



# TEST REPORT

**APPLICANT** : JACS Solutions, Inc.  
**PRODUCT NAME** : LTE Indoor CPE  
**MODEL NAME** : TD0551  
**BRAND NAME** : N/A  
**FCC ID** : 2AGCDJACSTD0551  
**STANDARD(S)** : 47 CFR Part 27, Subpart O&Q  
**RECEIPT DATE** : 2023-01-30  
**TEST DATE** : 2023-02-08 to 2023-03-01  
**ISSUE DATE** : 2023-03-09

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# DIRECTORY

- 1. Technical Information ..... 3**
- 1.1. Applicant and Manufacturer Information ..... 3**
- 1.2. Equipment Under Test (EUT) Description ..... 3**
- 1.3. Maximum E.R.P./E.I.R.P. and Emission Designator ..... 5**
- 1.4. Test Standards and Results ..... 6**
- 1.5. Environmental Conditions ..... 7**
- 2. 47 CFR Part 2, Part 27 O&Q Requirements ..... 8**
- 2.1. Transmitter Conducted Output Power and E.R.P./E.I.R.P. .... 8**
- 2.2. Occupied Bandwidth ..... 25**
- 2.3. Frequency Stability ..... 36**
- 2.4. Peak to Average Ratio ..... 38**
- 2.5. Conducted Spurious Emissions ..... 49**
- 2.6. Band Edge ..... 66**
- 2.7. Radiated Spurious Emissions ..... 76**
- Annex A Test Uncertainty ..... 103**
- Annex B Testing Laboratory Information ..... 104**

Change History		
Version	Date	Reason for change
1.0	2023-03-09	First edition



# 1. Technical Information

Note: Provide by applicant.

## 1.1. Applicant and Manufacturer Information

<b>Applicant:</b>	JACS Solutions, Inc.
<b>Applicant Address:</b>	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090
<b>Manufacturer:</b>	JACS Solutions, Inc.
<b>Manufacturer Address:</b>	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090

## 1.2. Equipment Under Test (EUT) Description

<b>Product Name:</b>	LTE Indoor CPE	
<b>Sample No.:</b>	2#	
<b>Hardware Version:</b>	V1.0	
<b>Software Version:</b>	TD0551_JACS_V1.0.2	
<b>Modulation Type:</b>	QPSK, 16QAM	
<b>Operation Band:</b>	Band 42 / 43	
<b>Carrier Aggregation:</b>	CA_42C CA_42D (Only support downlink)	
<b>Frequency Range:</b>	LTE Band 42	Tx: 3450MHz–3550MHz
		Rx: 3450MHz–3550MHz
	LTE Band 43	Tx: 3700MHz –3800MHz
		Rx: 3700MHz –3800MHz
<b>Channel Bandwidth:</b>	LTE Band 42	5 MHz, 10MHz, 15MHz, 20MHz
	LTE Band 43	5 MHz, 10MHz, 15MHz, 20MHz
<b>Antenna Type:</b>	Fixed Internal Antenna / Fixed External Antenna	
<b>Antenna Gain:</b>	LTE Band 42	-0.3 dBi (Internal Antenna) 0dBi(External Antenna)
	LTE Band 43	-0.2dBi (Internal Antenna) 0dBi(External Antenna)
<b>Accessory Information:</b>	AC Adapter 1	
	<b>Brand Name:</b>	Shenzhen YWK Electronics Co.,Ltd.
	<b>Model No.:</b>	YWK-AD120100 U
	<b>Serial No.:</b>	N/A
	<b>Rated Output:</b>	12V=1A



	Rated Input:	100-240V~50/60Hz, 0.3A
	Manufacturer:	Shenzhen YWK ElectronicsCo.,Ltd
	AC Adapter 2	
	Brand Name:	Huizhou Guoatong Technology Co.,Ltd
	Model No.:	GA-1201000
	Serial No.:	N/A
	Rated Output:	12V=1A
	Rated Input:	100-240V~50/60Hz, 0.3A
	Manufacturer:	Huizhou Guoatong Technology Co.,Ltd

**Note 1:** For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



### 1.3. Maximum E.R.P./E.I.R.P. and Emission Designator

LTE Band 42	Maximum E.R.P./E.I.R.P. (W)		Emission Designator (99%OBW)	
	BW(MHz)	QPSK	16QAM	QPSK
20	0.186	0.154	18M0G7D	18M0W7D
15	0.184	0.152	13M5G7D	13M5W7D
10	0.184	0.153	8M99G7D	8M99W7D
5	0.184	0.153	4M52G7D	4M51W7D
LTE Band 43	Maximum E.R.P./E.I.R.P. (W)		Emission Designator (99%OBW)	
BW(MHz)	QPSK	16QAM	QPSK	16QAM
20	0.196	0.162	18M0G7D	17M9W7D
15	0.195	0.160	13M5G7D	13M5W7D
10	0.195	0.161	9M01G7D	8M99W7D
5	0.195	0.158	4M51G7D	4M50W7D



## 1.4. Test Standards and Results

The objective of the report is to perform testing according to Part 2 and Part 27 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
4	47 CFR Part 27	Miscellaneous Wireless Communications Services

Test detailed items/section required by FCC rules and results are as below:

Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
2.1046 27.50(k)(3) 27.50(j)(3)	Transmitter Conducted Output Power and E.R.P./E.I.R.P.	Mar. 01, 2023	Chen Hao Li Huaijie	PASS	No deviation
2.1049	Occupied Bandwidth	Feb. 03, 2023	Li Huaijie	PASS	No deviation
2.1055 27.54	Frequency Stability	Feb. 28, 2023	Li Huaijie	PASS	No deviation
27.50(j)(4) 27.50(k)(4)	Peak to Average Radio	Feb. 03, 2023	Li Huaijie	PASS	No deviation
2.1051 27.53(n)(2) 27.50(l)(2)	Conducted Spurious Emissions	Feb. 21, 2023	Li Huaijie	PASS	No deviation
2.1051 27.53(n)(2) 27.50(l)(2)	Band Edge	Feb. 03, 2023	Li Huaijie	PASS	No deviation
2.1053 27.53(n)(2) 27.50(l)(2)	Radiated Spurious Emissions	Feb. 15, 2023	Lin Jiayong	PASS	No deviation

**Note 1:** The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 and ANSI/TIA-603-E-2016.

**Note 2:** The path loss during the RF test is calibrated to correct the results by the offset setting in



the test equipments. The ref offset 24.5dB contains two parts that cable loss 14.5dB and Attenuator 10dB.

**Note 3:** Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

**Note 4:** When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

## 1.5. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106

## 2.47 CFR Part 2, Part 27 O&Q Requirements

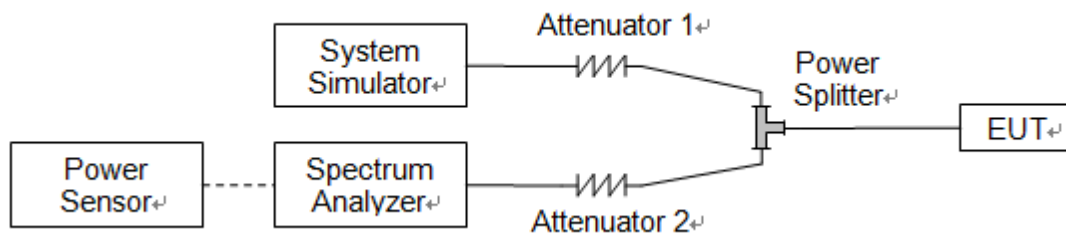
### 2.1. Transmitter Conducted Output Power and E.R.P./E.I.R.P.

#### 2.1.1. Requirement

According to FCC section 27.50(k)(3) for Band 42, Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

According to FCC section 27.50(j)(3) for LTE Band 43, Mobile and portable stations are limited to 1 Watt EIRP. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

#### 2.1.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

#### 2.1.3. Test Procedure

KDB 971168 D01v03 Section 5.2 and ANSI/TIA-603-E-2016.

E.I.R.P. (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

E.R.P. (dBm) = E.I.R.P. (dBm) - 2.15



**2.1.4. Result****Conducted Output Power**

<b>LTE Band 42</b>						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				42190	42590	42990
Frequency (MHz)				3460	3500	3540
20	QPSK	1	0	22.69	22.63	22.65
20	QPSK	1	49	22.60	22.59	22.61
20	QPSK	1	99	22.58	22.57	22.57
20	QPSK	50	0	21.67	21.68	21.69
20	QPSK	50	24	21.67	21.66	21.63
20	QPSK	50	50	21.60	21.64	21.66
20	QPSK	100	0	21.62	21.63	21.64
20	16QAM	1	0	21.85	21.84	21.87
20	16QAM	1	49	21.79	21.81	21.79
20	16QAM	1	99	21.73	21.75	21.72
20	16QAM	50	0	20.75	20.71	20.67
20	16QAM	50	24	20.65	20.69	20.68
20	16QAM	50	50	20.61	20.66	20.68
20	16QAM	100	0	20.62	20.70	20.70



LTE Band 42						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				42165	42590	43015
Frequency (MHz)				3457.5	3500	3542.5
15	QPSK	1	0	22.64	22.59	22.61
15	QPSK	1	37	22.58	22.57	22.59
15	QPSK	1	74	22.57	22.54	22.54
15	QPSK	36	0	21.62	21.65	21.66
15	QPSK	36	20	21.64	21.63	21.59
15	QPSK	36	39	21.58	21.59	21.64
15	QPSK	75	0	21.58	21.62	21.60
15	16QAM	1	0	21.83	21.83	21.82
15	16QAM	1	37	21.75	21.77	21.77
15	16QAM	1	74	21.68	21.70	21.71
15	16QAM	36	0	20.70	20.69	20.65
15	16QAM	36	20	20.64	20.68	20.63
15	16QAM	36	39	20.59	20.63	20.64
15	16QAM	75	0	20.59	20.69	20.68



LTE Band 42						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				42140	42590	43040
Frequency (MHz)				3455	3500	3545
10	QPSK	1	0	22.65	22.58	22.60
10	QPSK	1	25	22.59	22.57	22.57
10	QPSK	1	49	22.57	22.52	22.52
10	QPSK	25	0	21.64	21.63	21.65
10	QPSK	25	12	21.66	21.64	21.59
10	QPSK	25	25	21.58	21.60	21.65
10	QPSK	50	0	21.59	21.59	21.62
10	16QAM	1	0	21.81	21.83	21.86
10	16QAM	1	25	21.78	21.76	21.78
10	16QAM	1	49	21.69	21.72	21.68
10	16QAM	25	0	20.71	20.68	20.62
10	16QAM	25	12	20.61	20.68	20.66
10	16QAM	25	25	20.59	20.63	20.65
10	16QAM	50	0	20.60	20.68	20.69



LTE Band 42						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				42115	42590	43065
Frequency (MHz)				3452.5	3500	3547.5
5	QPSK	1	0	22.64	22.61	22.60
5	QPSK	1	12	22.59	22.58	22.56
5	QPSK	1	24	22.55	22.55	22.54
5	QPSK	12	0	21.63	21.66	21.66
5	QPSK	12	7	21.65	21.64	21.59
5	QPSK	12	13	21.56	21.63	21.64
5	QPSK	25	0	21.61	21.62	21.62
5	16QAM	1	0	21.84	21.81	21.86
5	16QAM	1	12	21.77	21.77	21.74
5	16QAM	1	24	21.72	21.74	21.70
5	16QAM	12	0	20.71	20.70	20.65
5	16QAM	12	7	20.61	20.65	20.63
5	16QAM	12	13	20.60	20.63	20.63
5	16QAM	25	0	20.58	20.67	20.66



LTE Band 43						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				44690	45090	45490
Frequency (MHz)				3710	3750	3790
20	QPSK	1	0	22.55	22.52	22.68
20	QPSK	1	49	22.48	22.54	22.53
20	QPSK	1	99	22.41	22.43	22.43
20	QPSK	50	0	21.55	21.59	21.62
20	QPSK	50	24	21.52	21.57	21.53
20	QPSK	50	50	21.48	21.46	21.47
20	QPSK	100	0	21.43	21.48	21.43
20	16QAM	1	0	21.75	21.79	21.75
20	16QAM	1	49	21.75	21.75	21.75
20	16QAM	1	99	21.52	21.57	21.57
20	16QAM	50	0	20.66	20.65	20.63
20	16QAM	50	24	20.61	20.63	20.66
20	16QAM	50	50	20.44	20.46	20.42
20	16QAM	100	0	20.47	20.52	20.49



LTE Band 43						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				44665	45090	45515
Frequency (MHz)				3707.5	3750	3792.5
15	QPSK	1	0	22.48	22.47	22.67
15	QPSK	1	37	22.46	22.46	22.47
15	QPSK	1	74	22.40	22.33	22.38
15	QPSK	36	0	21.53	21.51	21.58
15	QPSK	36	20	21.44	21.49	21.50
15	QPSK	36	39	21.39	21.45	21.39
15	QPSK	75	0	21.33	21.45	21.42
15	16QAM	1	0	21.67	21.76	21.65
15	16QAM	1	37	21.72	21.71	21.71
15	16QAM	1	74	21.47	21.55	21.50
15	16QAM	36	0	20.58	20.62	20.60
15	16QAM	36	20	20.60	20.59	20.65
15	16QAM	36	39	20.37	20.36	20.33
15	16QAM	75	0	20.37	20.43	20.44



LTE Band 43						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				44640	45090	45540
Frequency (MHz)				3705	3750	3795
10	QPSK	1	0	22.51	22.43	22.65
10	QPSK	1	25	22.47	22.47	22.46
10	QPSK	1	49	22.34	22.33	22.38
10	QPSK	25	0	21.53	21.49	21.54
10	QPSK	25	12	21.48	21.51	21.49
10	QPSK	25	25	21.43	21.41	21.39
10	QPSK	50	0	21.33	21.44	21.40
10	16QAM	1	0	21.71	21.75	21.70
10	16QAM	1	25	21.69	21.65	21.72
10	16QAM	1	49	21.43	21.50	21.56
10	16QAM	25	0	20.60	20.59	20.58
10	16QAM	25	12	20.55	20.57	20.64
10	16QAM	25	25	20.34	20.42	20.34
10	16QAM	50	0	20.44	20.43	20.44



LTE Band 43						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				44615	45090	45565
Frequency (MHz)				3702.5	3750	3797.5
5	QPSK	1	0	22.46	22.50	22.60
5	QPSK	1	12	22.40	22.51	22.51
5	QPSK	1	24	22.34	22.34	22.39
5	QPSK	12	0	21.46	21.50	21.58
5	QPSK	12	7	21.42	21.51	21.52
5	QPSK	12	13	21.44	21.39	21.46
5	QPSK	25	0	21.37	21.42	21.39
5	16QAM	1	0	21.70	21.74	21.65
5	16QAM	1	12	21.74	21.65	21.68
5	16QAM	1	24	21.47	21.49	21.51
5	16QAM	12	0	20.57	20.55	20.55
5	16QAM	12	7	20.60	20.53	20.62
5	16QAM	12	13	20.36	20.40	20.34
5	16QAM	25	0	20.39	20.51	20.42





**Effective Radiated Power and Effective Isotropic Radiated Power**

LTE Band 42				Measured E.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				42190		42590		42990	
Frequency (MHz)				3460		3500		3540	
				dBm	W	dBm	W	dBm	W
20	QPSK	1	0	22.69	0.186	22.63	0.183	22.65	0.184
20	QPSK	1	49	22.60	0.182	22.59	0.182	22.61	0.182
20	QPSK	1	99	22.58	0.181	22.57	0.181	22.57	0.181
20	QPSK	50	0	21.67	0.147	21.68	0.147	21.69	0.148
20	QPSK	50	24	21.67	0.147	21.66	0.147	21.63	0.146
20	QPSK	50	50	21.60	0.145	21.64	0.146	21.66	0.147
20	QPSK	100	0	21.62	0.145	21.63	0.146	21.64	0.146
20	16QAM	1	0	21.85	0.153	21.84	0.153	21.87	0.154
20	16QAM	1	49	21.79	0.151	21.81	0.152	21.79	0.151
20	16QAM	1	99	21.73	0.149	21.75	0.150	21.72	0.149
20	16QAM	50	0	20.75	0.119	20.71	0.118	20.67	0.117
20	16QAM	50	24	20.65	0.116	20.69	0.117	20.68	0.117
20	16QAM	50	50	20.61	0.115	20.66	0.116	20.68	0.117
20	16QAM	100	0	20.62	0.115	20.70	0.117	20.70	0.117



LTE Band 42				Measured E.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				42165		42590		43015	
Frequency (MHz)				3457.5		3500		3542.5	
				dBm	W	dBm	W	dBm	W
15	QPSK	1	0	22.64	0.184	22.59	0.182	22.61	0.182
15	QPSK	1	37	22.58	0.181	22.57	0.181	22.59	0.182
15	QPSK	1	74	22.57	0.181	22.54	0.179	22.54	0.179
15	QPSK	36	0	21.62	0.145	21.65	0.146	21.66	0.147
15	QPSK	36	20	21.64	0.146	21.63	0.146	21.59	0.144
15	QPSK	36	39	21.58	0.144	21.59	0.144	21.64	0.146
15	QPSK	75	0	21.58	0.144	21.62	0.145	21.60	0.145
15	16QAM	1	0	21.83	0.152	21.83	0.152	21.82	0.152
15	16QAM	1	37	21.75	0.150	21.77	0.150	21.77	0.150
15	16QAM	1	74	21.68	0.147	21.70	0.148	21.71	0.148
15	16QAM	36	0	20.70	0.117	20.69	0.117	20.65	0.116
15	16QAM	36	20	20.64	0.116	20.68	0.117	20.63	0.116
15	16QAM	36	39	20.59	0.115	20.63	0.116	20.64	0.116
15	16QAM	75	0	20.59	0.115	20.69	0.117	20.68	0.117



LTE Band 42				Measured E.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				42140		42590		43040	
Frequency (MHz)				3455		3500		3545	
				dBm	W	dBm	W	dBm	W
10	QPSK	1	0	22.65	0.184	22.58	0.181	22.60	0.182
10	QPSK	1	25	22.59	0.182	22.57	0.181	22.57	0.181
10	QPSK	1	49	22.57	0.181	22.52	0.179	22.52	0.179
10	QPSK	25	0	21.64	0.146	21.63	0.146	21.65	0.146
10	QPSK	25	12	21.66	0.147	21.64	0.146	21.59	0.144
10	QPSK	25	25	21.58	0.144	21.60	0.145	21.65	0.146
10	QPSK	50	0	21.59	0.144	21.59	0.144	21.62	0.145
10	16QAM	1	0	21.81	0.152	21.83	0.152	21.86	0.153
10	16QAM	1	25	21.78	0.151	21.76	0.150	21.78	0.151
10	16QAM	1	49	21.69	0.148	21.72	0.149	21.68	0.147
10	16QAM	25	0	20.71	0.118	20.68	0.117	20.62	0.115
10	16QAM	25	12	20.61	0.115	20.68	0.117	20.66	0.116
10	16QAM	25	25	20.59	0.115	20.63	0.116	20.65	0.116
10	16QAM	50	0	20.60	0.115	20.68	0.117	20.69	0.117



LTE Band 42				Measured E.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				42115		42590		43065	
Frequency (MHz)				3452.5		3500		3547.5	
				dBm	W	dBm	W	dBm	W
5	QPSK	1	0	22.64	0.184	22.61	0.182	22.60	0.182
5	QPSK	1	12	22.59	0.182	22.58	0.181	22.56	0.180
5	QPSK	1	24	22.55	0.180	22.55	0.180	22.54	0.179
5	QPSK	12	0	21.63	0.146	21.66	0.147	21.66	0.147
5	QPSK	12	7	21.65	0.146	21.64	0.146	21.59	0.144
5	QPSK	12	13	21.56	0.143	21.63	0.146	21.64	0.146
5	QPSK	25	0	21.61	0.145	21.62	0.145	21.62	0.145
5	16QAM	1	0	21.84	0.153	21.81	0.152	21.86	0.153
5	16QAM	1	12	21.77	0.150	21.77	0.150	21.74	0.149
5	16QAM	1	24	21.72	0.149	21.74	0.149	21.70	0.148
5	16QAM	12	0	20.71	0.118	20.70	0.117	20.65	0.116
5	16QAM	12	7	20.61	0.115	20.65	0.116	20.63	0.116
5	16QAM	12	13	20.60	0.115	20.63	0.116	20.63	0.116
5	16QAM	25	0	20.58	0.114	20.67	0.117	20.66	0.116



