Product Name: Smart Phone	**Report No: FCC022023-00284RF6**
Product Model: N60Pro	**Security Classification: Open**
Version: V1.0	**Total Page: 224**

TIRT Testing Report

Prepared By:	**Checked By:**	**Approved By:**	
Stone Tang	Randy Lv	Daniel Chen	
Stone Tang	Randy LV	Daniel chen	

RF TEST REPORT

FCC ID: 2AX4YN60PRO

According to

FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 22 Subpart H
FCC CFR Title 47 Part 24 Subpart E
FCC CFR Title 47 Part 27
ANSI C63.26:2015

Equipment	:	Smart Phone
Model No.	:	N60Pro
Trademark	:	DOOGEE
Applicant	:	Shenzhen DOOGEE Hengtong Technology CO.,LTD B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China

- The test result referred exclusively to the presented test model /sample.
- Without written approval of TIRT Inc. the test report shall not reproduced except in full.
- Test date: 2023/02/01~2023/02/14

Lab: Beijing TIRT Technology Service Co.,Ltd Shenzhen

Add: 101, 3 # Factory Building, Gongjin Electronics Shatin Community, Kengzi Street, Pingshan District, Shenzhen, China

TEL: +86-0755-27087573

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History of this test report

Original Report Issue Date: 2023.02.17

● No additional attachment

○ Additional attachments were issued following record

Attachment No.	Issue Date	Description

1 Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Pass*(Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913(a) (5) Part 24.232 (c) Part 27.50 (d)(4) Part 27.50 (h)	Pass
Peak-To-Average Ratio	Part 2.1046 Part 22.913(d) Part 24.232 (d) Part 27.50(d)	Pass
Modulation Characteristics	Part 2.1047	N/A
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238 Part 27.53(a)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)/(m)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)/(m)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a) Part 27.53(h)/(m)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2)	Pass

Note: 1. Pass: The EUT complies with the essential requirements in the standard.

2. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.

2 General Information

2.1 General Description of EUT

Description of Device (EUT)

EUT Name	:	Smart Phone
Model No.	:	N60Pro
DIFF.	:	N/A
Power supply	:	DC 9V from adapter, DC 3.7V from battery
Support Bands	:	LTE Band 2/4/5/7/12/17/66
Channel Bandwidth	:	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
TX Frequency	:	LTE Band 2: 1850 ~ 1910 MHz LTE Band 4: 1710 ~ 1755 MHz LTE Band 5: 824 ~ 849 MHz LTE Band 7: 2500 ~ 2570 MHz LTE Band 12: 699MHz ~ 716MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Modulation type	:	QPSK, 16QAM
Antenna Type	:	Internal antenna, LTE Band 2: Maximum Gain is 0.68dBi. LTE Band 4: Maximum Gain is 0.59dBi. LTE Band 5: Maximum Gain is 0.15dBi. LTE Band 7: Maximum Gain is 0.98dBi. LTE Band 12: Maximum Gain is -0.08dBi. LTE Band 17: Maximum Gain is -0.08dBi. LTE Band 66: Maximum Gain is 0.59dBi. Antenna information is provided by applicant. There is WWAN diversity antenna inside the product, which is only for receiving function.
Software version	:	DOOGEE-N60Pro-EEA-Android12.0-20230220
Hardware version	:	TF978_MAIN_PCB_V1.0

Remark 1: The worst-case simultaneous transmission configuration was evaluated with no non-compliance found. Results in this report are only for 4G function, and there is no other transmitter involved.
2. The product contains two SIM card slots, both of which have been tested and only reflect the data of SIM card slot 1.

2.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22 subpart H and Part 24 subpart E of the FCC CFR 47 Rules.

2.3 Test Facility

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
Address:	101, 3 # Factory Building, Gongjin Electronics Shatin Community, Kengzi Street, Pingshan District, Shenzhen, China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Designation Number:	CN1309
Test Firm Registration Number:	825524
Telephone:	+86-0755-27087573

2.4 Accessories of Device (EUT)

Accessories : /

Manufacturer : /

Model : /

Ratings : /

2.5 Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification or SDoC
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2.6 Test Conditions

Items	Required	Actual
Temperature range:	15-35℃	24℃
Humidity range:	25-75%	56%
Pressure range:	86-106kPa	98kPa

2.7 Measurement Uncertainty

Uncertainty	
Parameter	Uncertainty
Occupied Channel Bandwidth	±142.12 KHz
RF power conducted	±0.74 dB
RF power radiated	±3.25dB
Spurious emissions, conducted	±1.78dB
Spurious emissions, radiated (9KHz~30MHz)	±2.56dB
Spurious emissions, radiated (30MHz～1GHz)	±4.6dB
Spurious emissions, radiated (Above 1GHz)	±4.9dB
Conduction Emissions(150kHz~30MHz)	±3.1 dB
Humidity	±4.6%
Temperature	±0.7°C
Time	±1.25%

3 Test Instruments list

No.	Equipment	Manufacturer	Type No.	Serial No.	Cal. date (yyyy/mm/dd)	Cal. Due date (yyyy/mm/dd)
1	EMI Receiver	Rohde&Schwarz	ESCI	100718	2022/11/09	2023/11/10
2	AMN	Rohde&Schwarz	ENV216	100075	2022/11/09	2023/11/10
3	AMN	Schwarzbeck	NSLK8127	#829	2022/11/09	2023/11/10
4	ECSI RF IN RF Cable	Rohde&Schwarz	RP-X1	\	2022/11/17	2023/11/16
5	ECSI RF IN RF Cable	Rohde&Schwarz	Sapre sm	\	2022/11/09	2023/11/10
6	EMI Receiver	Rohde&Schwarz	ESR7	102013	2022/11/09	2023/11/10
7	Spectrum analyzer	Rohde&Schwarz	FSV30	103741	2022/11/09	2023/11/10
8	Spectrum analyzer	KEYSIGHT	N9010A	MY51440158	2022/11/09	2023/11/10
9	Integral Antenna	Schwarzbeck	VULB 9163	9163-868	2022/12/25	2023/12/24
10	Integral Antenna	Schwarzbeck	BBHA 9120D	BBHA 9120D 1201	2022/11/09	2023/11/10
11	Integral Antenna	Schwarzbeck	BBHA 9170	9170#685	2022/11/06	2023/11/10
12	Preamplifier	CD Systems Inc	PAP-03036-30	85060000	2022/11/09	2023/11/10
13	Preamplifier	Schwarzbeck	BBV9721	9721-019	2022/11/09	2023/11/10
14	Preamplifier	emci	EMC012645 SE	980417	2022/11/09	2023/11/10
15	ECSI RF IN RF Cable	Rohde&Schwarz	AP-X1	\	2022/11/09	2023/11/10
16	Spectrum Analyzer	Agilent	N9010A	MY52221119	2022/11/09	2023/11/10
17	Power Collection Unit	Tonscend	JS0806-2	188060134	2022/09/12	2023/09/11
18	Tonscend Test System	Tonscend	2.6.77.0518	NA	NA	NA
19	Power Sensor	Agilent	U2021XA	MY55410011	2022/09/12	2023/09/11
20	Power Sensor	Agilent	U2021XA	MY55410012	2022/09/12	2023/09/11
21	Power Sensor	Agilent	U2021XA	MY55410018	2022/09/12	2023/09/11
22	Power Sensor	Agilent	U2021XA	MY55410019	2022/09/12	2023/09/11
23	Temp&Humidity Recorder	Anymetre	JR900	NA	2022/11/03	2023/11/02
24	Temp&Humidity Chamber	ETOMA	NTH1100-30A	16080628	2022/09/01	2023/08/30

4 System test configuration

4.1 Test mode

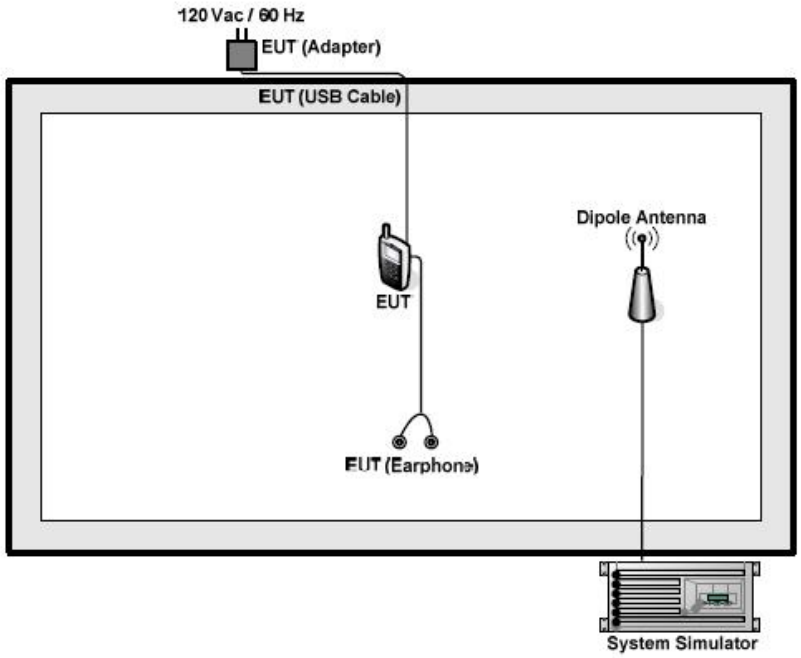
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Test modes		
Band	Radiated	Conducted
LTE Band 2	■ QPSK link, 16QAM link	■ QPSK link, 16QAM link
LTE Band 4	■ QPSK link, 16QAM link	■ QPSK link, 16QAM link
LTE Band 5	■ QPSK link, 16QAM link	■ QPSK link, 16QAM link
LTE Band 7	■ QPSK link, 16QAM link	■ QPSK link, 16QAM link
LTE Band 12	■ QPSK link, 16QAM link	■ QPSK link, 16QAM link
LTE Band 17	■ QPSK link, 16QAM link	■ QPSK link, 16QAM link
LTE Band 66	■ QPSK link, 16QAM link	■ QPSK link, 16QAM link

