CERTIFICATION TEST REPORT

Report Number. : 4791083081-E4V2

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SC-53E, SCG27
FCC ID	:	A3LSMA556JPN
EUT Description	:	GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, and NFC.
Test Standard(s)	:	FCC 47 CFR PART 27 SUBPART H,L,M

Date Of Issue:
2024-02-01

Prepared by:
UL KOREA LTD.
26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL KOREA LTD. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433

IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-01-30	Initial issue	Yeonhee Lim
V2	2024-02-01	Updated to address TCB's question	Yeonhee Lim

UL KOREA LTD. Suwon Laboratory FORM ID: FCC_27(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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UL KOREA LTD. Suwon Laboratory FORM ID: FCC_27(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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/ax, and NFC.
MODEL NUMBER:	SC-53E, SCG27
SERIAL NUMBER:	R3CWC03BL8N, R3CWC03BL7H (CONDUCTED); R3CWC03BRHJ, R3CWC03BQTT, R3CWC03BRAY, R3CWC03BQSY (RADIATED);
DATE TESTED:	2023-12-20 - 2024-02-01;

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 27H,L,M	Complies

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:

Seokhwan Hong
Suwon Lab Engineer
UL KOREA LTD.

Tested By:

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 47 CFR Part 2.
2. FCC 47 CFR Part 27.
3. ANSI TIA-603-E, 2016
4. ANSI C63.26, 2015
5. KDB 971168 D01 Power Meas License Digital Systems v03r01
6. KDB 971168 D02 Misc Rev Approv License Devices v02r02
7. KDB 412172 D01 Determining ERP and EIRP v01r01

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
☒ Chamber 1(3m semi-anechoic chamber)
☒ Chamber 2(3m semi-anechoic chamber)
☐ Chamber 3(3m semi-anechoic chamber)
☒ Chamber 4(3m Full-anechoic chamber)
☐ 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.

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218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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 = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – 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	2.80 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.92 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.06 dB
Radiated Disturbance, 18 GHz to 40 GHz	6.02 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 115:2021.

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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/ax, and NFC. This test report addresses the WWAN operational mode.

Representative model	Difference	Derivative model
		SCG27
SC-53E	Hardware	Same as SC-53E
	Software	Different UI

The model SC-53E was used for final testing and is representative of the test results in this report.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum average radiated ERP / EIRP output powers as follows: Radiated samples were set to a higher power than conducted resulting in radiated ERP greater than conducted measurements.

LTE Band 12

FCC Part 27								
Band	ANT	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 12	Antenna A Main 1	704.00 ~ 711.00	10	QPSK	**25.07**	**321.37**	**18.50**	**70.79**
				16QAM	24.24	265.46	17.42	55.21
				64QAM	22.97	198.15		
		701.50 ~ 713.50	5	QPSK	24.83	304.09	18.35	68.39
				16QAM	24.00	251.19	17.40	54.95
				64QAM	23.14	206.06		
		700.50 ~ 714.50	3	QPSK	25.00	316.23	17.47	55.85
				16QAM	23.92	246.60	17.32	53.95
				64QAM	23.17	207.49		
		699.70 ~ 715.30	1.4	QPSK	25.02	317.69	17.52	56.49
				16QAM	24.04	253.51	17.52	56.49
				64QAM	22.95	197.24		

LTE Band 41

FCC Part 27								
Band	ANT	Frequency Range [MHz]	BanHWiHth [MHz]	Modulation	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 41	Antenna B Main 2	2506.00 ~ 2680.00	20	QPSK	24.35	272.27	24.77	299.92
				16QAM	23.46	221.82	23.47	222.33
				64QAM	22.49	177.42		
		2503.50 ~ 2682.50	15	QPSK	24.36	272.90	24.89	308.32
				16QAM	23.30	213.80	23.53	225.42
				64QAM	22.37	172.58		
		2501.00 ~ 2685.00	10	QPSK	24.41	276.06	**25.08**	**322.11**
				16QAM	23.37	217.27	23.74	236.59
				64QAM	22.49	177.42		
		2498.50 ~ 2687.50	5	QPSK	**24.45**	**278.61**	24.98	314.77
				16QAM	23.37	217.27	23.72	235.50
				64QAM	22.49	177.42		

FCC Part 27								
Band	ANT	Frequency Range [MHz]	BanHWiHth [MHz]	Modulation	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 41	Antenna E Sub 2	2506.00 ~ 2680.00	20	QPSK	23.27	212.32	22.00	158.49
				16QAM	22.60	181.97	20.96	124.74
				64QAM	21.77	150.31		
		2503.50 ~ 2682.50	15	QPSK	**23.48**	**222.84**	**22.05**	**160.32**
				16QAM	22.13	163.31	20.62	115.35
				64QAM	21.77	150.31		
		2501.00 ~ 2685.00	10	QPSK	23.31	214.29	21.90	154.88
				16QAM	22.41	174.18	21.04	127.06
				64QAM	21.53	142.23		
		2498.50 ~ 2687.50	5	QPSK	23.46	221.82	21.88	154.17
				16QAM	22.44	175.39	20.69	117.22
				64QAM	21.46	139.96		

LTE Band 66

FCC Part 27								
Band	ANT	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 66	Antenna A Main 1	1720.00 ~ 1770.00	20	QPSK	24.69	294.44	**24.04**	**253.51**
				16QAM	23.99	250.61	22.97	198.15
				64QAM	22.85	192.75		
		1717.50 ~ 1772.50	15	QPSK	24.16	260.62	23.29	213.30
				16QAM	23.46	221.82	22.48	177.01
				64QAM	22.21	166.34		
		1715.00 ~ 1775.00	10	QPSK	24.48	280.54	23.59	228.56
				16QAM	23.56	226.99	22.41	174.18
				64QAM	21.98	157.76		
		1712.50 ~ 1777.50	5	QPSK	24.43	277.33	23.59	228.56
				16QAM	23.66	232.27	22.59	181.55
				64QAM	22.13	163.31		
		1711.50 ~ 1778.50	3	QPSK	24.69	294.44	23.84	242.10
				16QAM	23.71	234.96	22.63	183.23
				64QAM	22.02	159.22		
		1710.70 ~ 1779.30	1.4	QPSK	**24.72**	**296.48**	23.88	244.34
				16QAM	23.66	232.27	22.59	181.55
				64QAM	22.23	167.11		

FCC Part 27								
Band	ANT	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
					Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 66	Antenna E Sub2	1720.00 ~ 1770.00	20	QPSK	**23.93**	**247.17**	22.20	165.96
				16QAM	22.99	199.07	21.32	135.52
				64QAM	21.82	152.05		
		1717.50 ~ 1772.50	15	QPSK	23.76	237.68	22.11	162.55
				16QAM	22.93	196.34	21.34	136.14
				64QAM	21.72	148.59		
		1715.00 ~ 1775.00	10	QPSK	23.79	239.33	22.22	166.72
				16QAM	22.83	191.87	21.32	135.52
				64QAM	21.74	149.28		
		1712.50 ~ 1777.50	5	QPSK	23.78	238.78	22.26	168.27
				16QAM	22.90	194.98	21.37	137.09
				64QAM	21.59	144.21		
		1711.50 ~ 1778.50	3	QPSK	23.79	239.33	**22.29**	**169.43**
				16QAM	22.81	190.99	21.37	137.09
				64QAM	21.72	148.59		
		1710.70 ~ 1779.30	1.4	QPSK	23.73	236.05	22.23	167.11
				16QAM	22.73	187.50	21.29	134.59
				64QAM	21.63	145.55		

NR Band n41

FCC Part 27									
Band	ANT	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
						Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n41 Main2	Antenna B Main 2	2546.01 ~ 2640.00	100	DFT-s OFDM	π/2 BSK	24.30	268.92		
					QSK	24.28	267.97	23.67	232.60
					16QAM	23.21	209.32	22.86	193.02
					64QAM	21.58	143.99		
					256QAM	19.41	87.27		
				C-OFDM	QSK	22.55	179.92		
		2541.00 ~ 2644.98	90	DFT-s OFDM	π/2 BPSK	24.32	270.50		
					QPSK	24.33	270.79	23.87	243.80
					16QAM	23.36	216.62	22.99	198.87
					64QAM	21.71	148.21		
					256QAM	19.73	93.97		
				CP-OFDM	QPSK	22.70	186.30		
		2536.02 ~ 2649.99	80	DFT-s OFDM	π/2 BPSK	24.32	270.56		
					QPSK	24.34	271.81	23.88	244.15
					16QAM	23.32	214.98	22.96	197.83
					64QAM	21.78	150.62		
					256QAM	19.72	93.79		
				CP-OFDM	QPSK	22.69	185.65		
		2531.02 ~ 2654.98	70	DFT-s OFDM	π/2 BPSK	24.37	273.61		
					QPSK	24.36	272.94	23.91	245.81
					16QAM	23.23	210.31	22.96	197.52
					64QAM	21.72	148.52		
					256QAM	19.78	95.07		
				CP-OFDM	QPSK	22.79	190.28		
		2526.00 ~ 2659.98	60	DFT-s OFDM	π/2 BPSK	24.41	276.05		
					QPSK	24.37	273.79	23.81	240.57
					16QAM	23.39	218.06	23.11	204.76
					64QAM	22.00	158.32		
					256QAM	19.63	91.75		
				CP-OFDM	QPSK	22.74	188.10		
		2521.01 ~ 2665.00	50	DFT-s OFDM	π/2 BPSK	24.38	273.94		
					QPSK	24.40	275.55	23.75	236.91
					16QAM	23.35	216.05	23.10	203.98
					64QAM	21.63	145.71		
					256QAM	19.75	94.43		
				CP-OFDM	QPSK	22.69	185.94		
		2516.01 ~ 2670.00	40	DFT-s OFDM	π/2 BPSK	24.40	275.56		
					QPSK	24.38	273.88	23.80	239.86
					16QAM	23.17	207.37	22.83	191.85
					64QAM	21.72	148.53		
					256QAM	19.55	90.16		
				CP-OFDM	QPSK	22.54	179.31		
		2511.00 ~ 2675.00	30	DFT-s OFDM	π/2 BPSK	24.40	275.72		
					QPSK	24.40	275.66	24.00	250.92
					16QAM	23.31	214.25	23.01	199.77
					64QAM	21.71	148.26		
					256QAM	19.67	92.70		
				CP-OFDM	QPSK	22.73	187.45		
		2506.02 ~ 2679.99	20	DFT-s OFDM	π/2 BPSK	24.39	274.90		
					QPSK	24.40	275.71	24.07	255.09
					16QAM	23.36	216.99	22.90	194.84
					64QAM	21.86	153.32		
					256QAM	19.72	93.74		
				CP-OFDM	QPSK	22.77	189.37		
		2503.50 ~ 2682.48	15	DFT-s OFDM	π/2 BPSK	24.39	274.66		
					QPSK	**24.42**	**276.69**	24.19	262.54
					16QAM	23.30	213.78	23.21	209.51
					64QAM	21.69	147.74		
					256QAM	19.73	93.90		
				CP-OFDM	QPSK	22.84	192.09		
		2501.01 ~ 2685.00	10	DFT-s OFDM	π/2 BPSK	24.40	275.42		
					QPSK	24.39	275.09	**24.26**	**266.66**
					16QAM	23.32	214.91	23.58	228.01
					64QAM	21.85	153.19		
					256QAM	19.75	94.49		
				CP-OFDM	QPSK	22.84	192.52		

FCC Part 27									
Band	ANT	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Mode	Conducted		Radiated	
						Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
n41	Antenna E Sub2	2546.01 ~ 2640.00	100	DFT-s OFDM	π/2 BSK	23.24	211.09		
					QSK	23.19	208.50	22.93	196.14
					16QAM	22.29	169.53	22.09	161.65
					64QAM	20.77	119.48		
					256QAM	18.67	73.69		
				C-OFDM	QSK	21.60	144.41		
		2541.00 ~ 2644.98	90	DFT-s OFDM	π/2 BPSK	23.24	211.09		
					QPSK	**23.37**	**217.30**	**22.97**	**197.95**
					16QAM	22.22	166.69	21.68	147.08
					64QAM	20.76	119.02		
					256QAM	18.70	74.08		
				CP-OFDM	QPSK	21.82	152.22		
		2536.02 ~ 2649.99	80	DFT-s OFDM	π/2 BPSK	23.28	212.78		
					QPSK	23.27	212.25	**22.97**	**197.95**
					16QAM	22.23	167.13	21.72	148.44
					64QAM	20.70	117.54		
					256QAM	18.54	71.40		
				CP-OFDM	QPSK	21.72	148.54		
		2531.02 ~ 2654.98	70	DFT-s OFDM	π/2 BPSK	23.00	199.35		
					QPSK	22.99	199.21	22.70	186.15
					16QAM	21.90	154.85	21.37	137.04
					64QAM	20.68	116.98		
					256QAM	18.41	69.40		
				CP-OFDM	QPSK	21.49	140.98		
		2526.00 ~ 2659.98	60	DFT-s OFDM	π/2 BPSK	23.01	200.10		
					QPSK	23.00	199.70	22.74	187.74
					16QAM	21.94	156.47	21.42	138.54
					64QAM	20.38	109.26		
					256QAM	18.30	67.67		
				CP-OFDM	QPSK	21.34	136.26		
		2521.01 ~ 2665.00	50	DFT-s OFDM	π/2 BPSK	22.95	197.12		
					QPSK	22.98	198.46	22.70	186.02
					16QAM	21.97	157.39	21.58	143.74
					64QAM	20.52	112.80		
					256QAM	18.22	66.43		
				CP-OFDM	QPSK	21.41	138.51		
		2516.01 ~ 2670.00	40	DFT-s OFDM	π/2 BPSK	23.00	199.32		
					QPSK	22.97	197.99	22.70	186.02
					16QAM	21.93	155.82	21.63	145.40
					64QAM	20.32	107.54		
					256QAM	18.97	78.94		
				CP-OFDM	QPSK	21.36	136.90		
		2511.00 ~ 2675.00	30	DFT-s OFDM	π/2 BPSK	22.98	198.53		
					QPSK	23.00	199.64	22.68	185.17
					16QAM	21.93	156.05	21.73	148.79
					64QAM	20.60	114.92		
					256QAM	18.48	70.51		
				CP-OFDM	QPSK	21.37	136.94		
		2506.02 ~ 2679.99	20	DFT-s OFDM	π/2 BPSK	22.98	198.59		
					QPSK	23.00	199.61	22.67	184.74
					16QAM	21.94	156.36	21.74	149.13
					64QAM	20.50	112.33		
					256QAM	18.39	69.04		
				CP-OFDM	QPSK	21.41	138.33		
		2503.50 ~ 2682.48	15	DFT-s OFDM	π/2 BPSK	22.97	198.05		
					QPSK	22.97	198.25	22.71	186.45
					16QAM	21.85	153.23	21.55	142.75
					64QAM	20.53	113.03		
					256QAM	18.48	70.46		
				CP-OFDM	QPSK	21.47	140.27		
		2501.01 ~ 2685.00	10	DFT-s OFDM	π/2 BPSK	23.02	200.41		
					QPSK	22.98	198.74	22.72	186.88
					16QAM	22.20	165.85	21.99	157.97
					64QAM	20.75	118.78		
					256QAM	18.55	71.62		
				CP-OFDM	QPSK	21.46	139.92		

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)	ANT	Peak Gain (dBi)
LTE Band 12 699 - 716 MHz	Antenna A Main 1	-3.9
LTE Band 41 / NR Band n41 2496 - 2690 MHz	Antenna B Main 2	-2.1
	Antenna E Sub 2	-3.8
LTE Band 66 1710 - 1780 MHz	Antenna A Main 1	-2.8
	Antenna E Sub 2	-4.3

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218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

5.4. WORST-CASE ORIENTATION

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

- UMTS REL 99/HSDPA

For 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 modulations. It was found QPSK and 16QAM results were worst case.

This device supports Tx Device hopping Mode. So the test case is below.

LTE Band	Tx Device hopping
LTE B41	**Antenna Switching**
LTE B66	**Antenna Switching**

Test Item	Test case antenna & port
Conducted output power	All
RF port test	Worst case
ERP / EIRP	All
Radiated Spurious Emissions	All

For 5G NR n41 the worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on π/2 BPSK, QPSK, 16QAM, 64QAM and 256QAM modulations. It was found QPSK and 16QAM results were worst case.

This device supports both SA Mode and Tx Hopping Mode. So the test case is as below.

NR Band	SA	Tx Device hopping
n41	**Standard alone**	**Antenna Switching**

Test Item	Test case antenna & port
Conducted output power	All
RF port test	Worst case
ERP / EIRP	All
Radiated Spurious Emissions	All

As for the conducted test, ‘Main ANT’ is the same or higher than ‘Sub ANT’, so we tested with ‘Main ANT’.

Band	Main ANT	Tune-up Limit (dBm)	Sub ANT	Tune up Limit (dBm)
LTE B12	**Antenna A (Main 1)**	**25.5**		
LTE B41	**Antenna B (Main 2)**	**24.5**	Antenna E (Sub 2)	24.0
LTE B66	**Antenna A (Main 1)**	**25.0**	Antenna E (Sub 2)	24.0
NR n41	**Antenna B (Main 2)**	**25.0**	Antenna E (Sub 2)	24.0

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

- Conducted Spurious Emission

Highest conducted output power setting for each bands					
LTE Band	**ANT**	**Frequency (MHz)**	**Bandwidth (MHz)**	**RB size**	**RB offset**
12	Antenna A Main 1	704.00	10	1	25
		707.50		1	0
		711.00		1	0
41	Antenna B Main 2	2498.50	5	1	12
		2593.00		1	12
		2687.50		1	24
66	Antenna A Main 1	1710.70	1.4	1	0
		1745.00		1	0
		1779.30		1	0
NR Band	**ANT**	**Frequency (MHz)**	**Bandwidth (MHz)**	**RB size**	**RB offset**
41	Antenna B Main 2	2503.50	15	1	36
		2592.99		1	19
		2682.48		1	36

- Radiated Spurious Emission

Highest ERP/EIRP setting for each bands					
LTE Band	**ANT**	**Frequency (MHz)**	**Bandwidth (MHz)**	**RB size**	**RB offset**
12	Antenna A Main 1	704.00	10	1	25
		707.50		1	0
		711.00		1	0
41	Antenna B Main 2	2501.00	10	1	0
		2593.00		1	49
		2685.00		1	0
41	Antenna E Sub 2	2503.50	15	1	37
		2593.00		1	37
		2682.50		1	37
66	Antenna A Main 1	1720.00	20	1	0
		1745.00		1	49
		1770.00		1	0
66	Antenna E Sub 2	1711.50	3	1	8
		1745.00		1	0
		1778.50		1	14
NR Band	**ANT**	**Frequency (MHz)**	**Bandwidth (MHz)**	**RB size**	**RB offset**
41	Antenna B Main 2	2501.01	10	1	12
		2592.99		1	12
		2685.00		1	12
41	Antenna E Sub 2	2541.00	90	1	1
		2592.99		1	123
		2644.98		1	243

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	ANT	ERP/EIRP			RSE		
		X	Y	Z	X	Y	Z
LTE B12	Antenna A Main 1	-	-	O	-	-	O
LTE B41	Antenna B Main 2	O	-	-	-	O	-
	Antenna E Sub 2	O	-	-	-	-	O
LTE B66	Antenna A Main 1	O	-	-	-	-	O
	Antenna E Sub 2	O	-	-	-	O	-
NR n41	Antenna B Main 2	O	-	-	-	O	-
	Antenna E Sub 2	O	-	-	-	-	O

Note : For the radiated 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	R37W61WENTASEA	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02117A	N/A