LTE Band 43				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				44690		45090		45490	
Frequency (MHz)				3710		3750		3790	
				dBm	W	dBm	W	dBm	W
20	QPSK	1	0	22.92	0.196	22.70	0.186	22.68	0.185
20	QPSK	1	49	22.79	0.190	22.68	0.185	22.64	0.184
20	QPSK	1	99	22.68	0.185	22.49	0.177	22.60	0.182
20	QPSK	50	0	21.88	0.154	21.71	0.148	21.72	0.149
20	QPSK	50	24	21.85	0.153	21.65	0.146	21.66	0.147
20	QPSK	50	50	21.73	0.149	21.53	0.142	21.69	0.148
20	QPSK	100	0	21.74	0.149	21.57	0.144	21.67	0.147
20	16QAM	1	0	22.09	0.162	21.97	0.157	21.90	0.155
20	16QAM	1	49	22.02	0.159	21.89	0.155	21.82	0.152
20	16QAM	1	99	21.85	0.153	21.70	0.148	21.75	0.150
20	16QAM	50	0	20.92	0.124	20.77	0.119	20.70	0.117
20	16QAM	50	24	20.91	0.123	20.78	0.120	20.71	0.118
20	16QAM	50	50	20.74	0.119	20.59	0.115	20.71	0.118
20	16QAM	100	0	20.80	0.120	20.65	0.116	20.73	0.118



LTE Band 43				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				44665		45090		45515	
Frequency (MHz)				3707.5		3750		3792.5	
				dBm	W	dBm	W	dBm	W
15	QPSK	1	0	22.91	0.195	22.68	0.185	22.64	0.184
15	QPSK	1	37	22.74	0.188	22.59	0.182	22.62	0.183
15	QPSK	1	74	22.59	0.182	22.47	0.177	22.57	0.181
15	QPSK	36	0	21.86	0.153	21.68	0.147	21.69	0.148
15	QPSK	36	20	21.78	0.151	21.61	0.145	21.62	0.145
15	QPSK	36	39	21.72	0.149	21.46	0.140	21.67	0.147
15	QPSK	75	0	21.66	0.147	21.49	0.141	21.63	0.146
15	16QAM	1	0	22.05	0.160	21.94	0.156	21.85	0.153
15	16QAM	1	37	21.93	0.156	21.86	0.153	21.80	0.151
15	16QAM	1	74	21.84	0.153	21.65	0.146	21.74	0.149
15	16QAM	36	0	20.83	0.121	20.76	0.119	20.68	0.117
15	16QAM	36	20	20.90	0.123	20.74	0.119	20.66	0.116
15	16QAM	36	39	20.70	0.117	20.54	0.113	20.67	0.117
15	16QAM	75	0	20.71	0.118	20.58	0.114	20.68	0.117



LTE Band 43				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				44640		45090		45540	
Frequency (MHz)				3705		3750		3795	
				dBm	W	dBm	W	dBm	W
10	QPSK	1	0	22.90	0.195	22.63	0.183	22.63	0.183
10	QPSK	1	25	22.78	0.190	22.65	0.184	22.60	0.182
10	QPSK	1	49	22.62	0.183	22.42	0.175	22.55	0.180
10	QPSK	25	0	21.84	0.153	21.70	0.148	21.68	0.147
10	QPSK	25	12	21.76	0.150	21.56	0.143	21.62	0.145
10	QPSK	25	25	21.72	0.149	21.44	0.139	21.68	0.147
10	QPSK	50	0	21.70	0.148	21.48	0.141	21.65	0.146
10	16QAM	1	0	22.08	0.161	21.92	0.156	21.89	0.155
10	16QAM	1	25	21.96	0.157	21.80	0.151	21.81	0.152
10	16QAM	1	49	21.84	0.153	21.64	0.146	21.71	0.148
10	16QAM	25	0	20.86	0.122	20.67	0.117	20.65	0.116
10	16QAM	25	12	20.85	0.122	20.77	0.119	20.69	0.117
10	16QAM	25	25	20.65	0.116	20.55	0.114	20.68	0.117
10	16QAM	50	0	20.77	0.119	20.59	0.115	20.72	0.118



LTE Band 43				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				44615		45090		45565	
Frequency (MHz)				3702.5		3750		3797.5	
				dBm	W	dBm	W	dBm	W
5	QPSK	1	0	22.91	0.195	22.68	0.185	22.63	0.183
5	QPSK	1	12	22.73	0.187	22.59	0.182	22.59	0.182
5	QPSK	1	24	22.62	0.183	22.40	0.174	22.57	0.181
5	QPSK	12	0	21.81	0.152	21.70	0.148	21.69	0.148
5	QPSK	12	7	21.84	0.153	21.55	0.143	21.62	0.145
5	QPSK	12	13	21.69	0.148	21.52	0.142	21.67	0.147
5	QPSK	25	0	21.73	0.149	21.53	0.142	21.65	0.146
5	16QAM	1	0	21.99	0.158	21.88	0.154	21.89	0.155
5	16QAM	1	12	21.98	0.158	21.79	0.151	21.77	0.150
5	16QAM	1	24	21.78	0.151	21.64	0.146	21.73	0.149
5	16QAM	12	0	20.89	0.123	20.67	0.117	20.68	0.117
5	16QAM	12	7	20.87	0.122	20.73	0.118	20.66	0.116
5	16QAM	12	13	20.70	0.117	20.54	0.113	20.66	0.116
5	16QAM	25	0	20.79	0.120	20.59	0.115	20.69	0.117

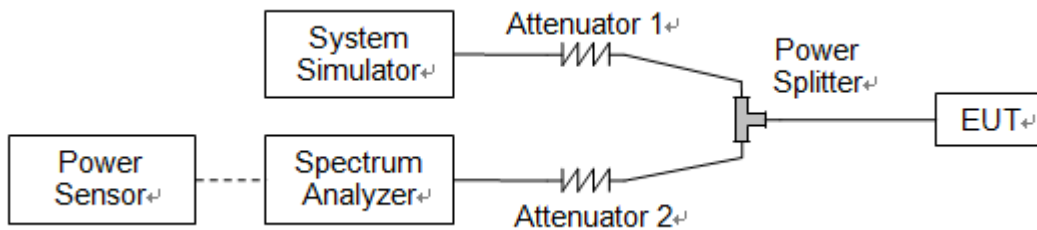


## 2.2. Occupied Bandwidth

### 2.2.1. Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

### 2.2.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

### 2.2.3. Test Procedure

KDB 971168 D01v03 Section 4.1 and ANSI/TIA-603-E-2016.

### 2.2.4. Test Result



LTE Band 42				
BW(MHz)	Channel Level	Modulation	99% BW(MHz)	26dB BW(MHz)
5	Low	QPSK	4.50	4.98
	Low	16QAM	4.50	4.94
	Mid	QPSK	4.52	4.95
	Mid	16QAM	4.51	4.97
	High	QPSK	4.51	5.11
	High	16QAM	4.51	4.97
10	Low	QPSK	8.97	9.73
	Low	16QAM	8.96	9.68
	Mid	QPSK	8.99	9.75
	Mid	16QAM	8.99	9.72
	High	QPSK	8.98	9.68
	High	16QAM	8.98	9.74
15	Low	QPSK	13.42	14.66
	Low	16QAM	13.47	14.80
	Mid	QPSK	13.43	14.58
	Mid	16QAM	13.47	14.58
	High	QPSK	13.49	14.67
	High	16QAM	13.46	14.63
20	Low	QPSK	17.95	19.41
	Low	16QAM	17.90	19.34
	Mid	QPSK	17.94	19.46
	Mid	16QAM	17.95	19.47
	High	QPSK	17.92	19.32
	High	16QAM	17.93	19.46



LTE Band 43				
BW(MHz)	Channel Level	Modulation	99% BW(MHz)	26dB BW(MHz)
5	Low	QPSK	4.51	4.90
	Low	16QAM	4.49	4.88
	Mid	QPSK	4.50	4.93
	Mid	16QAM	4.50	4.93
	High	QPSK	4.51	4.91
	High	16QAM	4.49	4.90
10	Low	QPSK	8.98	9.59
	Low	16QAM	8.99	9.63
	Mid	QPSK	9.01	9.60
	Mid	16QAM	8.97	9.74
	High	QPSK	8.97	9.65
	High	16QAM	8.96	9.69
15	Low	QPSK	13.46	14.61
	Low	16QAM	13.46	14.49
	Mid	QPSK	13.42	14.46
	Mid	16QAM	13.44	14.62
	High	QPSK	13.44	14.55
	High	16QAM	13.45	14.49
20	Low	QPSK	17.96	19.18
	Low	16QAM	17.91	19.19
	Mid	QPSK	17.90	19.28
	Mid	16QAM	17.85	19.13
	High	QPSK	17.93	19.02
	High	16QAM	17.86	19.09



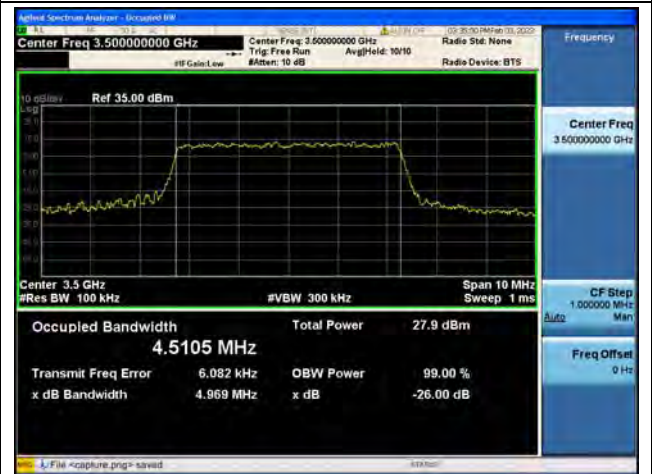
Band42(3450~3550) / 5MHz / QPSK/ Low CH



Band42(3450~3550) / 5MHz / 16QAM/ Low CH



Band42(3450~3550) / 5MHz / QPSK/ Mid CH



Band42(3450~3550) / 5MHz / 16QAM/ Mid CH

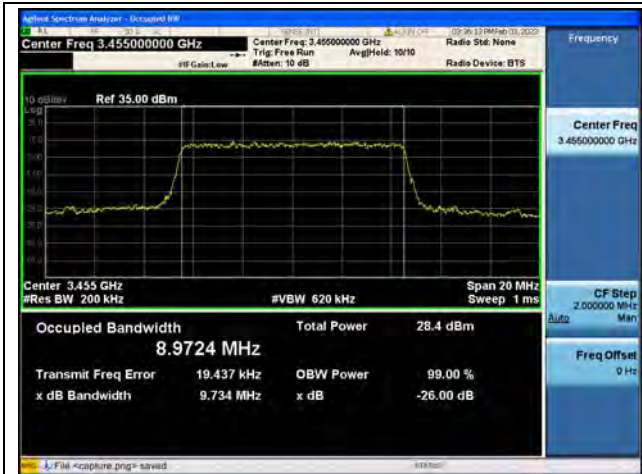


Band42(3450~3550) / 5MHz / QPSK/ High CH



Band42(3450~3550) / 5MHz / 16QAM/ High CH





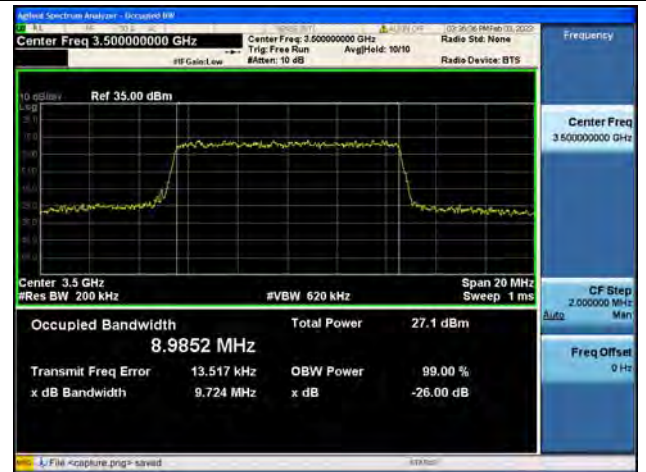
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Band42(3450~3550) / 10MHz / 16QAM/ Low CH



Band42(3450~3550) / 10MHz / QPSK/ Mid CH



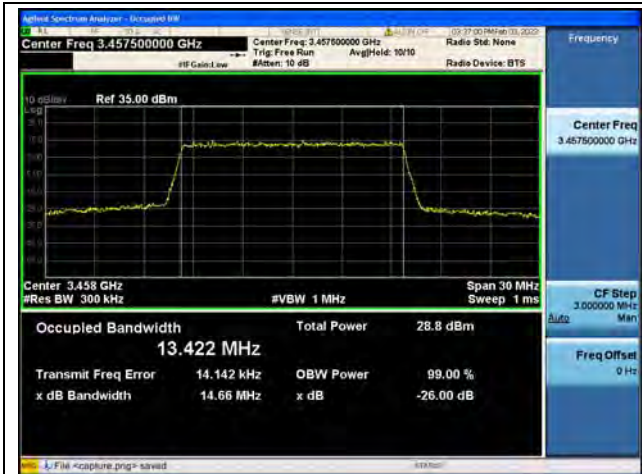
Band42(3450~3550) / 10MHz / 16QAM/ Mid CH



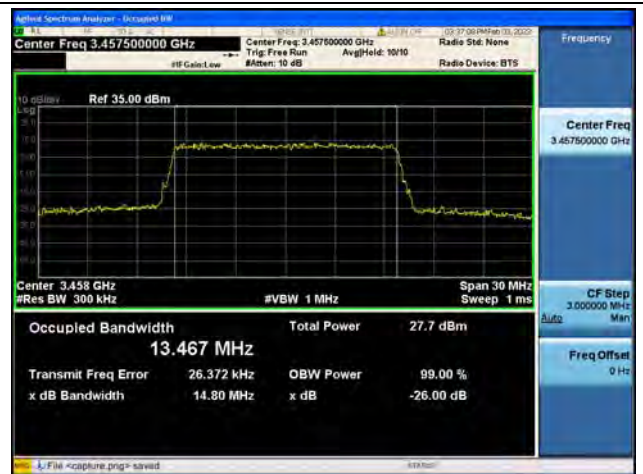
Band42(3450~3550) / 10MHz / QPSK/ High CH



Band42(3450~3550) / 10MHz / 16QAM/ High CH



Band42(3450~3550) / 15MHz / QPSK/ Low CH



Band42(3450~3550) / 15MHz / 16QAM/ Low CH



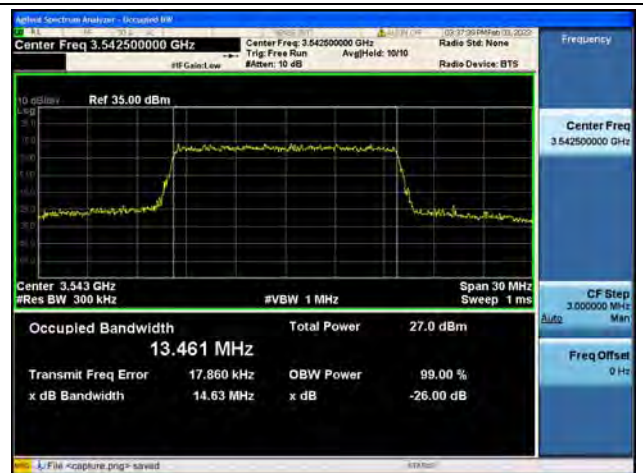
Band42(3450~3550) / 15MHz / QPSK/ Mid CH



Band42(3450~3550) / 15MHz / 16QAM/ Mid CH



Band42(3450~3550) / 15MHz / QPSK/ High CH



Band42(3450~3550) / 15MHz / 16QAM/ High CH





Band42(3450~3550) / 20MHz / QPSK/ Low CH



Band42(3450~3550) / 20MHz / 16QAM/ Low CH



Band42(3450~3550) / 20MHz / QPSK/ Mid CH



Band42(3450~3550) / 20MHz / 16QAM/ Mid CH



Band42(3450~3550) / 20MHz / QPSK/ High CH



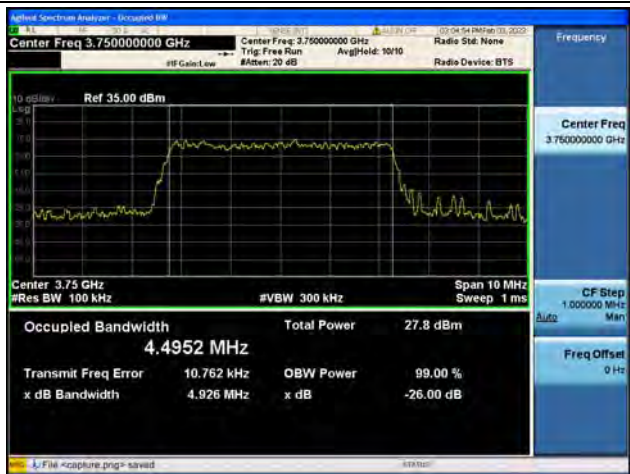
Band42(3450~3550) / 20MHz / 16QAM/ High CH



Band43(3700~3800) / 5MHz / QPSK/ Low CH



Band43(3700~3800) / 5MHz / 16QAM/ Low CH



Band43(3700~3800) / 5MHz / QPSK/ Mid CH



Band43(3700~3800) / 5MHz / 16QAM/ Mid CH

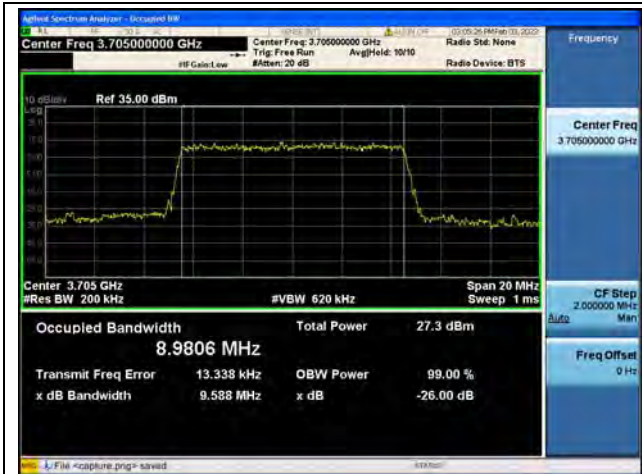


Band43(3700~3800) / 5MHz / QPSK/ High CH

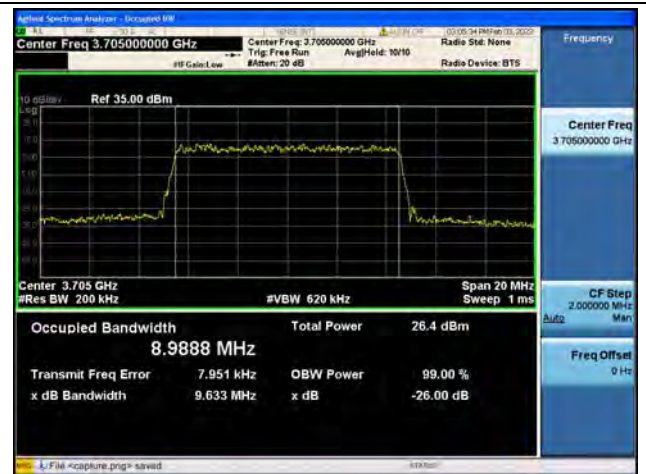


Band43(3700~3800) / 5MHz / 16QAM/ High CH





Band43(3700~3800) / 10MHz / QPSK/ Low CH



Band43(3700~3800) / 10MHz / 16QAM/ Low CH



Band43(3700~3800) / 10MHz / QPSK/ Mid CH



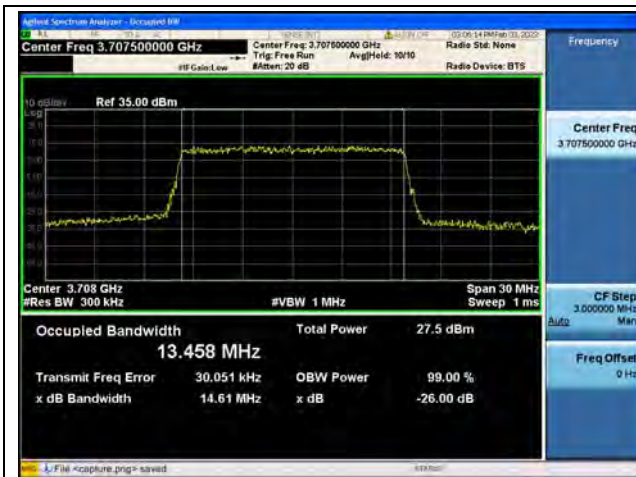
Band43(3700~3800) / 10MHz / 16QAM/ Mid CH