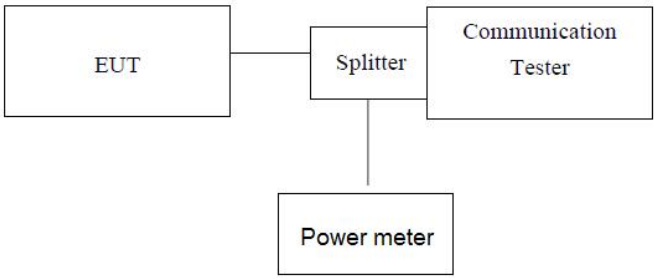
Note: Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas License Digital Systems v03r1 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

4.2 Configuration of Tested System



4.3 Conducted Output Power

Test Requirement:	FCC part22.913(a) (5), FCC part24.232(b) and FCC Part 27.50 (d)(4)/(h)
Test Method:	ANSI C63.26:2015
Limit:	LTE Band 2: 2W LTE Band 4: 1W LTE Band 5: 7W LTE Band 7: 2W LTE Band 12: 3W LTE Band 17: 1W LTE Band 66: 1W
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The transmitter output port was connected to base station. 2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement. 3. Set EUT at maximum power through base station. 4. Select lowest, middle, and highest channels for each band and different modulation. 5. Measure the maximum burst average power.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

Measurement Data

LTE Band2

BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
1.4	1850.7	1	0	24.11	22.54
		1	3	22.26	23.86
		1	5	23.94	22.49
		3	0	23.30	24.07
		3	2	22.62	22.93
		3	3	23.91	22.66
		6	0	22.39	22.87
	1880.0	1	0	24.20	22.85
		1	3	23.54	23.34
		1	5	23.00	22.78
		3	0	22.31	22.49
		3	2	22.37	22.26
		3	3	23.31	22.06
		6	0	23.14	23.22
	1909.3	1	0	23.05	22.49
		1	3	22.02	23.00
		1	5	22.90	22.93
		3	0	22.04	22.13
		3	2	23.40	23.15
		3	3	22.67	22.89
		6	0	23.10	22.66
3	1851.5	1	0	23.30	22.89
		1	7	22.18	22.97
		1	14	24.39	23.57
		8	0	22.60	22.44
		8	4	23.16	23.01
		8	7	22.92	23.03
		15	0	22.85	22.27
	1880.0	1	0	22.30	22.62
		1	7	22.85	22.90
		1	14	23.21	22.69
		8	0	22.60	22.22
		8	4	22.35	22.80
		8	7	22.63	23.07
		15	0	22.78	22.34
	1908.5	1	0	23.08	22.13
		1	7	23.12	22.77
		1	14	23.07	22.02
		8	0	22.43	22.62
		8	4	22.89	22.26
		8	7	22.78	22.13
		15	0	22.30	22.47
5	1852.5	1	0	22.29	22.73
		1	12	22.90	22.40
		1	24	23.02	22.28

		12	0	22.45	22.43
		12	6	22.69	22.40
		12	13	22.74	22.16
		25	0	22.54	22.40
	1880.0	1	0	23.92	24.21
		1	12	22.97	23.64
		1	24	22.74	22.15
		12	0	22.26	22.86
		12	6	22.39	22.40
		12	13	22.27	22.79
		25	0	22.46	22.03
	1907.5	1	0	23.10	22.46
		1	12	22.23	22.28
		1	24	22.45	22.24
		12	0	22.76	22.90
		12	6	22.32	22.68
		12	13	22.63	22.37
		25	0	22.69	23.03
10	1855.0	1	0	23.90	23.14
		1	24	22.82	22.92
		1	49	22.99	22.54
		25	0	23.11	22.20
		25	12	22.42	22.96
		25	25	23.31	22.83
		50	0	23.31	22.75
	1880.0	1	0	22.22	23.58
		1	24	24.01	23.94
		1	49	23.10	22.59
		25	0	22.87	23.05
		25	12	22.36	22.25
		25	25	22.80	22.26
		50	0	22.29	22.74
	1905.0	1	0	23.78	22.49
		1	24	22.63	22.91
		1	49	22.58	23.28
		25	0	22.59	22.39
		25	12	23.16	22.61
		25	25	22.82	22.56
		50	0	23.06	22.39
15	1857.5	1	0	23.11	22.78
		1	37	22.63	23.55
		1	74	22.49	22.94
		37	0	22.93	22.23
		37	18	22.93	22.47
		37	38	22.78	23.08
		75	0	23.96	22.31
	1880.0	1	0	22.40	23.74
		1	37	23.89	22.04
		1	74	23.02	22.74
		37	0	22.55	22.68

		37	18	22.21	22.85
		37	38	22.91	22.54
		75	0	22.34	22.92
	1902.5	1	0	22.17	22.68
		1	37	23.42	22.61
		1	74	22.77	22.92
		37	0	22.02	23.00
		37	18	22.66	22.83
		37	38	22.20	23.04
		75	0	22.43	22.59
20	1860.0	1	0	23.31	22.55
		1	49	23.31	23.68
		1	99	22.61	23.43
		50	0	22.26	22.90
		50	25	23.48	22.81
		50	50	22.73	22.58
		100	0	22.51	22.17
	1880.0	1	0	24.19	24.07
		1	49	23.65	22.25
		1	99	24.29	22.13
		50	0	24.32	24.08
		50	25	24.02	22.98
		50	50	23.54	22.85
		100	0	23.60	22.96
	1900.0	1	0	**24.98**	**24.89**
		1	49	22.45	22.63
		1	99	22.47	23.14
		50	0	23.24	22.80
		50	25	23.32	22.34
		50	50	24.56	24.52
		100	0	22.38	22.27

LTE Band4

BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
1.4	1710.7	1	0	24.34	23.01
		1	3	23.22	23.79
		1	5	24.12	22.57
		3	0	23.44	23.39
		3	2	22.51	22.73
		3	3	22.87	22.52
		6	0	22.86	22.94
	1732.5	1	0	23.62	22.92
		1	3	23.80	23.40
		1	5	23.15	22.98
		3	0	22.67	23.10
		3	2	23.05	23.35
		3	3	23.34	22.28
		6	0	22.56	23.30
	1754.3	1	0	22.66	22.62
		1	3	22.36	23.28
		1	5	22.47	23.09
		3	0	22.99	22.50
		3	2	23.25	22.95
		3	3	23.16	22.51
		6	0	23.43	22.27
3	1711.5	1	0	23.86	22.76
		1	7	22.50	22.84
		1	14	24.14	23.23
		8	0	22.24	22.42
		8	4	22.27	22.85
		8	7	22.11	22.80
		15	0	22.70	22.61
	1732.5	1	0	22.21	22.34
		1	7	22.97	22.24
		1	14	23.22	22.15
		8	0	23.23	22.36
		8	4	22.82	22.16
		8	7	22.34	22.98
		15	0	22.83	22.66
	1753.5	1	0	22.86	22.51
		1	7	22.38	22.74
		1	14	22.33	22.29
		8	0	22.12	23.10
		8	4	22.74	22.99
		8	7	23.01	22.99
		15	0	22.86	22.99
5	1712.5	1	0	22.08	22.18
		1	12	23.39	22.53
		1	24	22.97	22.58
		12	0	22.47	22.59

		12	6	22.37	22.95
		12	13	22.91	22.82
		25	0	22.23	22.94
	1732.5	1	0	24.63	24.47
		1	12	23.16	23.61
		1	24	22.23	22.56
		12	0	22.53	22.92
		12	6	22.90	22.69
		12	13	22.36	22.41
		25	0	22.90	22.90
	1752.5	1	0	23.22	23.10
		1	12	22.72	22.65
		1	24	22.42	22.46
		12	0	22.17	22.91
		12	6	22.46	22.60
		12	13	22.67	22.46
		25	0	22.33	22.92
10	1715.0	1	0	24.32	23.01
		1	24	22.99	23.30
		1	49	22.24	22.42
		25	0	22.42	22.75
		25	12	22.59	22.42
		25	25	22.88	22.69
		50	0	23.35	23.30
	1732.5	1	0	22.77	23.91
		1	24	23.88	23.70
		1	49	22.88	22.80
		25	0	22.42	22.44
		25	12	22.96	22.71
		25	25	22.43	22.56
		50	0	22.84	22.69
	1750.0	1	0	23.59	22.84
		1	24	22.45	23.32
		1	49	22.84	22.78
		25	0	22.50	22.18
		25	12	22.23	23.19
		25	25	22.52	22.21
		50	0	22.86	22.75
15	1717.5	1	0	23.15	22.71
		1	37	22.56	23.85
		1	74	22.64	22.11
		37	0	23.26	22.13
		37	18	22.37	22.44
		37	38	22.23	22.45
		75	0	23.49	23.05
	1732.5	1	0	23.05	23.57
		1	37	24.26	22.41
		1	74	22.84	22.94
		37	0	22.61	22.35
		37	18	23.27	22.35