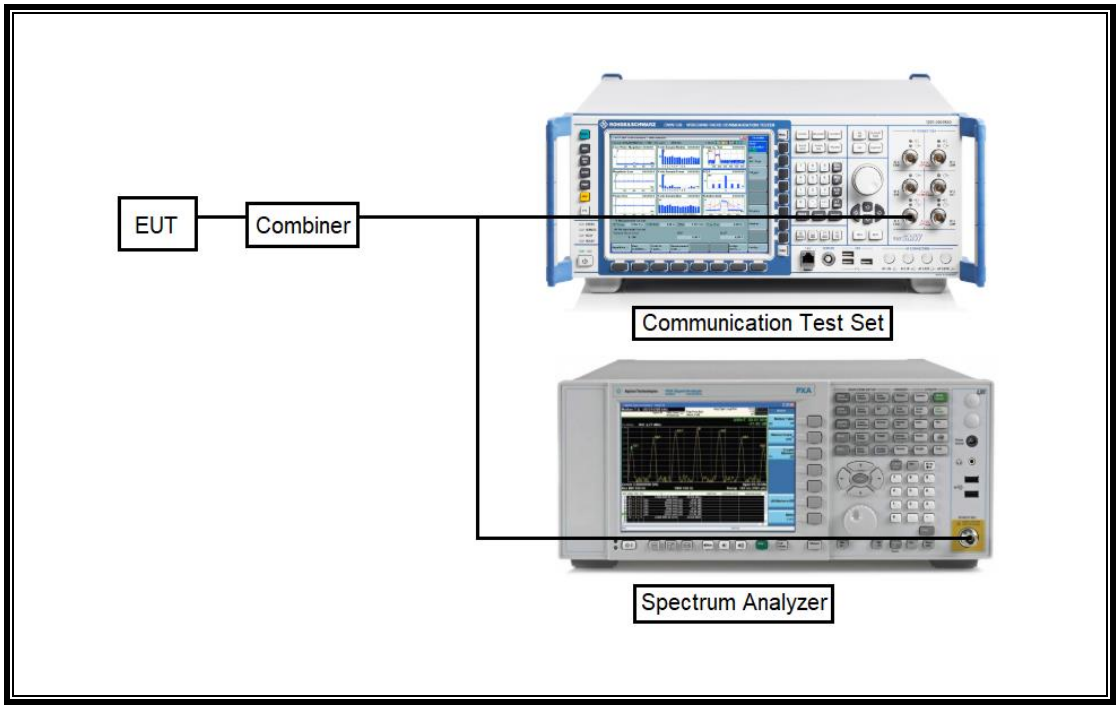
I/O CABLE

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

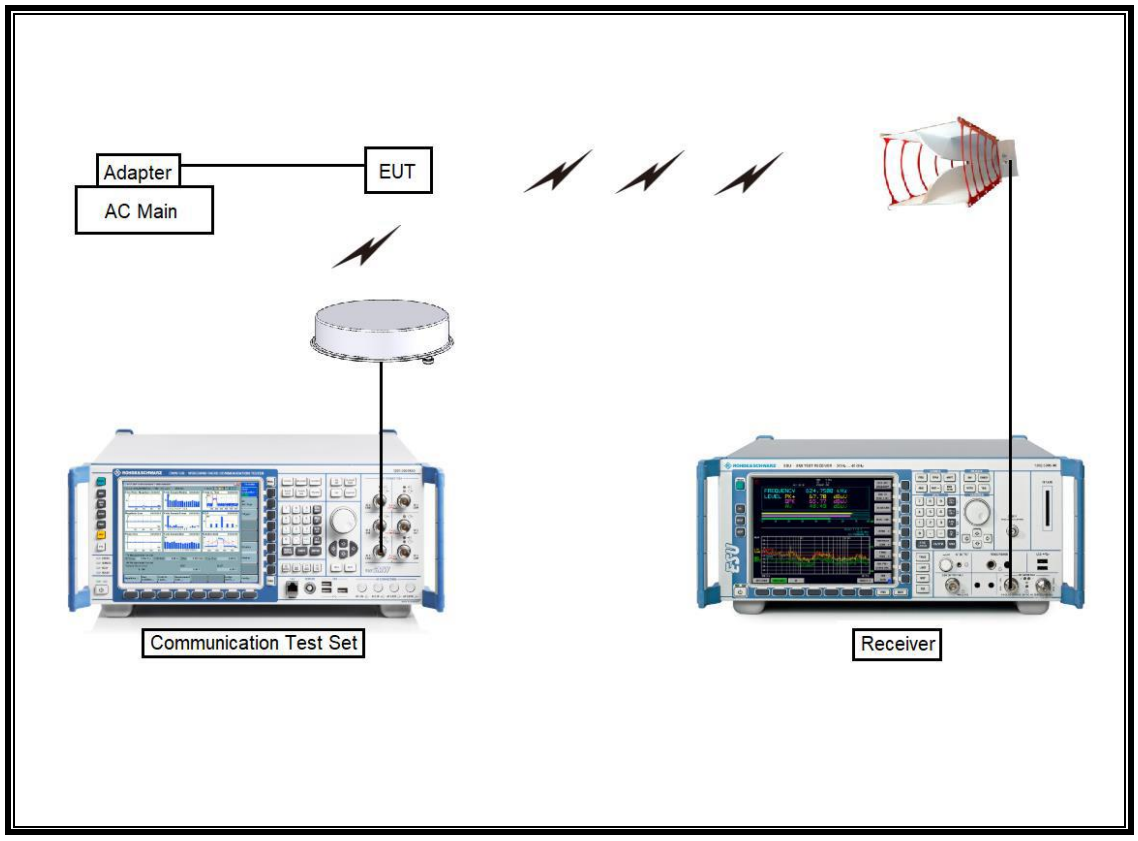
TEST SETUP

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	2025-01-17
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	2024-08-02
Antenna, Horn, 40 GHz	ETS	3116C	00168645	2025-10-05
Preamplifier	ETS	3115-PA	00167475	2024-07-25
Preamplifier	ETS	3116C-PA	00168841	2024-07-25
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2024-08-15
Antenna, Horn, 18 GHz	ETS	3115	00167211	2024-08-04
Antenna, Horn, 18 GHz	ETS	3115	00161451	2024-08-21
Antenna, Horn, 18 GHz	ETS	3117	00168724	2024-08-04
Antenna, Horn, 18 GHz	ETS	3117	00168717	2024-08-21
Communications Test Set	R&S	CMW500	169797	2024-07-23
DC Power Supply	Agilent / HP	E3640A	MY54226395	2024-07-24
Preamplifier, 1000 MHz	Sonoma	310N	341282	2024-07-24
Preamplifier, 1000 MHz	Sonoma	310N	370599	2024-07-24
Preamplifier, 1000 MHz	Sonoma	310N	351741	2024-07-24
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2024-07-24
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2024-07-25
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2024-07-25
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2024-07-24
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY57143717	2024-07-24
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2024-07-23
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2024-07-24
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G005	2024-07-23
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G006	2024-07-23
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	010	2024-07-24
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	011	2024-07-24
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G001	2024-07-24
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G002	2024-07-24
Attenuator	PASTERNACK	PE7087-10	A009	2024-07-24
Attenuator	PASTERNACK	PE7087-10	A001	2024-07-24
Attenuator	PASTERNACK	PE7087-10	A008	2024-07-27
Attenuator	PASTERNACK	PE7004-10	2	2024-07-23
Attenuator	PASTERNACK	PE7395-10	A011	2024-07-25
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2025-09-06
Temperature Chamber	ESPEC	SH-642	93001109	2024-07-24
Power Splitter	MINI-CIRCUITS	WA1534	UL003	2025-01-02
Power Splitter	MINI-CIRCUITS	WA1534	UL004	2025-01-02
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58010202	2024-01-27
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 Results
2.1046	Conducted Output Power	N/A	Conducted	Pass
2.1049	Occupied Bandwidth (99%)	N/A		Pass
27.53(g) 27.53(h)	Conducted Band Edge / Conducted Spurious Emission	-13 dBm		Pass
27.53(m)		-25 dBm		Pass
27.53(m)	Emission Mask	Section 9.2.2		Pass
27.54	Frequency Stability	2.5 ppm		Pass
27.50(c)(10)	Effective Radiated Power	34.77 dBm	Radiated	Pass
27.50(h)(2)	Effective Isotropic Radiated Power	33 dBm		Pass
27.50(d)(4)		30 dBm		Pass
27.53(g) 27.53(h)	Radiated Spurious Emission	-13 dBm		Pass
27.53(m)		-25 dBm		Pass

8. CONDUCTED RESULTS

8.1. CONDUCTED OUTPUT POWER

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v03r01;

The transmitter output was connected to either CMW500 Test Set or E7515B Test set and configured to operate at maximum power.

NOTE

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations (π/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.

8.1.1. CONDUCTED AVERAGE OUTPUT POWER

LTE Band 12 (Antenna A, Main 1)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				23060	23095	23130		
				704.00 MHz	707.50 MHz	711.00 MHz		
10 MHz	QPSK	1	0	24.45	24.97	25.07	0.0	25.5
		1	25	24.90	24.81	24.94	0.0	25.5
		1	49	24.78	24.87	24.95	0.0	25.5
		25	0	23.91	24.01	24.07	1.0	24.5
		25	12	23.86	23.97	24.03	1.0	24.5
		25	25	23.81	23.95	24.00	1.0	24.5
		50	0	23.88	23.98	24.04	1.0	24.5
	16QAM	1	0	23.94	24.24	24.11	1.0	24.5
		1	25	23.85	24.10	24.04	1.0	24.5
		1	49	23.82	24.07	23.91	1.0	24.5
		25	0	22.93	23.04	23.06	2.0	23.5
		25	12	22.89	22.99	23.03	2.0	23.5
		25	25	22.83	22.97	23.01	2.0	23.5
		50	0	22.85	22.94	23.07	2.0	23.5
	64QAM	1	0	22.97	22.97	22.94	2.0	23.5
		1	25	22.92	22.93	22.90	2.0	23.5
		1	49	22.80	22.94	22.88	2.0	23.5
		25	0	21.89	21.92	21.94	3.0	22.5
		25	12	21.83	21.87	21.91	3.0	22.5
		25	25	21.80	21.85	21.91	3.0	22.5
		50	0	21.79	21.88	21.89	3.0	22.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23035	23095	23155		
				701.50 MHz	707.50 MHz	713.50 MHz		
5 MHz	QPSK	1	0	24.67	24.76	24.83	0.0	25.5
		1	12	24.59	24.62	24.78	0.0	25.5
		1	24	24.63	24.72	24.80	0.0	25.5
		12	0	23.67	23.84	23.93	1.0	24.5
		12	7	23.65	23.82	23.91	1.0	24.5
		12	13	23.65	23.80	23.88	1.0	24.5
		25	0	23.64	23.81	23.88	1.0	24.5
	16QAM	1	0	23.92	23.98	24.00	1.0	24.5
		1	12	23.63	23.73	23.83	1.0	24.5
		1	24	23.85	23.83	23.98	1.0	24.5
		12	0	22.63	22.78	22.89	2.0	23.5
		12	7	22.62	22.75	22.86	2.0	23.5
		12	13	22.61	22.75	22.85	2.0	23.5
		25	0	22.64	22.77	22.87	2.0	23.5
	64QAM	1	0	22.66	23.14	23.08	2.0	23.5
		1	12	22.63	22.95	23.04	2.0	23.5
		1	24	22.66	23.06	23.05	2.0	23.5
		12	0	21.70	21.85	22.00	3.0	22.5
		12	7	21.67	21.84	21.96	3.0	22.5
		12	13	21.68	21.82	21.94	3.0	22.5
		25	0	21.72	21.83	21.95	3.0	22.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23025	23095	23165		
				700.50 MHz	707.50 MHz	714.50 MHz		
3 MHz	QPSK	1	0	24.70	24.92	25.00	0.0	25.5
		1	8	24.51	24.80	24.81	0.0	25.5
		1	14	24.61	24.92	25.00	0.0	25.5
		8	0	23.75	23.98	23.98	1.0	24.5
		8	4	23.78	23.92	23.93	1.0	24.5
		8	7	23.77	23.93	23.93	1.0	24.5
		15	0	23.72	23.85	23.93	1.0	24.5
	16QAM	1	0	23.89	23.92	23.89	1.0	24.5
		1	8	23.64	23.69	23.73	1.0	24.5
		1	14	23.92	23.76	23.74	1.0	24.5
		8	0	22.83	22.90	23.04	2.0	23.5
		8	4	22.79	22.86	22.99	2.0	23.5
		8	7	22.80	22.84	22.97	2.0	23.5
		15	0	22.68	22.83	22.87	2.0	23.5
	64QAM	1	0	22.66	22.91	23.17	2.0	23.5
		1	8	22.54	22.76	23.01	2.0	23.5
		1	14	22.56	22.94	23.16	2.0	23.5
		8	0	21.70	21.89	22.08	3.0	22.5
		8	4	21.72	21.89	22.03	3.0	22.5
		8	7	21.77	21.94	22.05	3.0	22.5
		15	0	21.69	21.74	21.99	3.0	22.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23017	23095	23173		
				699.70 MHz	707.50 MHz	715.30 MHz		
1.4 MHz	QPSK	1	0	24.85	25.02	25.00	0.0	25.5
		1	3	24.71	24.74	24.82	0.0	25.5
		1	5	24.81	24.97	24.96	0.0	25.5
		3	0	24.87	25.00	24.95	0.0	25.5
		3	1	24.83	25.02	24.96	0.0	25.5
		3	3	24.78	24.85	24.95	0.0	25.5
		6	0	23.84	24.01	23.95	1.0	24.5
	16QAM	1	0	23.62	23.95	23.87	1.0	24.5
		1	3	23.75	24.02	23.98	1.0	24.5
		1	5	23.69	24.02	23.92	1.0	24.5
		3	0	23.82	23.90	24.01	1.0	24.5
		3	1	23.84	23.91	24.04	1.0	24.5
		3	3	23.78	23.84	24.02	1.0	24.5
		6	0	22.77	22.91	22.84	2.0	23.5
	64QAM	1	0	22.85	22.81	22.80	2.0	23.5
		1	3	22.72	22.69	22.89	2.0	23.5
		1	5	22.73	22.72	22.88	2.0	23.5
		3	0	22.78	22.95	22.92	2.0	23.5
		3	1	22.71	22.89	22.88	2.0	23.5
		3	3	22.72	22.94	22.90	2.0	23.5
		6	0	21.68	21.97	22.00	3.0	22.5

LTE Band 41 (Antenna B, Main 2)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				39750	40620	41490		
				2506 MHz	2593 MHz	2680 MHz		
20 MHz	QPSK	1	0	24.10	24.31	24.21	0.0	24.5
		1	49	24.22	24.27	24.18	0.0	24.5
		1	99	24.08	24.35	24.23	0.0	24.5
		50	0	23.10	23.38	23.20	1.0	23.5
		50	24	23.03	23.34	23.17	1.0	23.5
		50	50	23.01	23.30	23.21	1.0	23.5
		100	0	23.04	23.33	23.21	1.0	23.5
	16QAM	1	0	23.12	23.46	23.29	1.0	23.5
		1	49	23.16	23.42	23.04	1.0	23.5
		1	99	23.13	23.34	23.19	1.0	23.5
		50	0	22.08	22.27	22.20	2.0	22.5
		50	24	22.01	22.26	22.15	2.0	22.5
		50	50	21.91	22.22	22.11	2.0	22.5
		100	0	21.99	22.26	22.14	2.0	22.5
	64QAM	1	0	20.89	22.49	21.80	2.0	22.5
		1	49	20.86	22.48	21.74	2.0	22.5
		1	99	21.20	22.49	21.73	2.0	22.5
		50	0	20.51	21.49	20.97	3.0	21.5
		50	24	20.51	21.47	20.93	3.0	21.5
		50	50	20.50	21.42	20.93	3.0	21.5
		100	0	20.49	21.49	20.94	3.0	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				39725	40620	41515		
				2503.5 MHz	2593 MHz	2682.5 MHz		
15 MHz	QPSK	1	0	24.13	24.36	24.17	0.0	24.5
		1	37	24.31	24.34	24.05	0.0	24.5
		1	74	24.09	24.36	24.25	0.0	24.5
		36	0	23.13	23.39	23.24	1.0	23.5
		36	20	23.06	23.37	23.20	1.0	23.5
		36	39	22.98	23.34	23.21	1.0	23.5
		75	0	23.05	23.32	23.25	1.0	23.5
	16QAM	1	0	22.90	23.30	23.00	1.0	23.5
		1	37	22.83	23.05	22.69	1.0	23.5
		1	74	22.60	23.08	23.25	1.0	23.5
		36	0	22.03	22.28	22.23	2.0	22.5
		36	20	22.02	22.30	22.21	2.0	22.5
		36	39	21.96	22.27	22.15	2.0	22.5
		75	0	21.96	22.34	22.31	2.0	22.5
	64QAM	1	0	21.62	22.31	22.11	2.0	22.5
		1	37	21.24	22.37	21.98	2.0	22.5
		1	74	21.39	22.28	21.99	2.0	22.5
		36	0	20.44	21.48	21.01	3.0	21.5
		36	20	20.45	21.45	21.01	3.0	21.5
		36	39	20.41	21.43	21.01	3.0	21.5
		75	0	20.42	21.43	20.98	3.0	21.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				39700	40620	41540		
				2501 MHz	2593 MHz	2685 MHz		
10 MHz	QPSK	1	0	24.07	24.33	24.35	0.0	24.5
		1	25	24.00	24.18	24.35	0.0	24.5
		1	49	24.00	24.41	24.28	0.0	24.5
		25	0	23.02	23.33	23.27	1.0	23.5
		25	12	22.99	23.32	23.27	1.0	23.5
		25	25	22.95	23.28	23.24	1.0	23.5
		50	0	22.99	23.30	23.22	1.0	23.5
	16QAM	1	0	23.17	23.22	23.37	1.0	23.5
		1	25	23.26	23.32	23.36	1.0	23.5
		1	49	23.13	23.15	23.35	1.0	23.5
		25	0	21.94	22.30	22.50	2.0	22.5
		25	12	21.89	22.29	22.46	2.0	22.5
		25	25	21.88	22.24	22.42	2.0	22.5
		50	0	21.90	22.21	22.47	2.0	22.5
	64QAM	1	0	21.27	22.49	21.92	2.0	22.5
		1	25	21.32	22.37	21.68	2.0	22.5
		1	49	21.33	22.43	21.89	2.0	22.5
		25	0	20.41	21.48	20.95	3.0	21.5
		25	12	20.35	21.50	20.93	3.0	21.5
		25	25	20.33	21.49	20.97	3.0	21.5
		50	0	20.38	21.45	20.94	3.0	21.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				39675	40620	41565		
				2498.5 MHz	2593 MHz	2687.5 MHz		
5 MHz	QPSK	1	0	23.95	24.32	24.23	0.0	24.5
		1	12	24.07	24.45	24.21	0.0	24.5
		1	24	23.90	24.27	24.27	0.0	24.5
		12	0	22.87	23.30	23.24	1.0	23.5
		12	7	22.83	23.28	23.23	1.0	23.5
		12	13	22.83	23.27	23.21	1.0	23.5
		25	0	22.85	23.23	23.22	1.0	23.5
	16QAM	1	0	22.88	23.17	23.23	1.0	23.5
		1	12	22.96	23.03	23.37	1.0	23.5
		1	24	22.82	23.24	23.15	1.0	23.5
		12	0	21.81	22.25	22.48	2.0	22.5
		12	7	21.82	22.22	22.42	2.0	22.5
		12	13	21.77	22.17	22.43	2.0	22.5
		25	0	21.74	22.18	22.43	2.0	22.5
	64QAM	1	0	21.34	22.46	21.99	2.0	22.5
		1	12	21.37	22.49	21.70	2.0	22.5
		1	24	21.32	22.46	21.92	2.0	22.5
		12	0	20.48	21.49	21.00	3.0	21.5
		12	7	20.42	21.48	20.93	3.0	21.5
		12	13	20.37	21.47	20.97	3.0	21.5
		25	0	20.46	21.44	20.92	3.0	21.5

LTE Band 41 (Antenna E, Sub 2)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				39750	40620	41490		
				2506 MHz	2593 MHz	2680 MHz		
20 MHz	QPSK	1	0	23.21	22.74	23.13	0.0	24.0
		1	49	23.27	22.87	23.17	0.0	24.0
		1	99	23.17	22.92	23.27	0.0	24.0
		50	0	22.14	21.85	22.20	1.0	23.0
		50	24	22.15	21.90	22.24	1.0	23.0
		50	50	22.08	21.88	22.23	1.0	23.0
		100	0	22.11	21.84	22.20	1.0	23.0
	16QAM	1	0	22.00	21.98	22.16	1.0	23.0
		1	49	22.30	22.23	22.41	1.0	23.0
		1	99	21.95	21.81	22.60	1.0	23.0
		50	0	21.01	20.82	21.15	2.0	22.0
		50	24	20.98	20.90	21.24	2.0	22.0
		50	50	20.95	20.86	21.19	2.0	22.0
		100	0	21.00	20.84	21.23	2.0	22.0
	64QAM	1	0	21.46	21.40	21.26	2.0	22.0
		1	49	21.77	21.44	21.46	2.0	22.0
		1	99	21.60	21.72	21.58	2.0	22.0
		50	0	20.57	20.40	20.47	3.0	21.0
		50	24	20.59	20.39	20.51	3.0	21.0
		50	50	20.65	20.43	20.52	3.0	21.0
		100	0	20.58	20.38	20.50	3.0	21.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				39725	40620	41515		
				2503.5 MHz	2593 MHz	2682.5 MHz		
15 MHz	QPSK	1	0	23.23	22.91	23.20	0.0	24.0
		1	37	23.35	23.00	23.48	0.0	24.0
		1	74	23.19	22.90	23.34	0.0	24.0
		36	0	22.27	21.90	22.31	1.0	23.0
		36	20	22.27	21.96	22.25	1.0	23.0
		36	39	22.24	21.94	22.30	1.0	23.0
		75	0	22.27	21.95	22.29	1.0	23.0
	16QAM	1	0	21.99	21.52	22.13	1.0	23.0
		1	37	21.90	21.59	21.86	1.0	23.0
		1	74	21.86	21.69	22.01	1.0	23.0
		36	0	21.23	20.83	21.20	2.0	22.0
		36	20	21.18	20.85	21.22	2.0	22.0
		36	39	21.14	20.90	21.23	2.0	22.0
		75	0	21.13	20.83	21.26	2.0	22.0
	64QAM	1	0	21.26	21.12	21.57	2.0	22.0
		1	37	21.25	21.28	21.77	2.0	22.0
		1	74	21.63	21.27	21.53	2.0	22.0
		36	0	20.64	20.48	20.56	3.0	21.0
		36	20	20.65	20.52	20.55	3.0	21.0
		36	39	20.61	20.48	20.56	3.0	21.0
		75	0	20.67	20.39	20.53	3.0	21.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				39700	40620	41540		
				2501 MHz	2593 MHz	2685 MHz		
10 MHz	QPSK	1	0	23.20	22.93	23.19	0.0	24.0
		1	25	23.13	22.91	23.05	0.0	24.0
		1	49	23.09	22.88	23.31	0.0	24.0
		25	0	22.06	21.85	22.19	1.0	23.0
		25	12	22.03	21.85	22.16	1.0	23.0
		25	25	22.02	21.85	22.17	1.0	23.0
		50	0	22.05	21.87	22.18	1.0	23.0
	16QAM	1	0	22.13	21.93	22.19	1.0	23.0
		1	25	22.41	22.16	22.31	1.0	23.0
		1	49	22.20	22.01	22.12	1.0	23.0
		25	0	20.95	20.81	21.19	2.0	22.0
		25	12	20.91	20.80	21.15	2.0	22.0
		25	25	20.94	20.84	21.18	2.0	22.0
		50	0	20.96	20.81	21.12	2.0	22.0
	64QAM	1	0	21.34	21.33	21.53	2.0	22.0
		1	25	21.45	21.23	21.43	2.0	22.0
		1	49	21.50	21.31	21.46	2.0	22.0
		25	0	20.34	20.40	20.46	3.0	21.0
		25	12	20.38	20.40	20.44	3.0	21.0
		25	25	20.38	20.40	20.49	3.0	21.0
		50	0	20.42	20.34	20.45	3.0	21.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				39675	40620	41565		
				2498.5 MHz	2593 MHz	2687.5 MHz		
5 MHz	QPSK	1	0	23.16	22.85	23.25	0.0	24.0
		1	12	23.19	23.11	23.46	0.0	24.0
		1	24	23.14	22.83	23.26	0.0	24.0
		12	0	22.06	21.86	22.22	1.0	23.0
		12	7	22.06	21.86	22.21	1.0	23.0
		12	13	22.04	21.86	22.20	1.0	23.0
		25	0	22.07	21.87	22.23	1.0	23.0
	16QAM	1	0	21.83	21.91	22.27	1.0	23.0
		1	12	21.86	21.97	22.44	1.0	23.0
		1	24	21.88	22.00	22.30	1.0	23.0
		12	0	20.90	20.82	21.24	2.0	22.0
		12	7	20.90	20.81	21.22	2.0	22.0
		12	13	20.92	20.84	21.19	2.0	22.0
		25	0	20.95	20.87	21.16	2.0	22.0
	64QAM	1	0	21.40	21.20	21.37	2.0	22.0
		1	12	21.46	21.35	21.24	2.0	22.0
		1	24	21.39	21.35	21.31	2.0	22.0
		12	0	20.22	20.31	20.46	3.0	21.0
		12	7	20.23	20.26	20.48	3.0	21.0
		12	13	20.26	20.28	20.48	3.0	21.0
		25	0	20.31	20.32	20.42	3.0	21.0