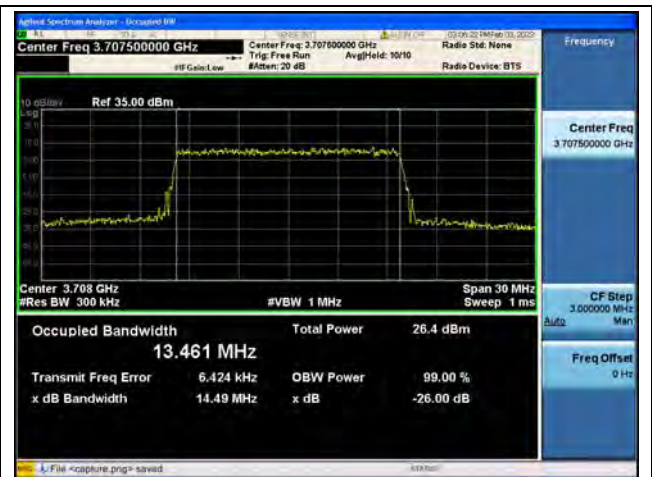
Band43(3700~3800) / 10MHz / QPSK/ High CH



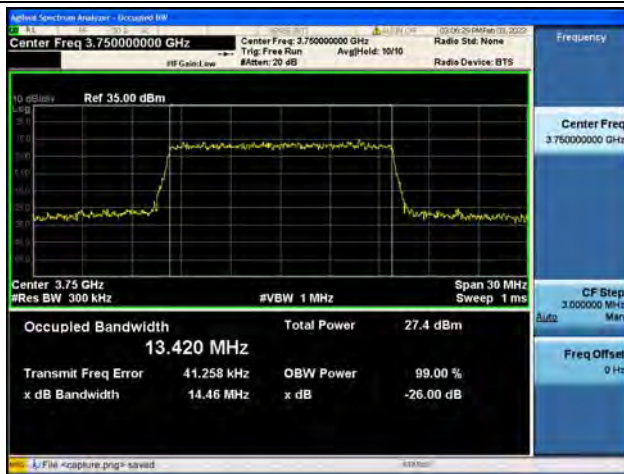
Band43(3700~3800) / 10MHz / 6QAM/ High CH



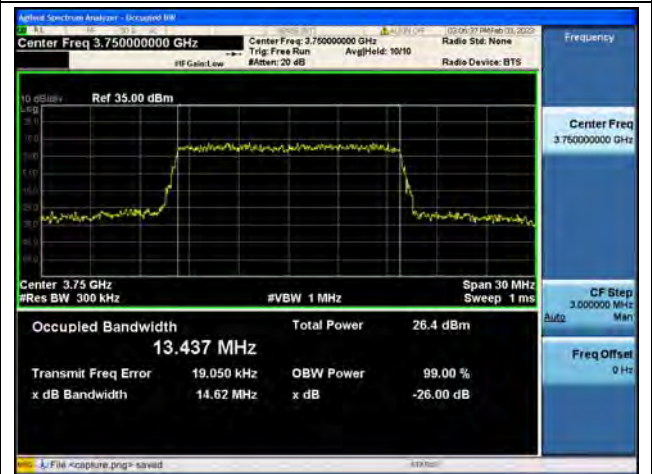
Band43(3700~3800) / 15MHz / QPSK/ Low CH



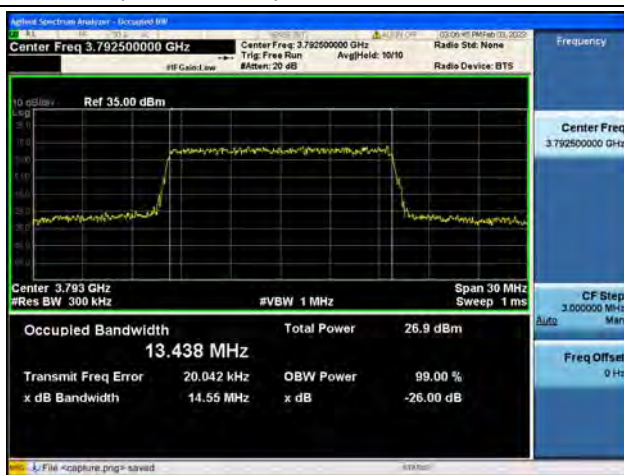
Band43(3700~3800) / 15MHz / 16QAM/ Low CH



Band43(3700~3800) / 15MHz / QPSK/ Mid CH



Band43(3700~3800) / 15MHz / 16QAM/ Mid CH



Band43(3700~3800) / 15MHz / QPSK/ High CH

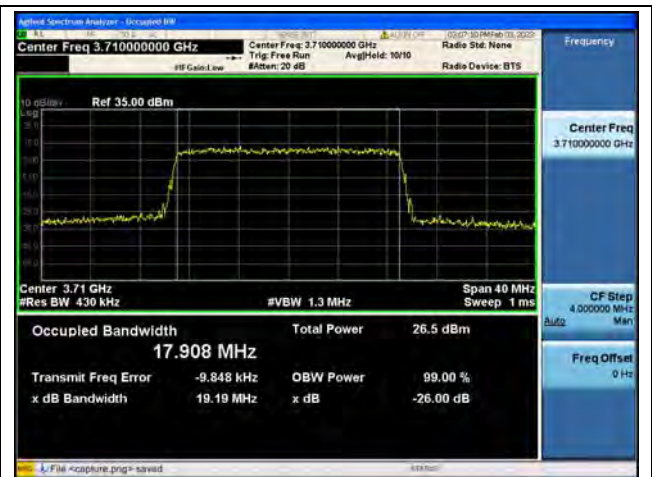


Band43(3700~3800) / 15MHz / 16QAM/ High CH





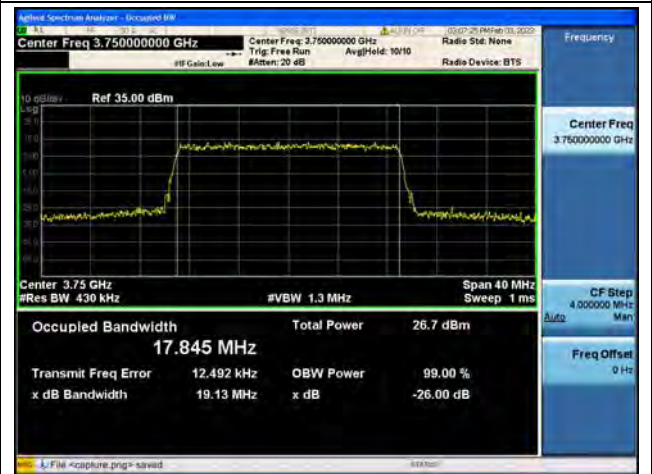
Band43(3700~3800) / 20MHz / QPSK/ Low CH



Band43(3700~3800) / 20MHz / 16QAM/ Low CH



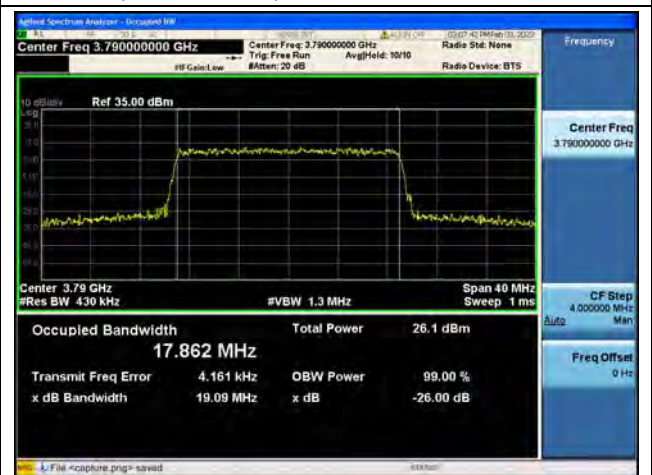
Band43(3700~3800) / 20MHz / QPSK/ Mid CH



Band43(3700~3800) / 20MHz / 16QAM/ Mid CH



Band43(3700~3800) / 20MHz / QPSK/ High CH



Band43(3700~3800) / 20MHz / 16QAM/ High CH

## 2.3. Frequency Stability

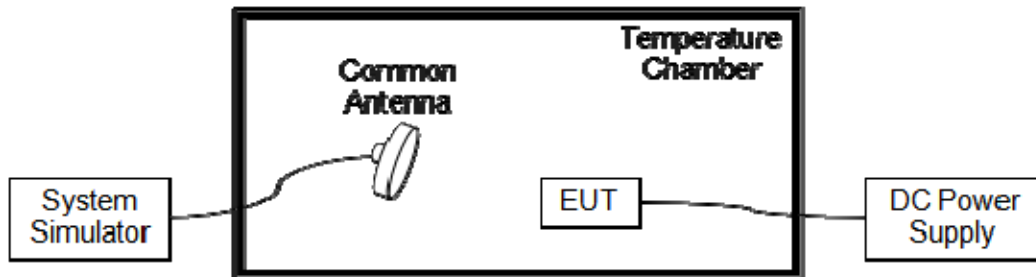
### 2.3.1. Requirement

According to FCC section 2.1055, 24.235, 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  at intervals of not more than  $10^{\circ}\text{C}$ .
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

**Note:** The operating temperature of EUT is from  $-10^{\circ}\text{C}$  to  $55^{\circ}\text{C}$ , which are specified by the applicant.

### 2.3.2. Test Description



The EUT which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

### 2.3.3. Test Procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.



**2.3.4. Test Result**

The nominal, highest and lowest extreme voltages are separately 12V, 13V and 9V, which are specified by the applicant; the normal temperature here used is 20°C.

<b>LTE Band 42, 64QAM, Channel 42590, Frequency 3500.0MHz</b> <b>Limit =Within Authorized Band</b>					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
Normal	12.00	+20(Ref)	17	0.005	PASS
Normal		-10	33	0.009	
Normal		0	36	0.010	
Normal		+10	17	0.005	
Normal		+20	24	0.007	
Normal		+30	15	0.004	
Normal		+40	-18	-0.005	
Normal		+50	13	0.004	
Normal		+55	42	0.012	
High	13.00	+20	37	0.011	
BATT.ENDPOINT	9.00	+20	40	0.011	

<b>LTE Band 43, 16QAM, Channel 45090, Frequency 3750.0MHz</b> <b>Limit =Within Authorized Band</b>					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	12.00	+20(Ref)	20	0.005	PASS
Normal		-10	-14	-0.004	
Normal		0	48	0.013	
Normal		+10	-19	-0.005	
Normal		+20	26	0.007	
Normal		+30	-15	-0.004	
Normal		+40	44	0.012	
Normal		+50	36	0.010	
Normal		+55	-13	-0.003	
High	13.00	+20	19	0.005	
BATT.ENDPOINT	9.00	+20	18	0.005	

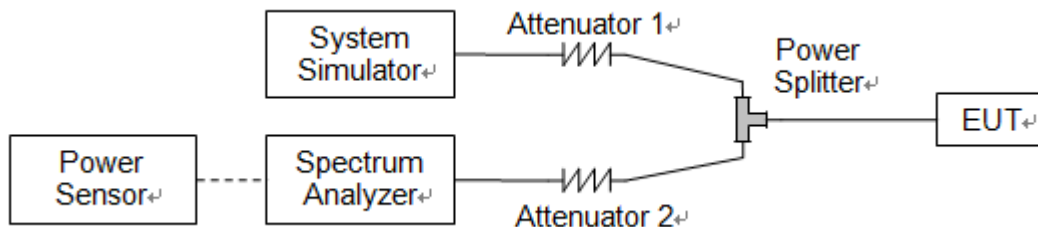
## 2.4. Peak to Average Ratio

### 2.4.1. Requirement

According to FCC section 24.232(d), 27.50(d) and 27.50(j)(4), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

According to FCC section 27.50(k)(4) for Band 42, in measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

### 2.4.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

### 2.4.3. Test Procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

### 2.4.4. Test Result

Record the maximum PAPR level associated with a probability of 0.1%.



LTE Band 42					
BW(MHz)	Channel Level	Modulation	PAR Radio(dB)	Limit(dB)	Verdict
5	Low	QPSK	5.86	<=13	PASS
	Low	16QAM	6.32	<=13	PASS
	Mid	QPSK	5.80	<=13	PASS
	Mid	16QAM	6.40	<=13	PASS
	High	QPSK	5.85	<=13	PASS
	High	16QAM	6.45	<=13	PASS
10	Low	QPSK	5.50	<=13	PASS
	Low	16QAM	6.52	<=13	PASS
	Mid	QPSK	5.68	<=13	PASS
	Mid	16QAM	6.50	<=13	PASS
	High	QPSK	5.69	<=13	PASS
	High	16QAM	6.53	<=13	PASS
15	Low	QPSK	5.66	<=13	PASS
	Low	16QAM	6.37	<=13	PASS
	Mid	QPSK	5.51	<=13	PASS
	Mid	16QAM	6.21	<=13	PASS
	High	QPSK	5.77	<=13	PASS
	High	16QAM	6.48	<=13	PASS
20	Low	QPSK	5.53	<=13	PASS
	Low	16QAM	6.44	<=13	PASS
	Mid	QPSK	5.57	<=13	PASS
	Mid	16QAM	6.29	<=13	PASS
	High	QPSK	5.58	<=13	PASS
	High	16QAM	6.53	<=13	PASS



LTE Band 43					
BW(MHz)	Channel Level	Modulation	PAR Radio(dB)	Limit(dB)	Verdict
5	Low	QPSK	5.59	<=13	PASS
	Low	16QAM	6.22	<=13	PASS
	Mid	QPSK	5.38	<=13	PASS
	Mid	16QAM	6.01	<=13	PASS
	High	QPSK	5.62	<=13	PASS
	High	16QAM	6.16	<=13	PASS
10	Low	QPSK	5.51	<=13	PASS
	Low	16QAM	6.21	<=13	PASS
	Mid	QPSK	5.32	<=13	PASS
	Mid	16QAM	6.02	<=13	PASS
	High	QPSK	5.43	<=13	PASS
	High	16QAM	6.10	<=13	PASS
15	Low	QPSK	5.39	<=13	PASS
	Low	16QAM	6.16	<=13	PASS
	Mid	QPSK	5.27	<=13	PASS
	Mid	16QAM	5.94	<=13	PASS
	High	QPSK	5.22	<=13	PASS
	High	16QAM	5.93	<=13	PASS
20	Low	QPSK	5.46	<=13	PASS
	Low	16QAM	6.27	<=13	PASS
	Mid	QPSK	5.35	<=13	PASS
	Mid	16QAM	6.11	<=13	PASS
	High	QPSK	5.27	<=13	PASS
	High	16QAM	6.08	<=13	PASS





Band42(3450~3550) / 5MHz / Low CH / QPSK



Band42(3450~3550) / 5MHz / Low CH / 16QAM



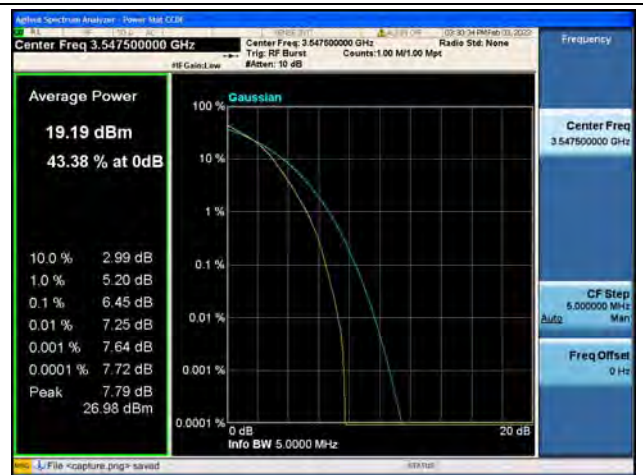
Band42(3450~3550) / 5MHz / Mid CH / QPSK



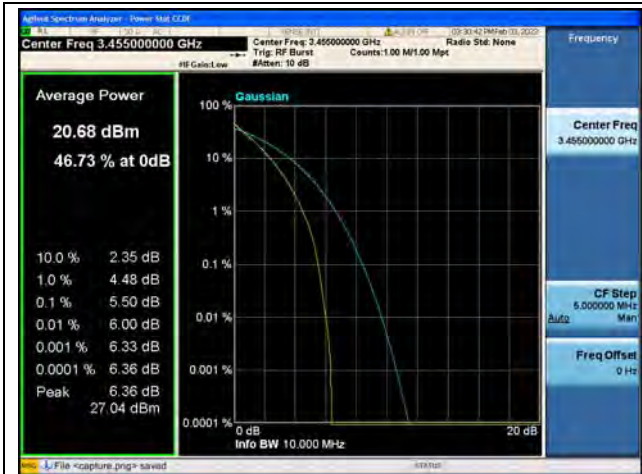
Band42(3450~3550) / 5MHz / Mid CH / 16QAM



Band42(3450~3550) / 5MHz / High CH / QPSK



Band42(3450~3550) / 5MHz / High CH / 16QAM



Band42(3450~3550) / 10MHz / Low CH / QPSK



Band42(3450~3550)/10MHz / Low CH / 16QAM



Band42(3450~3550) / 10MHz / Mid CH / QPSK



Band42(3450~3550)/10MHz / Mid CH / 16QAM



Band42(3450~3550) / 10MHz / High CH / QPSK



Band42(3450~3550)/10MHz /High CH / 16QAM





Band42(3450~3550) / 15MHz / Low CH / QPSK



Band42(3450~3550) / 15MHz / Low CH / 16QAM



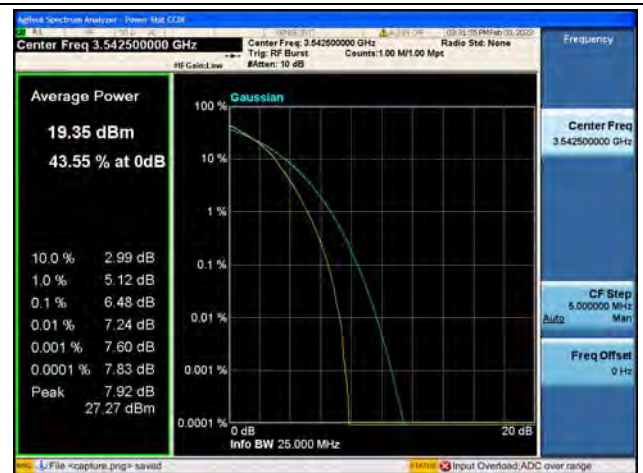
Band42(3450~3550) / 15MHz / Mid CH / QPSK



Band42(3450~3550) / 15MHz / Mid CH / 16QAM



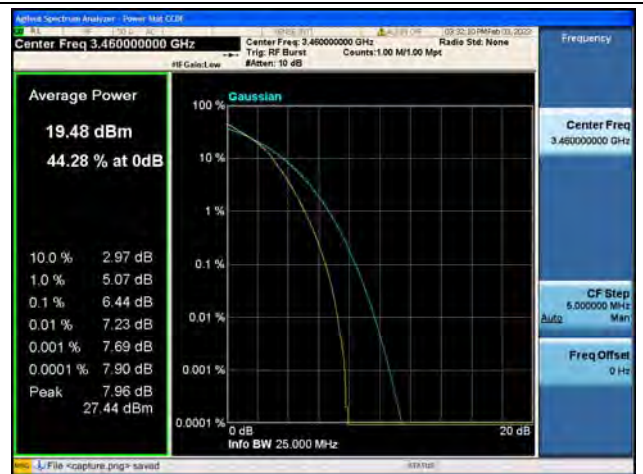
Band42(3450~3550) / 15MHz / High CH / QPSK