		37	38	22.55	23.10
		75	0	22.16	22.53
	1747.5	1	0	22.36	22.18
		1	37	23.61	22.76
		1	74	22.11	22.64
		37	0	22.46	22.70
		37	18	22.78	22.34
		37	38	22.64	23.22
		75	0	22.03	22.07
20	1722.0	1	0	23.75	22.68
		1	49	22.56	23.87
		1	99	22.25	22.94
		50	0	22.30	22.00
		50	25	23.61	23.27
		50	50	22.99	22.22
		100	0	22.77	23.24
	1732.5	1	0	**24.86**	**24.59**
		1	49	24.92	22.27
		1	99	23.86	22.91
		50	0	24.61	23.68
		50	25	23.87	22.85
		50	50	24.39	24.43
		100	0	23.71	22.66
	1745.0	1	0	22.25	22.10
		1	49	22.00	22.77
		1	99	22.19	22.92
		50	0	22.76	22.75
		50	25	23.02	22.57
		50	50	22.56	22.27
		100	0	22.67	22.87

LTE Band5

BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
1.4	824.7	1	0	24.16	22.83
		1	3	22.71	23.63
		1	5	24.20	23.26
		3	0	24.06	23.66
		3	2	22.21	22.29
		3	3	23.41	22.29
		6	0	22.43	22.96
	836.5	1	0	23.66	23.26
		1	3	23.65	23.25
		1	5	22.89	22.92
		3	0	22.28	22.75
		3	2	22.20	22.22
		3	3	23.73	22.71
		6	0	22.69	22.70
	848.3	1	0	23.19	22.87
		1	3	22.53	23.12
		1	5	22.20	22.45
		3	0	22.61	22.93
		3	2	22.56	22.81
		3	3	22.53	22.23
		6	0	23.33	22.30
3	824.5	1	0	23.49	22.84
		1	7	22.99	23.11
		1	14	24.38	23.27
		8	0	23.30	22.36
		8	4	22.79	22.20
		8	7	22.28	22.65
		15	0	22.63	22.17
	836.5	1	0	22.16	22.45
		1	7	22.39	22.28
		1	14	22.64	22.27
		8	0	22.78	22.87
		8	4	22.36	23.32
		8	7	22.70	22.53
		15	0	22.70	22.59
	847.5	1	0	23.12	22.16
		1	7	22.79	22.91
		1	14	22.35	22.25
		8	0	22.93	22.76
		8	4	22.00	22.24
		8	7	22.70	22.21
		15	0	22.43	23.30
5	824.5	1	0	22.35	22.98
		1	12	22.78	22.38
		1	24	22.44	22.45
		12	0	22.13	22.29

		12	6	22.84	22.33
		12	13	22.24	22.40
		25	0	22.42	22.32
	836.5	1	0	24.10	24.24
		1	12	22.96	24.23
		1	24	22.41	22.54
		12	0	22.86	22.76
		12	6	22.89	22.82
		12	13	22.37	22.54
		25	0	22.77	22.93
	846.5	1	0	22.68	22.29
		1	12	22.49	22.56
		1	24	22.61	22.92
		12	0	22.32	23.15
		12	6	22.31	22.96
		12	13	22.36	22.72
		25	0	22.30	22.57
10	829.0	1	0	**24.81**	**24.72**
		1	24	23.09	24.67
		1	49	22.30	22.56
		25	0	24.13	23.49
		25	12	22.92	22.98
		25	25	22.63	22.49
		50	0	23.12	22.92
	836.5	1	0	22.37	23.95
		1	24	24.08	23.84
		1	49	22.66	22.51
		25	0	22.21	22.99
		25	12	22.70	22.43
		25	25	22.66	22.08
		50	0	22.26	22.29
	844.0	1	0	23.85	22.96
		1	24	23.02	23.18
		1	49	22.83	22.59
		25	0	23.00	22.07
		25	12	22.36	23.35
		25	25	22.36	22.96
		50	0	22.57	22.58

LTE Band7

BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
5	2502.5	1	0	24.11	23.69
		1	12	22.76	23.06
		1	24	23.29	23.24
		12	0	23.75	24.04
		12	6	22.14	23.04
		12	13	23.01	22.64
		25	0	22.28	22.95
	2535.0	1	0	24.29	22.92
		1	12	24.57	23.25
		1	24	22.96	23.09
		12	0	22.20	22.72
		12	6	22.76	22.81
		12	13	23.70	22.99
		25	0	22.97	23.02
	2567.5	1	0	22.50	22.27
		1	12	22.92	22.92
		1	24	22.48	22.76
		12	0	22.24	22.84
		12	6	23.12	23.00
		12	13	22.73	23.13
		25	0	22.54	22.76
10	2505.0	1	0	23.29	22.88
		1	24	22.82	23.01
		1	49	24.57	23.84
		25	0	23.40	22.68
		25	12	23.25	22.93
		25	25	22.87	22.89
		50	0	22.45	22.26
	2535.0	1	0	22.48	22.77
		1	24	22.78	22.77
		1	49	22.89	22.48
		25	0	22.69	22.49
		25	12	22.69	22.51
		25	25	22.80	23.08
		50	0	23.05	22.97
	2565.0	1	0	23.04	22.21
		1	24	22.41	22.61
		1	49	22.25	22.84
		25	0	22.78	23.08
		25	12	22.63	22.77
		25	25	22.38	22.50
		50	0	22.21	22.63
15	2507.5	1	0	22.15	22.34
		1	37	23.34	22.26
		1	74	23.08	22.19
		37	0	22.47	22.40

		37	18	22.71	22.96
		37	38	22.82	22.25
		75	0	22.94	22.15
	2535.0	1	0	24.49	24.04
		1	37	22.53	23.31
		1	74	22.86	22.71
		37	0	22.68	22.45
		37	18	22.22	22.40
		37	38	22.24	23.19
		75	0	22.51	22.73
	2562.5	1	0	23.03	22.34
		1	37	22.31	22.42
		1	74	22.77	22.69
		37	0	22.00	22.93
		37	18	23.06	22.75
		37	38	22.77	22.33
		75	0	22.28	22.21
20	2510.0	1	0	23.45	22.29
		1	49	23.23	23.57
		1	99	22.97	22.47
		50	0	23.36	22.32
		50	25	22.28	22.47
		50	50	23.21	22.70
		100	0	23.85	22.86
	2535.0	1	0	**24.73**	**24.58**
		1	49	24.41	23.97
		1	99	22.73	22.65
		50	0	24.64	24.26
		50	25	23.20	22.88
		50	50	23.02	22.17
		100	0	22.09	22.76
	2560	1	0	23.61	22.87
		1	49	22.97	22.56
		1	99	22.69	22.90
		50	0	22.98	22.40
		50	25	23.05	23.10
		50	50	22.61	22.87
		100	0	22.35	22.91

LTE Band12

BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
1.4	699.7	1	0	23.48	24.45
		1	3	22.54	22.43
		1	5	23.37	23.52
		3	0	23.06	23.19
		3	2	22.98	22.87
		3	3	23.21	23.19
		6	0	22.93	23.05
	707.5	1	0	23.66	23.59
		1	3	24.23	24.48
		1	5	22.83	22.66
		3	0	22.48	22.45
		3	2	22.31	22.40
		3	3	22.88	23.21
		6	0	22.66	22.55
	715.3	1	0	23.06	22.82
		1	3	22.49	22.12
		1	5	22.54	22.37
		3	0	22.88	23.07
		3	2	23.15	23.09
		3	3	22.77	22.85
		6	0	22.80	22.85
3	700.5	1	0	23.30	23.39
		1	7	23.04	23.38
		1	14	24.04	24.27
		8	0	22.89	23.18
		8	4	22.71	22.55
		8	7	22.73	22.93
		15	0	22.23	22.64
	707.5	1	0	22.64	22.63
		1	7	22.46	22.45
		1	14	22.83	22.77
		8	0	22.37	22.22
		8	4	23.02	22.81
		8	7	22.08	22.97
		15	0	22.64	22.37
	714.5	1	0	23.12	23.20
		1	7	22.37	22.38
		1	14	22.22	22.18
		8	0	22.97	23.11
		8	4	22.31	22.13
		8	7	22.92	22.74
		15	0	22.79	22.99
5	701.5	1	0	22.39	22.59
		1	12	23.40	23.61
		1	24	22.49	22.90
		12	0	22.75	22.68

		12	6	22.65	22.77
		12	13	22.01	22.98
		25	0	22.09	22.34
	707.5	1	0	23.82	24.02
		1	12	22.56	22.63
		1	24	22.76	22.81
		12	0	22.66	22.77
		12	6	22.96	22.76
		12	13	22.30	22.41
		25	0	22.59	22.67
	713.5	1	0	22.80	22.74
		1	12	22.92	22.95
		1	24	22.36	22.53
		12	0	22.64	22.69
		12	6	22.37	22.33
		12	13	22.46	22.32
		25	0	22.57	22.48
10	704	1	0	23.57	23.63
		1	24	22.78	22.90
		1	49	22.60	22.54
		25	0	23.10	23.06
		25	12	22.12	22.24
		25	25	22.59	22.67
		50	0	23.78	23.68
	707.5	1	0	24.57	24.41
		1	24	24.15	24.07
		1	49	22.97	22.86
		25	0	24.21	23.79
		25	12	22.79	22.58
		25	25	22.72	22.59
		50	0	23.02	23.16
	711.0	1	0	**24.92**	**24.72**
		1	24	22.47	24.68
		1	49	23.03	22.99
		25	0	24.31	24.15
		25	12	22.06	22.94
		25	25	22.80	22.78
		50	0	22.44	22.26