LTE Band 66 (Antenna A, Main 1)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				Measured Pwr (dBm)				
				132072	132322	132572		
				1720.00 MHz	1745.00 MHz	1770.00 MHz		
20 MHz	QPSK	1	0	**24.69**	24.34	24.68	0.0	25.0
		1	49	24.29	24.49	24.64	0.0	25.0
		1	99	24.29	24.48	24.57	0.0	25.0
		50	0	**23.71**	23.64	23.66	1.0	24.0
		50	24	23.70	23.60	23.62	1.0	24.0
		50	50	23.67	23.53	23.57	1.0	24.0
		100	0	23.69	23.57	23.62	1.0	24.0
	16QAM	1	0	23.80	23.93	23.94	1.0	24.0
		1	49	23.85	23.93	23.99	1.0	24.0
		1	99	23.76	23.75	23.73	1.0	24.0
		50	0	22.73	22.57	22.64	2.0	23.0
		50	24	22.69	22.53	22.58	2.0	23.0
		50	50	22.68	22.49	22.52	2.0	23.0
		100	0	22.69	22.54	22.58	2.0	23.0
	64QAM	1	0	22.85	22.66	22.67	2.0	23.0
		1	49	22.79	22.43	22.69	2.0	23.0
		1	99	22.85	22.52	22.49	2.0	23.0
		50	0	21.58	21.54	21.61	3.0	22.0
		50	24	21.57	21.47	21.55	3.0	22.0
		50	50	21.55	21.44	21.50	3.0	22.0
		100	0	21.56	21.41	21.52	3.0	22.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597		
				1717.50 MHz	1745.00 MHz	1772.50 MHz		
15 MHz	QPSK	1	0	23.90	23.77	23.89	0.0	25.0
		1	37	24.00	24.05	**24.16**	0.0	25.0
		1	74	23.42	24.15	24.14	0.0	25.0
		36	0	**23.42**	23.27	23.28	1.0	24.0
		36	20	23.39	23.25	23.25	1.0	24.0
		36	39	23.36	23.25	23.23	1.0	24.0
		75	0	23.40	23.25	23.25	1.0	24.0
	16QAM	1	0	23.42	23.46	23.36	1.0	24.0
		1	37	23.24	23.18	23.20	1.0	24.0
		1	74	23.14	23.30	23.24	1.0	24.0
		36	0	22.36	22.22	22.28	2.0	23.0
		36	20	22.32	22.17	22.23	2.0	23.0
		36	39	22.32	22.15	22.21	2.0	23.0
		75	0	22.28	22.20	22.19	2.0	23.0
	64QAM	1	0	22.21	21.88	21.88	2.0	23.0
		1	37	22.00	21.65	21.79	2.0	23.0
		1	74	22.19	21.72	21.77	2.0	23.0
		36	0	21.49	21.37	21.30	3.0	22.0
		36	20	21.47	21.35	21.26	3.0	22.0
		36	39	21.46	21.34	21.22	3.0	22.0
		75	0	21.43	21.28	21.26	3.0	22.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622		
				1715.00 MHz	1745.00 MHz	1775.00 MHz		
10 MHz	QPSK	1	0	24.27	**24.48**	24.44	0.0	25.0
		1	25	24.21	24.47	24.37	0.0	25.0
		1	49	24.28	24.39	24.39	0.0	25.0
		25	0	23.35	**23.46**	23.42	1.0	24.0
		25	12	23.30	23.44	23.40	1.0	24.0
		25	25	23.35	23.41	23.34	1.0	24.0
		50	0	23.37	23.45	23.39	1.0	24.0
	16QAM	1	0	23.40	23.56	23.39	1.0	24.0
		1	25	23.33	23.49	23.34	1.0	24.0
		1	49	23.39	23.49	23.22	1.0	24.0
		25	0	22.41	22.46	22.38	2.0	23.0
		25	12	22.37	22.42	22.35	2.0	23.0
		25	25	22.37	22.39	22.30	2.0	23.0
		50	0	22.36	22.39	22.39	2.0	23.0
	64QAM	1	0	21.98	21.97	21.76	2.0	23.0
		1	25	21.87	21.94	21.76	2.0	23.0
		1	49	21.90	21.93	21.69	2.0	23.0
		25	0	21.52	21.31	21.28	3.0	22.0
		25	12	21.50	21.28	21.25	3.0	22.0
		25	25	21.50	21.27	21.22	3.0	22.0
		50	0	21.49	21.28	21.27	3.0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647		
				1712.50 MHz	1745.00 MHz	1777.50 MHz		
5 MHz	QPSK	1	0	**24.43**	24.35	24.32	0.0	25.0
		1	12	24.39	24.20	24.25	0.0	25.0
		1	24	24.23	24.38	24.34	0.0	25.0
		12	0	**23.63**	23.43	23.36	1.0	24.0
		12	7	23.62	23.41	23.34	1.0	24.0
		12	13	23.60	23.40	23.32	1.0	24.0
		25	0	23.61	23.43	23.34	1.0	24.0
	16QAM	1	0	23.61	23.55	23.41	1.0	24.0
		1	12	23.60	23.31	23.25	1.0	24.0
		1	24	23.66	23.45	23.31	1.0	24.0
		12	0	22.60	22.40	22.32	2.0	23.0
		12	7	22.56	22.38	22.29	2.0	23.0
		12	13	22.58	22.38	22.29	2.0	23.0
		25	0	22.57	22.41	22.30	2.0	23.0
	64QAM	1	0	22.13	21.77	21.65	2.0	23.0
		1	12	21.95	21.73	21.55	2.0	23.0
		1	24	22.08	21.82	21.63	2.0	23.0
		12	0	21.42	21.26	21.14	3.0	22.0
		12	7	21.42	21.24	21.11	3.0	22.0
		12	13	21.42	21.24	21.10	3.0	22.0
		25	0	21.44	21.26	21.17	3.0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657		
				1711.50 MHz	1745.00 MHz	1778.50 MHz		
3 MHz	QPSK	1	0	24.61	24.38	24.42	0.0	25.0
		1	8	24.52	24.21	24.16	0.0	25.0
		1	14	**24.69**	24.35	24.46	0.0	25.0
		8	0	**23.65**	23.44	23.41	1.0	24.0
		8	4	23.64	23.42	23.37	1.0	24.0
		8	7	23.61	23.42	23.37	1.0	24.0
		15	0	23.58	23.42	23.34	1.0	24.0
	16QAM	1	0	23.71	23.54	23.30	1.0	24.0
		1	8	23.59	23.39	23.16	1.0	24.0
		1	14	23.62	23.57	23.19	1.0	24.0
		8	0	22.59	22.55	22.40	2.0	23.0
		8	4	22.52	22.51	22.34	2.0	23.0
		8	7	22.53	22.52	22.34	2.0	23.0
		15	0	22.59	22.40	22.27	2.0	23.0
	64QAM	1	0	21.94	21.76	21.81	2.0	23.0
		1	8	21.81	21.64	21.55	2.0	23.0
		1	14	22.02	21.67	21.85	2.0	23.0
		8	0	21.44	21.26	21.22	3.0	22.0
		8	4	21.40	21.23	21.16	3.0	22.0
		8	7	21.42	21.27	21.21	3.0	22.0
		15	0	21.47	21.30	21.15	3.0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665		
				1710.70 MHz	1745.00 MHz	1779.30 MHz		
1.4 MHz	QPSK	1	0	24.72	24.48	24.35	0.0	25.0
		1	3	24.56	24.26	24.21	0.0	25.0
		1	5	24.68	24.45	24.33	0.0	25.0
		3	0	24.61	24.53	24.39	0.0	25.0
		3	1	24.58	24.52	24.35	0.0	25.0
		3	3	24.60	24.34	24.29	0.0	25.0
		6	0	23.56	23.49	23.34	1.0	24.0
	16QAM	1	0	23.41	23.52	23.25	1.0	24.0
		1	3	23.55	23.66	23.42	1.0	24.0
		1	5	23.49	23.60	23.35	1.0	24.0
		3	0	23.63	23.36	23.45	1.0	24.0
		3	1	23.66	23.32	23.34	1.0	24.0
		3	3	23.65	23.32	23.41	1.0	24.0
		6	0	22.59	22.41	22.31	2.0	23.0
	64QAM	1	0	22.23	21.85	21.42	2.0	23.0
		1	3	22.06	21.71	21.44	2.0	23.0
		1	5	22.16	21.76	21.50	2.0	23.0
		3	0	22.01	21.77	21.59	2.0	23.0
		3	1	21.97	21.70	21.55	2.0	23.0
		3	3	22.01	21.69	21.54	2.0	23.0
		6	0	21.47	21.31	21.18	3.0	22.0

LTE Band 66 (Antenna E, Sub 2)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572		
				1720.00 MHz	1745.00 MHz	1770.00 MHz		
20 MHz	QPSK	1	0	23.59	23.52	**23.93**	0.0	24.0
		1	49	23.31	23.58	23.90	0.0	24.0
		1	99	23.48	23.39	23.67	0.0	24.0
		50	0	22.70	22.54	**22.81**	1.0	23.0
		50	24	22.67	22.48	22.76	1.0	23.0
		50	50	22.63	22.44	22.69	1.0	23.0
		100	0	22.70	22.51	22.73	1.0	23.0
	16QAM	1	0	22.94	22.88	22.99	1.0	23.0
		1	49	22.96	22.79	22.96	1.0	23.0
		1	99	22.78	22.64	22.72	1.0	23.0
		50	0	21.77	21.57	21.81	2.0	22.0
		50	24	21.73	21.50	21.75	2.0	22.0
		50	50	21.69	21.44	21.65	2.0	22.0
		100	0	21.72	21.52	21.73	2.0	22.0
	64QAM	1	0	21.77	21.58	21.82	2.0	22.0
		1	49	21.74	21.65	21.70	2.0	22.0
		1	99	21.73	21.43	21.66	2.0	22.0
		50	0	20.72	20.49	20.71	3.0	21.0
		50	24	20.67	20.45	20.64	3.0	21.0
		50	50	20.63	20.41	20.57	3.0	21.0
		100	0	20.67	20.44	20.61	3.0	21.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597		
				1717.50 MHz	1745.00 MHz	1772.50 MHz		
15 MHz	QPSK	1	0	22.54	23.46	23.61	0.0	24.0
		1	37	23.02	23.47	**23.76**	0.0	24.0
		1	74	22.98	23.51	23.74	0.0	24.0
		36	0	21.96	22.71	**22.94**	1.0	23.0
		36	20	22.21	22.67	22.91	1.0	23.0
		36	39	22.27	22.63	22.90	1.0	23.0
		75	0	22.11	22.67	22.91	1.0	23.0
	16QAM	1	0	21.73	22.75	22.93	1.0	23.0
		1	37	22.29	22.57	22.83	1.0	23.0
		1	74	22.30	22.61	22.85	1.0	23.0
		36	0	21.15	21.63	21.90	2.0	22.0
		36	20	21.42	21.58	21.85	2.0	22.0
		36	39	21.50	21.54	21.80	2.0	22.0
		75	0	21.35	21.62	21.83	2.0	22.0
	64QAM	1	0	21.59	21.63	21.72	2.0	22.0
		1	37	21.45	21.46	21.55	2.0	22.0
		1	74	21.46	21.48	21.58	2.0	22.0
		36	0	20.80	20.57	20.74	3.0	21.0
		36	20	20.75	20.52	20.67	3.0	21.0
		36	39	20.71	20.48	20.63	3.0	21.0
		75	0	20.68	20.45	20.69	3.0	21.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622		
				1715.00 MHz	1745.00 MHz	1775.00 MHz		
10 MHz	QPSK	1	0	22.40	23.43	**23.79**	0.0	24.0
		1	25	22.57	23.71	23.61	0.0	24.0
		1	49	22.61	23.57	23.77	0.0	24.0
		25	0	21.58	22.65	**22.82**	1.0	23.0
		25	12	21.70	22.60	22.77	1.0	23.0
		25	25	21.79	22.57	22.74	1.0	23.0
		50	0	21.70	22.61	22.75	1.0	23.0
	16QAM	1	0	21.48	22.79	22.82	1.0	23.0
		1	25	21.70	22.78	22.82	1.0	23.0
		1	49	21.78	22.74	22.83	1.0	23.0
		25	0	20.74	21.63	21.83	2.0	22.0
		25	12	20.86	21.58	21.78	2.0	22.0
		25	25	20.97	21.54	21.73	2.0	22.0
		50	0	20.88	21.55	21.70	2.0	22.0
	64QAM	1	0	21.61	21.53	21.74	2.0	22.0
		1	25	21.67	21.54	21.64	2.0	22.0
		1	49	21.62	21.50	21.55	2.0	22.0
		25	0	20.64	20.51	20.73	3.0	21.0
		25	12	20.61	20.45	20.67	3.0	21.0
		25	25	20.58	20.45	20.63	3.0	21.0
		50	0	20.61	20.44	20.61	3.0	21.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647		
				1712.50 MHz	1745.00 MHz	1777.50 MHz		
5 MHz	QPSK	1	0	23.59	23.57	23.77	0.0	24.0
		1	12	23.45	23.54	23.75	0.0	24.0
		1	24	23.64	23.58	**23.78**	0.0	24.0
		12	0	22.72	22.62	**22.77**	1.0	23.0
		12	7	22.70	22.60	22.75	1.0	23.0
		12	13	22.69	22.59	22.71	1.0	23.0
		25	0	22.71	22.59	22.74	1.0	23.0
	16QAM	1	0	22.90	22.75	22.83	1.0	23.0
		1	12	22.60	22.66	22.68	1.0	23.0
		1	24	22.81	22.73	22.74	1.0	23.0
		12	0	21.68	21.57	21.70	2.0	22.0
		12	7	21.64	21.53	21.68	2.0	22.0
		12	13	21.62	21.53	21.66	2.0	22.0
		25	0	21.67	21.56	21.67	2.0	22.0
	64QAM	1	0	21.43	21.59	21.45	2.0	22.0
		1	12	21.50	21.48	21.41	2.0	22.0
		1	24	21.52	21.50	21.48	2.0	22.0
		12	0	20.57	20.43	20.49	3.0	21.0
		12	7	20.55	20.42	20.49	3.0	21.0
		12	13	20.56	20.39	20.49	3.0	21.0
		25	0	20.53	20.37	20.48	3.0	21.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657		
				1711.50 MHz	1745.00 MHz	1778.50 MHz		
3 MHz	QPSK	1	0	22.88	23.45	23.75	0.0	24.0
		1	8	22.90	23.34	23.69	0.0	24.0
		1	14	22.84	23.43	**23.79**	0.0	24.0
		8	0	22.06	22.52	**22.78**	1.0	23.0
		8	4	22.08	22.51	22.73	1.0	23.0
		8	7	22.10	22.53	22.75	1.0	23.0
		15	0	22.10	22.52	22.66	1.0	23.0
	16QAM	1	0	22.14	22.70	22.81	1.0	23.0
		1	8	22.20	22.48	22.70	1.0	23.0
		1	14	22.18	22.71	22.73	1.0	23.0
		8	0	21.27	21.67	21.73	2.0	22.0
		8	4	21.31	21.65	21.69	2.0	22.0
		8	7	21.33	21.64	21.69	2.0	22.0
		15	0	21.30	21.51	21.67	2.0	22.0
	64QAM	1	0	21.61	21.36	21.56	2.0	22.0
		1	8	21.56	21.29	21.48	2.0	22.0
		1	14	21.72	21.45	21.46	2.0	22.0
		8	0	20.62	20.48	20.51	3.0	21.0
		8	4	20.56	20.48	20.45	3.0	21.0
		8	7	20.60	20.46	20.48	3.0	21.0
		15	0	20.56	20.27	20.49	3.0	21.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665		
				1710.70 MHz	1745.00 MHz	1779.30 MHz		
1.4 MHz	QPSK	1	0	23.32	23.44	23.73	0.0	24.0
		1	3	23.24	23.27	23.54	0.0	24.0
		1	5	23.39	23.44	23.71	0.0	24.0
		3	0	23.47	23.50	23.61	0.0	24.0
		3	1	23.46	23.53	23.64	0.0	24.0
		3	3	23.45	23.29	23.67	0.0	24.0
		6	0	22.45	22.49	22.65	1.0	23.0
	16QAM	1	0	22.37	22.46	22.36	1.0	23.0
		1	3	22.60	22.56	22.50	1.0	23.0
		1	5	22.46	22.52	22.43	1.0	23.0
		3	0	22.57	22.33	22.73	1.0	23.0
		3	1	22.48	22.40	22.67	1.0	23.0
		3	3	22.52	22.38	22.67	1.0	23.0
		6	0	21.53	21.45	21.63	2.0	22.0
	64QAM	1	0	21.22	21.39	21.63	2.0	22.0
		1	3	21.48	21.26	21.52	2.0	22.0
		1	5	21.35	21.32	21.57	2.0	22.0
		3	0	21.41	21.52	21.52	2.0	22.0
		3	1	21.37	21.49	21.49	2.0	22.0
		3	3	21.30	21.45	21.50	2.0	22.0
		6	0	20.49	20.37	20.41	3.0	21.0