Band42(3450~3550) / 15MHz / High CH / 16QAM



Band42(3450~3550) / 20MHz / Low CH / QPSK



Band42(3450~3550)/20MHz / Low CH / 16QAM



Band42(3450~3550) / 20MHz / Mid CH / QPSK



Band42(3450~3550)/20MHz / Mid CH / 16QAM



Band42(3450~3550) / 20MHz / High CH / QPSK

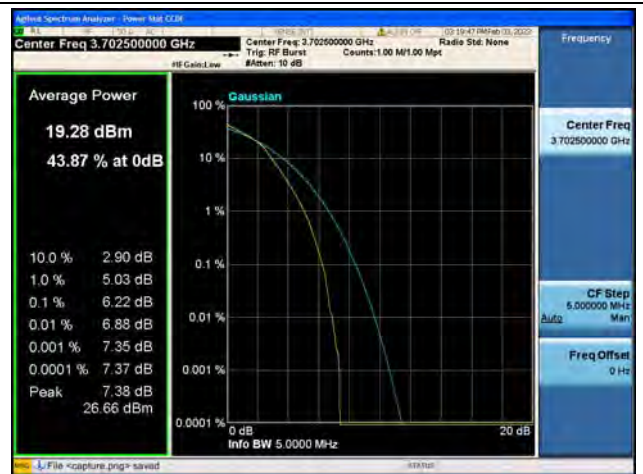


Band42(3450~3550)/20MHz / High CH / 16QAM





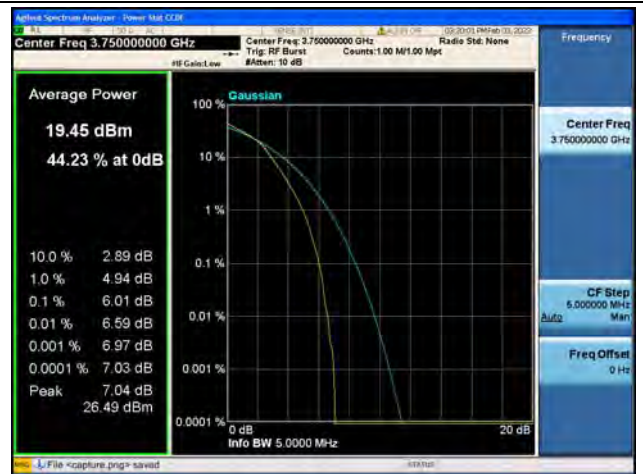
Band43(3700~3800) / 5MHz / Low CH / QPSK



Band43(3700~3800) / 5MHz / Low CH / 16QAM



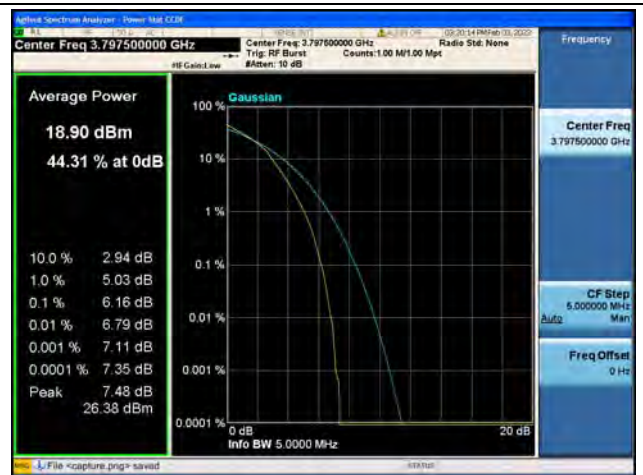
Band43(3700~3800) / 5MHz / Mid CH / QPSK



Band43(3700~3800) / 5MHz / Mid CH / 16QAM



Band43(3700~3800) / 5MHz / High CH / QPSK



Band43(3700~3800) / 5MHz / High CH / 16QAM



Band43(3700~3800) / 10MHz / Low CH / QPSK



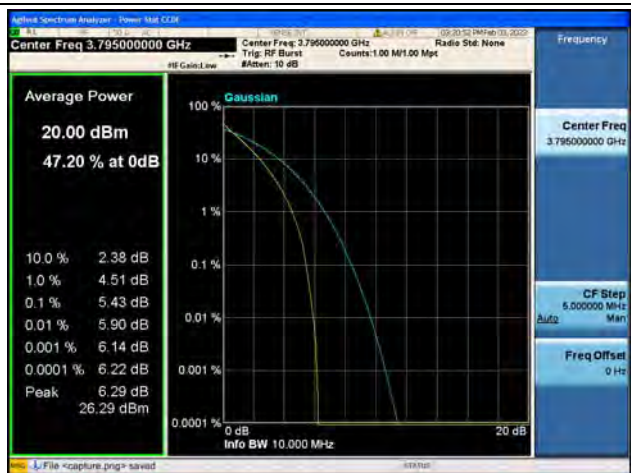
Band43(3700~3800) / 10MHz / Low CH / 16QAM



Band43(3700~3800) / 10MHz / Mid CH / QPSK



Band43(3700~3800) / 10MHz / Mid CH / 16QAM



Band43(3700~3800) / 10MHz / High CH / QPSK



Band43(3700~3800) / 10MHz / High CH / 16QAM





Band43(3700~3800) / 15MHz / Low CH / QPSK



Band43(3700~3800) /15MHz /Low CH / 16QAM



Band43(3700~3800) / 15MHz / Mid CH / QPSK



Band43(3700~3800) /15MHz / Mid CH / 16QAM



Band43(3700~3800) / 15MHz / High CH / QPSK



Band43(3700~3800)/15MHz /High CH / 16QAM





Band43(3700~3800) / 20MHz / Low CH / QPSK



Band43(3700~3800)/20MHz / Low CH / 16QAM



Band43(3700~3800) / 20MHz / Mid CH / QPSK



Band43(3700~3800)/20MHz / Mid CH / 16QAM



Band43(3700~3800) / 20MHz / High CH / QPSK



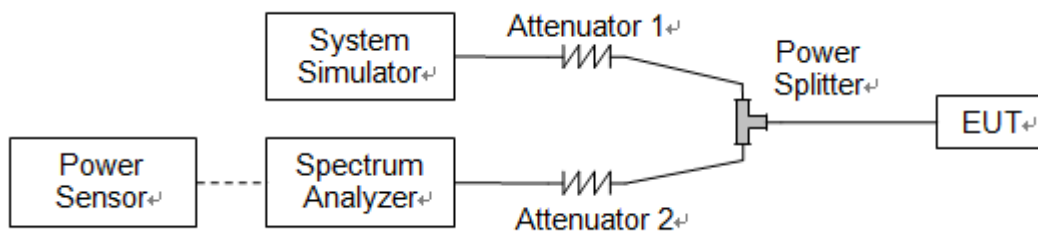
Band43(3700~3800)/20MHz / High CH / 16QAM

## 2.5. Conducted Spurious Emissions

### 2.5.1. Requirement

According to FCC section 2.1051, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10*\log(P)$ dB. This calculated to be -13dBm.

### 2.5.2. Test Description

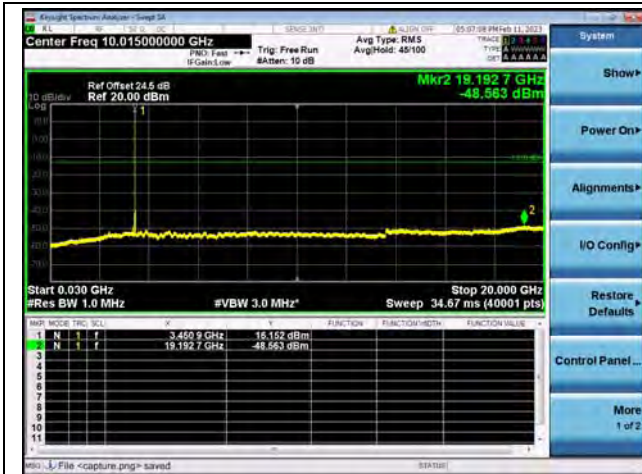


The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

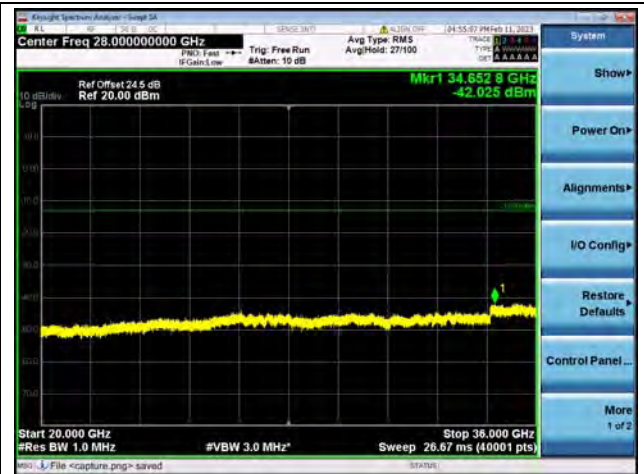
### 2.5.3. Test Procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

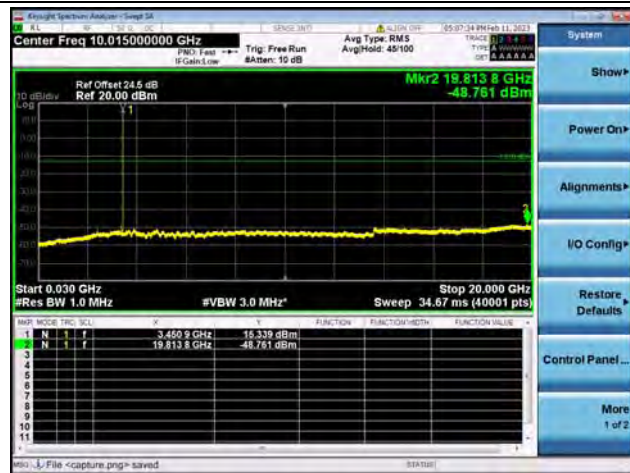
### 2.5.4. Test Result



Band42(3450~3550)-30M-20G / 5MHz / Low CH / QPSK



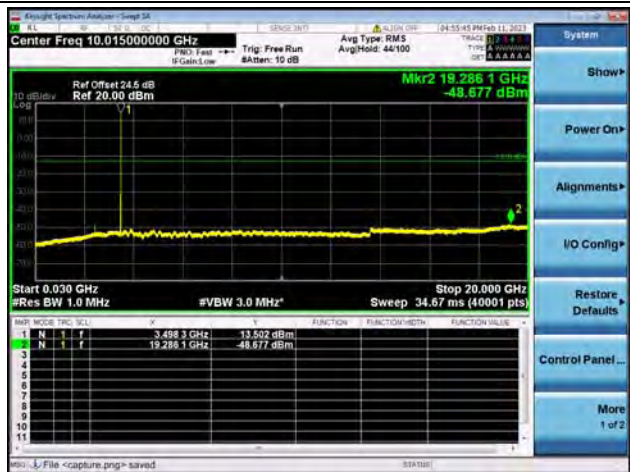
Band42(3450~3550)-20G-36G / 5MHz / Low CH / QPSK



Band42(3450~3550)-30M-20G / 5MHz / Low CH / 16QAM



Band42(3450~3550)-20G-36G / 5MHz / Low CH / 16QAM

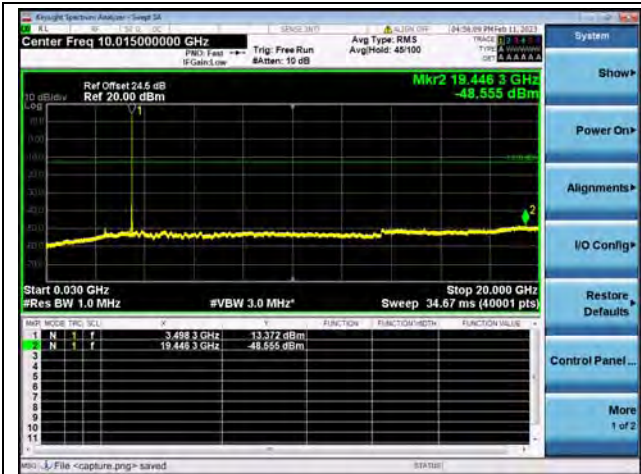


Band42(3450~3550)-30M-20G / 5MHz / Mid CH / QPSK



Band42(3450~3550)-20G-36G / 5MHz / Mid CH / QPSK

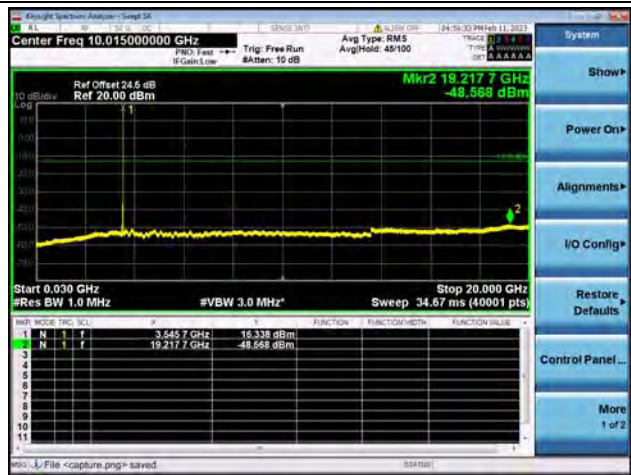




Band42(3450~3550)-30M-20G / 5MHz / Mid CH / 16QAM



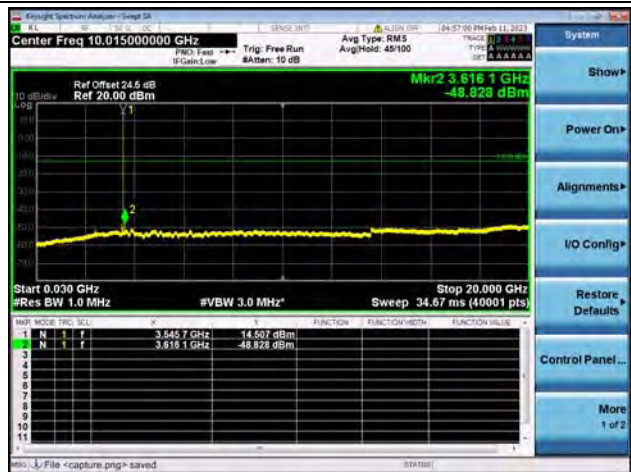
Band42(3450~3550)-20G-36G / 5MHz / Mid CH / 16QAM



Band42(3450~3550)-30M-20G / 5MHz / High CH / QPSK



Band42(3450~3550)-20G-36G / 5MHz / High CH / QPSK

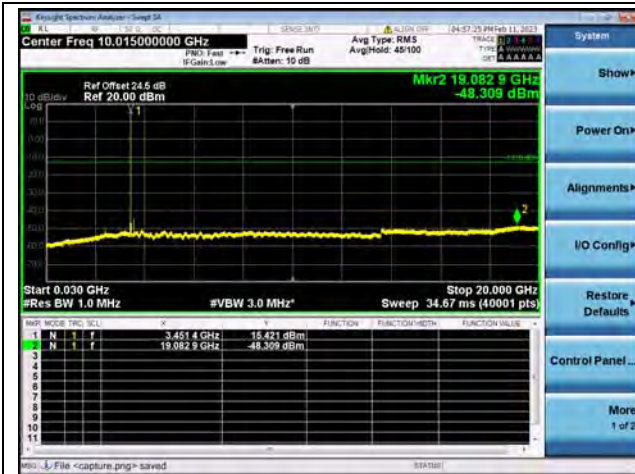


Band42(3450~3550)-30M-20G / 5MHz / High CH / 16QAM

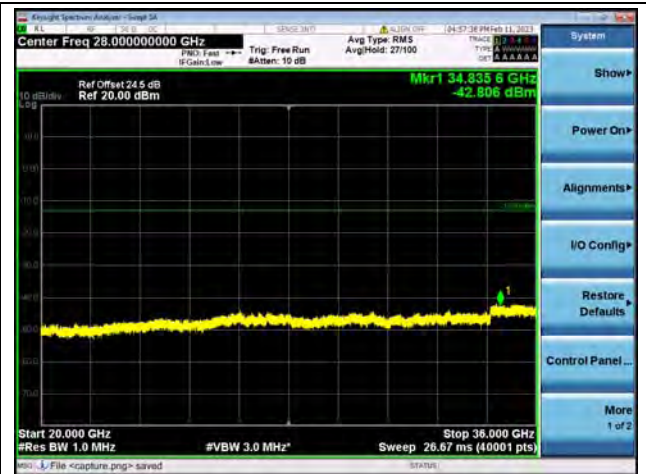


Band42(3450~3550)-20G-36G / 5MHz / High CH / 16QAM

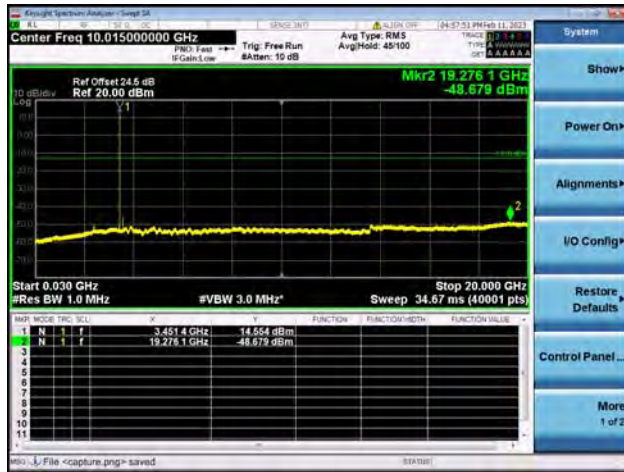




Band42(3450~3550)-30M-20G / 10MHz / Low CH / QPSK



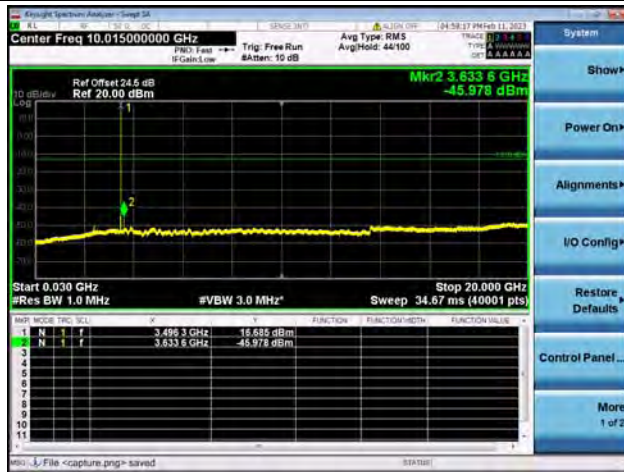
Band42(3450~3550)-20G-36G / 10MHz / Low CH / QPSK



Band42(3450~3550)-30M-20G / 10MHz / Low CH / 16QAM



Band42(3450~3550)-20G-36G / 10MHz / Low CH / 16QAM

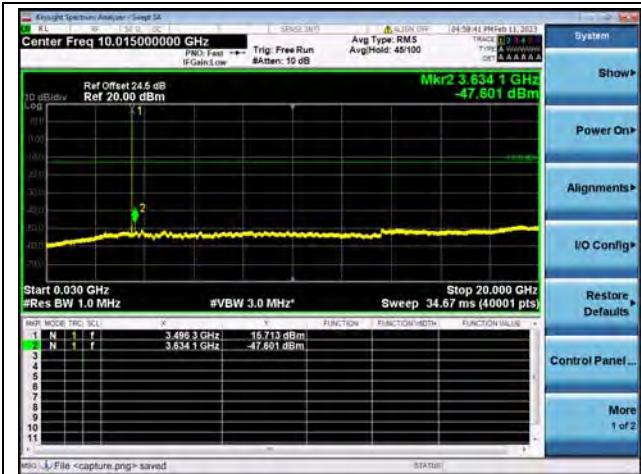


Band42(3450~3550)-30M-20G / 10MHz / Mid CH / QPSK

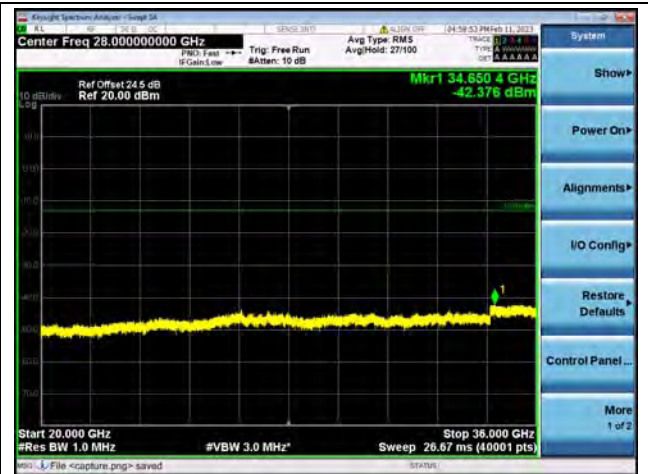


Band42(3450~3550)-20G-36G / 10MHz / Mid CH / QPSK

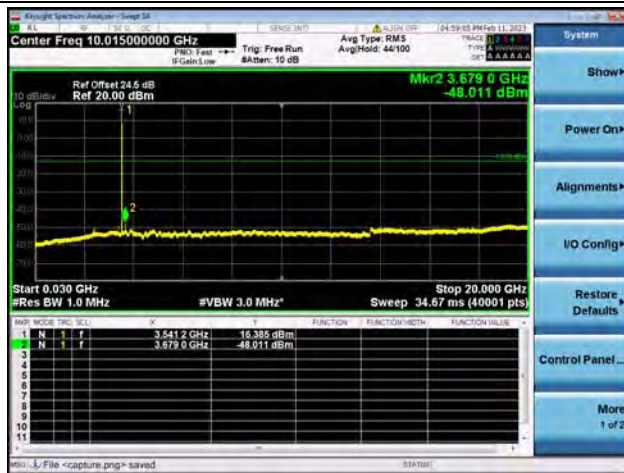




Band42(3450~3550)-30M-20G / 10MHz / Mid CH / 16QAM



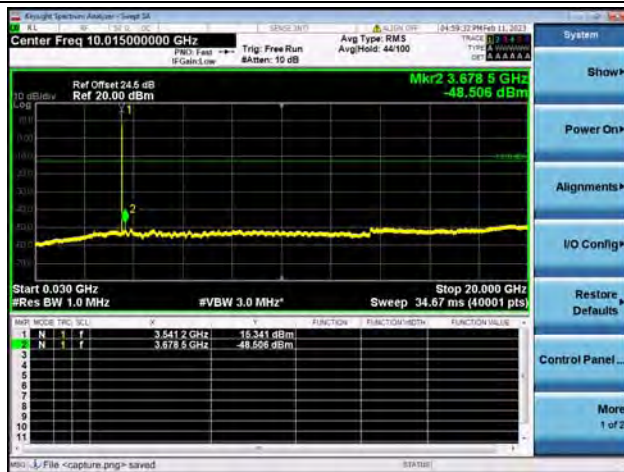
Band42(3450~3550)-20G-36G / 10MHz / Mid CH / 16QAM



