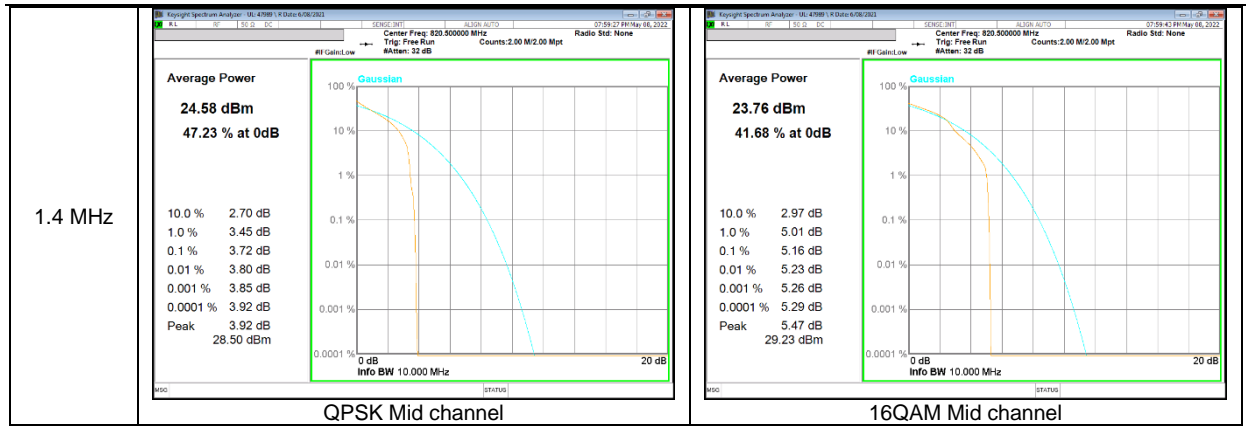
LTE Band 25