NR Band n41 (Antenna B, Main 2)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average PPOWER (dBm)				
					Measured Pwr (dBm)			MPR	Tune-up Limit
					509202	518598	528000		
					2546.01 MHz	2592.99 MHz	2640.00 MHz		
100 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.94	23.99	24.14	0.0	25.0
			1	137	24.08	24.27	24.18	0.0	25.0
			1	271	24.14	24.12	24.03	0.0	25.0
			135	0	23.44	23.50	23.77	0.5	24.5
			135	69	24.08	24.30	24.21	0.0	25.0
			135	138	23.46	23.83	23.38	0.5	24.5
			270	0	23.52	23.71	23.74	0.5	24.5
		QPSK	1	1	23.86	24.06	24.15	0.0	25.0
			1	137	23.97	**24.26**	24.12	0.0	25.0
			1	271	24.09	24.15	24.02	0.0	25.0
			135	0	22.90	23.01	23.29	1.0	24.0
			135	69	24.03	**24.28**	24.17	0.0	25.0
			135	138	22.98	23.34	22.75	1.0	24.0
			270	0	23.12	23.20	23.13	1.0	24.0
		16QAM	1	1	22.91	23.00	23.07	1.0	24.0
			1	137	23.07	23.17	23.04	1.0	24.0
			1	271	23.21	22.99	22.89	1.0	24.0
		64QAM	1	1	21.51	21.57	21.58	2.5	22.5
		256QAM	1	1	19.30	19.35	19.41	4.5	20.5
	CP-OFDM	QPSK	1	1	22.45	22.53	22.55	1.5	23.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					508200	518598	528996		
					2541.00 MHz	2592.99 MHz	2644.98 MHz		
90 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.00	24.03	24.18	0.0	25.0
			1	123	24.22	24.29	24.11	0.0	25.0
			1	243	24.20	24.19	24.11	0.0	25.0
			120	0	23.60	23.56	23.86	0.5	24.5
			120	63	24.25	24.32	24.16	0.0	25.0
			120	125	23.55	23.82	23.41	0.5	24.5
			243	0	23.76	23.75	23.68	0.5	24.5
		QPSK	1	1	24.05	24.11	24.23	0.0	25.0
			1	123	24.21	**24.32**	24.11	0.0	25.0
			1	243	24.25	24.29	24.12	0.0	25.0
			120	0	23.11	23.06	23.35	1.0	24.0
			120	63	24.28	**24.33**	24.17	0.0	25.0
			120	125	23.05	23.31	22.93	1.0	24.0
			243	0	23.23	23.25	23.18	1.0	24.0
		16QAM	1	1	23.14	23.10	23.36	1.0	24.0
		64QAM	1	1	21.50	21.51	21.71	2.5	22.5
		256QAM	1	1	19.49	19.48	19.73	4.5	20.5
	CP-OFDM	QPSK	1	1	22.52	22.50	22.70	1.5	23.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					507204	518598	529998		
					2536.02 MHz	2592.99 MHz	2649.99 MHz		
80 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.02	23.99	24.20	0.0	25.0
			1	109	24.28	24.28	24.04	0.0	25.0
			1	215	24.18	24.25	24.07	0.0	25.0
			108	0	23.61	23.60	23.80	0.5	24.5
			108	55	24.32	24.32	24.08	0.0	25.0
			108	109	23.59	23.79	23.44	0.5	24.5
			216	0	23.78	23.77	23.59	0.5	24.5
		QPSK	1	1	23.99	24.09	24.26	0.0	25.0
			1	109	24.19	**24.30**	24.04	0.0	25.0
			1	215	24.21	24.27	24.10	0.0	25.0
			108	0	23.12	23.09	23.32	1.0	24.0
			108	55	24.30	**24.34**	24.10	0.0	25.0
			108	109	23.09	23.34	22.95	1.0	24.0
			216	0	23.26	23.27	23.06	1.0	24.0
		16QAM	1	1	22.85	23.06	23.32	1.0	24.0
		64QAM	1	1	21.45	21.56	21.78	2.5	22.5
		256QAM	1	1	19.49	19.33	19.72	4.5	20.5
	CP-OFDM	QPSK	1	1	22.47	22.40	22.69	1.5	23.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					506202	518598	531000		
					2531.02 MHz	2592.99 MHz	2655.00 MHz		
70 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.96	23.93	24.29	0.0	25.0
			1	95	24.23	24.32	23.97	0.0	25.0
			1	188	24.01	24.26	24.02	0.0	25.0
			90	0	23.67	23.67	23.76	0.5	24.5
			90	50	24.26	24.37	24.00	0.0	25.0
			90	99	23.69	23.84	23.52	0.5	24.5
			180	0	23.72	23.81	23.55	0.5	24.5
		QPSK	1	1	23.99	24.00	24.36	0.0	25.0
			1	95	24.27	24.30	23.93	0.0	25.0
			1	188	24.06	24.31	24.08	0.0	25.0
			90	0	23.14	23.17	23.26	1.0	24.0
			90	50	24.27	24.35	23.99	0.0	25.0
			90	99	23.19	23.31	22.99	1.0	24.0
			180	0	23.21	23.29	23.02	1.0	24.0
		16QAM	1	1	22.87	22.96	23.23	1.0	24.0
		64QAM	1	1	21.45	21.37	21.72	2.5	22.5
		256QAM	1	1	19.51	19.36	19.78	4.5	20.5
	CP-OFDM	QPSK	1	1	22.51	22.49	22.79	1.5	23.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					505200	518598	513996		
					2526.00 MHz	2592.99 MHz	2659.98 MHz		
60 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.91	23.98	24.22	0.0	25.0
			1	81	24.20	24.41	24.01	0.0	25.0
			1	160	24.02	24.37	24.04	0.0	25.0
			81	0	23.64	23.72	23.64	0.5	24.5
			81	41	24.15	24.36	23.98	0.0	25.0
			81	81	23.72	23.84	23.55	0.5	24.5
			162	0	23.62	23.81	23.51	0.5	24.5
		QPSK	1	1	23.99	24.04	24.27	0.0	25.0
			1	81	24.21	**24.37**	23.95	0.0	25.0
			1	160	24.08	24.37	24.09	0.0	25.0
			81	0	23.14	23.20	23.13	1.0	24.0
			81	41	24.16	**24.34**	23.98	0.0	25.0
			81	81	23.24	23.34	23.04	1.0	24.0
			162	0	23.12	23.31	22.98	1.0	24.0
		16QAM	1	1	23.05	23.04	23.39	1.0	24.0
		64QAM	1	1	21.40	21.38	22.00	2.5	22.5
		256QAM	1	1	19.43	19.46	19.63	4.5	20.5
	CP-OFDM	QPSK	1	1	22.45	22.50	22.74	1.5	23.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					504204	518598	532998		
					2521.01 MHz	2592.99 MHz	2665.00 MHz		
50 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.97	24.01	24.15	0.0	25.0
			1	67	24.14	24.35	23.94	0.0	25.0
			1	131	24.15	24.38	24.14	0.0	25.0
			64	0	23.66	23.74	23.52	0.5	24.5
			64	35	24.17	24.36	23.96	0.0	25.0
			64	69	23.76	23.82	23.59	0.5	24.5
			128	0	23.63	23.83	23.43	0.5	24.5
		QPSK	1	1	24.07	24.11	24.18	0.0	25.0
			1	67	24.14	24.32	23.94	0.0	25.0
			1	131	24.19	**24.40**	24.16	0.0	25.0
			64	0	23.13	23.24	22.99	1.0	24.0
			64	35	24.17	**24.35**	23.99	0.0	25.0
			64	69	23.24	23.31	23.05	1.0	24.0
			128	0	23.13	23.30	22.95	1.0	24.0
		16QAM	1	1	23.02	23.06	23.35	1.0	24.0
		64QAM	1	1	21.48	21.57	21.63	2.5	22.5
		256QAM	1	1	19.69	19.52	19.75	4.5	20.5
	CP-OFDM	QPSK	1	1	22.51	22.57	22.69	1.5	23.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					503202	518598	534000		
					2516.01 MHz	2592.99 MHz	2670.00 MHz		
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.02	24.06	23.94	0.0	25.0
			1	53	24.21	24.40	24.02	0.0	25.0
			1	104	24.23	24.27	24.13	0.0	25.0
			50	0	23.69	23.80	23.43	0.5	24.5
			50	28	24.22	24.37	24.01	0.0	25.0
			50	56	23.66	23.83	23.60	0.5	24.5
			100	0	23.69	23.84	23.50	0.5	24.5
		QPSK	1	1	24.08	24.10	24.03	0.0	25.0
			1	53	24.22	24.31	24.05	0.0	25.0
			1	104	24.27	**24.31**	24.14	0.0	25.0
			50	0	23.17	23.29	22.94	1.0	24.0
			50	28	24.22	**24.38**	24.04	0.0	25.0
			50	56	23.16	23.30	23.11	1.0	24.0
			100	0	23.18	23.34	22.97	1.0	24.0
		16QAM	1	1	23.08	23.17	22.99	1.0	24.0
		64QAM	1	1	21.35	21.72	21.37	2.5	22.5
		256QAM	1	1	19.51	19.55	19.38	4.5	20.5
	CP-OFDM	QPSK	1	1	22.50	22.54	22.48	1.5	23.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					502200	518598	534996		
					2511.00 MHz	2592.99 MHz	2675.00 MHz		
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.06	24.17	23.85	0.0	25.0
			1	39	24.21	24.40	24.11	0.0	25.0
			1	76	24.06	24.32	24.14	0.0	25.0
			36	0	23.68	23.85	23.48	0.5	24.5
			36	21	24.22	24.40	24.09	0.0	25.0
			36	42	23.67	23.88	23.68	0.5	24.5
			75	0	23.70	23.88	23.59	0.5	24.5
		QPSK	1	1	24.14	24.24	23.90	0.0	25.0
			1	39	24.22	24.40	24.14	0.0	25.0
			1	76	24.16	24.32	24.17	0.0	25.0
			36	0	23.15	23.35	22.99	1.0	24.0
			36	21	24.22	24.40	24.09	0.0	25.0
			36	42	23.19	23.36	23.17	1.0	24.0
			75	0	23.20	23.36	23.04	1.0	24.0
		16QAM	1	1	23.10	23.31	22.99	1.0	24.0
		64QAM	1	1	21.71	21.64	21.48	2.5	22.5
		256QAM	1	1	19.67	19.60	19.34	4.5	20.5
	CP-OFDM	QPSK	1	1	22.54	22.73	22.40	1.5	23.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					501204	518598	535998		
					2506.02 MHz	2592.99 MHz	2679.99 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.11	24.27	23.96	0.0	25.0
			1	26	24.20	24.38	24.13	0.0	25.0
			1	49	24.12	24.32	24.15	0.0	25.0
			25	0	23.70	23.88	23.58	0.5	24.5
			25	13	24.22	24.39	24.17	0.0	25.0
			25	26	23.72	23.86	23.69	0.5	24.5
			50	0	23.72	23.89	23.62	0.5	24.5
		QPSK	1	1	24.14	24.31	24.07	0.0	25.0
			1	26	24.18	24.30	24.14	0.0	25.0
			1	49	24.18	24.27	24.20	0.0	25.0
			25	0	23.16	23.39	23.08	1.0	24.0
			25	13	24.21	24.40	24.18	0.0	25.0
			25	26	23.20	23.32	23.18	1.0	24.0
			50	0	23.17	23.36	23.15	1.0	24.0
		16QAM	1	1	23.21	23.36	22.84	1.0	24.0
		64QAM	1	1	21.59	21.86	21.37	2.5	22.5
		256QAM	1	1	19.64	19.72	19.58	4.5	20.5
	CP-OFDM	QPSK	1	1	22.61	22.77	22.46	1.5	23.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					500700	518598	536496		
					2503.50 MHz	2592.99 MHz	2682.48 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.06	24.30	24.06	0.0	25.0
			1	19	24.21	24.39	24.17	0.0	25.0
			1	36	24.20	24.30	24.12	0.0	25.0
			18	0	23.63	23.88	23.61	0.5	24.5
			18	10	24.21	24.38	24.17	0.0	25.0
			18	20	23.68	23.88	23.65	0.5	24.5
			36	0	23.69	23.89	23.68	0.5	24.5
		QPSK	1	1	24.08	24.32	24.11	0.0	25.0
			1	19	24.17	24.42	24.19	0.0	25.0
			1	36	24.17	24.38	24.21	0.0	25.0
			18	0	23.17	23.36	23.12	1.0	24.0
			18	10	24.18	24.38	24.17	0.0	25.0
			18	20	23.20	23.37	23.19	1.0	24.0
			36	0	23.18	23.36	23.15	1.0	24.0
		16QAM	1	1	23.22	23.30	23.05	1.0	24.0
		64QAM	1	1	21.57	21.69	21.61	2.5	22.5
		256QAM	1	1	19.62	19.73	19.45	4.5	20.5
	CP-OFDM	QPSK	1	1	22.54	22.84	22.56	1.5	23.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					500202	518598	537000		
					2501.01 MHz	2592.99 MHz	2685.00 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.08	24.28	24.08	0.0	25.0
			1	12	24.14	24.40	24.22	0.0	25.0
			1	22	24.04	24.28	24.10	0.0	25.0
			12	0	23.55	23.82	23.64	0.5	24.5
			12	6	24.11	24.36	24.18	0.0	25.0
			12	12	23.60	23.80	23.63	0.5	24.5
			24	0	23.59	23.82	23.63	0.5	24.5
		QPSK	1	1	24.10	24.38	24.10	0.0	25.0
			1	12	24.14	24.39	24.19	0.0	25.0
			1	22	24.13	24.34	24.14	0.0	25.0
			12	0	23.08	23.31	23.13	1.0	24.0
			12	6	24.12	24.34	24.16	0.0	25.0
			12	12	23.12	23.33	23.18	1.0	24.0
			24	0	23.07	23.33	23.16	1.0	24.0
		16QAM	1	1	22.92	23.22	23.32	1.0	24.0
		64QAM	1	1	21.64	21.85	21.48	2.5	22.5
		256QAM	1	1	19.59	19.67	19.75	4.5	20.5
	CP-OFDM	QPSK	1	1	22.52	22.84	22.60	1.5	23.5

NR Band n41 (Antenna E, Sub 2)

					Maximum Average PPOWER (dBm)				
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					509202	518598	528000		
					2546.01 MHz	2592.99 MHz	2640.00 MHz		
100 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.10	22.91	23.08	0.0	24.0
			1	137	23.02	23.14	23.12	0.0	24.0
			1	271	23.13	23.09	23.24	0.0	24.0
			135	0	22.59	22.47	22.54	0.5	23.5
			135	69	23.02	23.19	23.13	0.0	24.0
			135	138	22.57	22.60	22.47	0.5	23.5
			270	0	22.50	22.60	22.65	0.5	23.5
		QPSK	1	1	23.19	22.90	23.11	0.0	24.0
			1	137	23.02	23.10	23.03	0.0	24.0
			1	271	23.15	23.06	**23.19**	0.0	24.0
			135	0	22.05	21.97	22.04	1.0	23.0
			135	69	23.05	**23.19**	23.15	0.0	24.0
			135	138	22.06	22.08	21.96	1.0	23.0
			270	0	22.00	22.16	22.10	1.0	23.0
		16QAM	1	1	22.20	21.95	22.01	1.0	23.0
			1	137	22.02	22.29	21.99	1.0	23.0
			1	271	22.12	22.10	22.14	1.0	23.0
		64QAM	1	1	20.77	20.28	20.61	2.5	21.5
		256QAM	1	1	18.67	18.18	18.66	4.5	19.5
	CP-OFDM	QPSK	1	1	21.60	21.37	21.59	1.5	22.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					508200	518598	528996		
					2541.00 MHz	2592.99 MHz	2644.98 MHz		
90 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.23	22.86	23.01	0.0	24.0
			1	123	23.11	23.19	23.13	0.0	24.0
			1	243	23.23	23.14	23.24	0.0	24.0
			120	0	22.64	22.55	22.61	0.5	23.5
			120	63	23.15	23.22	23.15	0.0	24.0
			120	125	22.57	22.60	22.52	0.5	23.5
			243	0	22.62	22.65	22.66	0.5	23.5
		QPSK	1	1	23.21	23.01	23.10	0.0	24.0
			1	123	23.05	23.18	23.17	0.0	24.0
			1	243	23.20	23.16	**23.37**	0.0	24.0
			120	0	22.15	22.05	22.13	1.0	23.0
			120	63	23.16	**23.23**	23.17	0.0	24.0
			120	125	22.05	22.11	21.99	1.0	23.0
			243	0	22.11	22.14	22.16	1.0	23.0
		16QAM	1	1	22.22	21.88	22.11	1.0	23.0
		64QAM	1	1	20.76	20.65	20.56	2.5	21.5
		256QAM	1	1	18.70	18.34	18.56	4.5	19.5
	CP-OFDM	QPSK	1	1	21.82	21.44	21.51	1.5	22.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					507204	518598	529998		
					2536.02 MHz	2592.99 MHz	2649.99 MHz		
80 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.91	22.85	23.02	0.0	24.0
			1	109	22.91	23.15	23.08	0.0	24.0
			1	215	22.87	23.07	23.28	0.0	24.0
			108	0	22.45	22.54	22.66	0.5	23.5
			108	55	22.96	23.20	23.12	0.0	24.0
			108	109	22.28	22.58	22.56	0.5	23.5
			216	0	22.44	22.64	22.63	0.5	23.5
		QPSK	1	1	23.02	22.91	23.11	0.0	24.0
			1	109	22.93	23.15	23.07	0.0	24.0
			1	215	22.96	23.08	**23.27**	0.0	24.0
			108	0	22.03	22.08	22.16	1.0	23.0
			108	55	23.01	**23.23**	23.14	0.0	24.0
			108	109	21.87	22.09	22.09	1.0	23.0
			216	0	22.04	22.16	22.11	1.0	23.0
		16QAM	1	1	21.90	21.92	22.23	1.0	23.0
		64QAM	1	1	20.70	20.33	20.33	2.5	21.5
		256QAM	1	1	18.54	18.46	18.42	4.5	19.5
	CP-OFDM	QPSK	1	1	21.72	21.44	21.49	1.5	22.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					506202	518598	531000		
					2531.02 MHz	2592.99 MHz	2655.00 MHz		
70 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.81	22.63	22.80	0.0	24.0
			1	95	22.87	22.96	22.77	0.0	24.0
			1	188	22.72	22.81	23.00	0.0	24.0
			90	0	22.44	22.37	22.41	0.5	23.5
			90	50	22.89	22.99	22.83	0.0	24.0
			90	99	22.23	22.35	22.35	0.5	23.5
			180	0	22.35	22.45	22.33	0.5	23.5
		QPSK	1	1	22.90	22.66	22.85	0.0	24.0
			1	95	22.82	22.94	22.75	0.0	24.0
			1	188	22.70	22.84	22.99	0.0	24.0
			90	0	21.96	21.90	21.92	1.0	23.0
			90	50	22.91	22.99	22.84	0.0	24.0
			90	99	21.74	21.84	21.85	1.0	23.0
			180	0	21.85	21.96	21.81	1.0	23.0
		16QAM	1	1	21.90	21.60	21.89	1.0	23.0
		64QAM	1	1	20.68	20.04	20.36	2.5	21.5
		256QAM	1	1	18.41	18.13	18.23	4.5	19.5
	CP-OFDM	QPSK	1	1	21.49	21.18	21.34	1.5	22.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					505200	518598	513996		
					2526.00 MHz	2592.99 MHz	2659.98 MHz		
60 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.83	22.66	22.74	0.0	24.0
			1	81	22.88	23.01	22.76	0.0	24.0
			1	160	22.61	22.78	22.95	0.0	24.0
			81	0	22.46	22.40	22.34	0.5	23.5
			81	41	22.83	22.95	22.78	0.0	24.0
			81	81	22.33	22.35	22.35	0.5	23.5
			162	0	22.32	22.41	22.24	0.5	23.5
		QPSK	1	1	22.87	22.70	22.84	0.0	24.0
			1	81	22.83	**23.00**	22.74	0.0	24.0
			1	160	22.67	22.84	22.93	0.0	24.0
			81	0	21.97	21.88	21.84	1.0	23.0
			81	41	22.83	**23.00**	22.77	0.0	24.0
			81	81	21.84	21.83	21.86	1.0	23.0
			162	0	21.79	21.93	21.75	1.0	23.0
		16QAM	1	1	21.80	21.63	21.94	1.0	23.0
		64QAM	1	1	20.38	20.25	20.38	2.5	21.5
		256QAM	1	1	18.02	18.10	18.30	4.5	19.5
	CP-OFDM	QPSK	1	1	21.23	21.17	21.34	1.5	22.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					504204	518598	532998		
					2521.01 MHz	2592.99 MHz	2665.00 MHz		
50 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.86	22.70	22.76	0.0	24.0
			1	67	22.81	22.86	22.68	0.0	24.0
			1	131	22.74	22.79	22.95	0.0	24.0
			64	0	22.44	22.42	22.25	0.5	23.5
			64	35	22.87	22.94	22.78	0.0	24.0
			64	69	22.33	22.30	22.39	0.5	23.5
			128	0	22.35	22.43	22.22	0.5	23.5
		QPSK	1	1	22.88	22.75	22.88	0.0	24.0
			1	67	22.80	22.90	22.66	0.0	24.0
			1	131	22.75	22.81	**22.98**	0.0	24.0
			64	0	21.93	21.89	21.75	1.0	23.0
			64	35	22.88	**22.96**	22.75	0.0	24.0
			64	69	21.81	21.84	21.88	1.0	23.0
			128	0	21.84	21.90	21.71	1.0	23.0
		16QAM	1	1	21.97	21.78	21.79	1.0	23.0
		64QAM	1	1	20.52	20.37	20.49	2.5	21.5
		256QAM	1	1	18.22	18.16	18.18	4.5	19.5
	CP-OFDM	QPSK	1	1	21.41	21.26	21.28	1.5	22.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					503202	518598	534000		
					2516.01 MHz	2592.99 MHz	2670.00 MHz		
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.85	22.71	22.67	0.0	24.0
			1	53	22.89	22.99	22.78	0.0	24.0
			1	104	22.78	22.75	23.00	0.0	24.0
			50	0	22.41	22.41	22.19	0.5	23.5
			50	28	22.91	22.94	22.80	0.0	24.0
			50	56	22.28	22.33	22.43	0.5	23.5
			100	0	22.41	22.42	22.24	0.5	23.5
		QPSK	1	1	22.89	22.77	22.75	0.0	24.0
			1	53	22.84	22.86	22.81	0.0	24.0
			1	104	22.75	22.74	**22.97**	0.0	24.0
			50	0	21.90	21.90	21.67	1.0	23.0
			50	28	22.91	**22.96**	22.78	0.0	24.0
			50	56	21.79	21.82	21.93	1.0	23.0
			100	0	21.89	21.89	21.72	1.0	23.0
		16QAM	1	1	21.93	21.83	21.79	1.0	23.0
		64QAM	1	1	20.32	20.27	20.27	2.5	21.5
		256QAM	1	1	18.34	18.30	18.97	4.5	19.5
	CP-OFDM	QPSK	1	1	21.36	21.24	21.20	1.5	22.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					502200	518598	534996		
					2511.00 MHz	2592.99 MHz	2675.00 MHz		
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.84	22.80	22.59	0.0	24.0
			1	39	22.94	22.93	22.90	0.0	24.0
			1	76	22.70	22.77	22.98	0.0	24.0
			36	0	22.42	22.43	22.18	0.5	23.5
			36	21	22.96	22.95	22.86	0.0	24.0
			36	42	22.35	22.32	22.44	0.5	23.5
			75	0	22.43	22.43	22.33	0.5	23.5
		QPSK	1	1	22.91	22.84	22.65	0.0	24.0
			1	39	22.98	22.90	22.84	0.0	24.0
			1	76	22.77	22.77	23.00	0.0	24.0
			36	0	21.93	21.94	21.70	1.0	23.0
			36	21	22.95	22.95	22.85	0.0	24.0
			36	42	21.84	21.84	21.95	1.0	23.0
			75	0	21.93	21.92	21.79	1.0	23.0
		16QAM	1	1	21.91	21.93	21.56	1.0	23.0
		64QAM	1	1	20.54	20.60	20.23	2.5	21.5
		256QAM	1	1	18.44	18.48	18.17	4.5	19.5
	CP-OFDM	QPSK	1	1	21.37	21.35	21.19	1.5	22.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					501204	518598	535998		
					2506.02 MHz	2592.99 MHz	2679.99 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.92	22.84	22.69	0.0	24.0
			1	26	22.93	22.87	22.92	0.0	24.0
			1	49	22.84	22.79	22.98	0.0	24.0
			25	0	22.43	22.44	22.32	0.5	23.5
			25	13	22.97	22.94	22.93	0.0	24.0
			25	26	22.42	22.34	22.44	0.5	23.5
			50	0	22.42	22.41	22.41	0.5	23.5
		QPSK	1	1	22.97	22.91	22.72	0.0	24.0
			1	26	22.94	22.87	22.85	0.0	24.0
			1	49	22.84	22.80	23.00	0.0	24.0
			25	0	21.94	21.93	21.80	1.0	23.0
			25	13	22.94	22.93	22.96	0.0	24.0
			25	26	21.92	21.84	21.94	1.0	23.0
			50	0	21.91	21.92	21.89	1.0	23.0
		16QAM	1	1	21.90	21.94	21.68	1.0	23.0
		64QAM	1	1	20.45	20.50	20.32	2.5	21.5
		256QAM	1	1	18.39	18.26	18.32	4.5	19.5
	CP-OFDM	QPSK	1	1	21.41	21.41	21.29	1.5	22.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					500700	518598	536496		
					2503.50 MHz	2592.99 MHz	2682.48 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.85	22.87	22.77	0.0	24.0
			1	19	22.95	22.94	22.90	0.0	24.0
			1	36	22.93	22.84	22.97	0.0	24.0
			18	0	22.43	22.43	22.39	0.5	23.5
			18	10	22.92	22.91	22.92	0.0	24.0
			18	20	22.44	22.36	22.48	0.5	23.5
			36	0	22.43	22.42	22.47	0.5	23.5
		QPSK	1	1	22.92	22.97	22.79	0.0	24.0
			1	19	22.95	22.91	22.89	0.0	24.0
			1	36	22.92	22.85	22.96	0.0	24.0
			18	0	21.92	21.93	21.89	1.0	23.0
			18	10	22.95	22.93	22.93	0.0	24.0
			18	20	21.92	21.83	21.95	1.0	23.0
			36	0	21.92	21.92	21.90	1.0	23.0
		16QAM	1	1	21.83	21.75	21.85	1.0	23.0
		64QAM	1	1	20.53	20.39	20.31	2.5	21.5
		256QAM	1	1	18.35	18.48	18.33	4.5	19.5
	CP-OFDM	QPSK	1	1	21.33	21.47	21.26	1.5	22.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					500202	518598	537000		
					2501.01 MHz	2592.99 MHz	2685.00 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.80	22.88	22.86	0.0	24.0
			1	12	23.02	22.98	22.97	0.0	24.0
			1	22	22.93	22.87	22.96	0.0	24.0
			12	0	22.43	22.43	22.43	0.5	23.5
			12	6	22.96	22.92	22.95	0.0	24.0
			12	12	22.44	22.37	22.49	0.5	23.5
			24	0	22.45	22.42	22.47	0.5	23.5
		QPSK	1	1	22.93	22.98	22.91	0.0	24.0
			1	12	22.95	22.93	22.86	0.0	24.0
			1	22	22.94	22.85	22.94	0.0	24.0
			12	0	21.96	21.93	21.95	1.0	23.0
			12	6	22.95	22.95	22.94	0.0	24.0
			12	12	21.94	21.86	21.99	1.0	23.0
			24	0	21.93	21.91	21.95	1.0	23.0
		16QAM	1	1	22.04	22.20	21.86	1.0	23.0
		64QAM	1	1	20.46	20.75	20.28	2.5	21.5
		256QAM	1	1	18.16	18.21	18.55	4.5	19.5
	CP-OFDM	QPSK	1	1	21.45	21.46	21.43	1.5	22.5