Band42(3450~3550)-30M-20G / 10MHz / High CH / QPSK



Band42(3450~3550)-20G-36G / 10MHz / High CH / QPSK

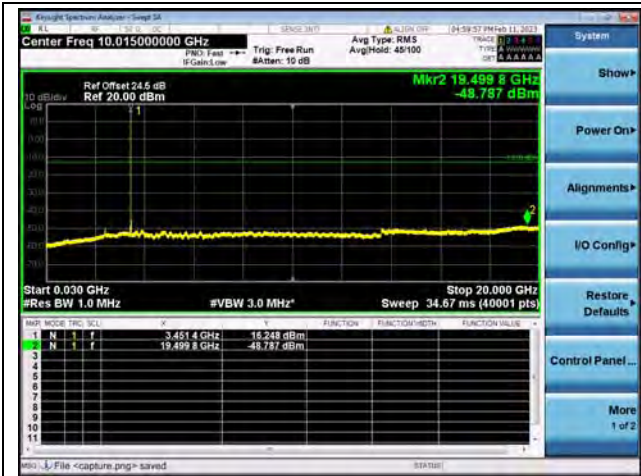


Band42(3450~3550)-30M-20G / 10MHz / High CH / 16QAM



Band42(3450~3550)-20G-36G / 10MHz / High CH / 16QAM

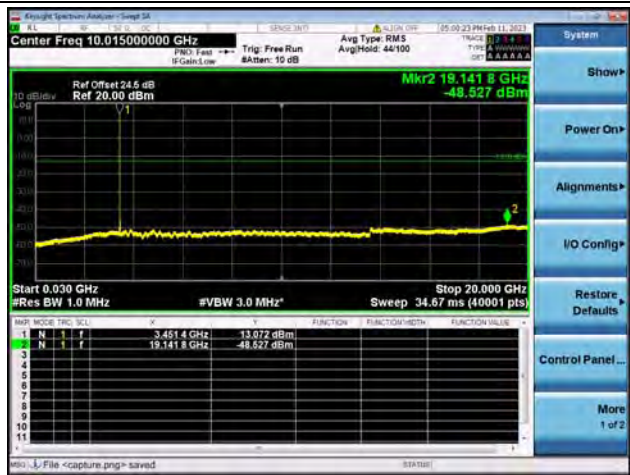




Band42(3450~3550)-30M-20G / 15MHz / Low CH / QPSK



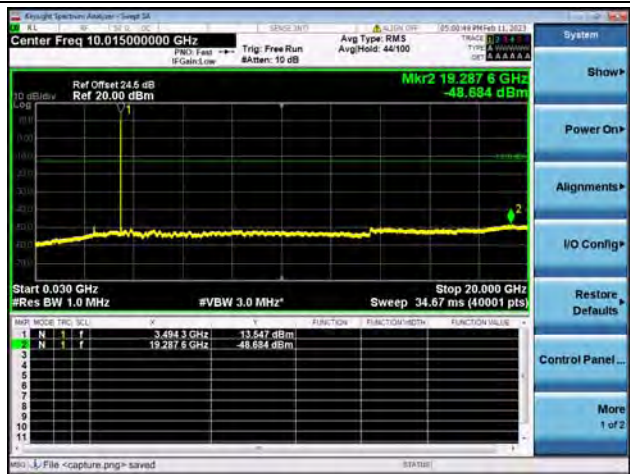
Band42(3450~3550)-20G-36G / 15MHz / Low CH / QPSK



Band42(3450~3550)-30M-20G / 15MHz / Low CH / 16QAM



Band42(3450~3550)-20G-36G / 15MHz / Low CH / 16QAM

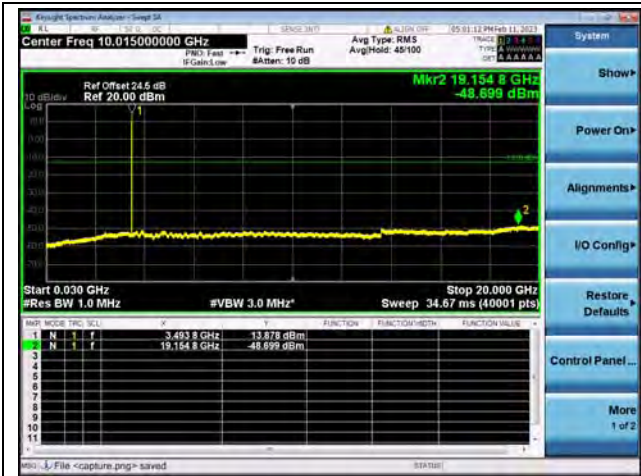


Band42(3450~3550)-30M-20G / 15MHz / Mid CH / QPSK



Band42(3450~3550)-20G-36G / 15MHz / Mid CH / QPSK

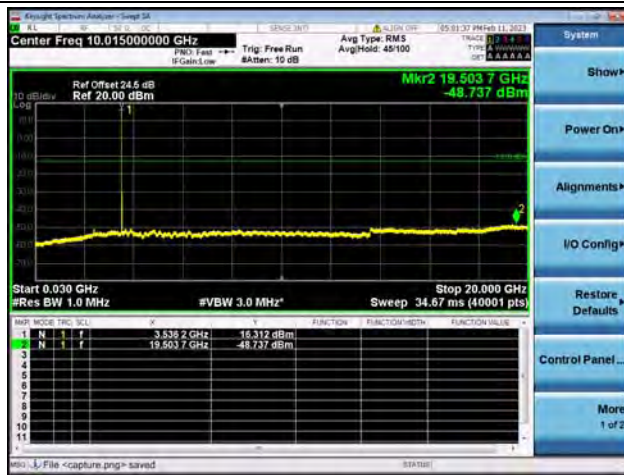




Band42(3450~3550)-30M-20G / 15MHz / Mid CH / 16QAM



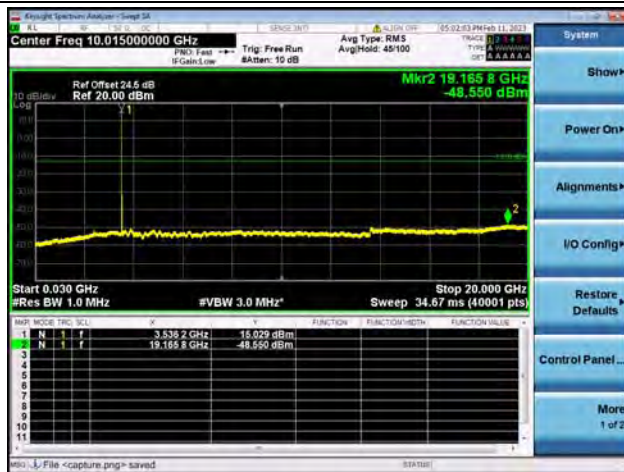
Band42(3450~3550)-20G-36G / 15MHz / Mid CH / 16QAM



Band42(3450~3550)-30M-20G / 15MHz / High CH / QPSK



Band42(3450~3550)-20G-36G / 15MHz / High CH / QPSK

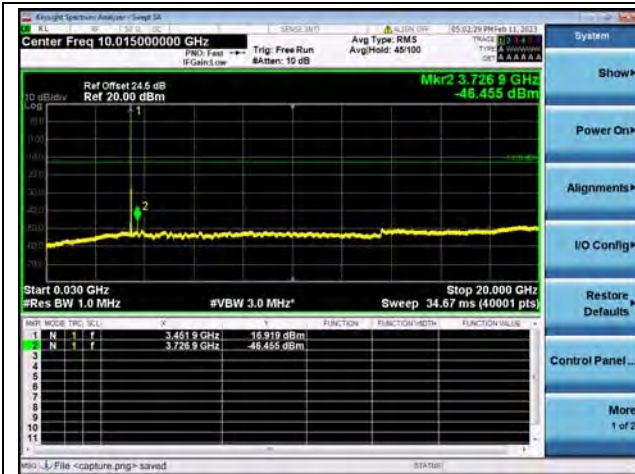


Band42(3450~3550)-30M-20G / 15MHz / High CH / 16QAM



Band42(3450~3550)-20G-36G / 15MHz / High CH / 16QAM

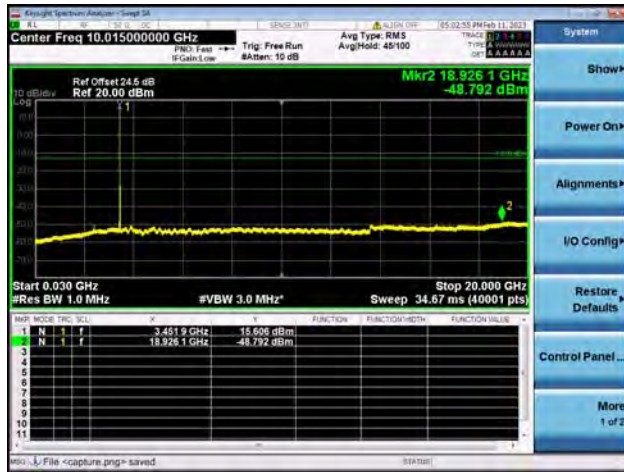




Band42(3450~3550)-30M-20G / 20MHz / Low CH / QPSK



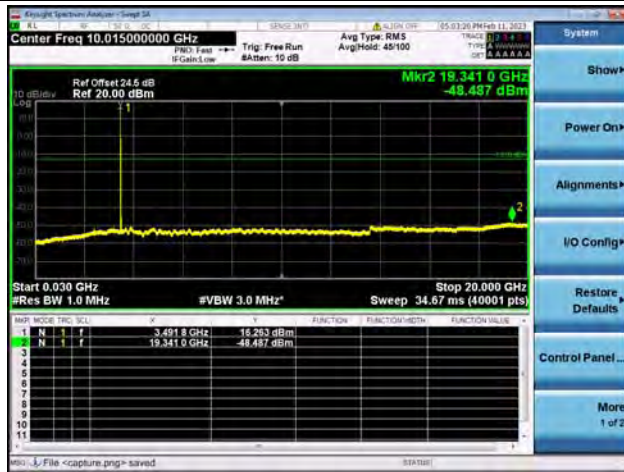
Band42(3450~3550)-20G-36G / 20MHz / Low CH / QPSK



Band42(3450~3550)-30M-20G / 20MHz / Low CH / 16QAM



Band42(3450~3550)-20G-36G / 20MHz / Low CH / 16QAM

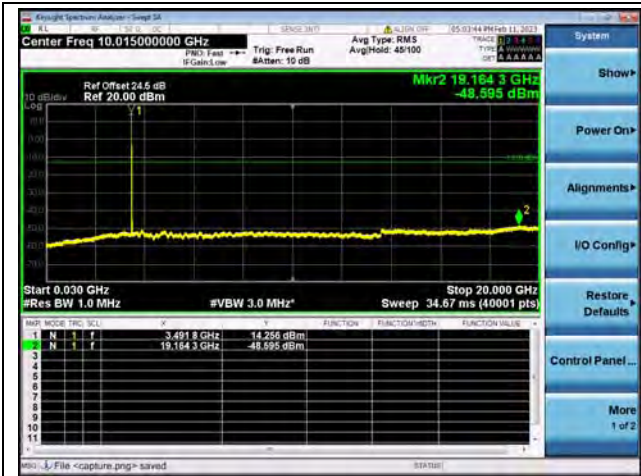


Band42(3450~3550)-30M-20G / 20MHz / Mid CH / QPSK



Band42(3450~3550)-20G-36G / 20MHz / Mid CH / QPSK

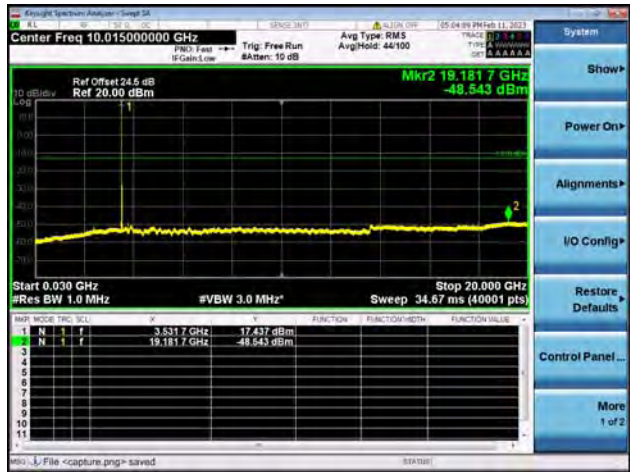




Band42(3450~3550)-30M-20G / 20MHz / Mid CH / 16QAM



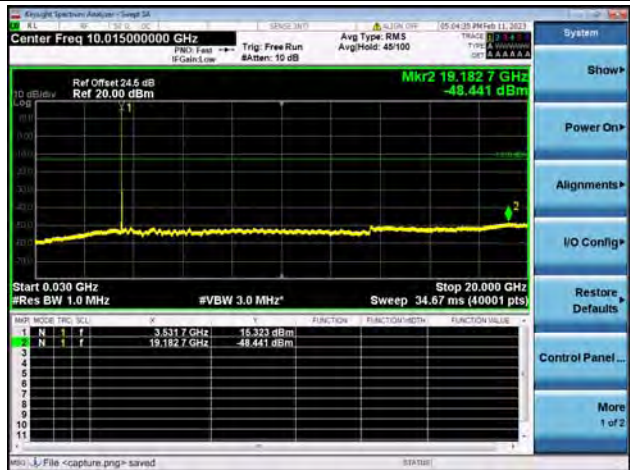
Band42(3450~3550)-20G-36G / 20MHz / Mid CH / 16QAM



Band42(3450~3550)-30M-20G / 20MHz / High CH / QPSK



Band42(3450~3550)-20G-36G / 20MHz / High CH / QPSK

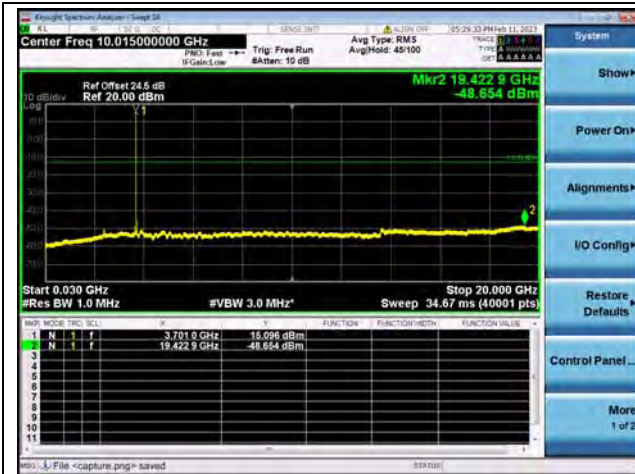


Band42(3450~3550)-30M-20G / 20MHz / High CH / 16QAM

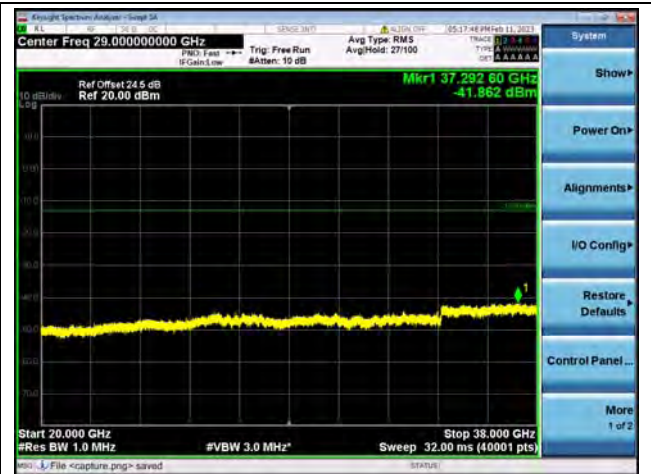


Band42(3450~3550)-20G-36G / 20MHz / High CH / 16QAM

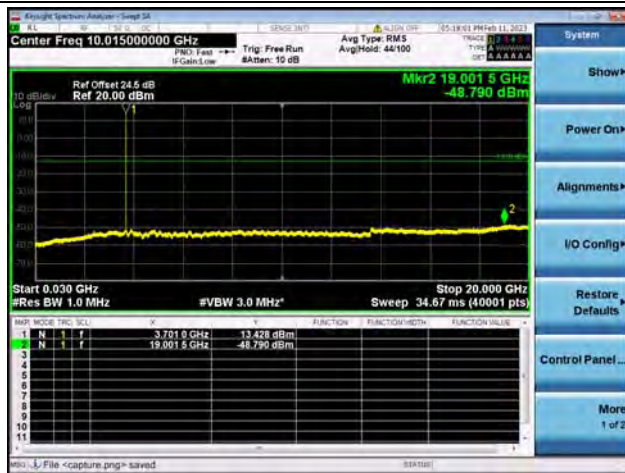




Band43(3700~3800)-30M-20G / 5MHz / Low CH / QPSK



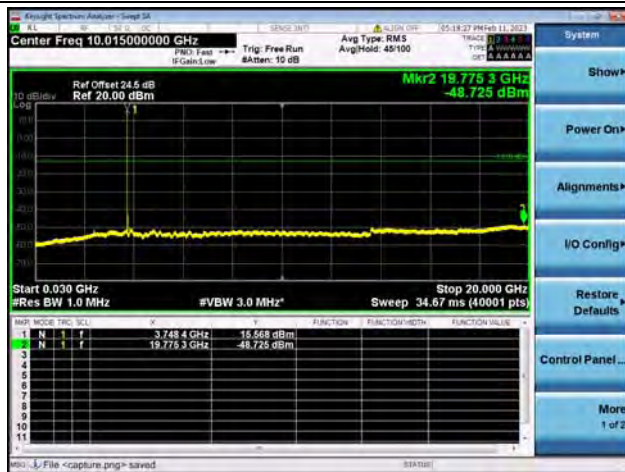
Band43(3700~3800)-20G-38G / 5MHz / Low CH / QPSK