LTE Band17

BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
5	706.5	1	0	24.34	22.96
		1	12	22.87	22.96
		1	24	23.91	23.42
		12	0	23.82	23.35
		12	6	22.33	22.72
		12	13	23.58	22.36
		25	0	22.61	22.98
	710.0	1	0	23.77	23.28
		1	12	24.06	22.63
		1	24	23.00	22.99
		12	0	22.90	22.66
		12	6	22.84	22.97
		12	13	23.14	22.24
		25	0	22.72	23.09
	713.5	1	0	22.93	22.15
		1	12	23.09	22.88
		1	24	23.04	22.33
		12	0	22.49	22.94
		12	6	22.57	22.76
		12	13	22.54	22.65
		25	0	22.94	22.95
10	709.0	1	0	23.67	22.92
		1	24	22.26	23.28
		1	49	24.34	23.24
		25	0	22.76	22.09
		25	12	22.52	22.76
		25	25	22.62	22.74
		50	0	22.97	22.76
	710.0	1	0	22.13	22.18
		1	24	22.46	22.12
		1	49	22.79	22.45
		25	0	22.11	22.95
		25	12	22.65	23.13
		25	25	22.28	22.22
		50	0	22.79	22.29
	711.0	1	0	**24.90**	24.49
		1	24	22.86	**24.64**
		1	49	22.92	22.32
		25	0	24.51	24.22
		25	12	22.71	22.43
		25	25	22.97	22.90
		50	0	22.82	22.68

LTE Band66

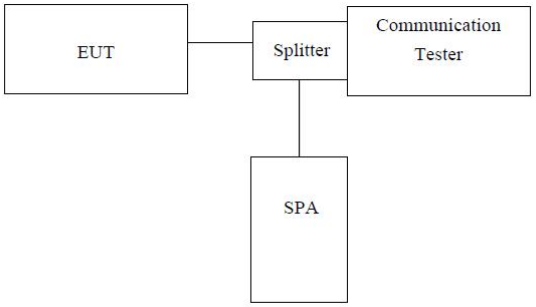
BW (MHz)	Frequency (MHz)	RB Configuration		Average Power [dBm]	
		Size	Offset	QPSK	16QAM
1.4	1710.7	1	0	24.34	23.05
		1	3	23.23	23.84
		1	5	24.14	22.41
		3	0	23.35	23.43
		3	2	22.59	22.69
		3	3	22.85	22.60
		6	0	22.82	22.94
	1745.0	1	0	23.72	22.78
		1	3	23.77	23.35
		1	5	23.26	22.91
		3	0	22.74	23.19
		3	2	22.94	23.22
		3	3	23.35	22.15
		6	0	22.38	23.27
	1779.3	1	0	22.74	22.45
		1	3	22.34	23.25
		1	5	22.35	23.03
		3	0	22.20	22.63
		3	2	23.23	22.92
		3	3	23.10	22.31
		6	0	23.32	22.44
3	1711.5	1	0	23.84	22.98
		1	7	22.48	22.68
		1	14	24.33	23.45
		8	0	22.41	22.36
		8	4	22.32	22.96
		8	7	22.09	22.82
		15	0	22.77	22.78
	1745.0	1	0	22.23	22.42
		1	7	22.96	22.04
		1	14	23.16	22.05
		8	0	23.02	22.20
		8	4	22.98	22.23
		8	7	22.44	22.87
		15	0	22.96	22.62
	1778.5	1	0	22.71	22.55

		1	7	22.28	22.79
		1	14	22.46	22.37
		8	0	22.35	23.00
		8	4	22.57	22.90
		8	7	22.96	22.97
		15	0	23.03	23.18
5	1712.5	1	0	22.03	22.28
		1	12	23.35	22.42
		1	24	22.92	22.65
		12	0	22.39	22.39
		12	6	22.47	23.07
		12	13	22.93	22.81
		25	0	22.10	22.91
	1745.0	1	0	24.57	24.46
		1	12	23.24	23.59
		1	24	22.31	22.76
		12	0	22.68	22.72
		12	6	22.88	22.80
		12	13	22.47	22.44
		25	0	22.74	22.10
	1777.5	1	0	23.15	22.94
		1	12	22.57	22.61
		1	24	22.51	22.56
		12	0	22.20	22.86
		12	6	22.40	22.50
		12	13	22.47	22.46
		25	0	22.29	22.97
10	1715.0	1	0	24.32	23.03
		1	24	23.02	23.20
		1	49	22.40	22.45
		25	0	22.40	22.64
		25	12	22.43	22.28
		25	25	22.93	22.74
		50	0	23.51	23.41
	1745.0	1	0	22.72	23.91
		1	24	23.97	23.58
		1	49	22.91	22.68
		25	0	22.37	22.32
		25	12	22.72	22.73

		25	25	22.40	22.76
		50	0	22.83	22.69
	1775.0	1	0	23.50	22.74
		1	24	22.41	23.37
		1	49	22.65	22.95
		25	0	22.31	22.35
		25	12	22.39	23.29
		25	25	22.64	22.35
		50	0	22.98	22.65
15	1717.5	1	0	23.10	22.91
		1	37	22.71	23.95
		1	74	22.67	22.06
		37	0	23.11	22.14
		37	18	22.38	22.27
		37	38	22.20	22.50
		75	0	23.56	23.07
	1745.0	1	0	23.04	23.55
		1	37	24.12	22.45
		1	74	23.02	22.91
		37	0	22.49	22.39
		37	18	23.20	22.51
		37	38	22.47	23.20
		75	0	22.16	22.44
	1772.5	1	0	22.21	22.11
		1	37	23.59	22.85
		1	74	22.92	22.44
		37	0	22.30	22.52
		37	18	22.74	22.23
		37	38	22.77	23.15
		75	0	22.20	22.04
20	1720.0	1	0	23.55	22.54
		1	49	22.62	23.85
		1	99	22.27	23.06
		50	0	22.38	22.03
		50	25	23.51	23.08
		50	50	22.92	22.04
		100	0	22.74	23.12
	1745.0	1	0	**24.96**	**24.72**
		1	49	24.84	22.19

		1	99	24.07	22.87
		50	0	24.61	23.57
		50	25	23.95	22.81
		50	50	24.33	24.40
		100	0	23.83	22.88
	1770.0	1	0	22.37	22.05
		1	49	22.19	22.74
		1	99	22.22	23.08
		50	0	22.65	22.59
		50	25	22.92	22.33
		50	50	22.63	22.24
		100	0	22.76	22.90

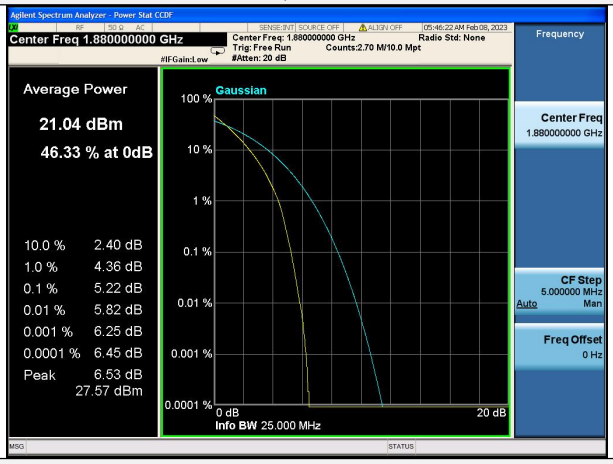
4.4 Peak-to-Average Ratio

Test Requirement:	Part 22.913(d), FCC part24.232(d) and FCC part27.50(d)(5)
Test Method:	ANSI C63.26:2015
Test Limit:	Used complementary cumulative distribution function (CCDF) of analyzer to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.7 2. The EUT was connected to spectrum and system simulator via a power divider 3. Using the CCDF measurement of spectrum analyzer; 4. Set RBW≥OBW or specified reference bandwidth; 5. Set the number of counts to a value that stabilizes the measured CCDF curve; 6. Set the measurement interval as 1ms 7. Record the maximum PAPR level associated with a probability of 0.1%.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

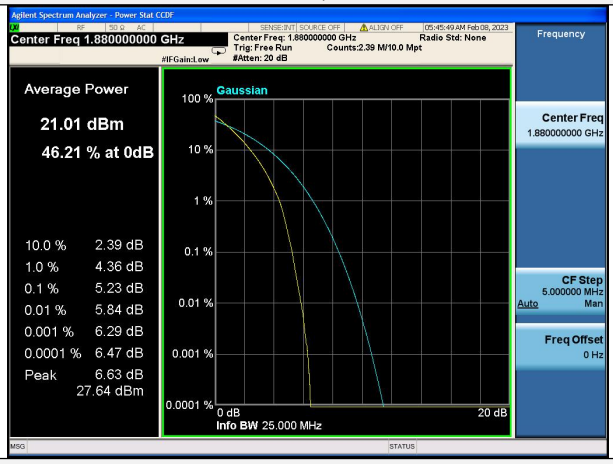
Test plots are listed as below:

Test mode	Peak to Average Ratio (dB)	Limit (dB)	Result
LTE Band 2 Middle channel/20MHz/QPSK	5.22	13	Pass
LTE Band 2 Middle channel/20MHz/16-QAM	5.23	13	Pass
LTE Band 4 Middle channel/20MHz/QPSK	5.23	13	Pass
LTE Band 4 Middle channel/20MHz/16-QAM	5.23	13	Pass
LTE Band 5 Middle channel/10MHz/QPSK	5.58	13	Pass
LTE Band 5 Middle channel/10MHz/16-QAM	5.58	13	Pass
LTE Band 7 Middle channel/20MHz/QPSK	4.95	13	Pass
LTE Band 7 Middle channel/20MHz/16-QAM	4.98	13	Pass
LTE Band 12 Middle channel/10MHz/QPSK	5.11	13	Pass
LTE Band 12 Middle channel/10MHz/16-QAM	5.14	13	Pass
LTE Band 17 Middle channel/10MHz/QPSK	5.05	13	Pass
LTE Band 17 Middle channel/10MHz/16-QAM	5.08	13	Pass
LTE Band 66 Middle channel/20MHz/QPSK	8.97	13	Pass
LTE Band 66 Middle channel/20MHz/16-QAM	9.01	13	Pass