8.2. PEAK TO AVERAGE RATIO

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v03r01;

The transmitter output was connected to either CMW500 Test Set or E7515B 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

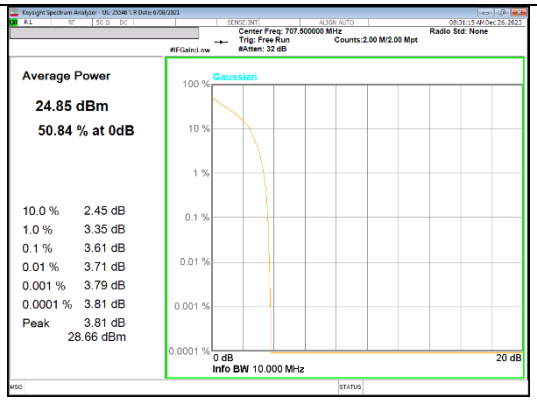
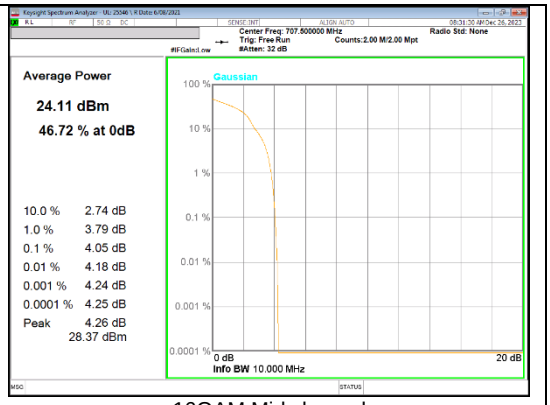
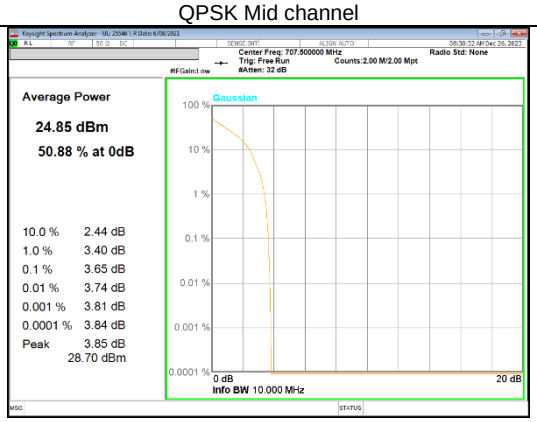
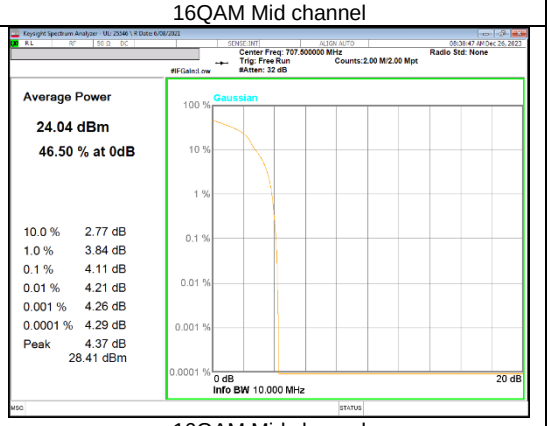
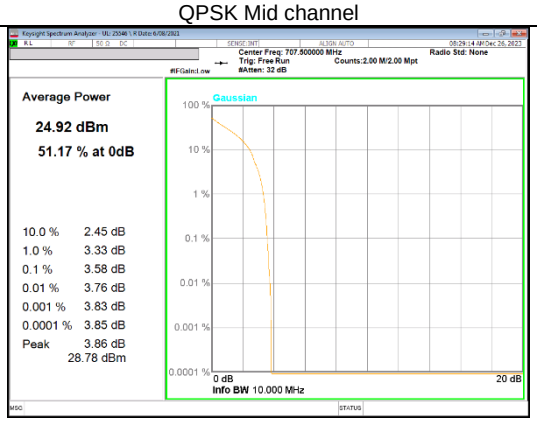
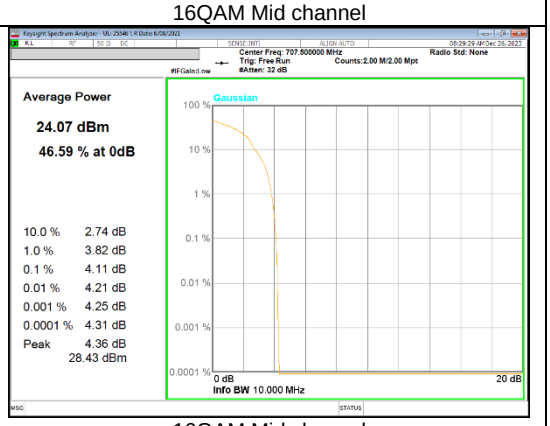
5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations (π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All Modes of operation were investigated and the worst case configuration results are reported in this section.

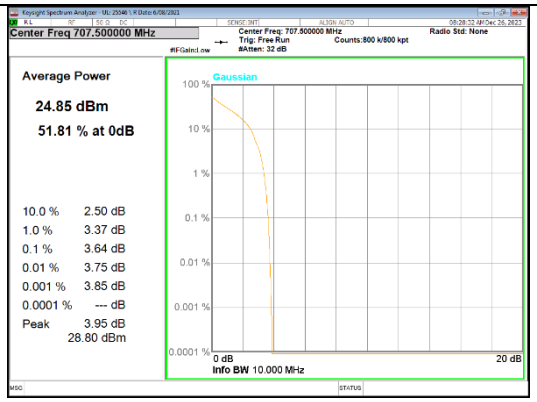
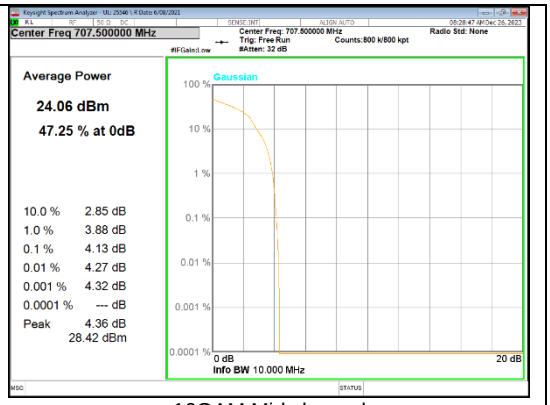
RESULTS

See the following pages.

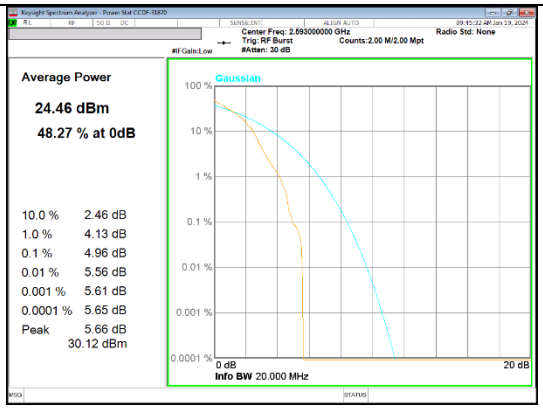
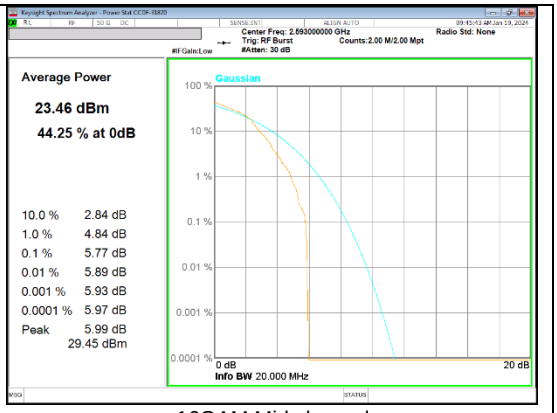
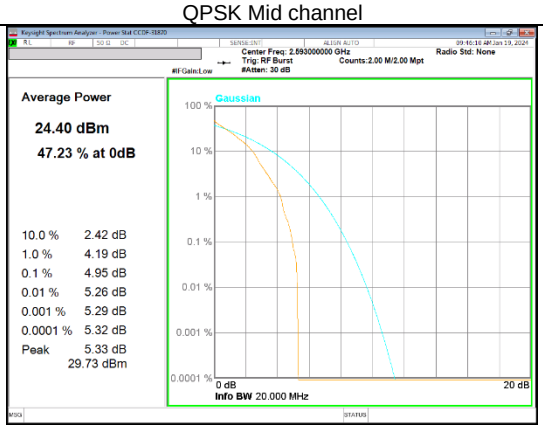
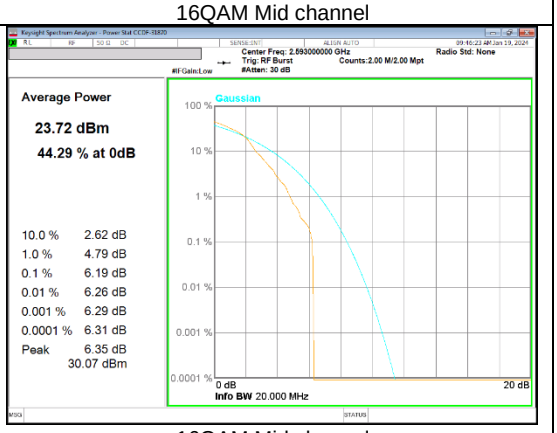
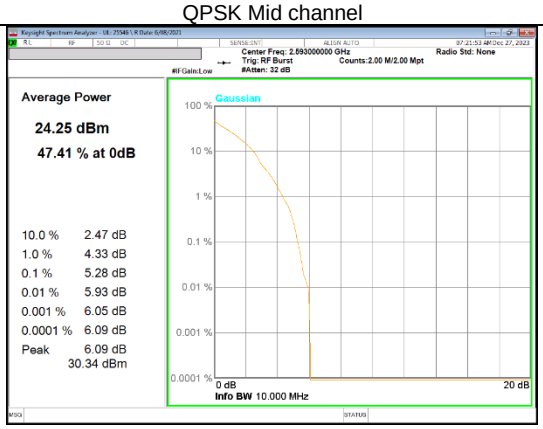
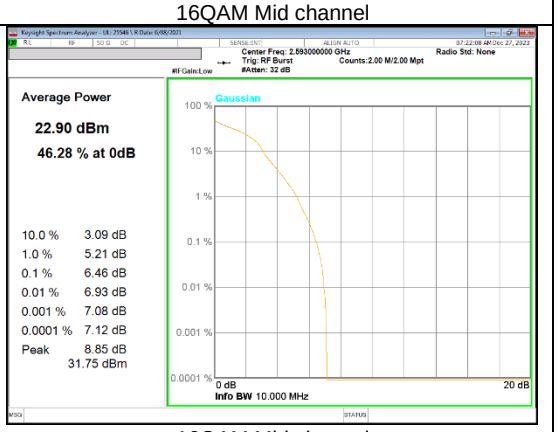
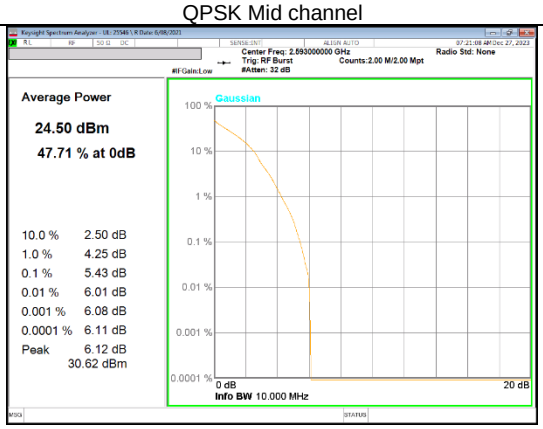
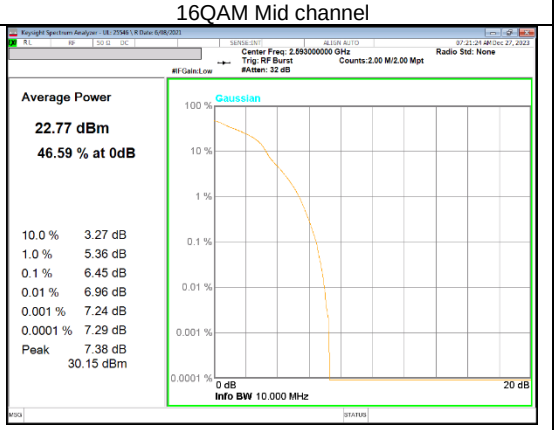
8.2.1. CONDUCTED PEAK TO AVERAGE RESULT

LTE Band 12

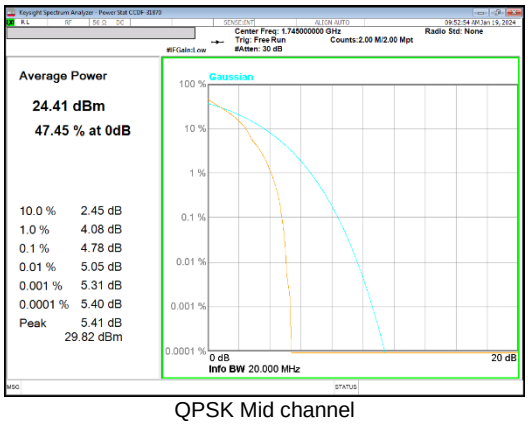
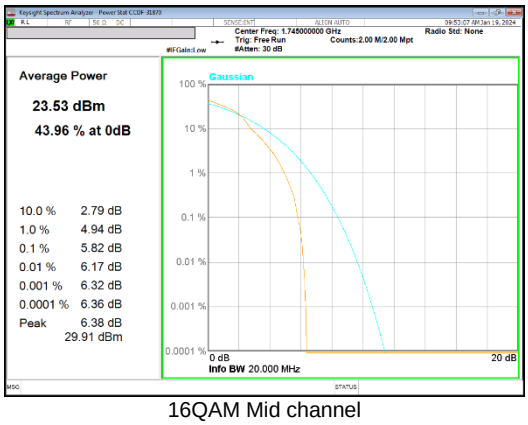
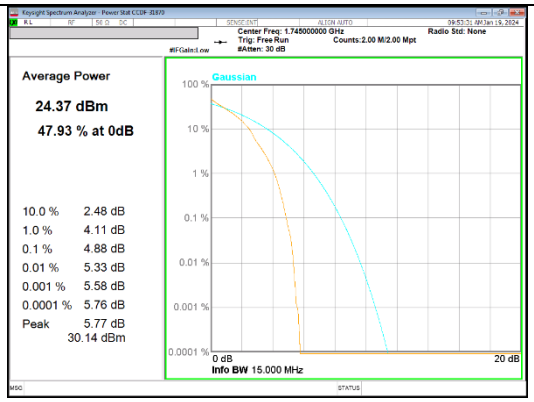
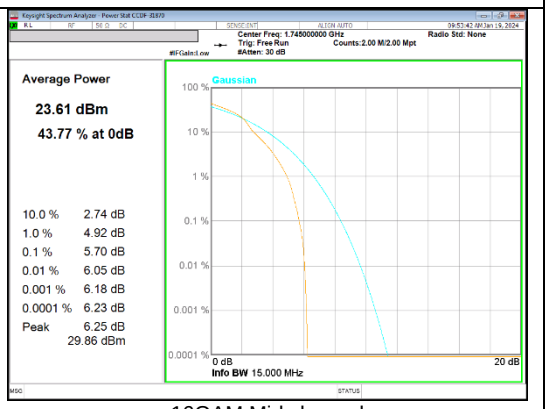
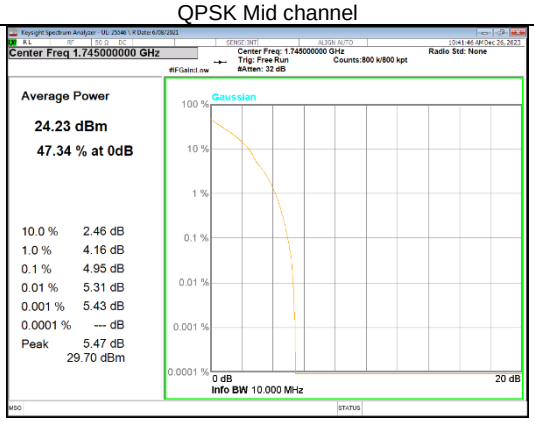
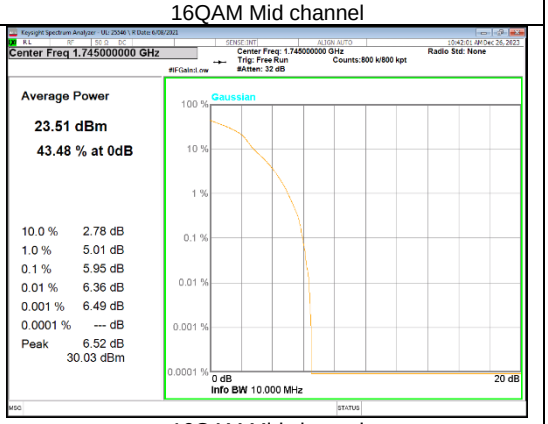
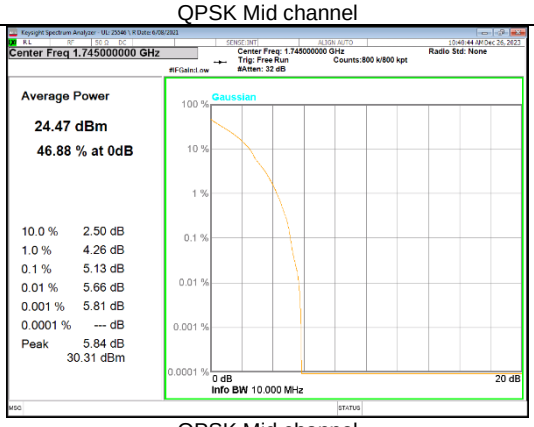
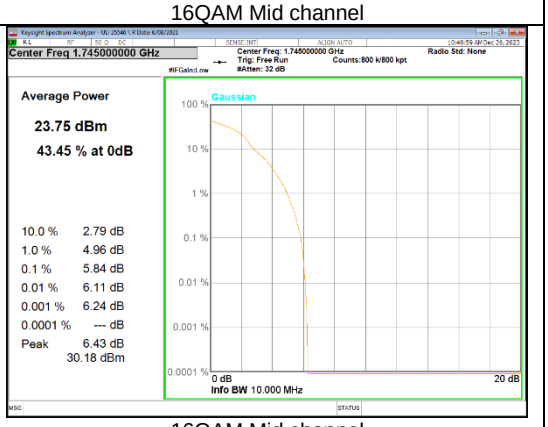
10 MHz	 QPSK Mid channel	 16QAM Mid channel
5 MHz	 QPSK Mid channel	 16QAM Mid channel
3 MHz	 QPSK Mid channel	 16QAM Mid channel