Band43(3700~3800)-30M-20G / 5MHz / Low CH / 16QAM



Band43(3700~3800)-20G-38G / 5MHz / Low CH / 16QAM

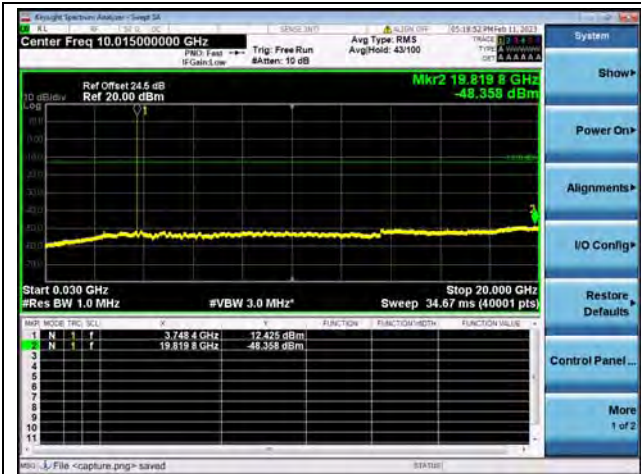


Band43(3700~3800)-30M-20G / 5MHz / Mid CH / QPSK



Band43(3700~3800)-20G-38G / 5MHz / Mid CH / QPSK

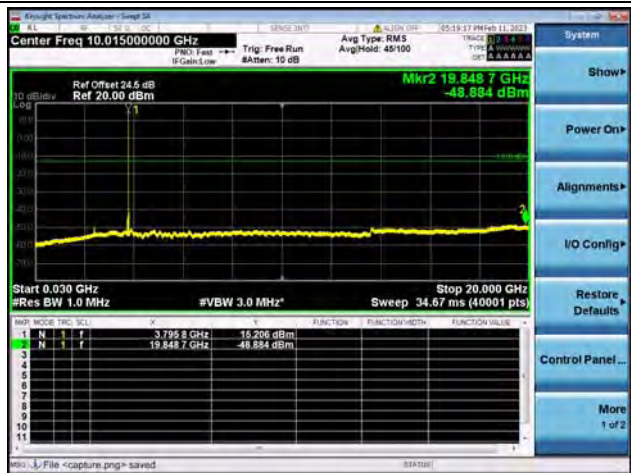




Band43(3700~3800)-30M-20G / 5MHz / Mid CH / 16QAM



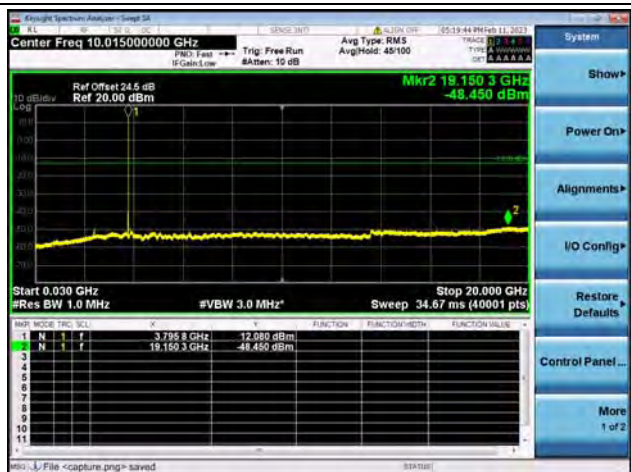
Band43(3700~3800)-20G-38G / 5MHz / Mid CH / 16QAM



Band43(3700~3800)-30M-20G / 5MHz / High CH / QPSK



Band43(3700~3800)-20G-38G / 5MHz / High CH / QPSK

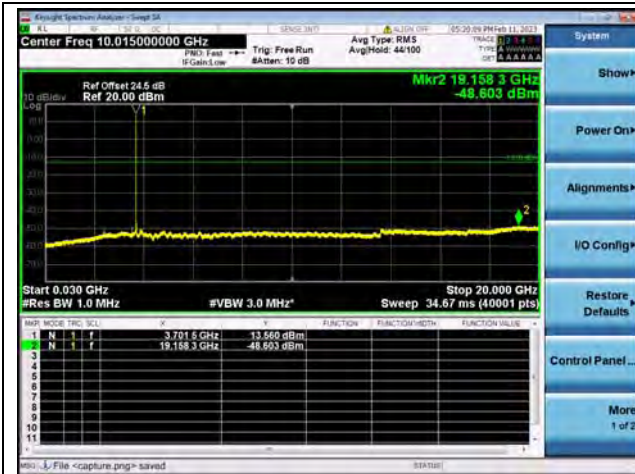


Band43(3700~3800)-30M-20G / 5MHz / High CH / 16QAM



Band43(3700~3800)-20G-38G / 5MHz / High CH / 16QAM

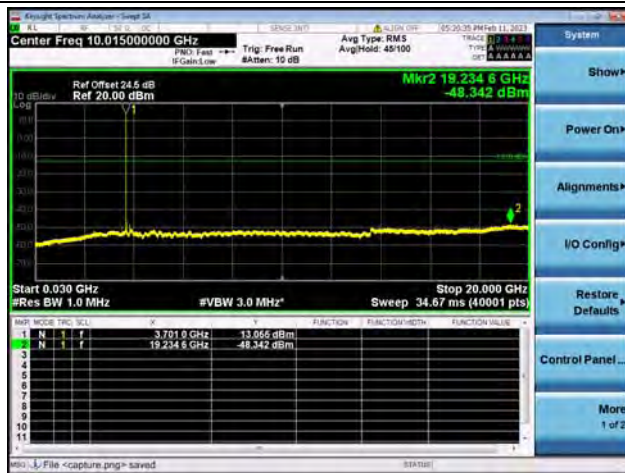




Band43(3700~3800)-30M-20G / 10MHz / Low CH / QPSK



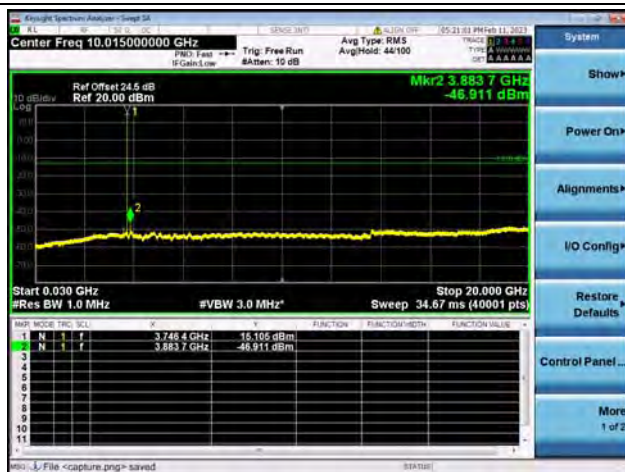
Band43(3700~3800)-20G-38G / 10MHz / Low CH / QPSK



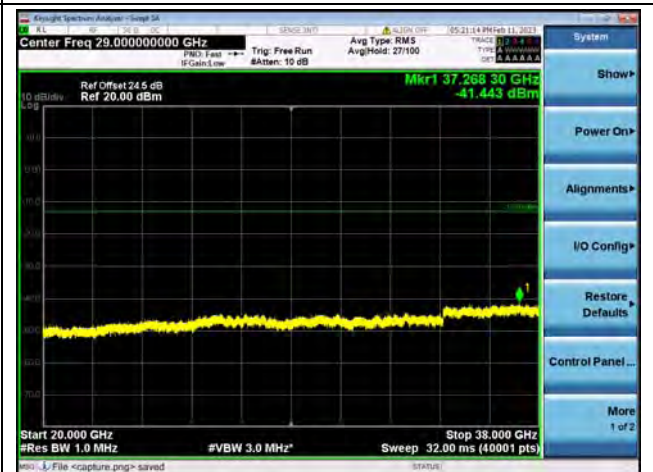
Band43(3700~3800)-30M-20G / 10MHz / Low CH / 16QAM



Band43(3700~3800)-20G-38G / 10MHz / Low CH / 16QAM

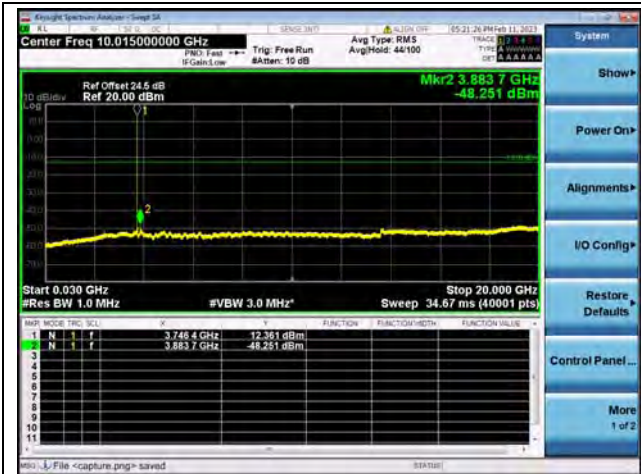


Band43(3700~3800)-30M-20G / 10MHz / Mid CH / QPSK



Band43(3700~3800)-20G-38G / 10MHz / Mid CH / QPSK

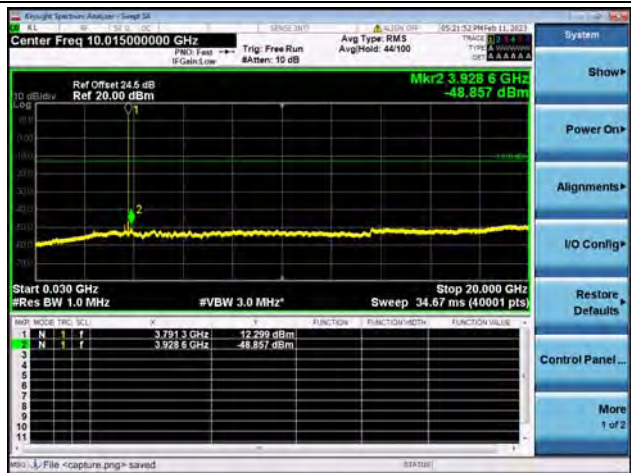




Band43(3700~3800)-30M-20G / 10MHz / Mid CH / 16QAM



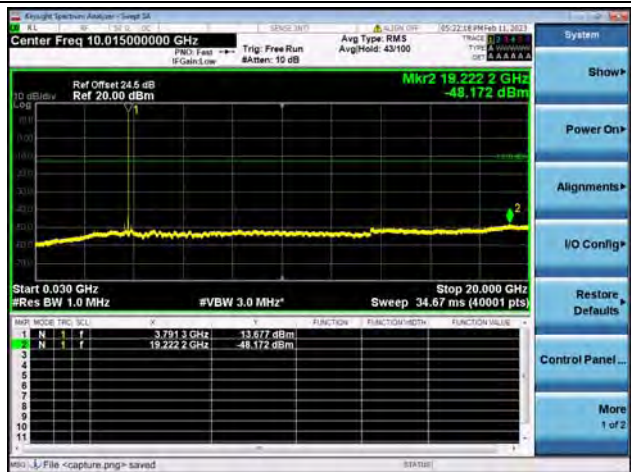
Band43(3700~3800)-20G-38G / 10MHz / Mid CH / 16QAM



Band43(3700~3800)-30M-20G / 10MHz / High CH / QPSK



Band43(3700~3800)-20G-38G / 10MHz / High CH / QPSK

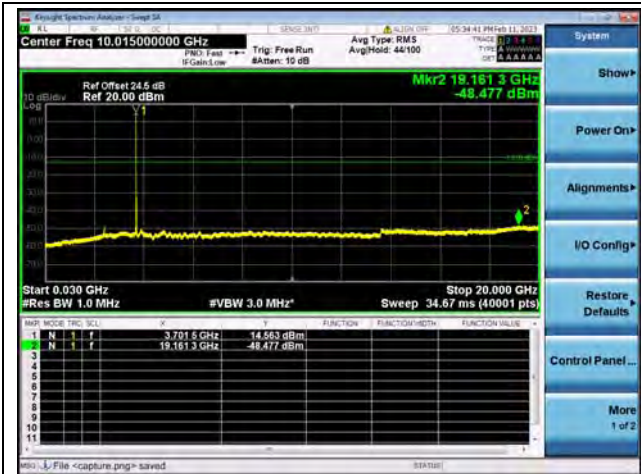


Band43(3700~3800)-30M-20G / 10MHz / High CH / 16QAM

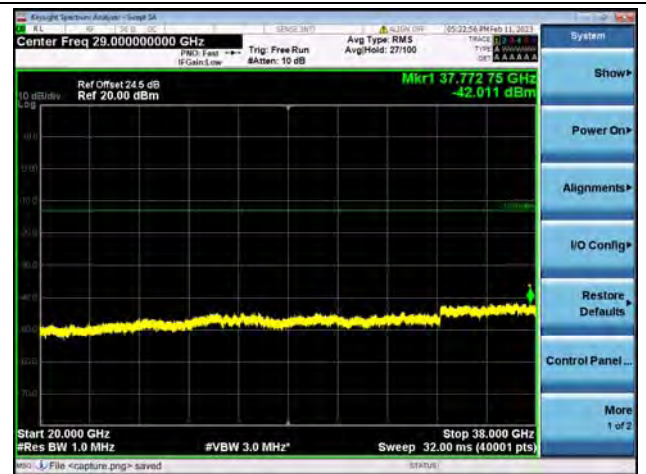


Band43(3700~3800)-20G-38G / 10MHz / High CH / 16QAM

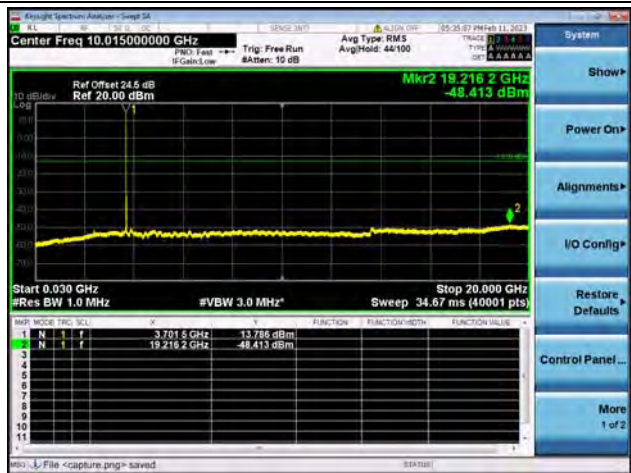




Band43(3700~3800)-30M-20G / 15MHz / Low CH / QPSK



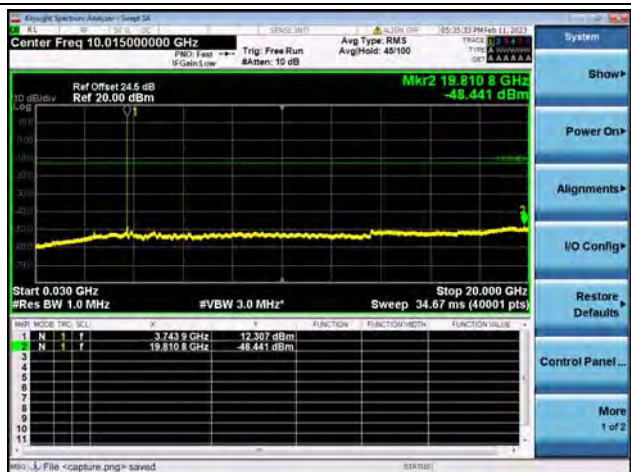
Band43(3700~3800)-20G-38G / 15MHz / Low CH / QPSK



Band43(3700~3800)-30M-20G / 15MHz / Low CH / 16QAM



Band43(3700~3800)-20G-38G / 15MHz / Low CH / 16QAM

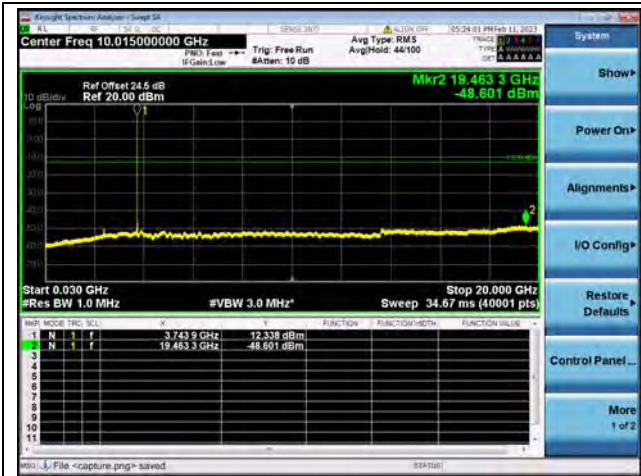


Band43(3700~3800)-30M-20G / 15MHz / Mid CH / QPSK



Band43(3700~3800)-20G-38G / 15MHz / Mid CH / QPSK

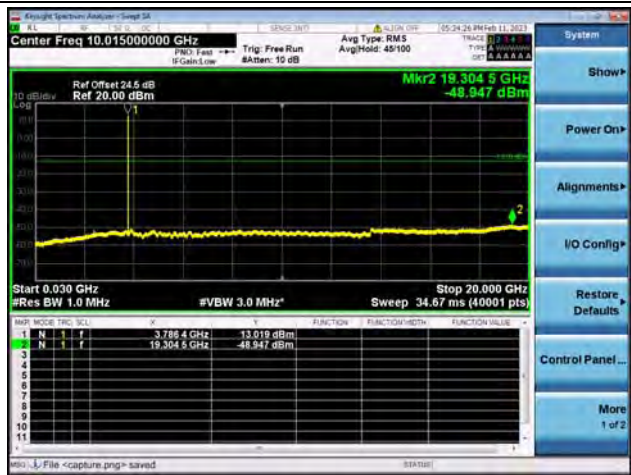




Band43(3700~3800)-30M-20G / 15MHz / Mid CH / 16QAM



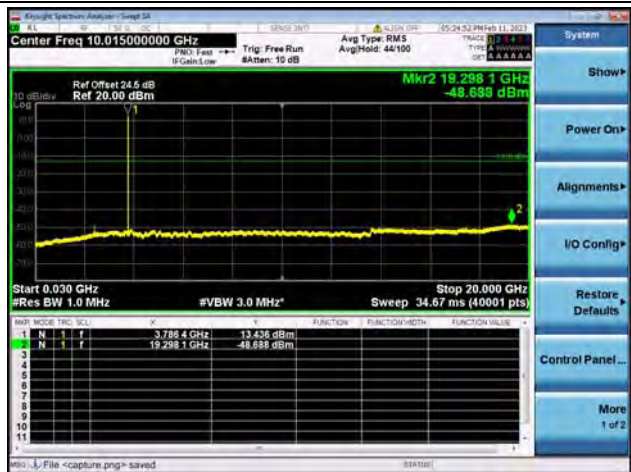
Band43(3700~3800)-20G-38G / 15MHz / Mid CH / 16QAM



Band43(3700~3800)-30M-20G / 15MHz / High CH / QPSK



Band43(3700~3800)-20G-38G / 15MHz / High CH / QPSK

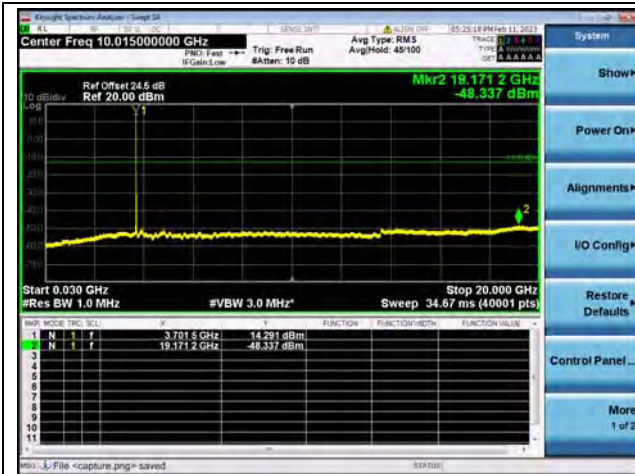


Band43(3700~3800)-30M-20G / 15MHz / High CH / 16QAM



Band43(3700~3800)-20G-38G / 15MHz / High CH / 16QAM

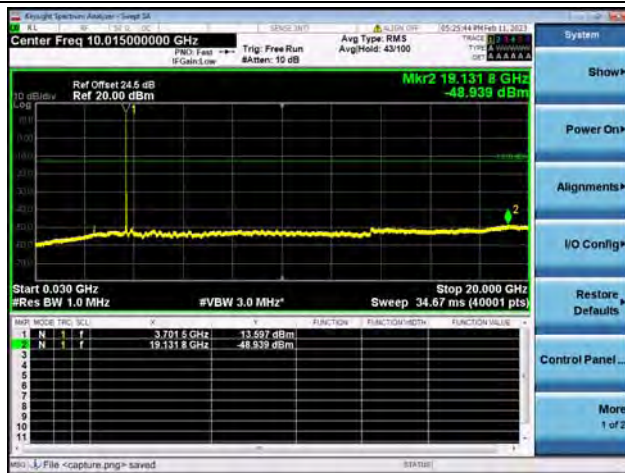




Band43(3700~3800)-30M-20G / 20MHz / Low CH / QPSK



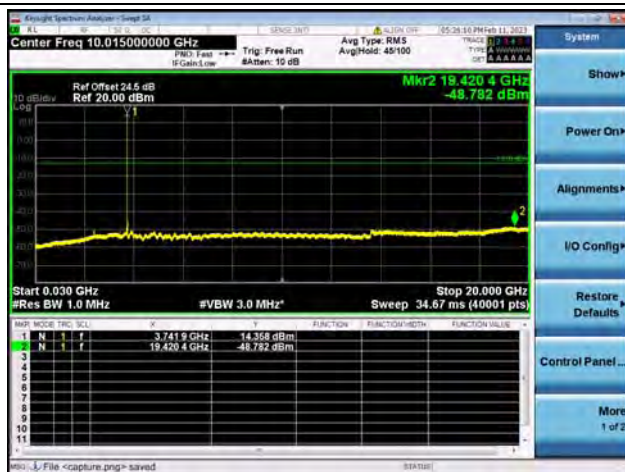
Band43(3700~3800)-20G-38G / 20MHz / Low CH / QPSK