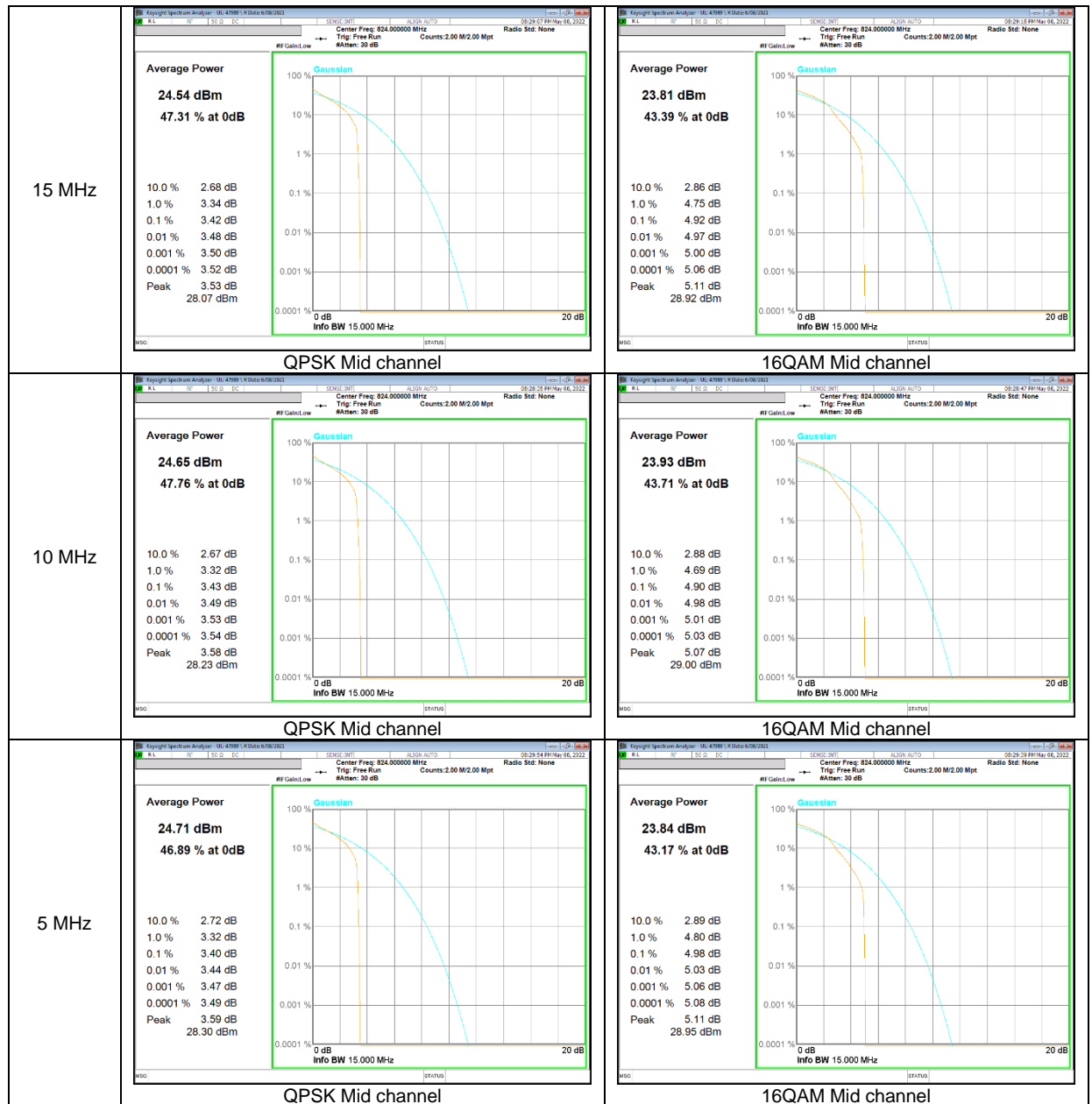


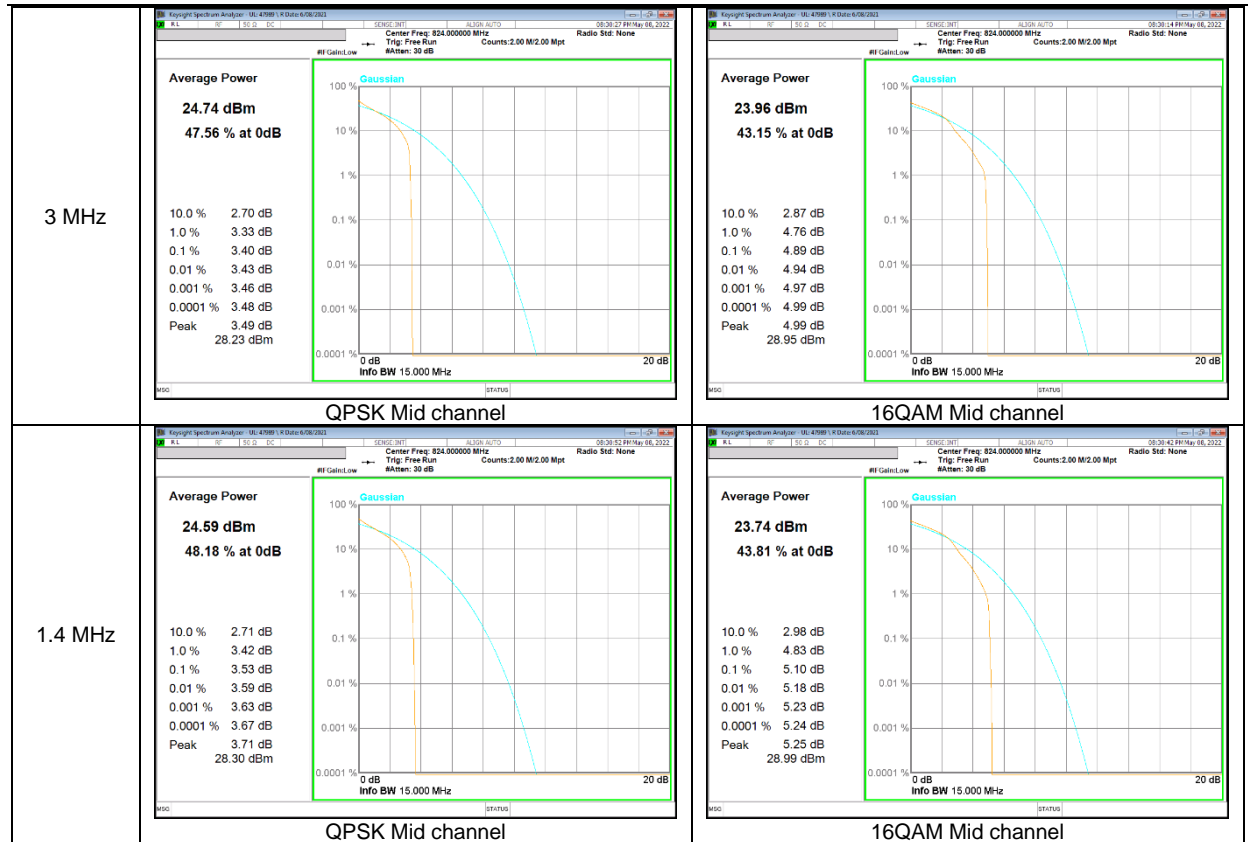