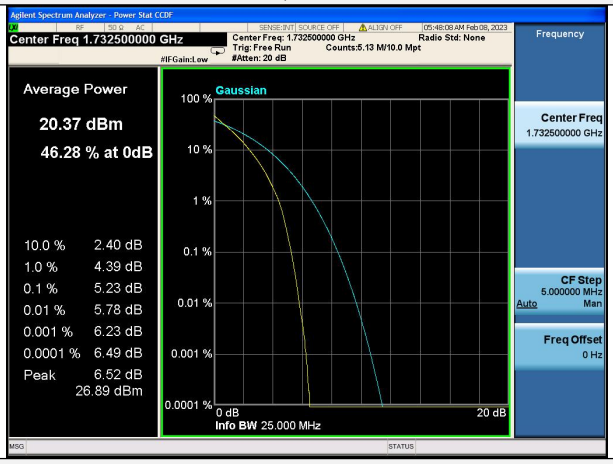
Test Mode: LTE Band 2
Middle channel/20MHz/QPSK



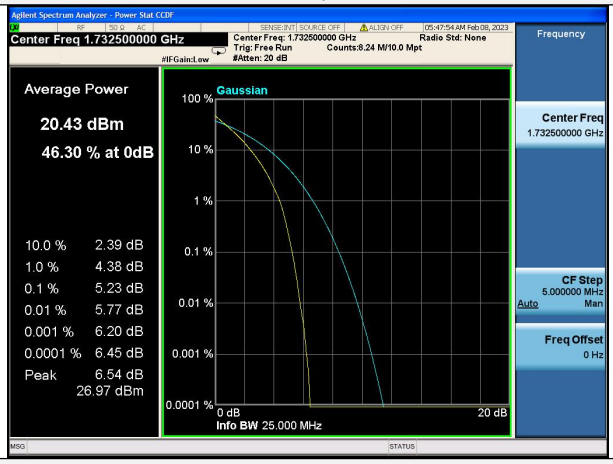
Test Mode: LTE Band 2
Middle channel/20MHz/16-QAM



Test Mode: LTE Band 4
Middle channel/20MHz/QPSK

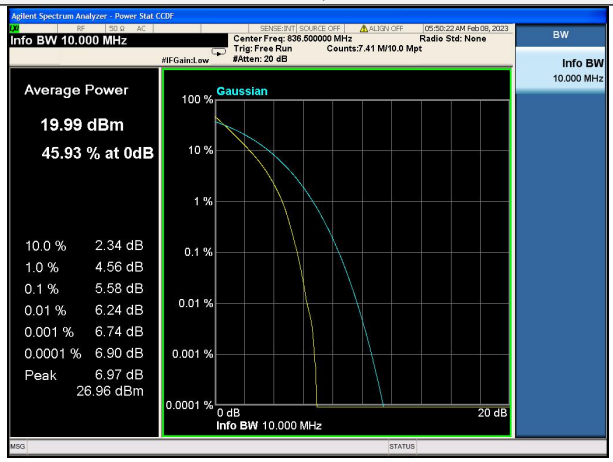


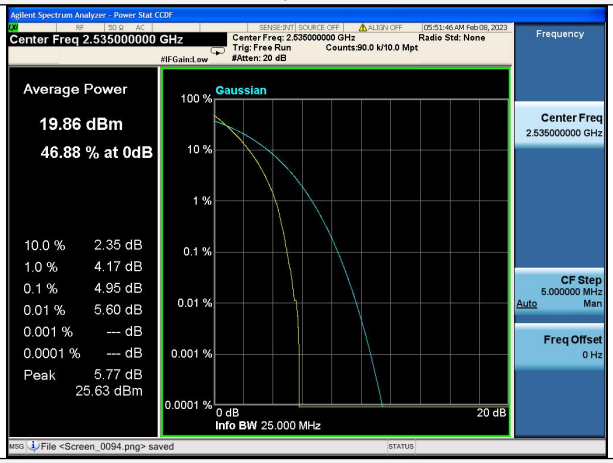
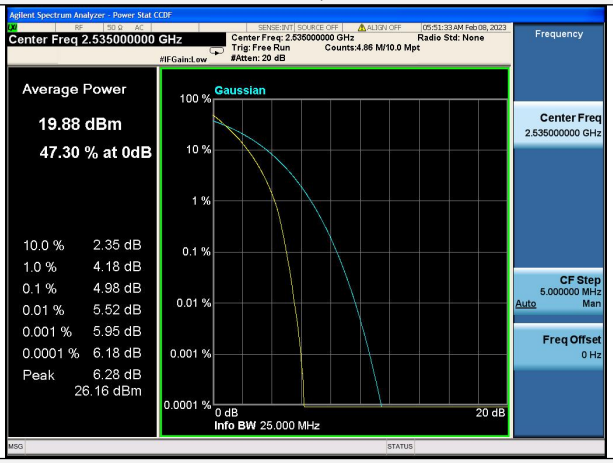
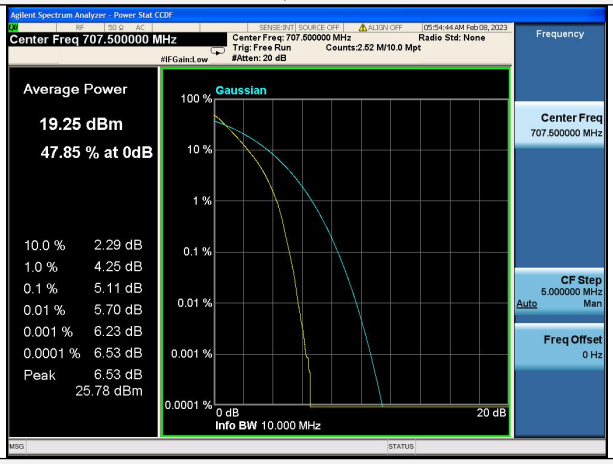
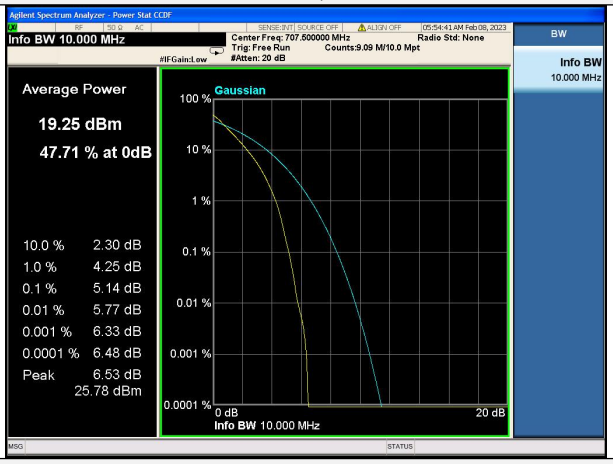
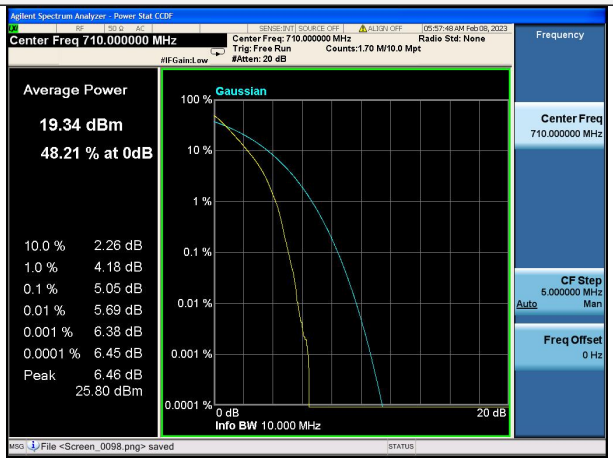
Test Mode: LTE Band 4
Middle channel/20MHz/16-QAM



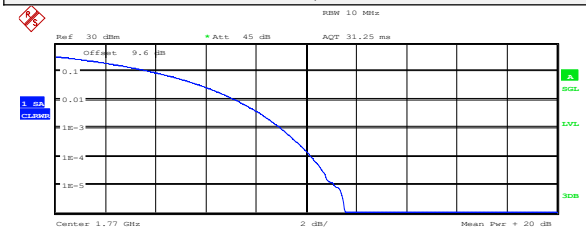
Test Mode: LTE Band 5
Middle channel/10MHz/QPSK

Test Mode: LTE Band 5
Middle channel/10MHz/16-QAM



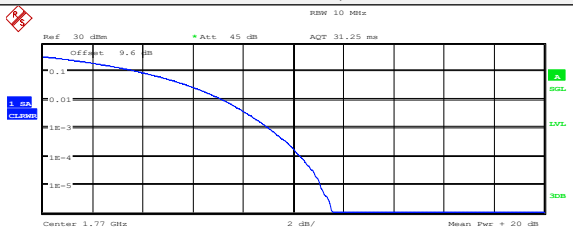
Test Mode: LTE Band 7 Middle channel/20MHz/QPSK	Test Mode: LTE Band 7 Middle channel/20MHz/16-QAM
	
Test Mode: LTE Band 12 Middle channel/10MHz/QPSK	Test Mode: LTE Band 12 Middle channel/10MHz/16-QAM
	
Test Mode: LTE Band 17 Middle channel/20MHz/QPSK	Test Mode: LTE Band 17 Middle channel/20MHz/16-QAM
	

Test Mode: LTE Band 66 Middle channel/20MHz/QPSK	Test Mode: LTE Band 66 Middle channel/20MHz/16-QAM



Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	-21.10 dBm
Peak	-9.14 dBm
Crest	11.96 dB
10 %	3.85 dB
1 %	7.18 dB
.1 %	8.97 dB
.01 %	10.19 dB

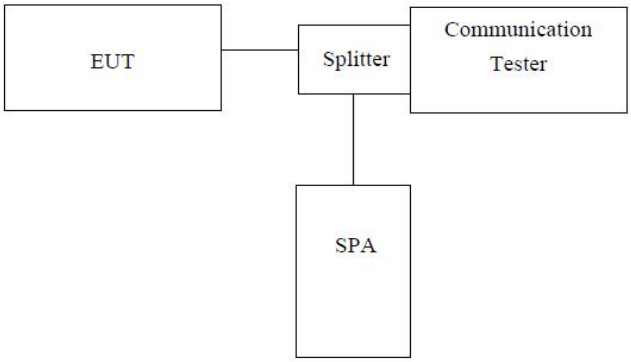


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	-21.10 dBm
Peak	-8.93 dBm
Crest	12.16 dB
10 %	3.85 dB
1 %	7.18 dB
.1 %	9.01 dB
.01 %	10.26 dB

Note: All bandwidth and modulation are tested, only the worst results are reported.