Band43(3700~3800)-30M-20G / 20MHz / Low CH / 16QAM



Band43(3700~3800)-20G-38G / 20MHz / Low CH / 16QAM

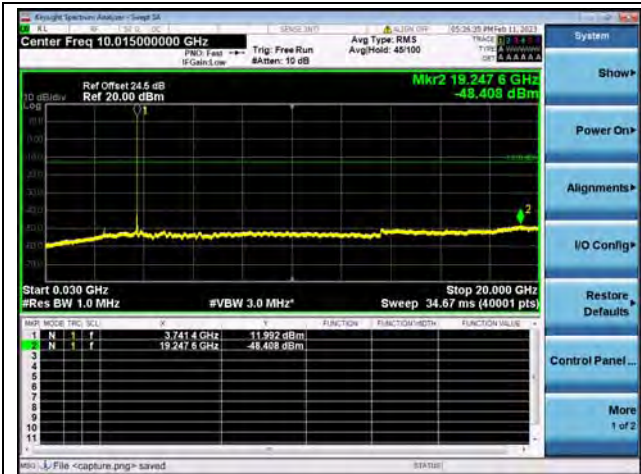


Band43(3700~3800)-30M-20G / 20MHz / Mid CH / QPSK



Band43(3700~3800)-20G-38G / 20MHz / Mid CH / QPSK

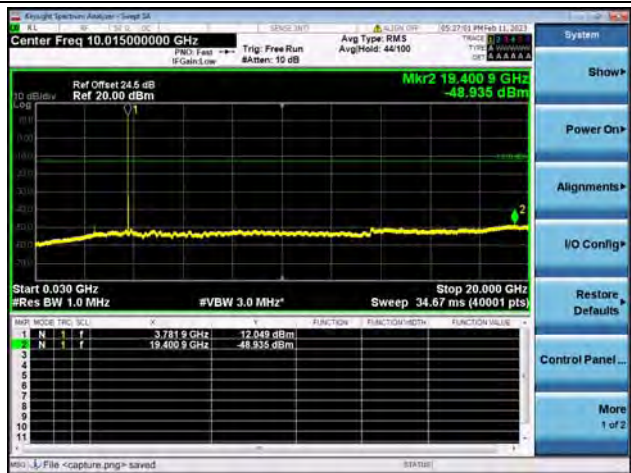




Band43(3700~3800)-30M-20G / 20MHz / Mid CH / 16QAM



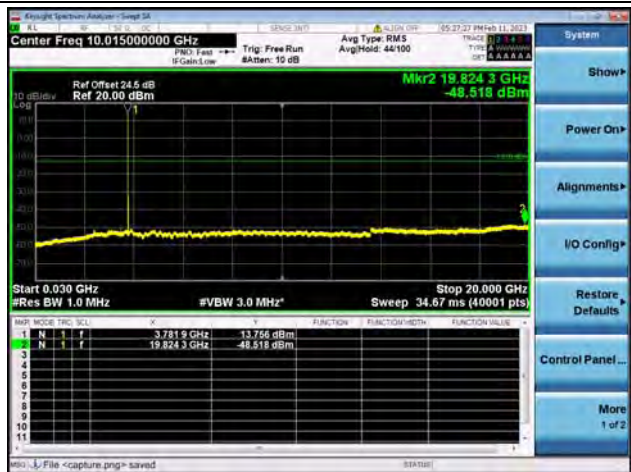
Band43(3700~3800)-20G-38G / 20MHz / Mid CH / 16QAM



Band43(3700~3800)-30M-20G / 20MHz / High CH / QPSK



Band43(3700~3800)-20G-38G / 20MHz / High CH / QPSK



Band43(3700~3800)-30M-20G / 20MHz / High CH / 16QAM



Band43(3700~3800)-20G-38G / 20MHz / High CH / 16QAM



## 2.6. Band Edge

### 2.6.1. Requirement

#### Band 42

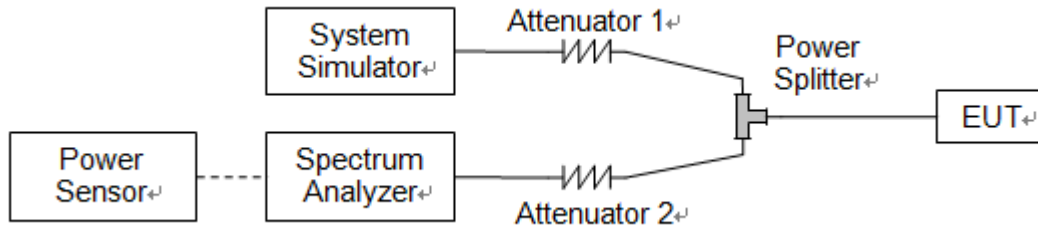
According to FCC section 27.53(n) (2), For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed  $-13$  dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### Band 43

According to FCC section 27.53(l)(2), for mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed  $-13$  dBm/MHz, based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.



### 2.6.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

### 2.6.3. Test Procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.



2.6.4. Test Result



Band42(3450~3550) / 5MHz / Low CH / QPSK / 1 RB



Band42(3450~3550) / 5MHz / Low CH / QPSK / FULL RB



Band42(3450~3550) / 5MHz / High CH / QPSK / 1 RB



Band42(3450~3550) / 5MHz / High CH / QPSK / FULL RB



Band42(3450~3550) / 10MHz / Low CH / QPSK / 1 RB



Band42(3450~3550) / 10MHz / Low CH / QPSK / FULL RB



Band42(3450~3550) / 10MHz / High CH / QPSK / 1 RB



Band42(3450~3550) / 10MHz / High CH / QPSK / FULL RB





Band42(3450~3550) / 15MHz / Low CH / QPSK / 1 RB



Band42(3450~3550) / 15MHz / Low CH / QPSK / FULL RB



Band42(3450~3550) / 15MHz / High CH / QPSK / 1 RB



Band42(3450~3550) / 15MHz / High CH / QPSK / FULL RB



Band42(3450~3550) / 20MHz / Low CH / QPSK / 1 RB



Band42(3450~3550) / 20MHz / Low CH / QPSK / FULL RB



Band42(3450~3550) / 20MHz / High CH / QPSK / 1 RB



Band42(3450~3550) / 20MHz / High CH / QPSK / FULL RB





Band43(3700~3800) / 5MHz / Low CH / QPSK / 1 RB



Band43(3700~3800) / 5MHz / Low CH / QPSK / FULL RB



Band43(3700~3800) / 5MHz / High CH / QPSK / 1 RB



Band43(3700~3800) / 5MHz / High CH / QPSK / FULL RB





Band43(3700~3800) / 10MHz / Low CH / QPSK / 1 RB



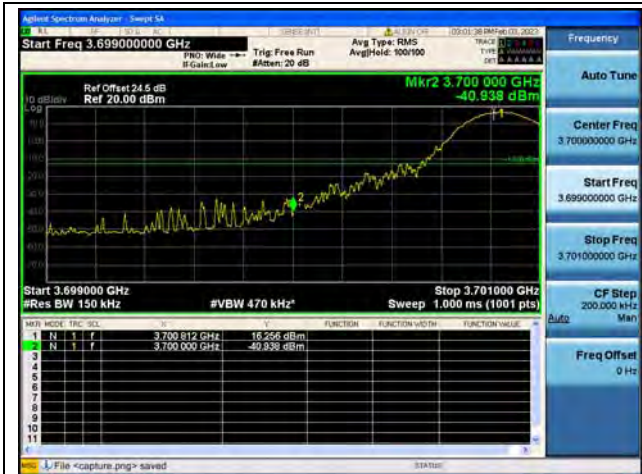
Band43(3700~3800) / 10MHz / Low CH / QPSK / FULL RB



Band43(3700~3800) / 10MHz / High CH / QPSK / 1 RB



Band43(3700~3800) / 10MHz / High CH / QPSK / FULL RB



Band43(3700~3800) / 15MHz / Low CH / QPSK / 1 RB



Band43(3700~3800) / 15MHz / Low CH / QPSK / FULL RB



Band43(3700~3800) / 15MHz / High CH / QPSK / 1 RB



Band43(3700~3800) / 15MHz / High CH / QPSK / FULL RB





Band43(3700~3800) / 20MHz / Low CH / QPSK / 1 RB



Band43(3700~3800) / 20MHz / Low CH / QPSK / FULL RB



Band43(3700~3800) / 20MHz / High CH / QPSK / 1 RB



Band43(3700~3800) / 20MHz / High CH / QPSK / FULL RB

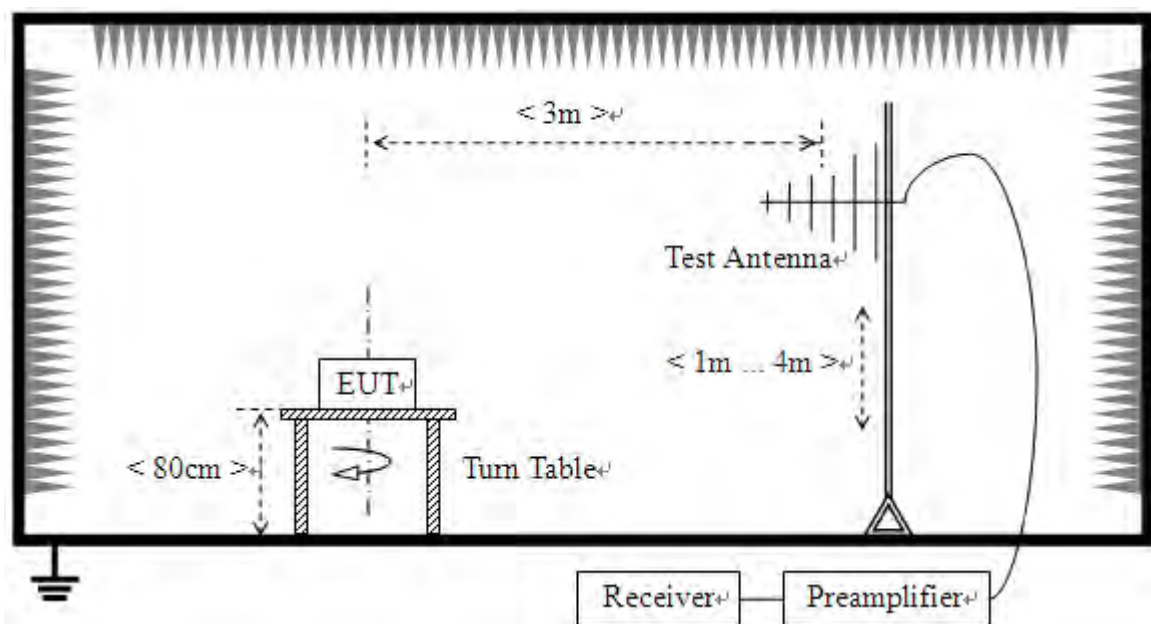


## 2.7. Radiated Spurious Emissions

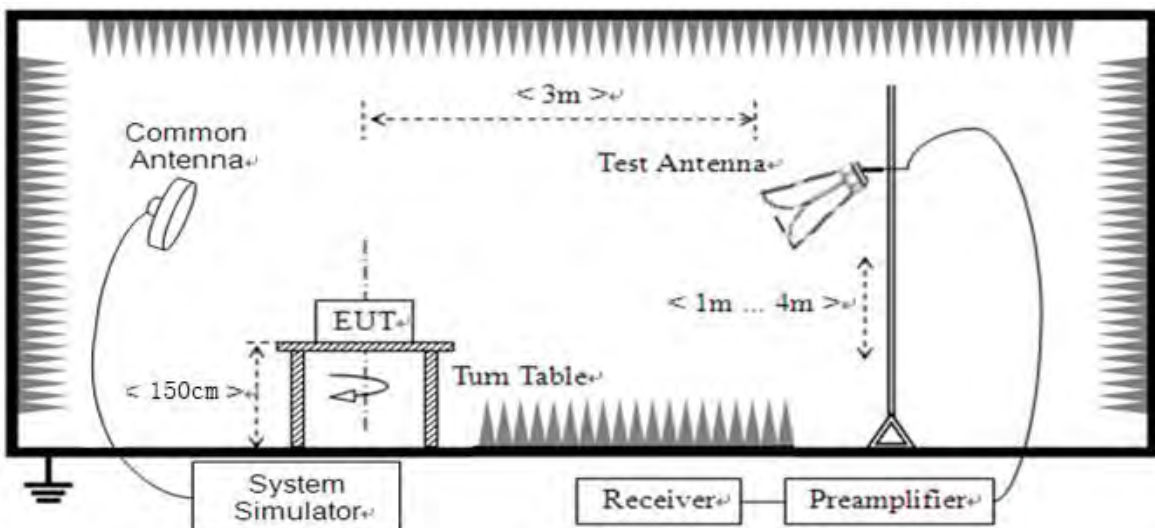
### 2.7.1. Requirement

According to FCC section 2.1051, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10\log(P)$ dB. This calculated to be -13dBm.

### 2.7.2. Test Description



(For the test frequency from 30MHz to 1GHz)





(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

**Note:** When doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

### 2.7.3. Test Procedure

KDB 971168 D01v03 Section 5.8 and ANSI/TIA-603-E-2016.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements.

For measurements above 1GHz (exclude 1559-1610 MHz) the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements.



#### 2.7.4. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions.

The substitution corrections are obtained as described below:

$$A_{\text{SUBST}} = P_{\text{SUBST\_TX}} - P_{\text{SUBST\_RX}} - L_{\text{SUBST\_CABLES}} + G_{\text{SUBST\_TX\_ANT}}$$

$$A_{\text{TOT}} = L_{\text{CABLES}} + A_{\text{SUBST}}$$

Where  $A_{\text{SUBST}}$  is the final substitution correction including receive antenna gain.

$P_{\text{SUBST\_TX}}$  is signal generator level,

$P_{\text{SUBST\_RX}}$  is receiver level,

$L_{\text{SUBST\_CABLES}}$  is cable losses including TX cable,

$G_{\text{SUBST\_TX\_ANT}}$  is substitution antenna gain.

$A_{\text{TOT}}$  is total correction factor including cable loss and substitution correction

During the test, the data of  $A_{\text{TOT}}$  was added in the test spectrum analyze, so spectrum analyze reading is the final values which contain the data of  $A_{\text{TOT}}$ .

**Note1:** The power of the EUT transmitting frequency should be ignored.

**Note2:** All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

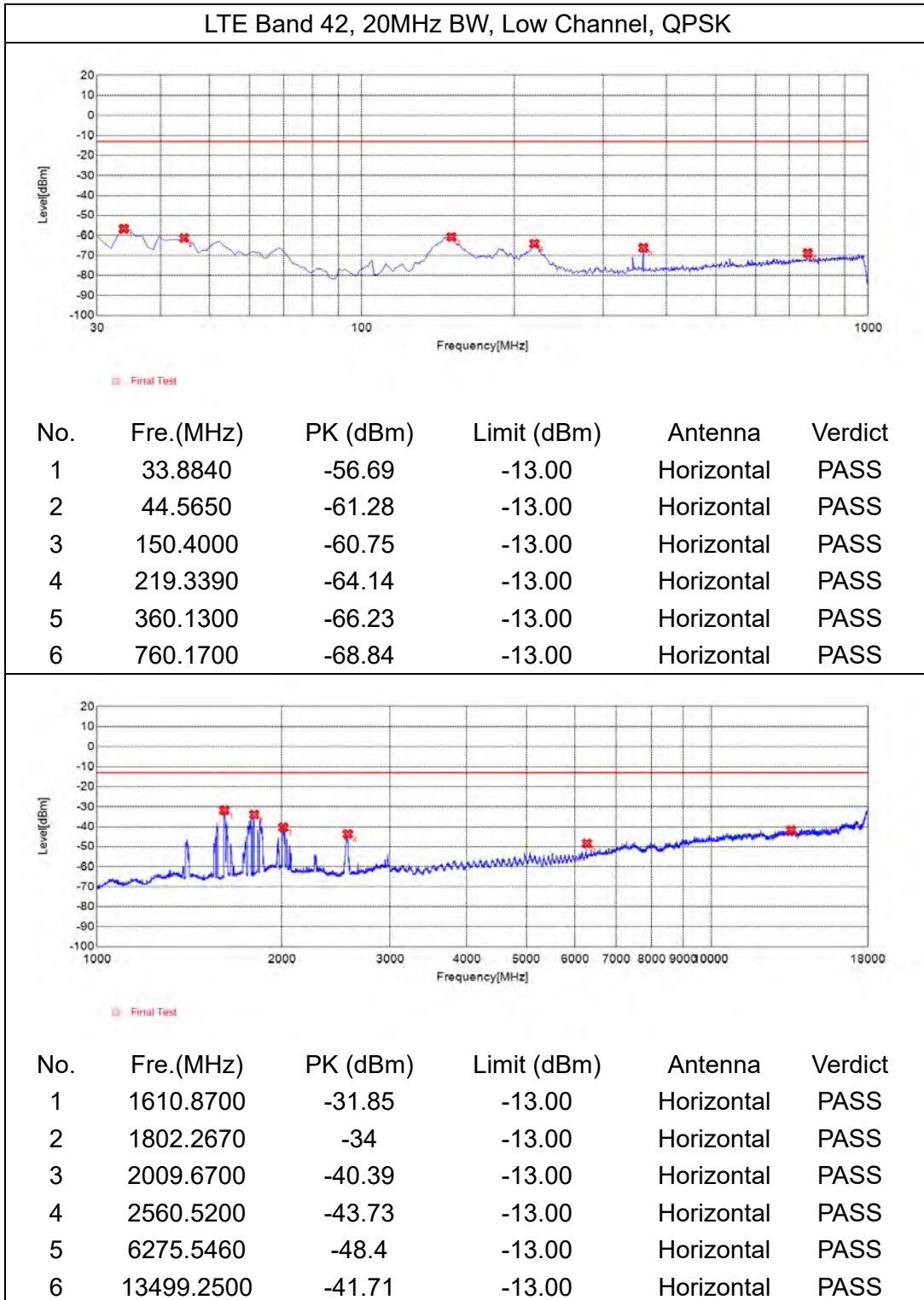
**Note3:** All bandwidth and modulation were considered and evaluated respectively by performing full test for each band, only the worst cases (Max Bandwidth and QPSK mode) were recorded in this test report.