LTE Band 26 (Part 90)



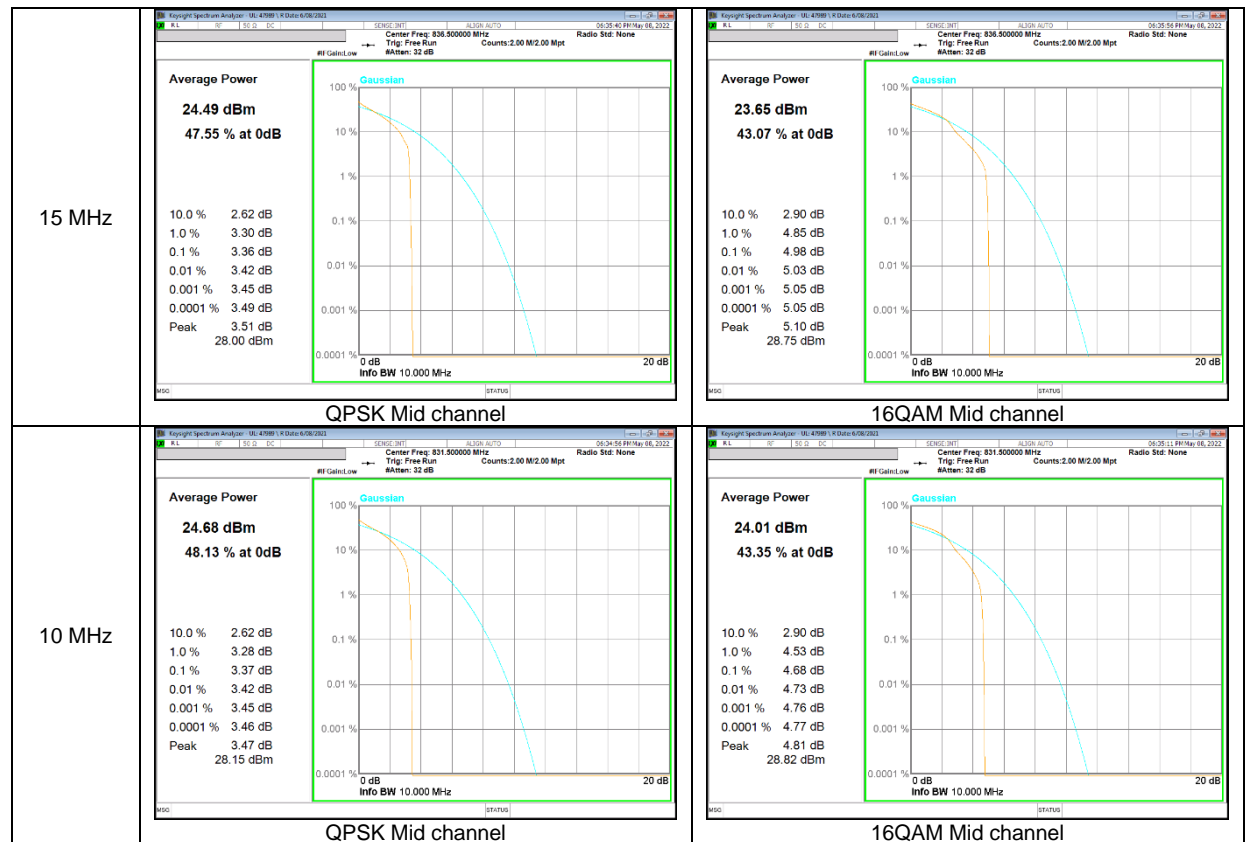