4.5 Occupy Bandwidth

Test Requirement:	FCC part22.913(a), FCC part24.232(b) and FCC part27.53(a)
Test Method:	ANSI C63.26:2015
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer, set center frequency to channel center frequency. 2. RBW was set to about 1%-5% of emission OBW, VBW≥ 3 X RBW. 3. Set spectrum analyzer detection mode to peak, and the trace mode to max hold. 4. Use the 99% OBW function, The 99% power OBW can be found on the plot, determine the "-26dB amplitude" as equal to reference value -26dB.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

Measurement Data

EUT Mode	Channel Bandwidth	Mode	RB Configure		99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
			RB Size	RB Offset		
LTE Band 2	1.4MHz	QPSK	6	0	1176.5	1416.0
		16-QAM	6	0	1181.6	1410.0
	3MHz	QPSK	15	0	2729.5	3036.0
		16-QAM	15	0	2738.8	3056.0
	5MHz	QPSK	25	0	4503.4	4963.0
		16-QAM	25	0	4514.6	4997.0
	10MHz	QPSK	50	0	8932.2	9688.0
		16-QAM	50	0	8939.5	9675.0
	15MHz	QPSK	75	0	13367.0	14190.0
		16-QAM	75	0	13380.0	14240.0
	20MHz	QPSK	100	0	17820.0	18770.0
		16-QAM	100	0	17816.0	18720.0

EUT Mode	Channel Bandwidth	Mode	RB Configure		99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
			RB Size	RB Offset		
LTE Band 4	1.4MHz	QPSK	6	0	1167.0	1406.0
		16-QAM	6	0	1174.1	1412.0
	3MHz	QPSK	15	0	2739.1	3030.0
		16-QAM	15	0	2735.7	3047.0
	5MHz	QPSK	25	0	4507.0	5006.0
		16-QAM	25	0	4517.6	4989.0
	10MHz	QPSK	50	0	8947.5	9772.0
		16-QAM	50	0	8933.6	9707.0
	15MHz	QPSK	75	0	13385.0	14260.0
		16-QAM	75	0	13378.0	14280.0
	20MHz	QPSK	100	0	17833.0	18770.0
		16-QAM	100	0	17828.0	18840.0

EUT Mode	Channel Bandwidth	Mode	RB Configure		99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
			RB Size	RB Offset		
LTE Band 5	1.4MHz	QPSK	6	0	1183.9	1408.0
		16-QAM	6	0	1189.5	1422.0
	3MHz	QPSK	15	0	2733.1	3051.0
		16-QAM	15	0	2729.1	3062.0
	5MHz	QPSK	25	0	4518.2	4960.0
		16-QAM	25	0	4512.7	4988.0
	10MHz	QPSK	50	0	8934.2	9697.0
		16-QAM	50	0	8939.4	9705.0

EUT Mode	Channel Bandwidth	Mode	RB Configure		99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
			RB Size	RB Offset		
LTE Band 7	5MHz	QPSK	25	0	4510.6	5003.0
		16-QAM	25	0	4518.3	4991.0
	10MHz	QPSK	50	0	8929.7	9710.0
		16-QAM	50	0	8932.8	9278.0
	15MHz	QPSK	75	0	13378.0	14300.0
		16-QAM	75	0	13355.0	14400.0
	20MHz	QPSK	100	0	17816.0	18720.0
		16-QAM	100	0	17806.0	18720.0

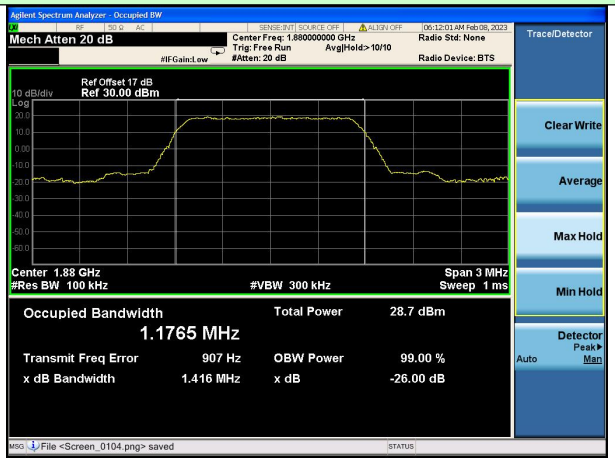
EUT Mode	Channel Bandwidth	Mode	RB Configure		99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
			RB Size	RB Offset		
LTE Band 12	1.4MHz	QPSK	25	0	1173.4	1403.0
		16-QAM	25	0	1168.5	1416.0
	3MHz	QPSK	50	0	2737.3	3040.0
		16-QAM	50	0	2737.3	3054.0
	5MHz	QPSK	25	0	4514.3	4993.0
		16-QAM	25	0	4511.5	4967.0
	10MHz	QPSK	50	0	8916.8	9646.0
		16-QAM	50	0	8921.5	9654.0

EUT Mode	Channel Bandwidth	Mode	RB Configure		99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
			RB Size	RB Offset		
LTE Band 17	5MHz	QPSK	25	0	4494.1	4957.0
		16-QAM	25	0	4494.5	4922.0
	10MHz	QPSK	50	0	8932.5	9632.0
		16-QAM	50	0	8923.8	9726.0

EUT Mode	Channel Bandwidth	Mode	RB Configure		99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
			RB Size	RB Offset		
LTE Band 66	1.4MHz	QPSK	6	0	1095.0	1220.0
		16-QAM	6	0	1090.0	1210.0
	3MHz	QPSK	15	0	2700.0	2840.0
		16-QAM	15	0	2700.0	2840.0
	5MHz	QPSK	25	0	4500.0	4790.0
		16-QAM	25	0	4510.0	4770.0
	10MHz	QPSK	50	0	9000.0	9700.0
		16-QAM	50	0	9000.0	9670.0
	15MHz	QPSK	75	0	13500.0	14550.0
		16-QAM	75	0	13500.0	14550.0
	20MHz	QPSK	100	0	18067.0	19670.0
		16-QAM	100	0	18067.0	19670.0

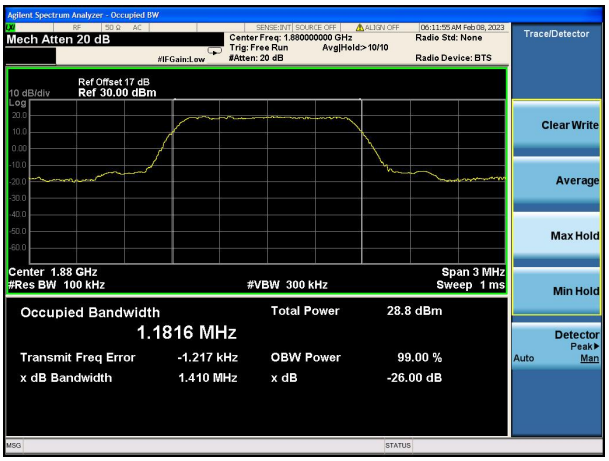
Test plot as follows:

Test Mode: LTE Band 2 Channel Bandwidth: 1.4MHz	Test Mode: LTE Band 2 Channel Bandwidth: 3MHz



QPSK

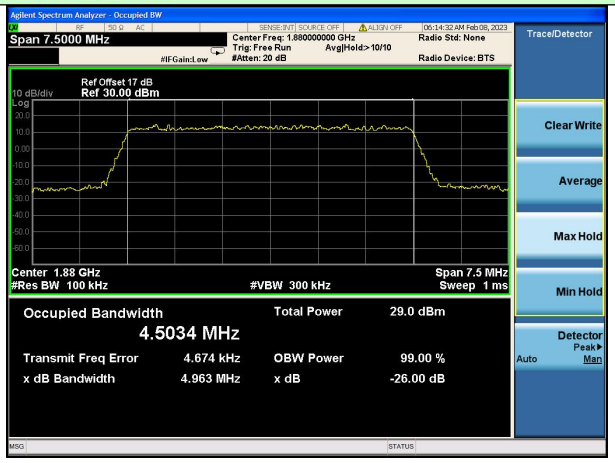
QPSK



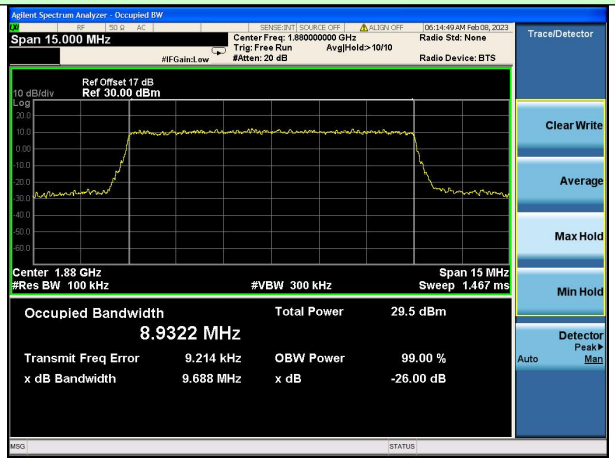
16-QAM

16-QAM

Test Mode: LTE Band 2 Channel Bandwidth: 5MHz	Test Mode: LTE Band 2 Channel Bandwidth: 10MHz