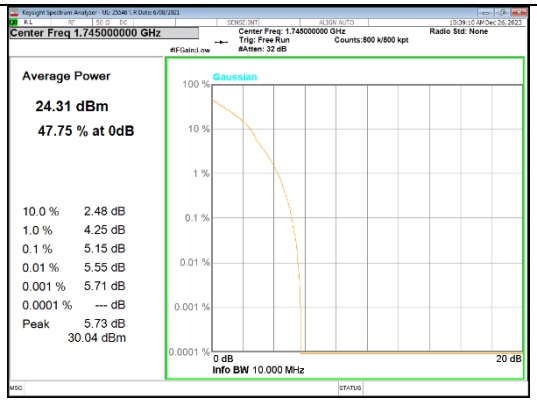
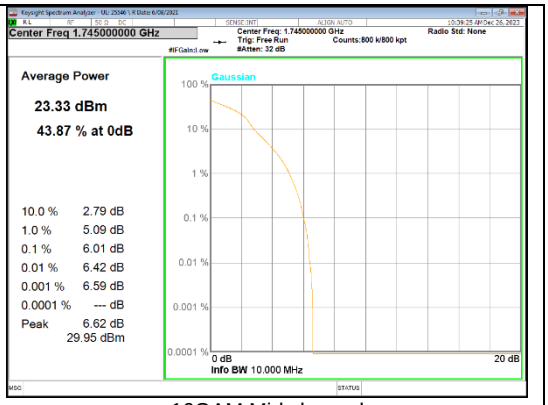
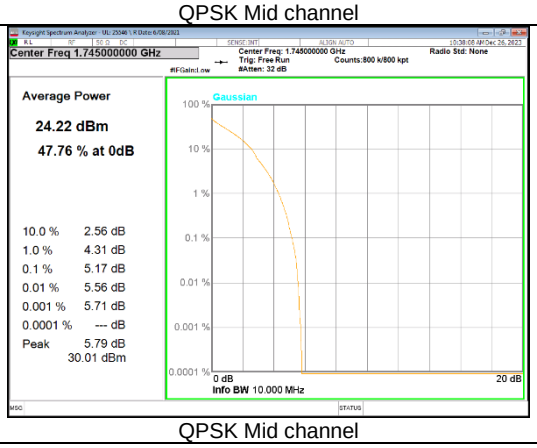
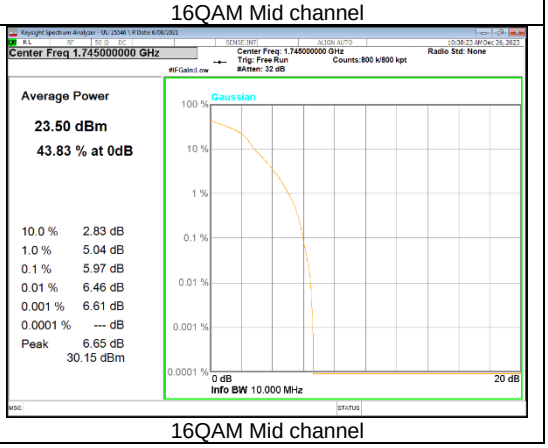
1.4 MHz		
	QPSK Mid channel	16QAM Mid channel

LTE Band 41

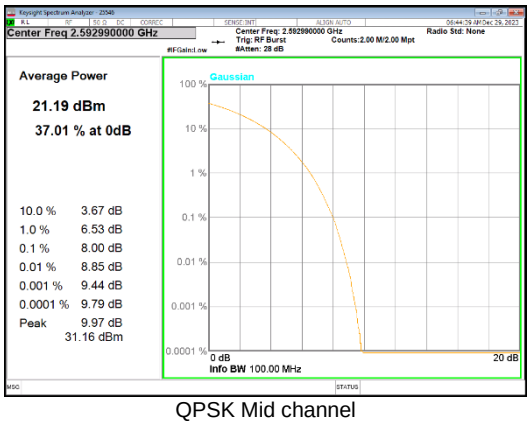
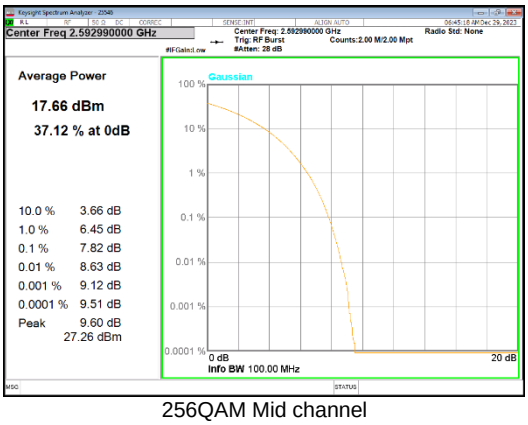
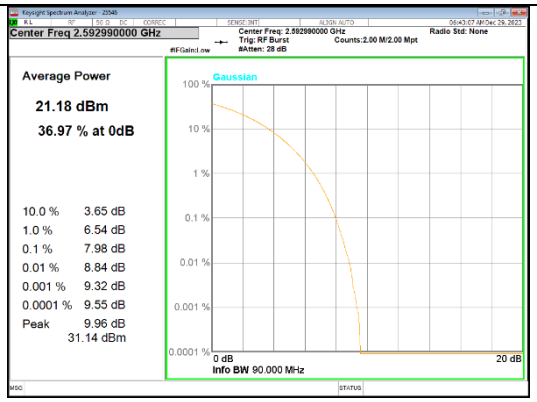
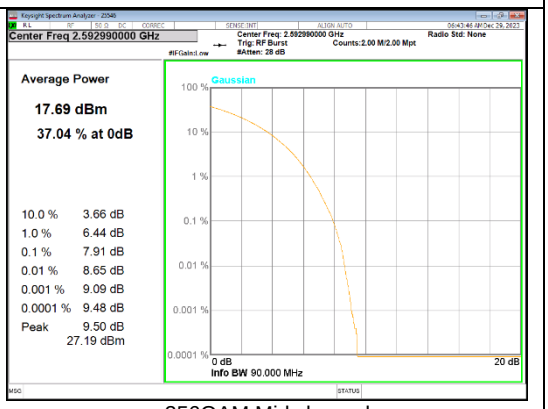
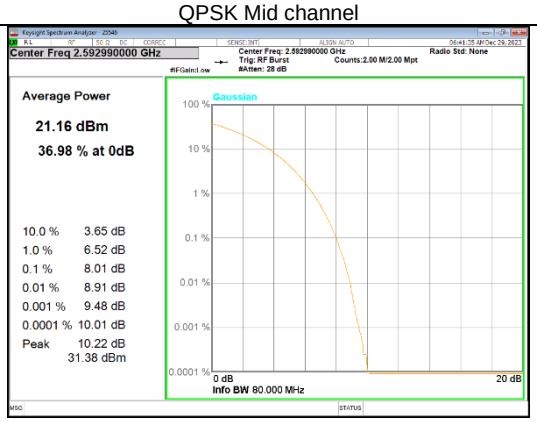
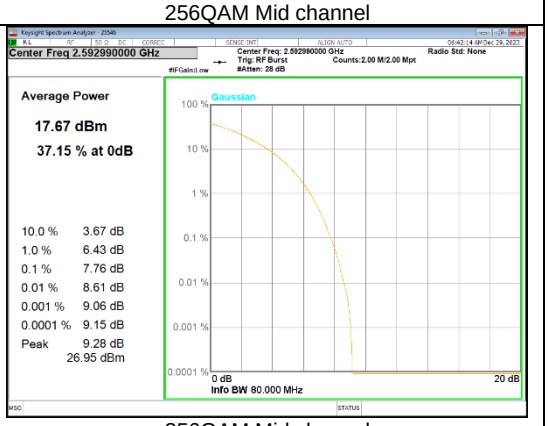
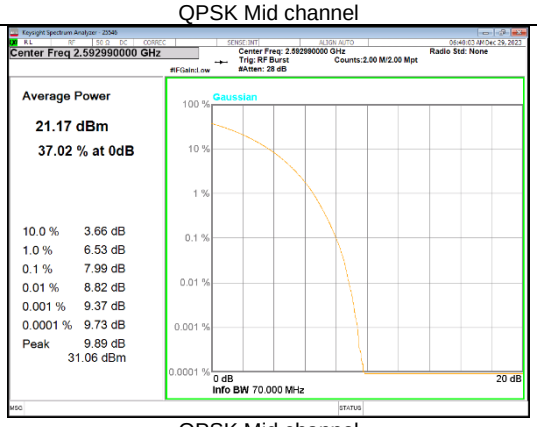
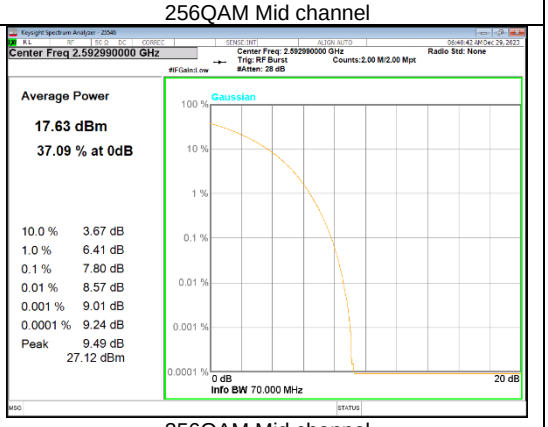
20 MHz	 QPSK Mid channel	 16QAM Mid channel
15 MHz	 QPSK Mid channel	 16QAM Mid channel
10 MHz	 QPSK Mid channel	 16QAM Mid channel
5 MHz	 QPSK Mid channel	 16QAM Mid channel

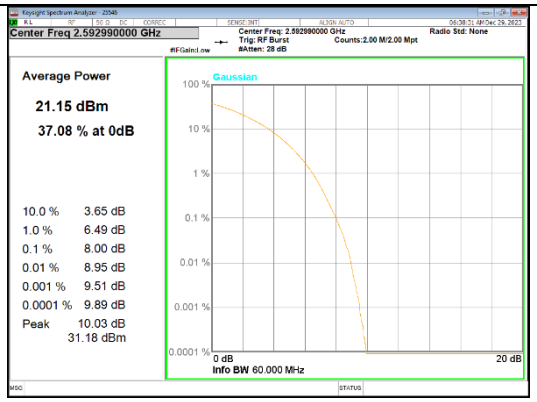
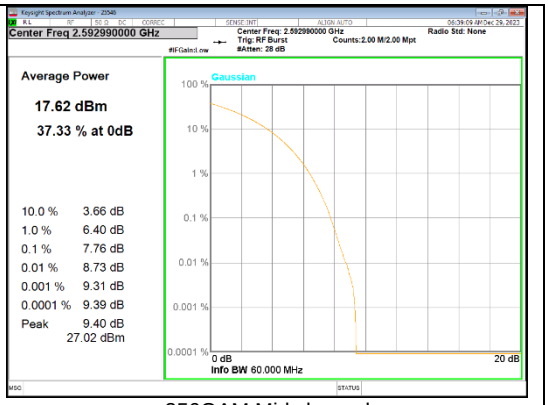
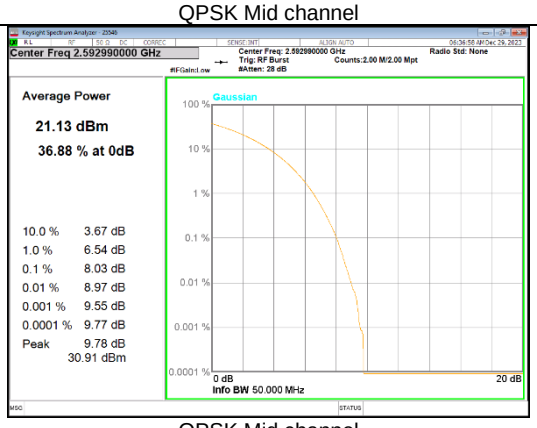
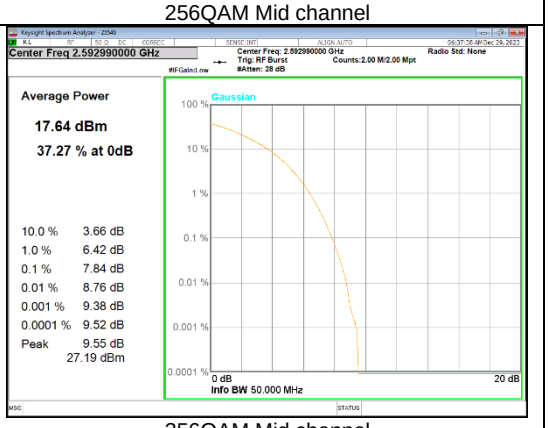
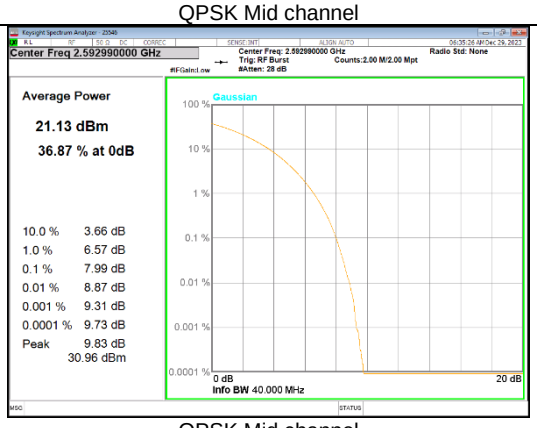
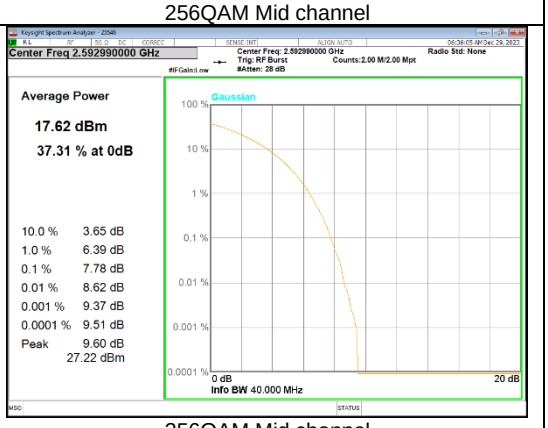
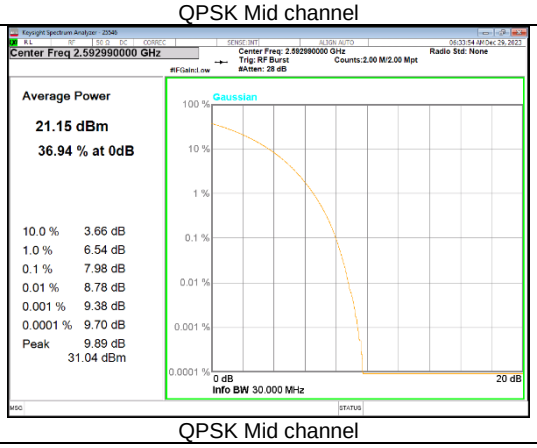
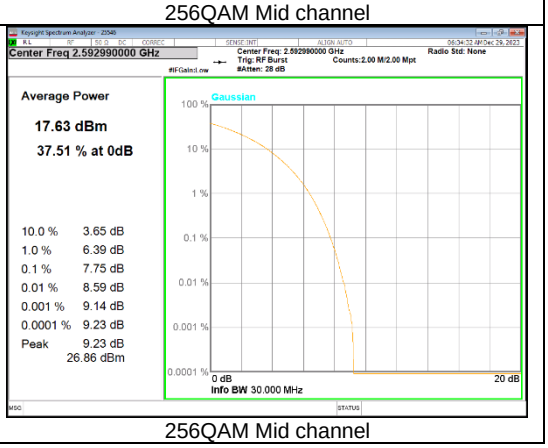
LTE Band 66

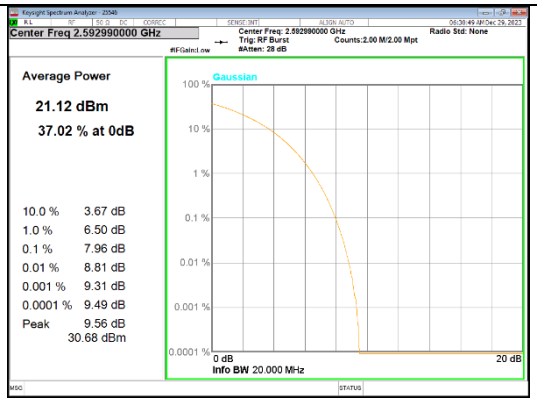
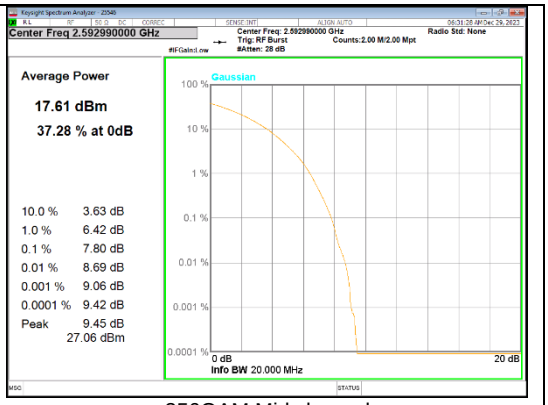
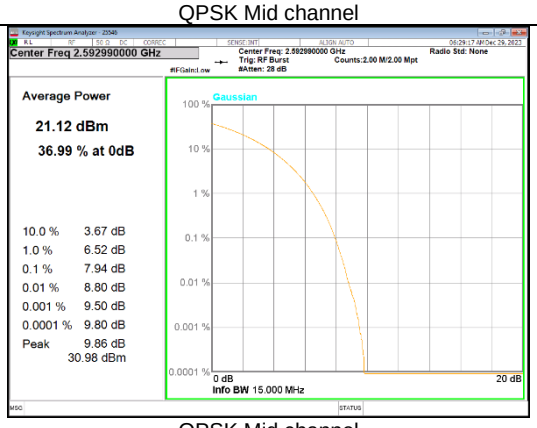
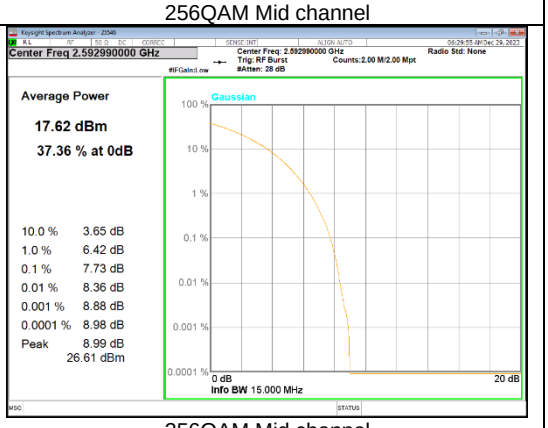
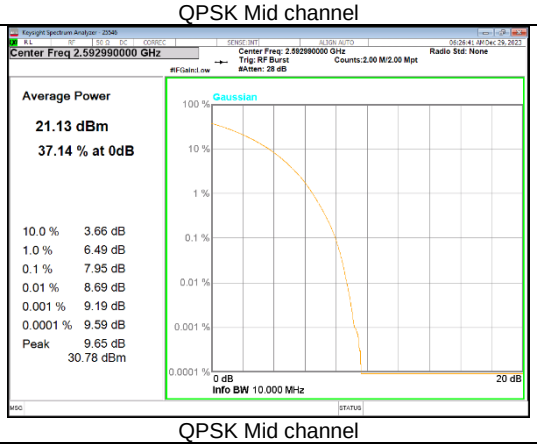
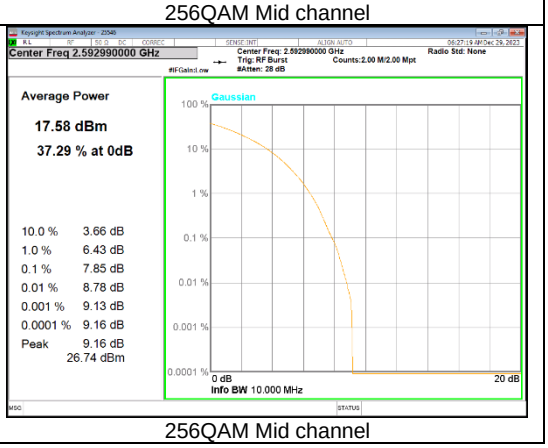
20 MHz	 QPSK Mid channel	 16QAM Mid channel
15 MHz	 QPSK Mid channel	 16QAM Mid channel
10 MHz	 QPSK Mid channel	 16QAM Mid channel
5 MHz	 QPSK Mid channel	 16QAM Mid channel

3 MHz	 QPSK Mid channel	 16QAM Mid channel
1.4 MHz	 QPSK Mid channel	 16QAM Mid channel

NR Band n41 CP-OFDM

100 MHz	 QPSK Mid channel	 256QAM Mid channel
90 MHz	 QPSK Mid channel	 256QAM Mid channel
80 MHz	 QPSK Mid channel	 256QAM Mid channel
70 MHz	 QPSK Mid channel	 256QAM Mid channel

60 MHz	 QPSK Mid channel	 256QAM Mid channel
50 MHz	 QPSK Mid channel	 256QAM Mid channel
40 MHz	 QPSK Mid channel	 256QAM Mid channel
30 MHz	 QPSK Mid channel	 256QAM Mid channel

20 MHz	 QPSK Mid channel	 256QAM Mid channel
15 MHz	 QPSK Mid channel	 256QAM Mid channel
10 MHz	 QPSK Mid channel	 256QAM Mid channel

8.3. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at middle channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v03r01)

RESULTS

See the following pages.