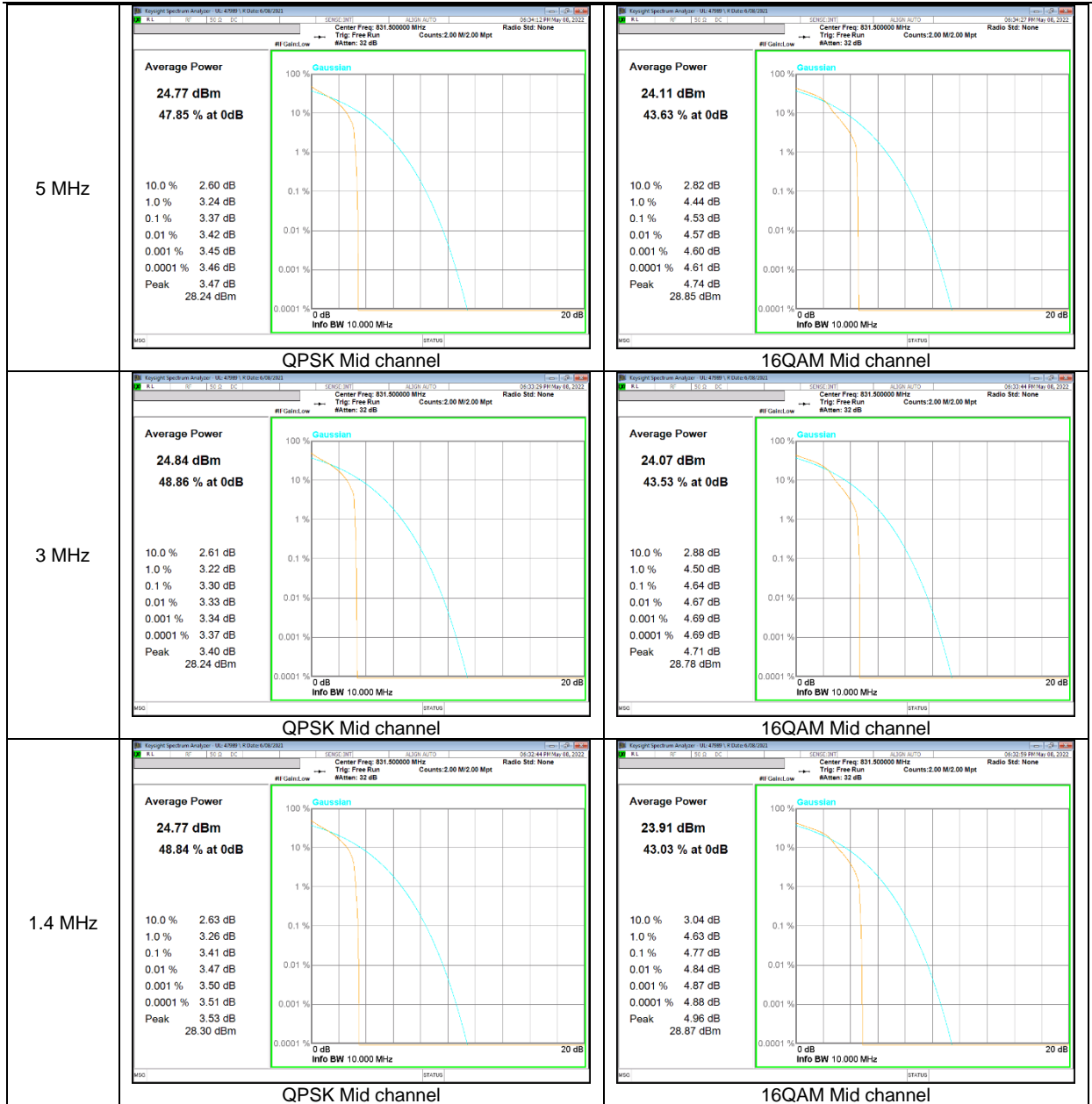
LTE Band 26 (Straddle)