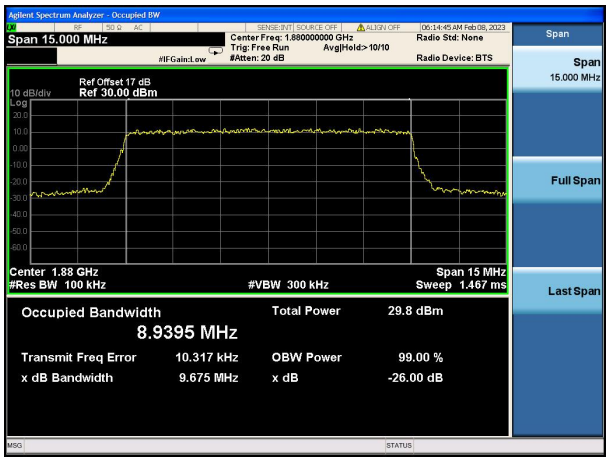


QPSK



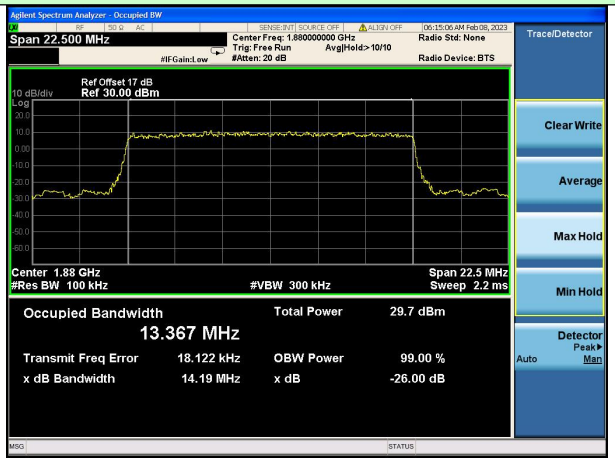
QPSK

16-QAM

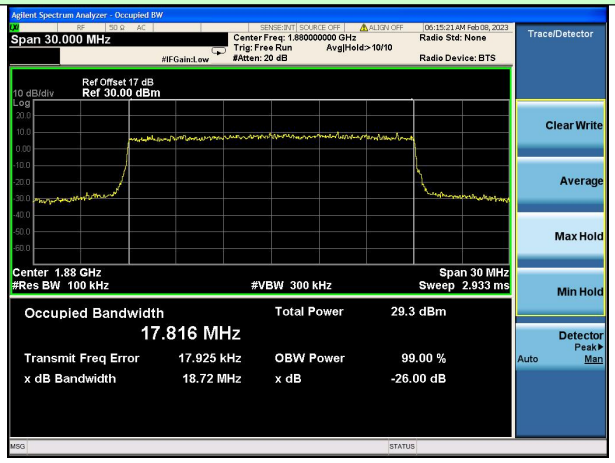


16-QAM

Test Mode: LTE Band 2 Channel Bandwidth: 15MHz	Test Mode: LTE Band 2 Channel Bandwidth: 20MHz



QPSK



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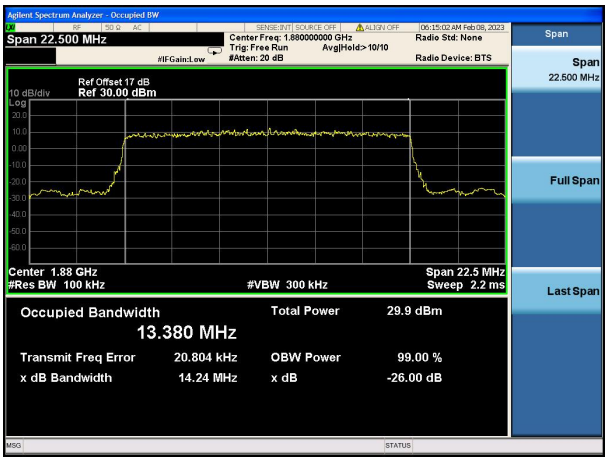
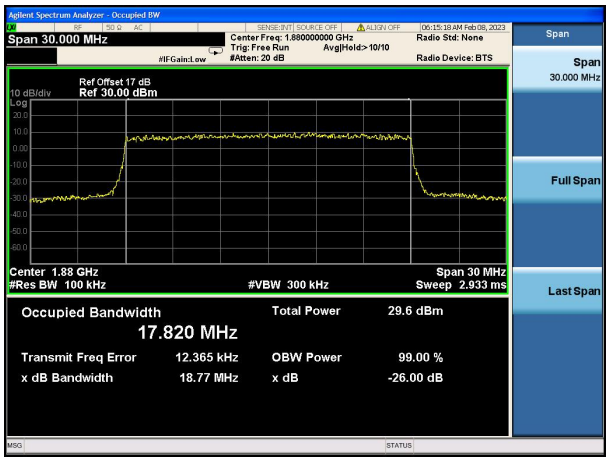
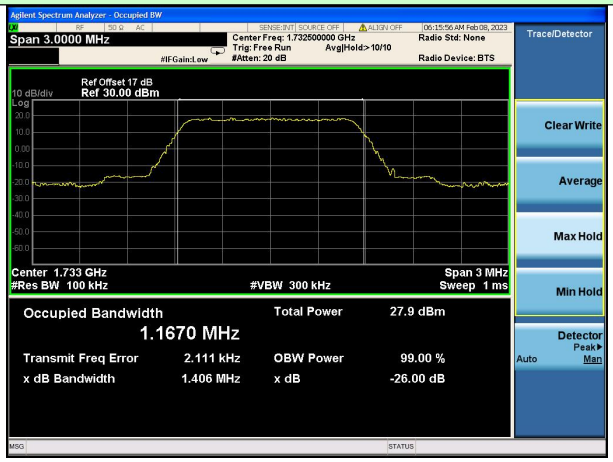


16-QAM

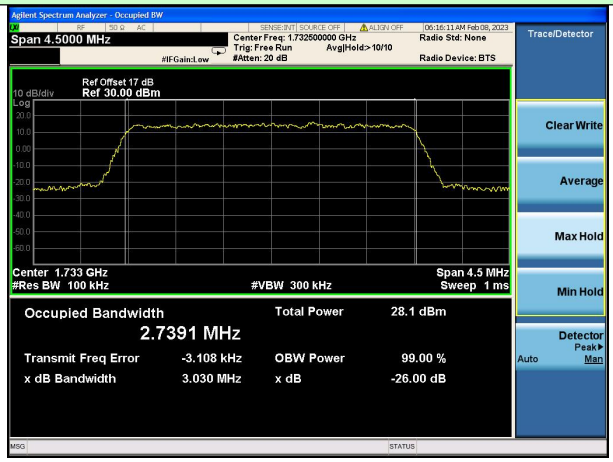


16-QAM

Test Mode: LTE Band 4 Channel Bandwidth: 1.4MHz	Test Mode: LTE Band 4 Channel Bandwidth: 3MHz



QPSK



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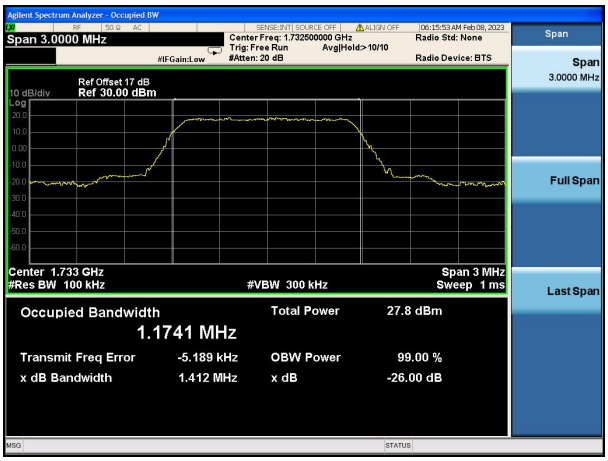
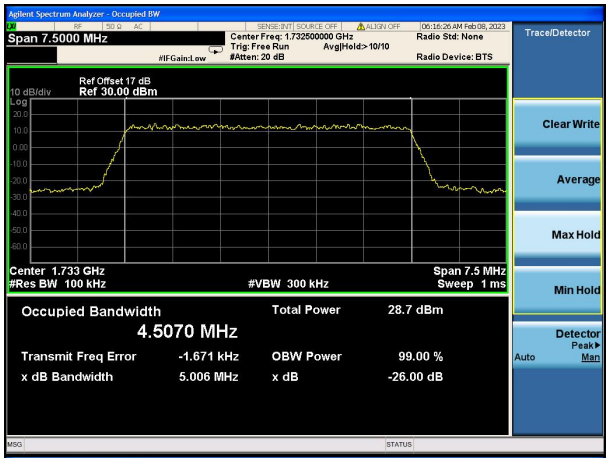
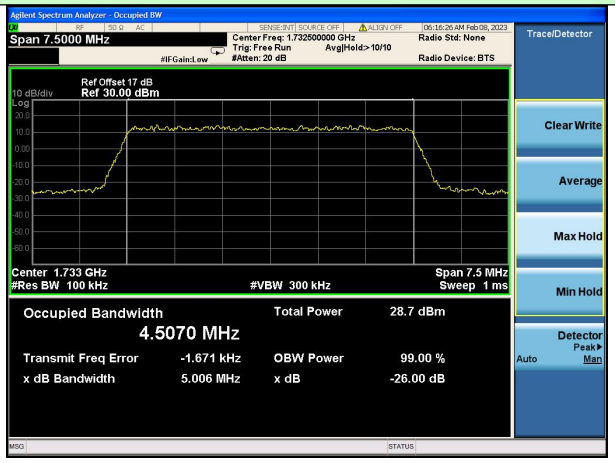