- **LTE Band 12**

Band	BW	Modulation	Frequency [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B12	10M	QPSK	707.5	8.973	10.23
		16QAM		8.961	10.19
	5M	QPSK		4.502	5.305
		16QAM		4.498	5.366
	3M	QPSK		2.704	3.077
		16QAM		2.709	3.120
	1.4M	QPSK		1.091	1.300
		16QAM		1.090	1.319

- **LTE Band 41**

Band	BW	Modulation	Frequency [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B41	20M	QPSK	2593.0	17.904	19.96
		16QAM		17.902	20.02
	15M	QPSK		13.424	15.16
		16QAM		13.451	15.02
	10M	QPSK		8.976	10.24
		16QAM		8.973	10.42
	5M	QPSK		4.504	5.255
		16QAM		4.506	5.285

- **LTE Band 66**

Band	BW	Modulation	Frequency [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B66	20M	QPSK	1745.0	17.883	19.93
		16QAM		17.903	19.77
	15M	QPSK		13.443	15.06
		16QAM		13.415	15.01
	10M	QPSK		8.999	10.29
		16QAM		8.995	10.20
	5M	QPSK		4.508	5.262
		16QAM		4.517	5.227
	3M	QPSK		2.697	3.088
		16QAM		2.704	3.098
	1.4M	QPSK		1.093	1.331
		16QAM		1.087	1.299

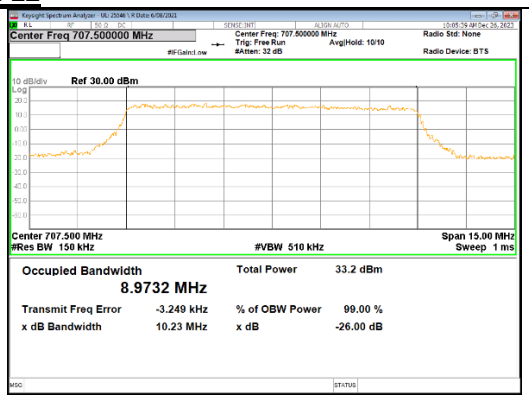
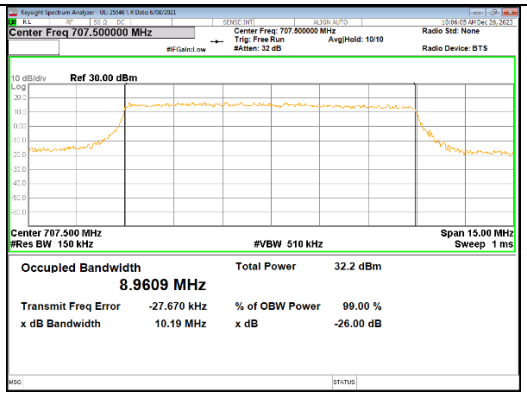
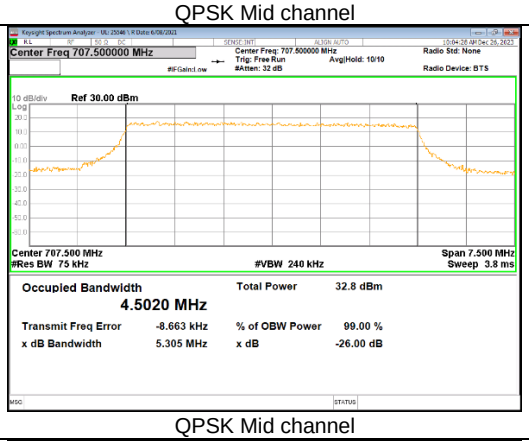
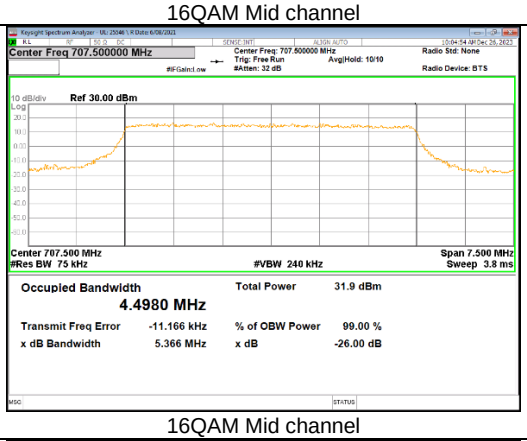
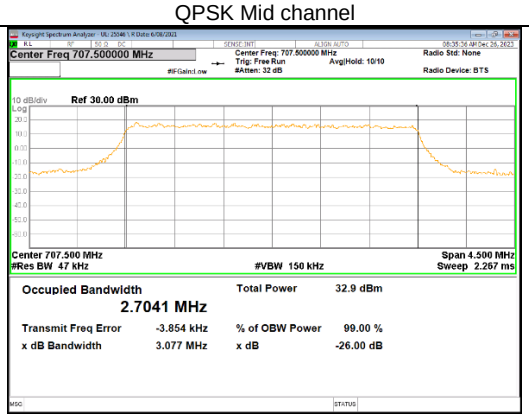
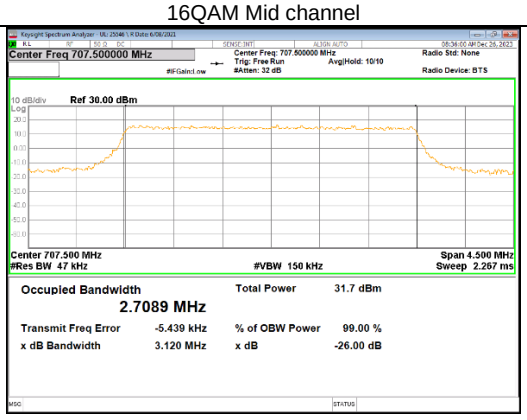
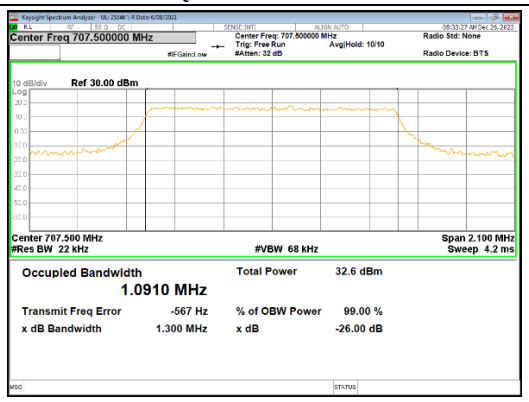
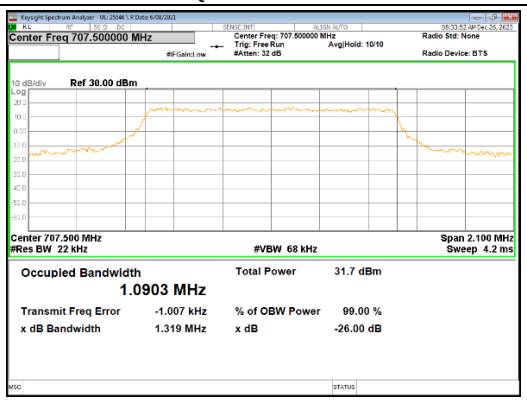
- **NR Band n41 CP-OFDM**

Band	BW	Modulation	Frequency [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n41	100M	QPSK	2592.99	97.306	102.2
		16QAM		97.480	103.0
	90M	QPSK		87.605	91.61
		16QAM		87.562	92.24
	80M	QPSK		77.609	81.55
		16QAM		77.407	82.95
	70M	QPSK		67.621	72.00
		16QAM		67.679	70.27
	60M	QPSK		57.883	62.11
		16QAM		57.843	62.19
	50M	QPSK		47.638	49.95
		16QAM		47.620	50.83
	40M	QPSK		37.836	40.47
		16QAM		37.926	41.00
	30M	QPSK		27.942	29.63
		16QAM		27.882	29.75
	20M	QPSK		18.228	19.64
		16QAM		18.256	19.51
	15M	QPSK		13.598	15.05
		16QAM		13.596	14.86
	10M	QPSK		8.613	9.974
		16QAM		8.611	9.991

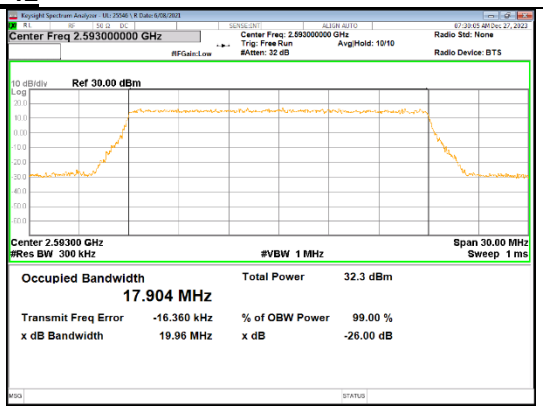
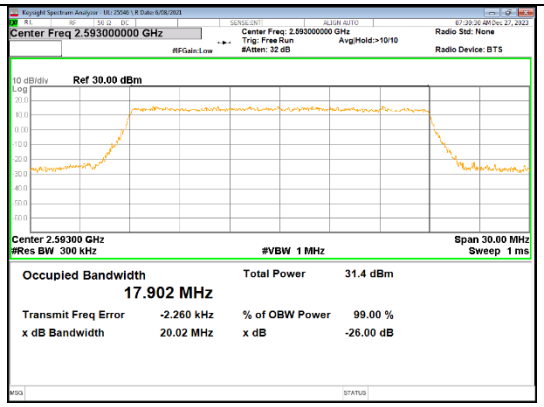
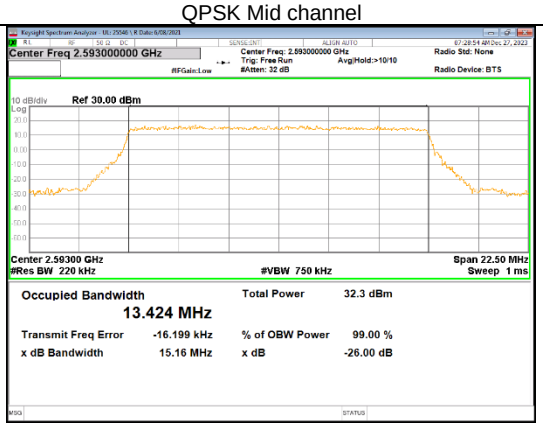
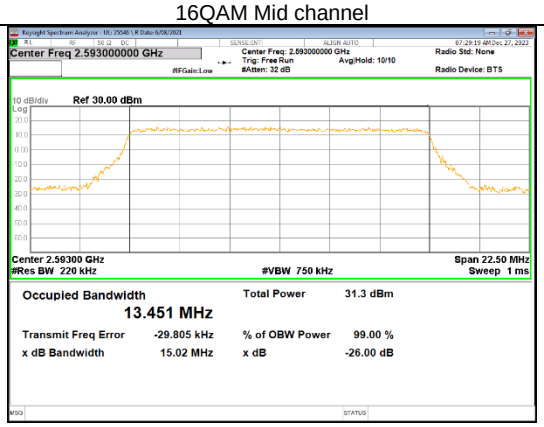
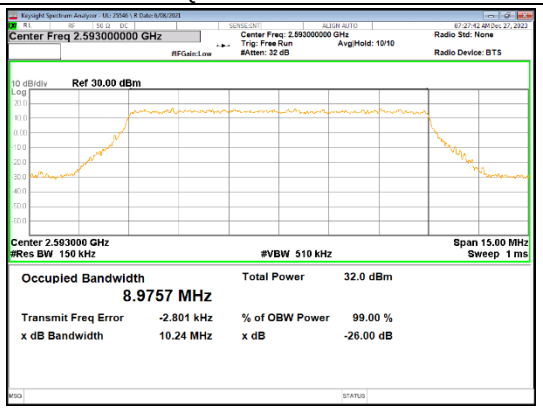
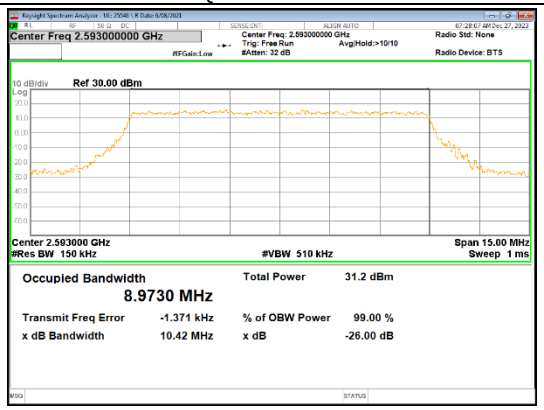
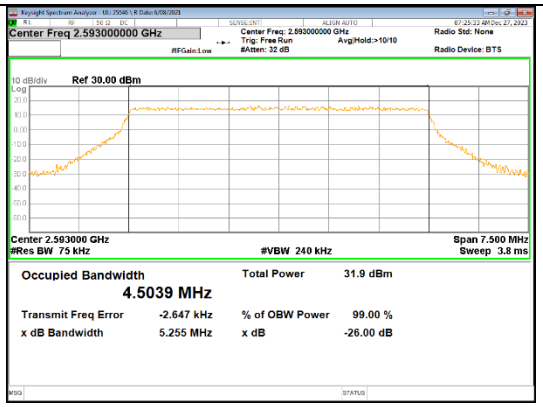
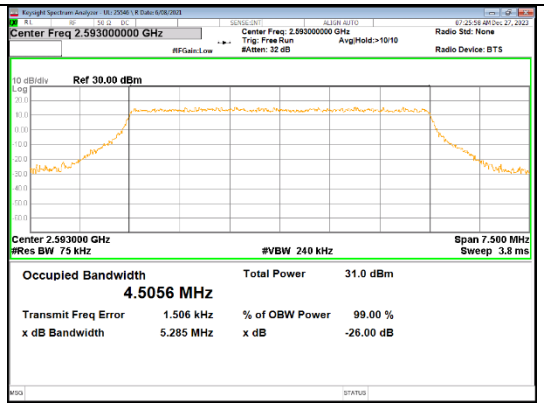
UL KOREA LTD. Suwon Laboratory FORM ID: FCC_27(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

8.3.1. OCCUPIED BANDWIDTH RESULTS

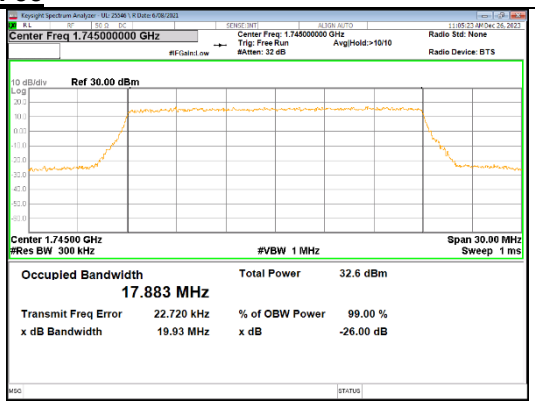
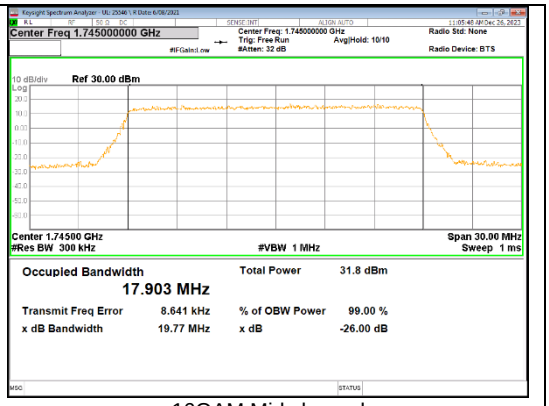
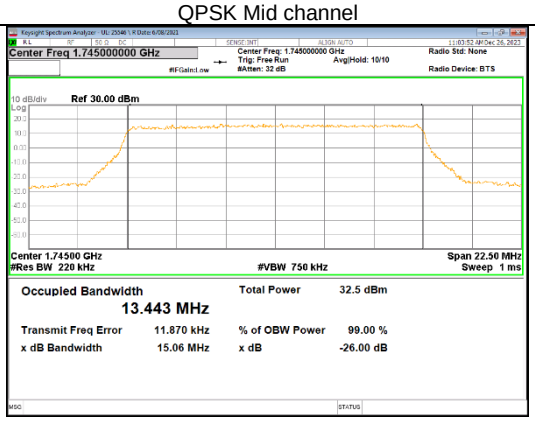
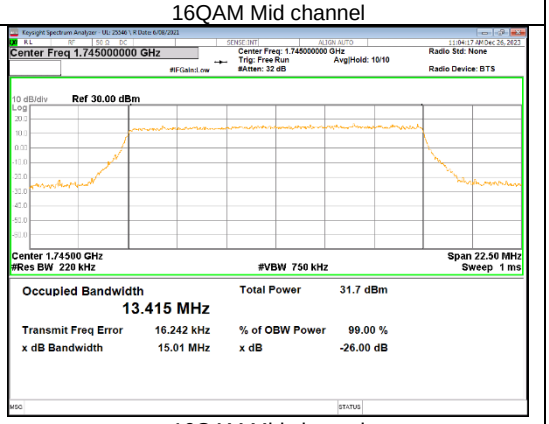
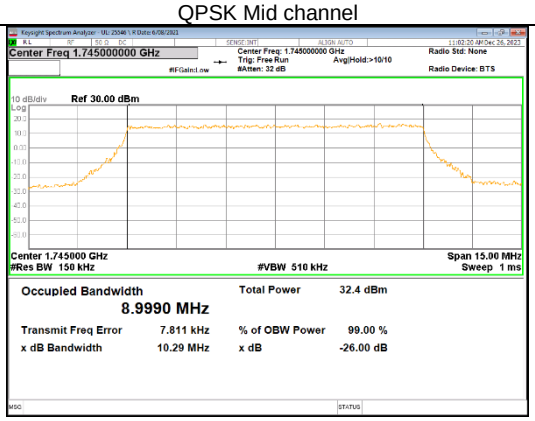
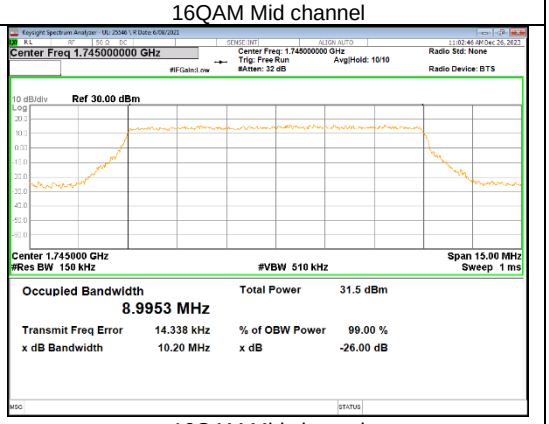
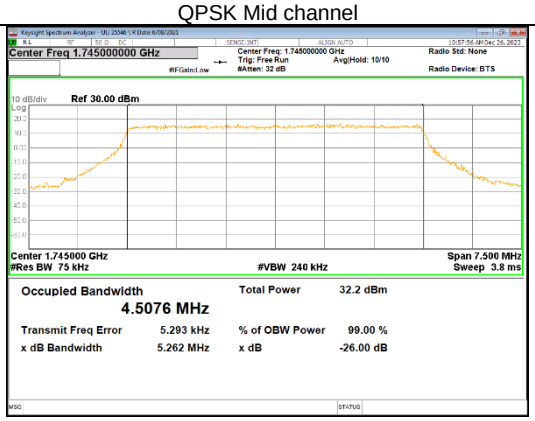
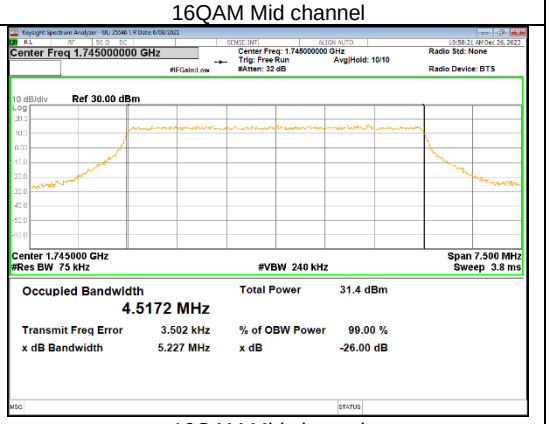
LTE Band 12

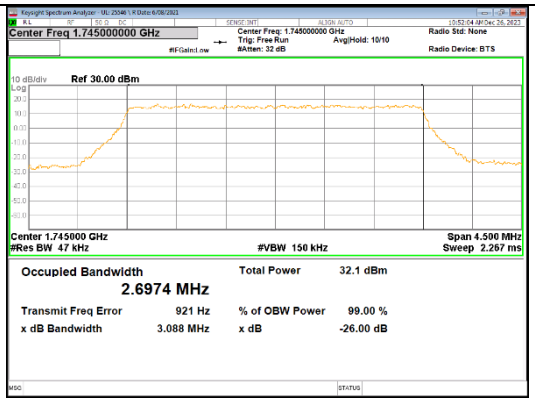
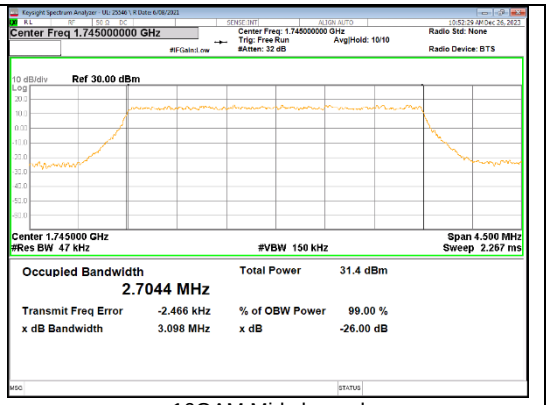
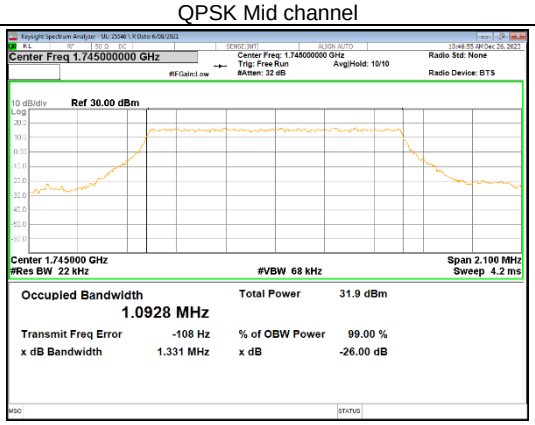
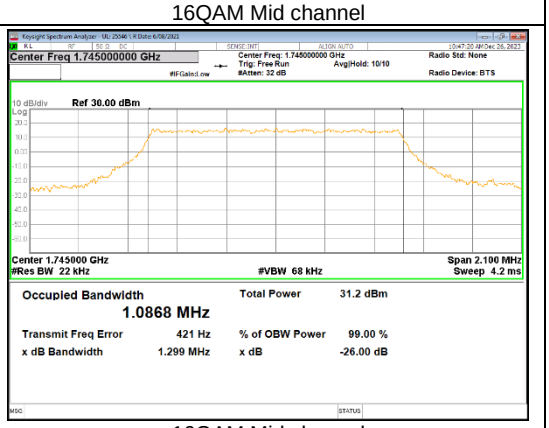
10MHz	 QPSK Mid channel	 16QAM Mid channel
5MHz	 QPSK Mid channel	 16QAM Mid channel
3MHz	 QPSK Mid channel	 16QAM Mid channel
1.4MHz	 QPSK Mid channel	 16QAM Mid channel