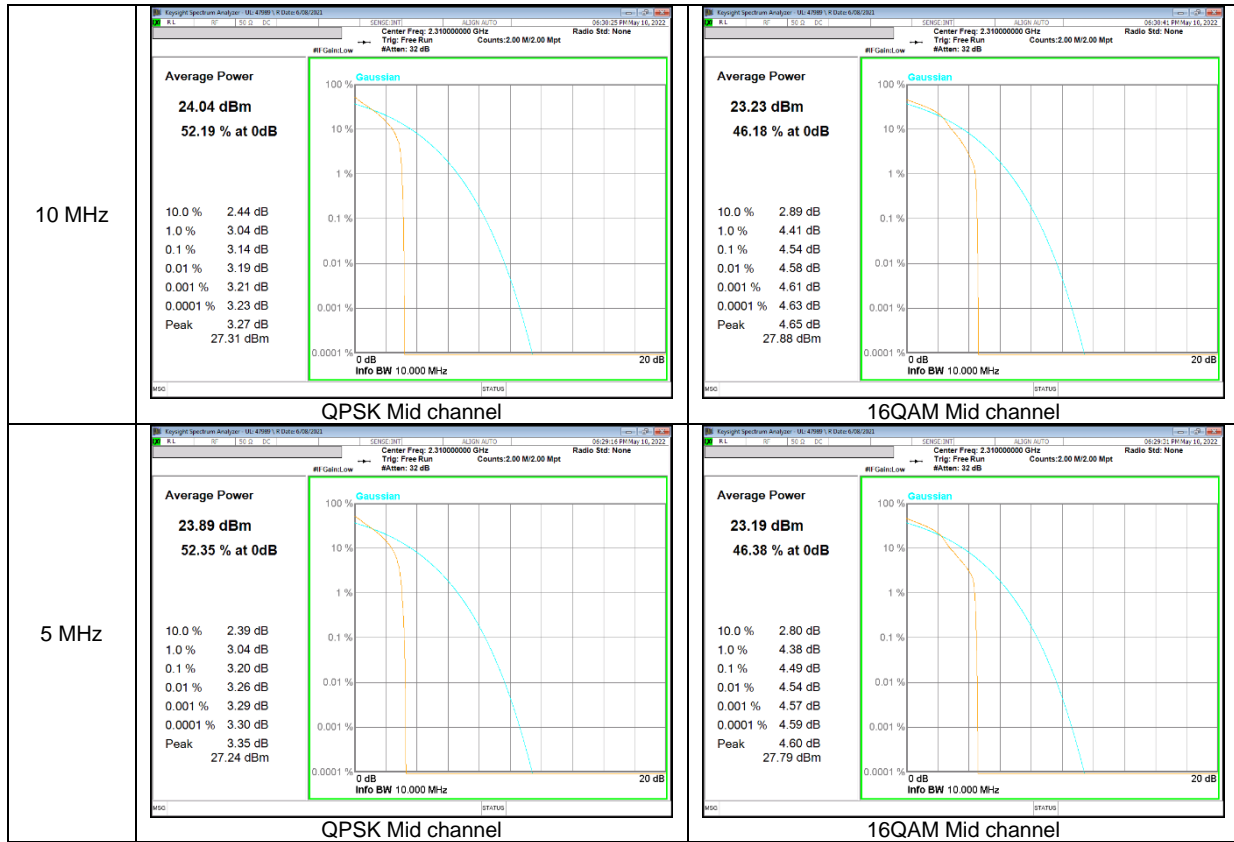


LTE Band 26 (Part 22)

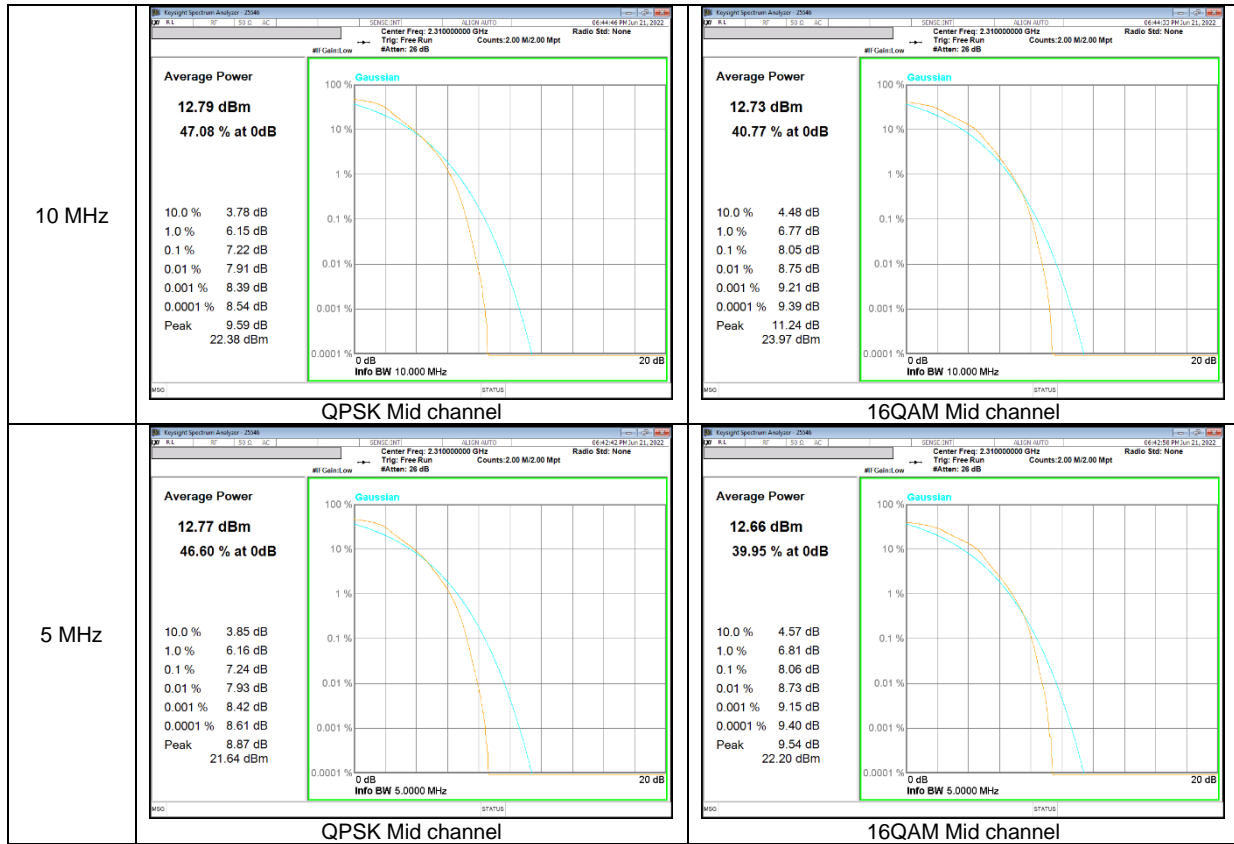