16-QAM

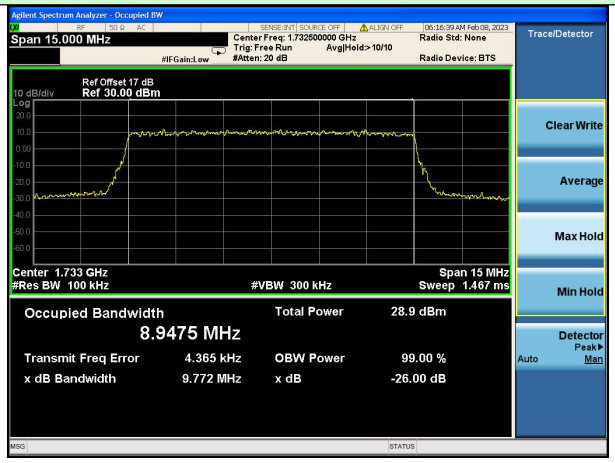


16-QAM

Test Mode: LTE Band 4 Channel Bandwidth: 5MHz	Test Mode: LTE Band 4 Channel Bandwidth: 10MHz

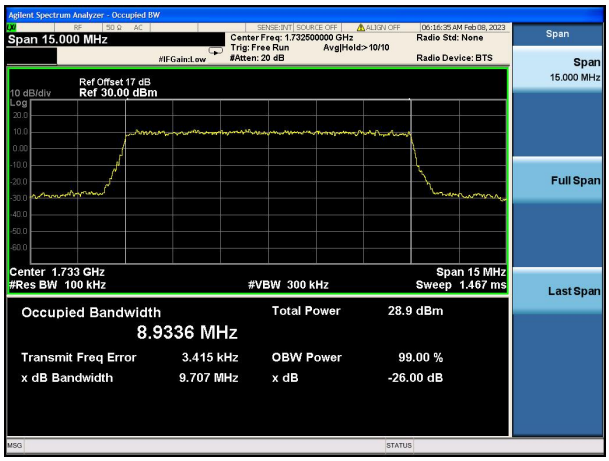


QPSK



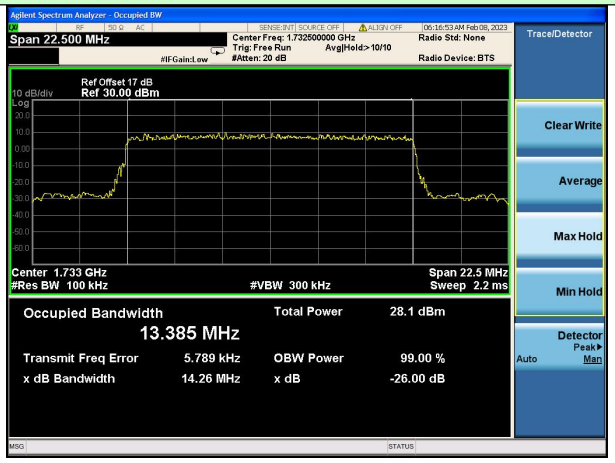
QPSK

16-QAM

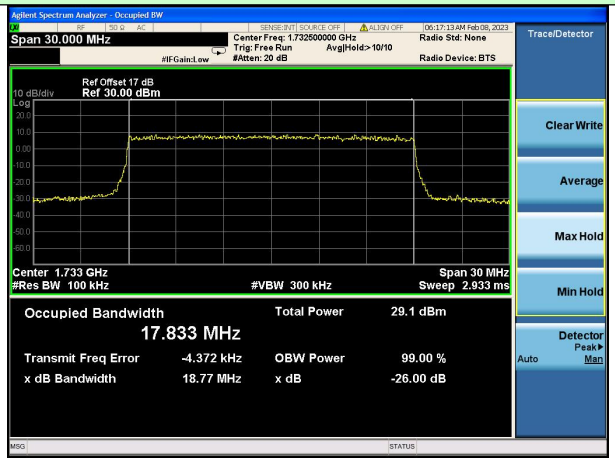


16-QAM

Test Mode: LTE Band 4 Channel Bandwidth: 15MHz	Test Mode: LTE Band 4 Channel Bandwidth: 20MHz

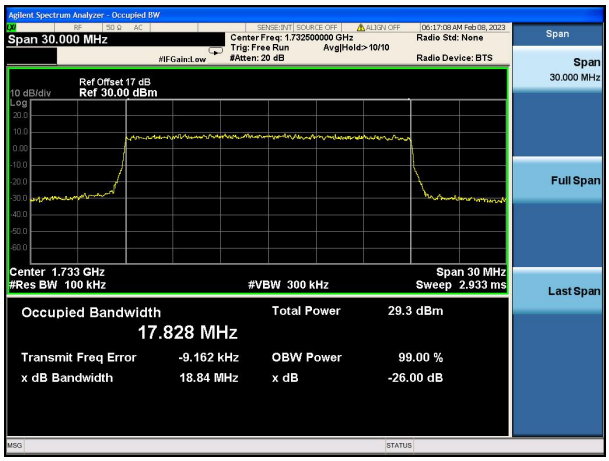


QPSK



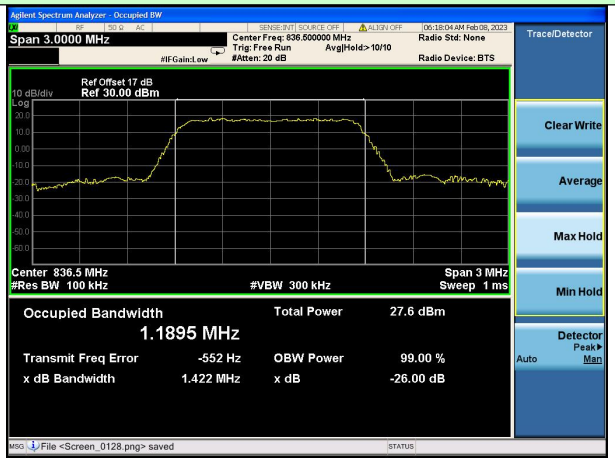
QPSK

16-QAM

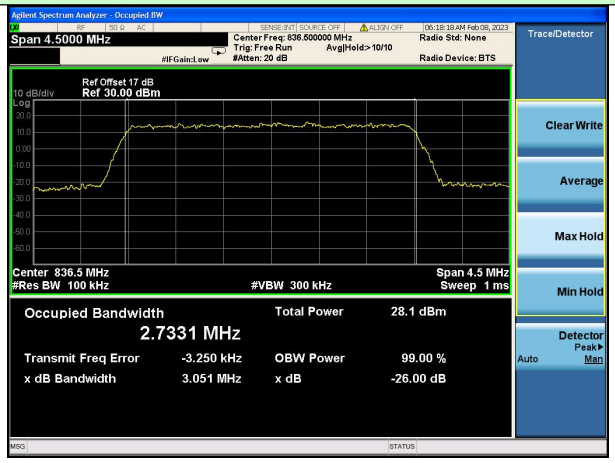


16-QAM

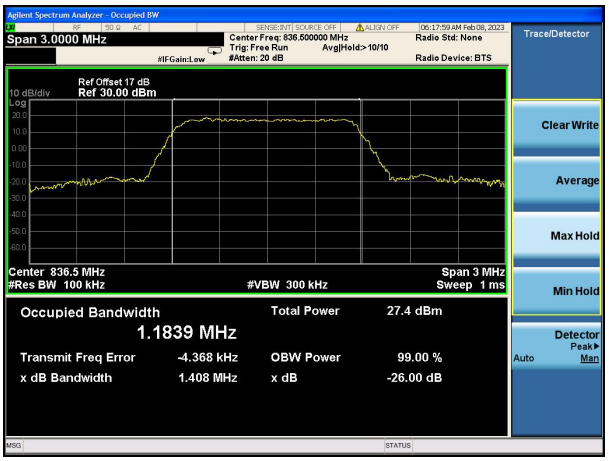
Test Mode: LTE Band 5 Channel Bandwidth: 1.4MHz	Test Mode: LTE Band 5 Channel Bandwidth: 3MHz



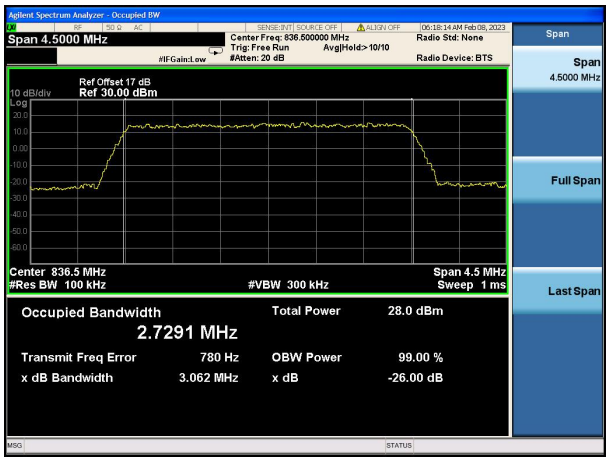
QPSK



QPSK



16-QAM



16-QAM