LTE Band 41

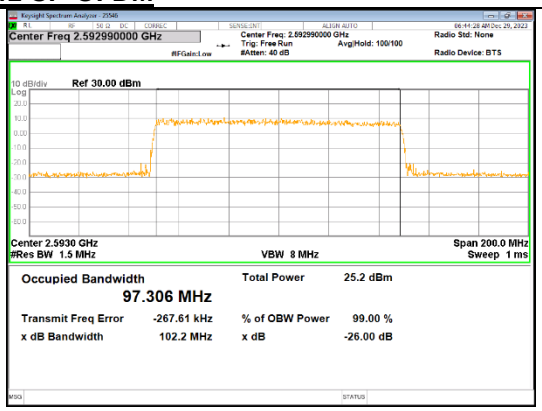
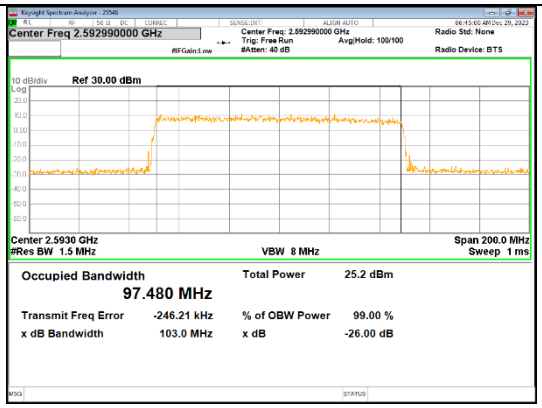
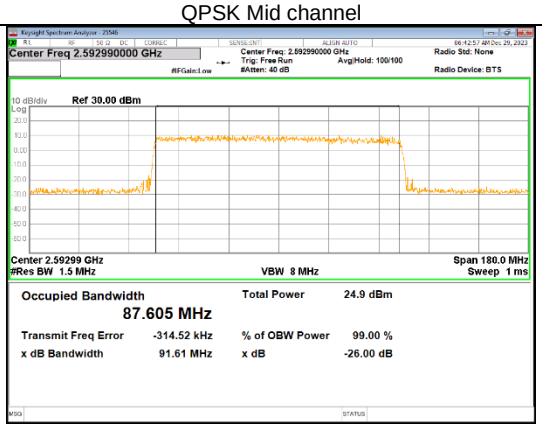
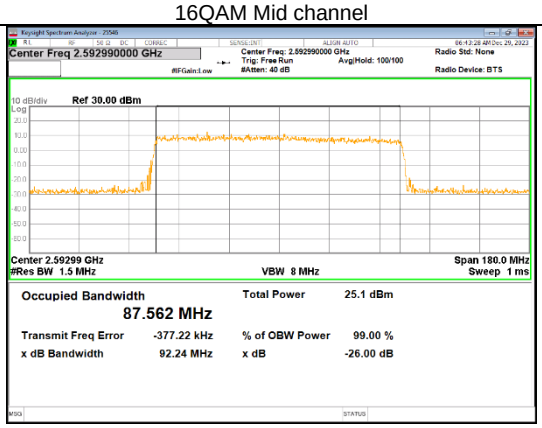
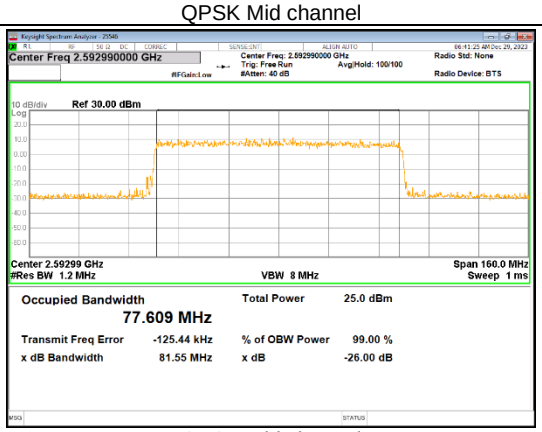
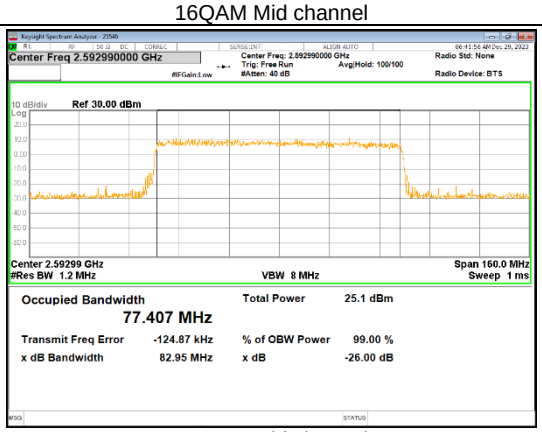
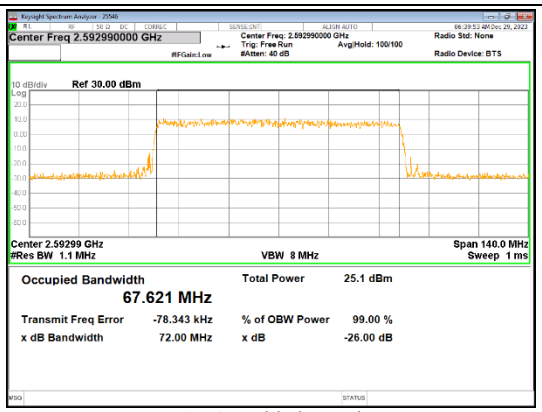
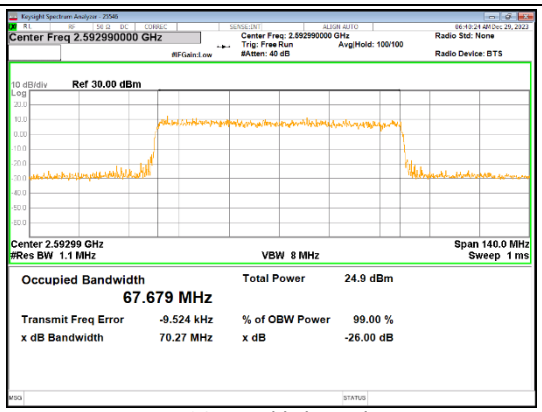
20MHz	 QPSK Mid channel	 16QAM Mid channel
15MHz	 QPSK Mid channel	 16QAM Mid channel
10MHz	 QPSK Mid channel	 16QAM Mid channel
5MHz	 QPSK Mid channel	 16QAM Mid channel

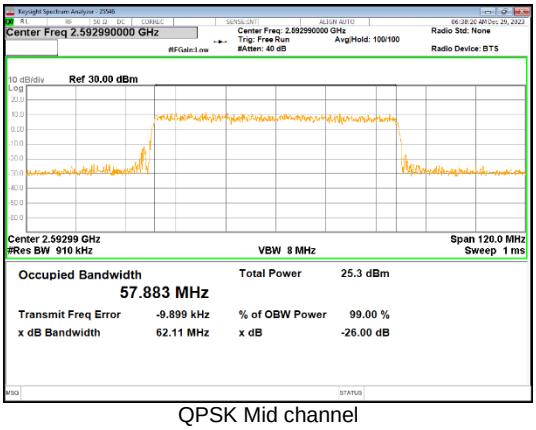
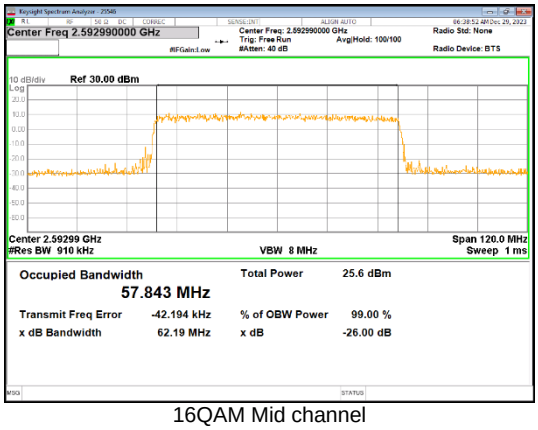
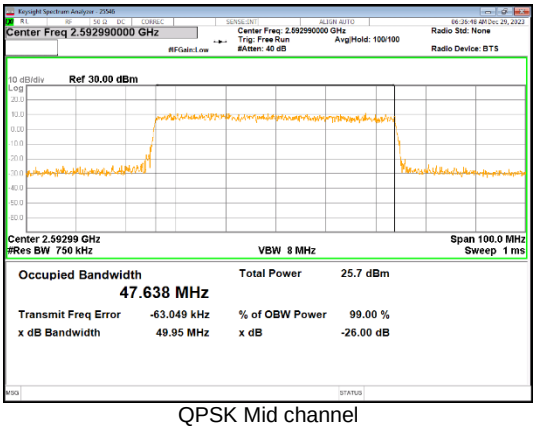
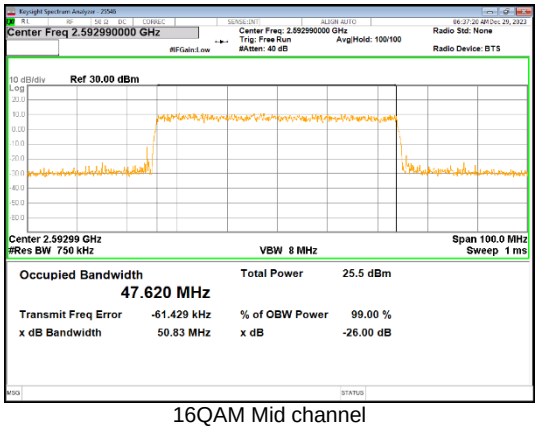
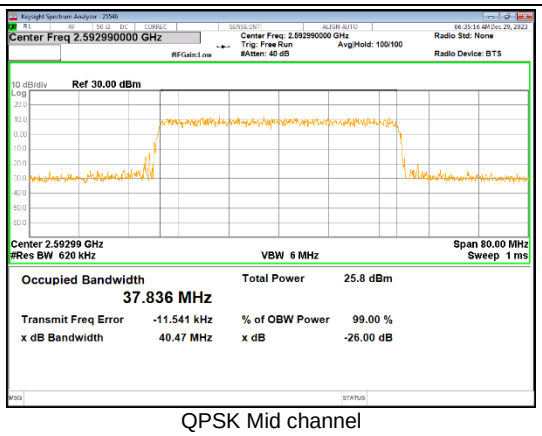
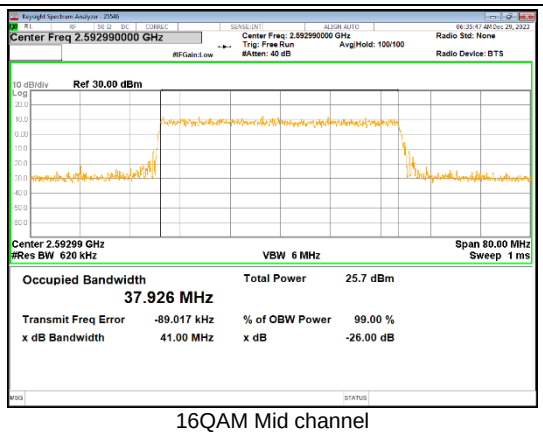
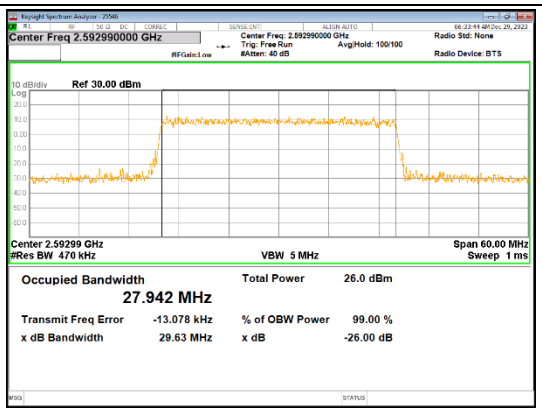
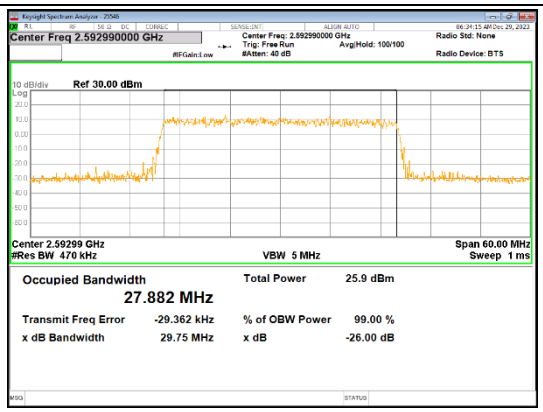
LTE Band 66

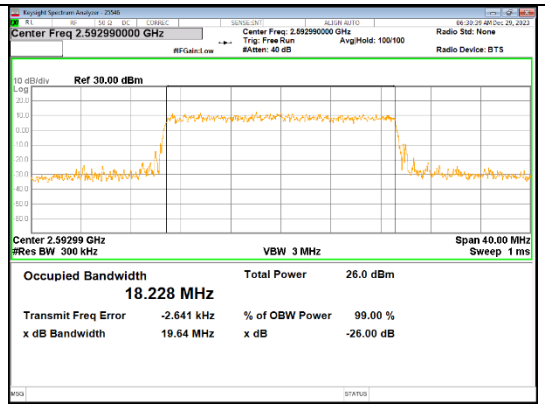
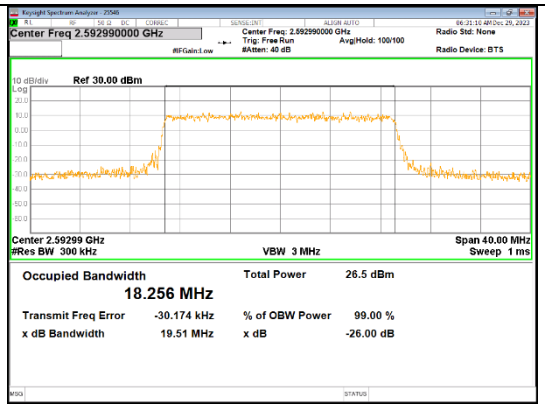
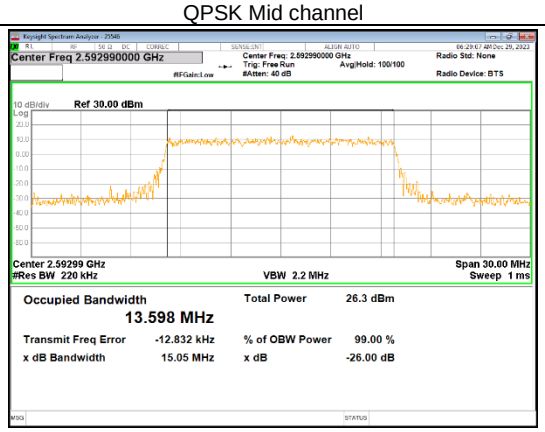
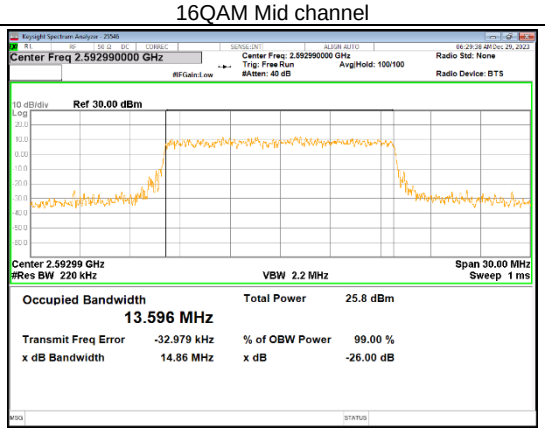
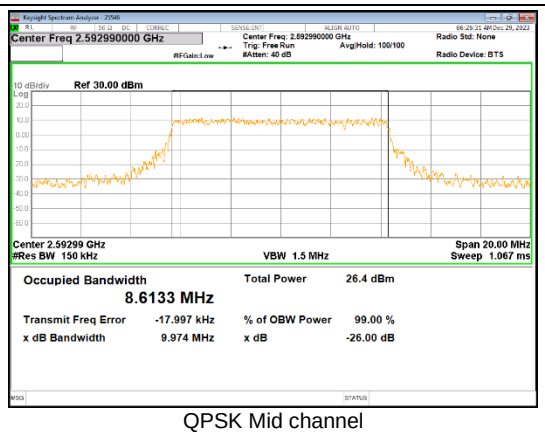
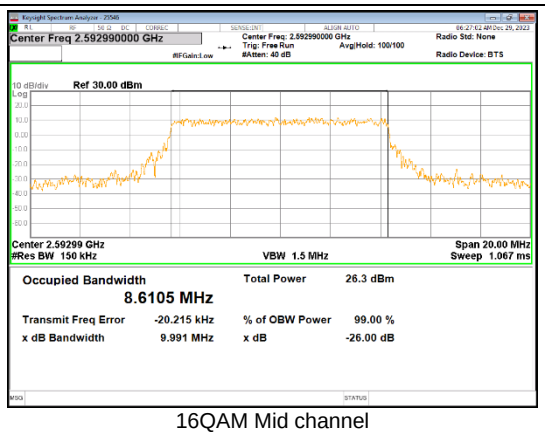
20MHz	 QPSK Mid channel	 16QAM Mid channel
15MHz	 QPSK Mid channel	 16QAM Mid channel
10MHz	 QPSK Mid channel	 16QAM Mid channel
5MHz	 QPSK Mid channel	 16QAM Mid channel

3MHz	 QPSK Mid channel	 16QAM Mid channel
1.4MHz	 QPSK Mid channel	 16QAM Mid channel

NR Band n41 CP-OFDM

100 MHz	 QPSK Mid channel	 16QAM Mid channel
90 MHz	 QPSK Mid channel	 16QAM Mid channel
80 MHz	 QPSK Mid channel	 16QAM Mid channel
70 MHz	 QPSK Mid channel	 16QAM Mid channel

60 MHz	 QPSK Mid channel	 16QAM Mid channel
50 MHz	 QPSK Mid channel	 16QAM Mid channel
40 MHz	 QPSK Mid channel	 16QAM Mid channel
30 MHz	 QPSK Mid channel	 16QAM Mid channel

20 MHz	 QPSK Mid channel	 16QAM Mid channel
15 MHz	 QPSK Mid channel	 16QAM Mid channel
10 MHz	 QPSK Mid channel	 16QAM Mid channel

8.4. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §27. 53

LIMITS

Part 27.53:

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.

(h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}$ (P) dB.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01
The transmitter output was connected to either CMW500 Test Set or E7515B Test set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

LTE/5G NR

a) Set the RBW = 1 - 1.5 % of OBW(Typically limited to a minimum RBW of 1% of the OBW)
b) Set VBW ≥ 3 × RBW;
c) Set span ≥ 1.5 times the OBW;
d) Sweep time = Auto;
e) Detector = RMS;
f) Ensure that the number of measurement points ≥ 2*Span/RBW;
g) Trace Mode = Average (100);

UL KOREA LTD. Suwon Laboratory FORM ID: FCC_27(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

NOTE1

Note that the spurious emissions outside of the channel include narrowband signals. These signals are all below the -13dBm / -25dBm limits. Although the measurement bandwidth is less than the reference bandwidth of 1MHz no addental correction is applied as ANSI C63.26 section 4.2.3 only requires the correction to be applied when the OBW of the emission being measured is wider than the measurement bandwidth (Where the OBW of the signal under measurement is less than the RBW of the measuring instrument, no bandwidth correction or integration will be required.) Plots for low and high channels show the level of the emission measured with the reduced bandwidth and the level of the same emission measured using the integration method over the 1MHz reference bandwidth are very close, indicating the emissions are narrowband.

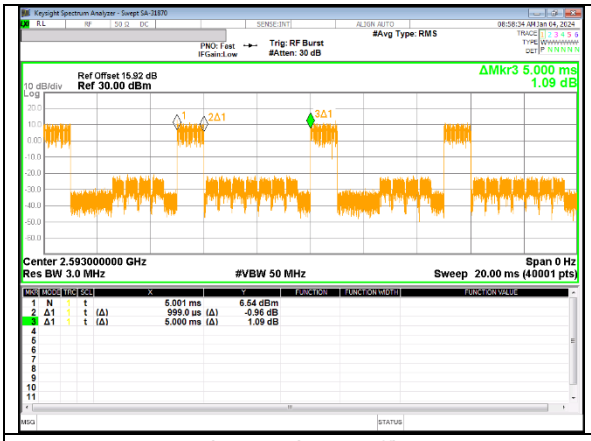
NOTE2

For Band-Edge extended:

CH BW (MHz)	RB Used (kHz)	CF for emissions more than 100kHz	CF for emissions more than 1MHz
1.4	15	+8.2 dB	+18.2 dB
3	30	+5.2 dB	+15.2 dB
5	51	+2.9 dB	+12.9 dB
10	100	N/A	+10.0 dB
15	150	N/A	+8.2 dB
20	200	N/A	+7.0 dB

For the band edge value measured in [RB Used], even if [CF for emissions reference bandwidth 100kHz/1MHz] is applied, it is below -13dBm.

NOTE3



For 5G NR n41 (Gate trigger off):
RF Path Loss: 15.928 dB & DCF 7 dB: 10log(1/5)
Measure offset: 15.92 dB+7 dB = **22.92 dB**

NOTE4

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations (π/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.