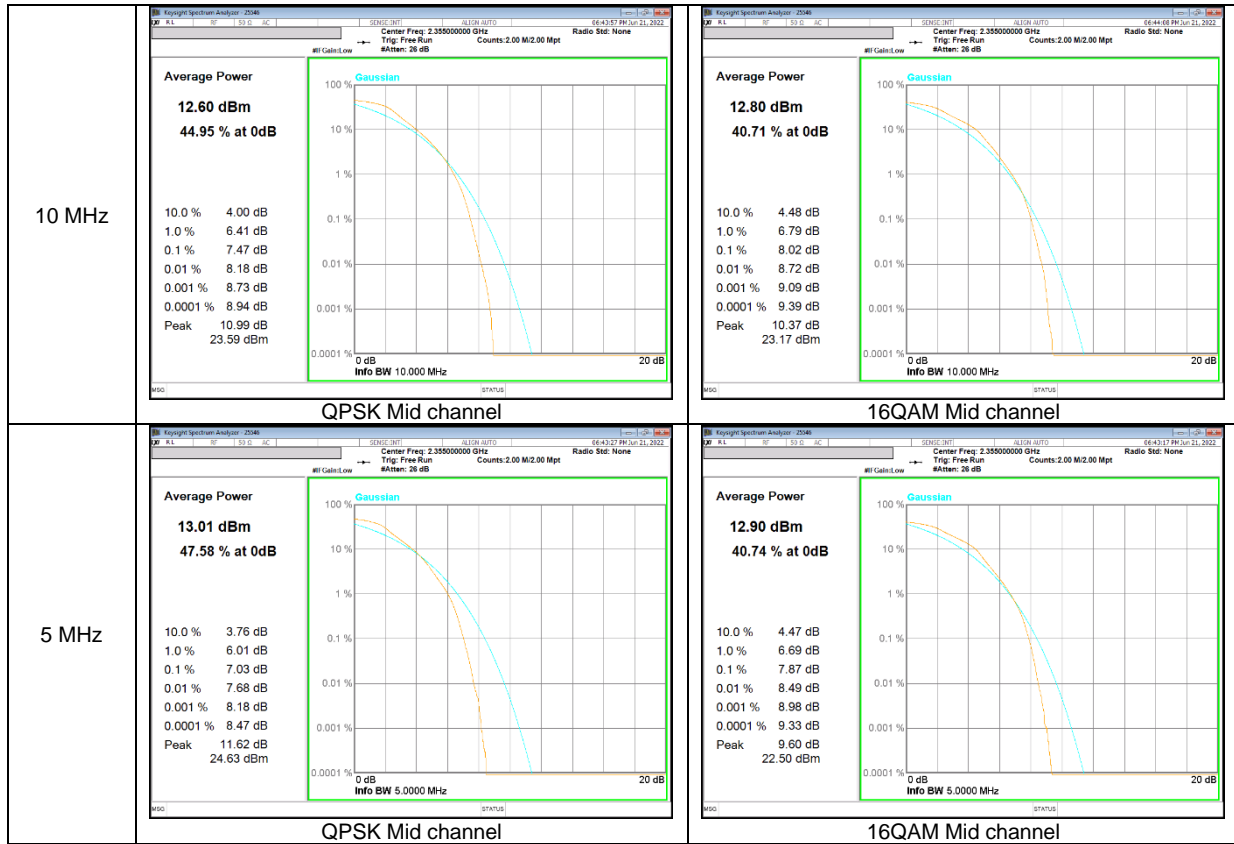
LTE Band 30



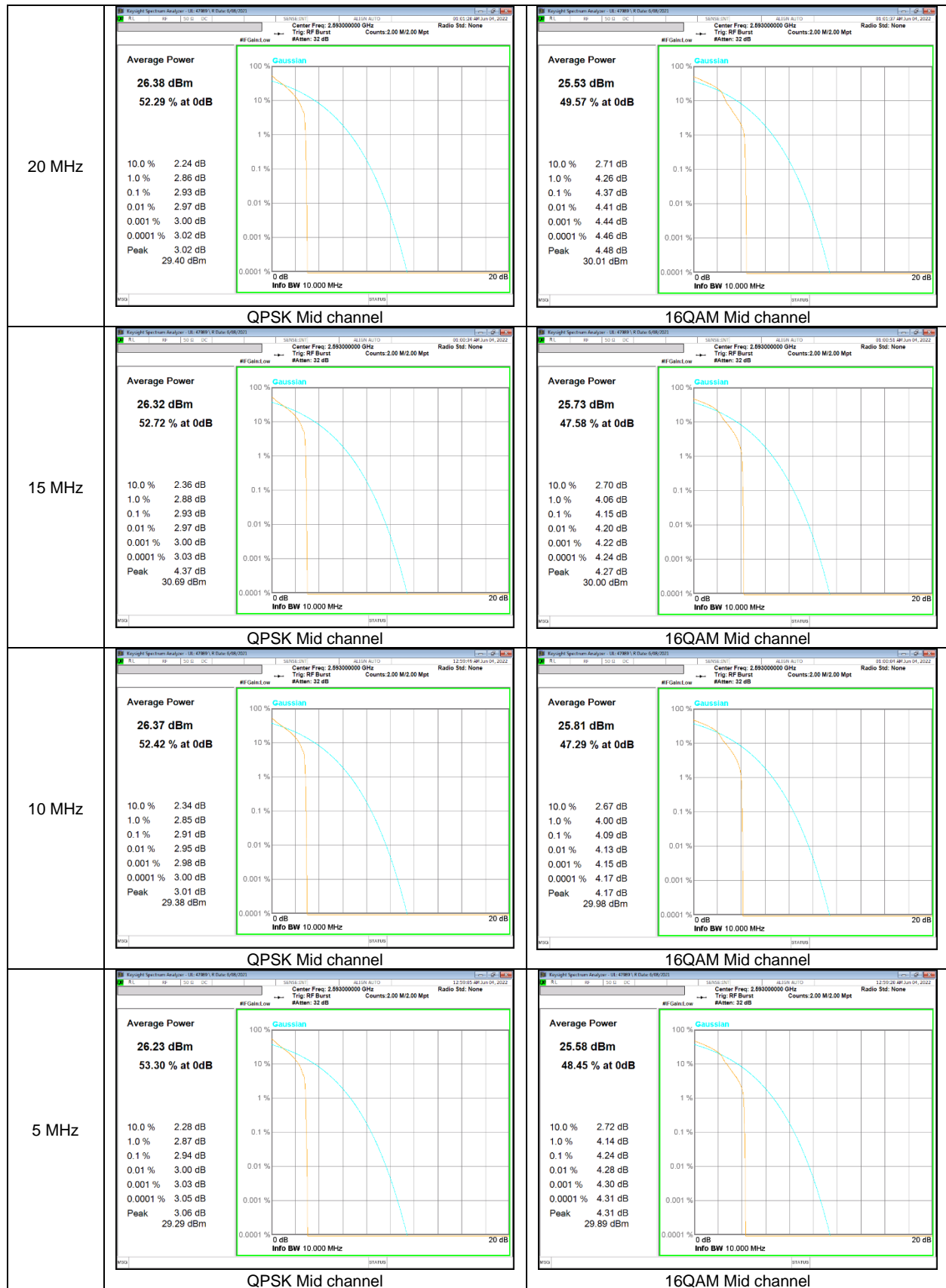
LTE Band 40 (2307.5 - 2312.5 MHz)



LTE Band 40 (2357.5 - 2357.5 MHz)



LTE Band 41(PC2)



LTE Band 66