**Note 4:** N/A means the frequency is the basic frequency or the base station frequency, they are no need to verdict.

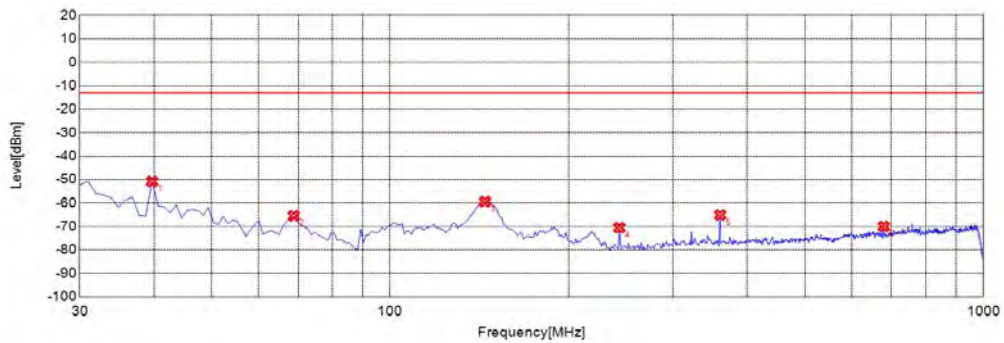




Fixed Internal Antenna

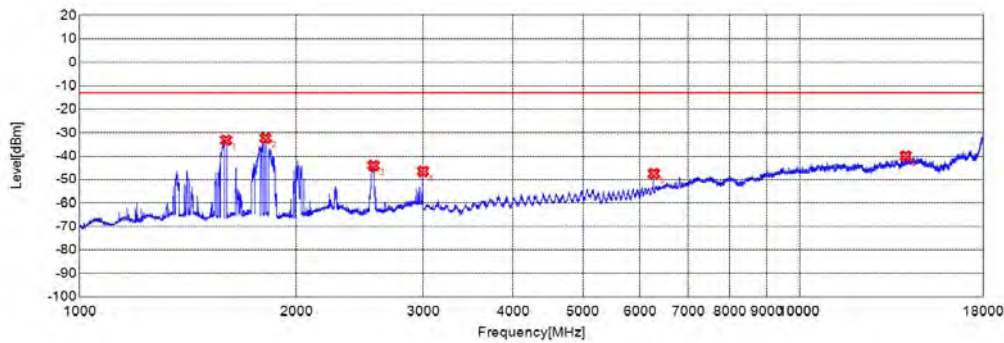


LTE Band 42, 20MHz BW, Low Channel, QPSK



Final Test

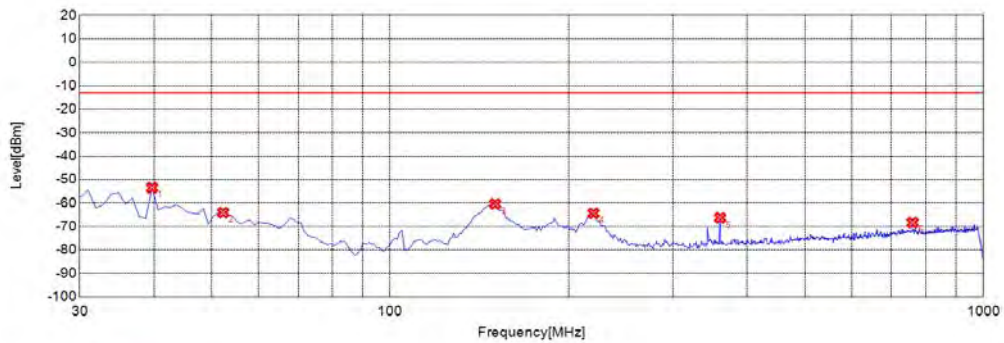
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-50.82	-13.00	Vertical	PASS
2	68.8390	-65.48	-13.00	Vertical	PASS
3	144.5750	-59.41	-13.00	Vertical	PASS
4	243.6140	-70.53	-13.00	Vertical	PASS
5	360.1300	-65.11	-13.00	Vertical	PASS
6	679.5800	-69.98	-13.00	Vertical	PASS



Final Test

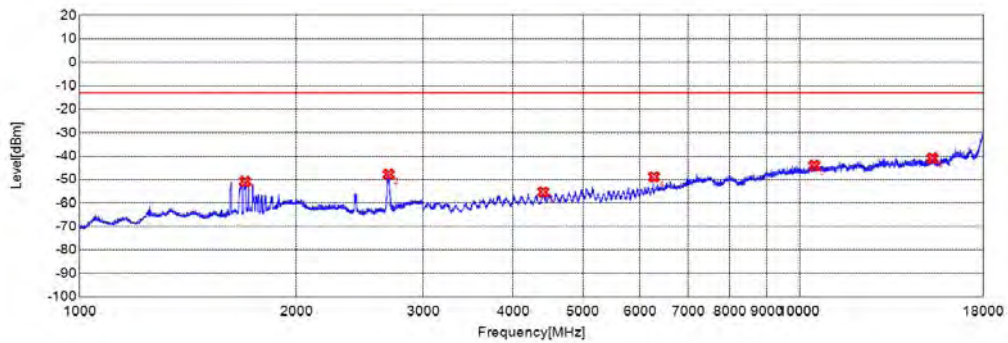
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1597.5330	-33.17	-13.00	Vertical	PASS
2	1812.2710	-32.33	-13.00	Vertical	PASS
3	2559.8530	-44.09	-13.00	Vertical	PASS
4	2997.9990	-46.51	-13.00	Vertical	PASS
5	6275.5460	-47.54	-13.00	Vertical	PASS
6	14044.3410	-39.98	-13.00	Vertical	PASS

LTE Band 42, 20MHz BW, Mid Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-53.49	-13.00	Horizontal	PASS
2	52.3320	-64.09	-13.00	Horizontal	PASS
3	150.4000	-60.36	-13.00	Horizontal	PASS
4	220.3100	-64.39	-13.00	Horizontal	PASS
5	360.1300	-66.3	-13.00	Horizontal	PASS
6	760.1700	-68.36	-13.00	Horizontal	PASS

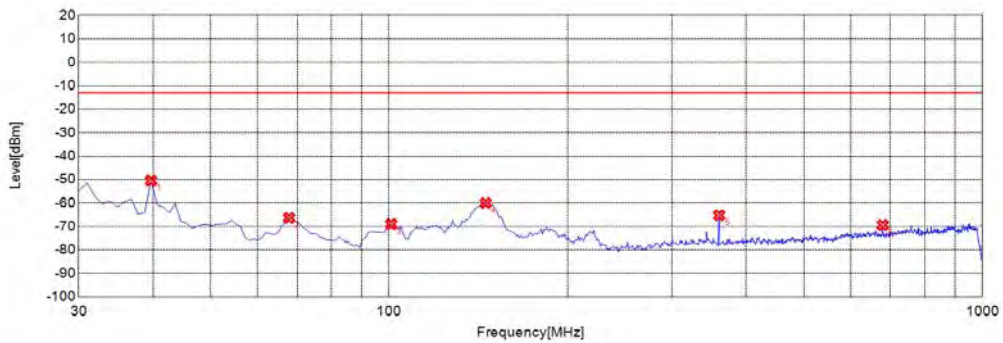


Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1696.8990	-50.83	-13.00	Horizontal	PASS
2	2685.8950	-47.81	-13.00	Horizontal	PASS
3	4405.2340	-55.36	-13.00	Horizontal	PASS
4	6275.5460	-48.91	-13.00	Horizontal	PASS
5	10488.7480	-44.02	-13.00	Horizontal	PASS
6	15294.5490	-40.92	-13.00	Horizontal	PASS

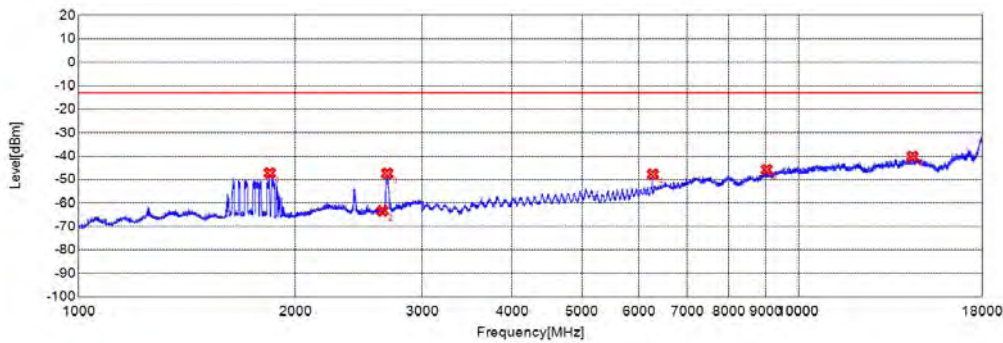


LTE Band 42, 20MHz BW, Mid Channel, QPSK



Final Test

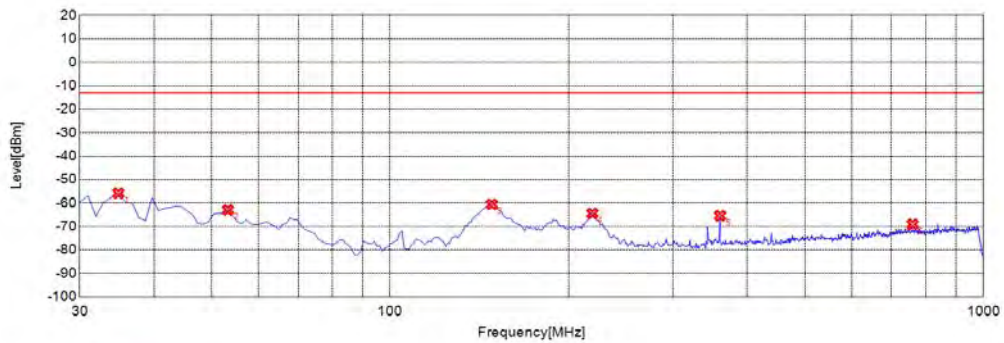
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-50.42	-13.00	Vertical	PASS
2	67.8680	-66.36	-13.00	Vertical	PASS
3	100.8810	-69	-13.00	Vertical	PASS
4	145.5460	-60.02	-13.00	Vertical	PASS
5	360.1300	-65.21	-13.00	Vertical	PASS
6	679.5800	-69.41	-13.00	Vertical	PASS



Final Test

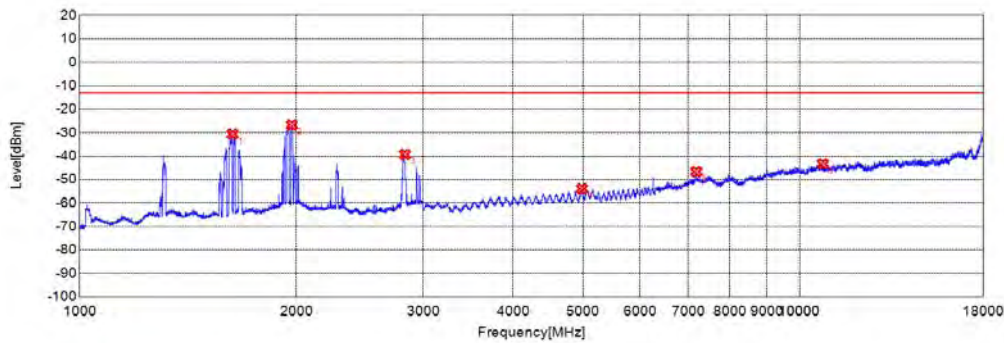
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1842.2810	-47.22	-13.00	Vertical	PASS
2	2643.2140	-63.32	-13.00	Vertical	PASS
3	2681.8940	-47.42	-13.00	Vertical	PASS
4	6275.5460	-47.81	-13.00	Vertical	PASS
5	9028.5050	-45.79	-13.00	Vertical	PASS
6	14401.9000	-40.19	-13.00	Vertical	PASS

LTE Band 42, 20MHz BW, High Channel, QPSK



Final Test

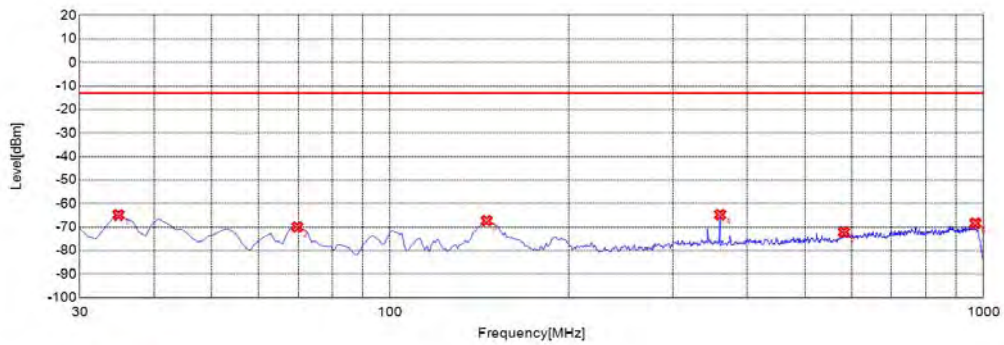
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	34.8550	-55.87	-13.00	Horizontal	PASS
2	53.3030	-62.94	-13.00	Horizontal	PASS
3	148.4580	-60.54	-13.00	Horizontal	PASS
4	219.3390	-64.46	-13.00	Horizontal	PASS
5	360.1300	-65.42	-13.00	Horizontal	PASS
6	760.1700	-69.03	-13.00	Horizontal	PASS



Final Test

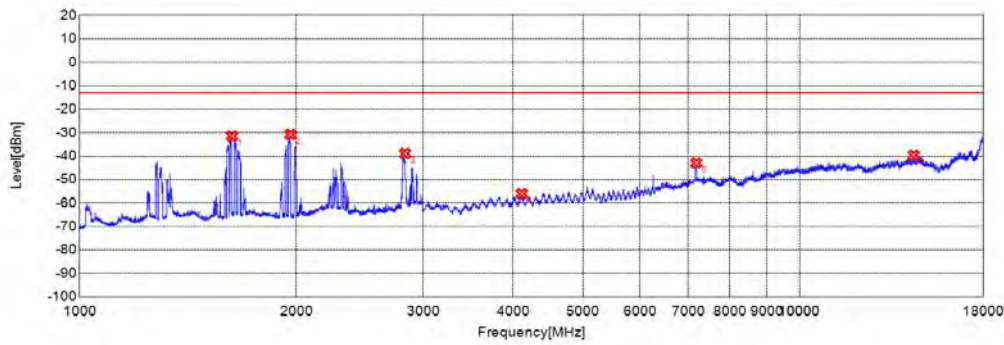
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1630.2100	-30.63	-13.00	Horizontal	PASS
2	1970.3230	-26.69	-13.00	Horizontal	PASS
3	2829.9430	-39.28	-13.00	Horizontal	PASS
4	4985.3310	-53.91	-13.00	Horizontal	PASS
5	7188.1980	-46.69	-13.00	Horizontal	PASS
6	10776.2960	-43.35	-13.00	Horizontal	PASS

LTE Band 42, 20MHz BW, High Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	34.8550	-64.84	-13.00	Vertical	PASS
2	69.8100	-69.97	-13.00	Vertical	PASS
3	145.5460	-67.33	-13.00	Vertical	PASS
4	360.1300	-64.76	-13.00	Vertical	PASS
5	582.4820	-72.15	-13.00	Vertical	PASS
6	969.9000	-68.42	-13.00	Vertical	PASS

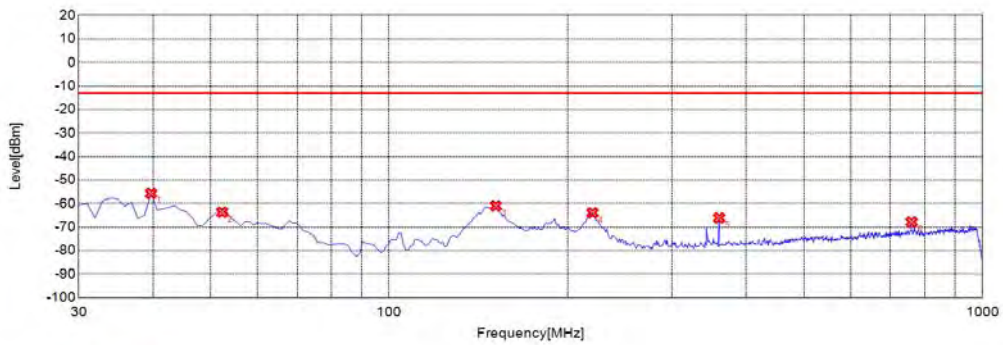


Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1627.5430	-31.53	-13.00	Vertical	PASS
2	1962.3210	-30.77	-13.00	Vertical	PASS
3	2830.6100	-38.91	-13.00	Vertical	PASS
4	4112.6850	-56.05	-13.00	Vertical	PASS
5	7185.6980	-42.96	-13.00	Vertical	PASS
6	14406.9010	-39.64	-13.00	Vertical	PASS

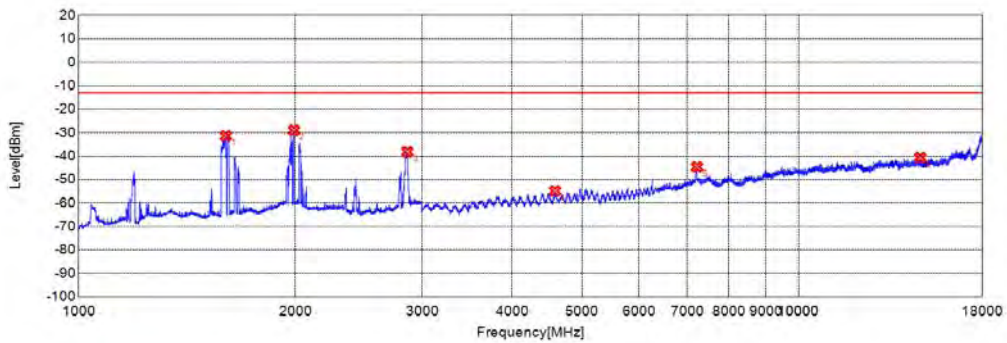


LTE Band 43, 20MHz BW, Low Channel, QPSK



Final Test

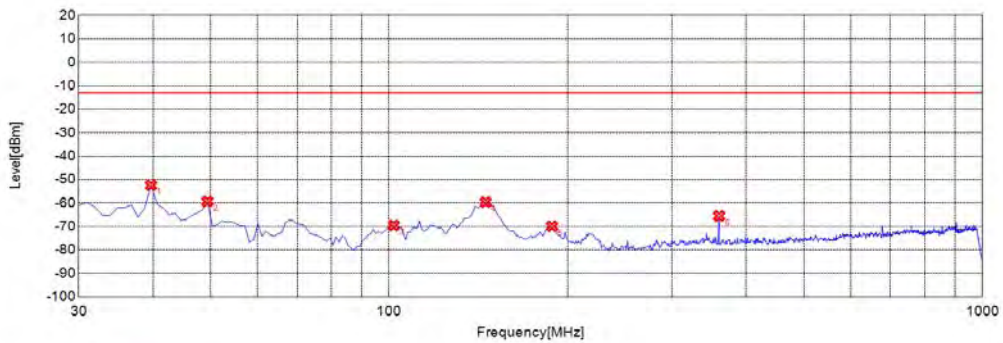
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-55.67	-13.00	Horizontal	PASS
2	52.3320	-63.65	-13.00	Horizontal	PASS
3	151.3710	-61.03	-13.00	Horizontal	PASS
4	220.3100	-63.96	-13.00	Horizontal	PASS
5	360.1300	-66.16	-13.00	Horizontal	PASS
6	760.1700	-67.83	-13.00	Horizontal	PASS



Final Test

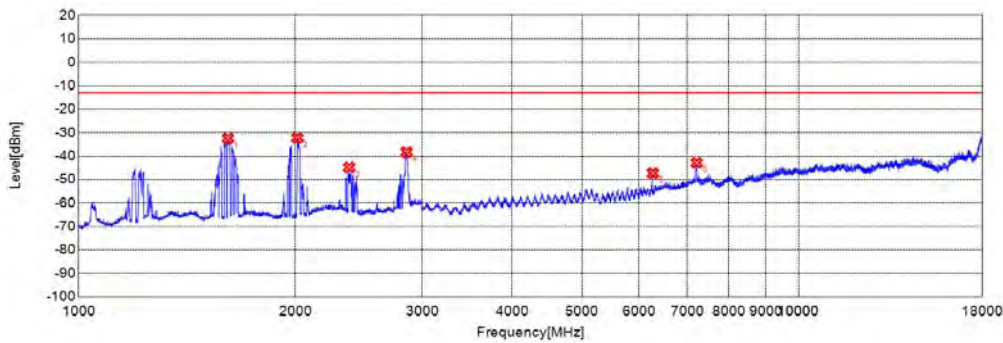
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1600.8670	-31.34	-13.00	Horizontal	PASS
2	1990.3300	-29	-13.00	Horizontal	PASS
3	2860.6200	-38.22	-13.00	Horizontal	PASS
4	4588.5100	-54.83	-13.00	Horizontal	PASS
5	7227.1360	-44.6	-13.00	Horizontal	PASS
6	14761.3070	-40.61	-13.00	Horizontal	PASS

LTE Band 43, 20MHz BW, Low Channel, QPSK



Final Test

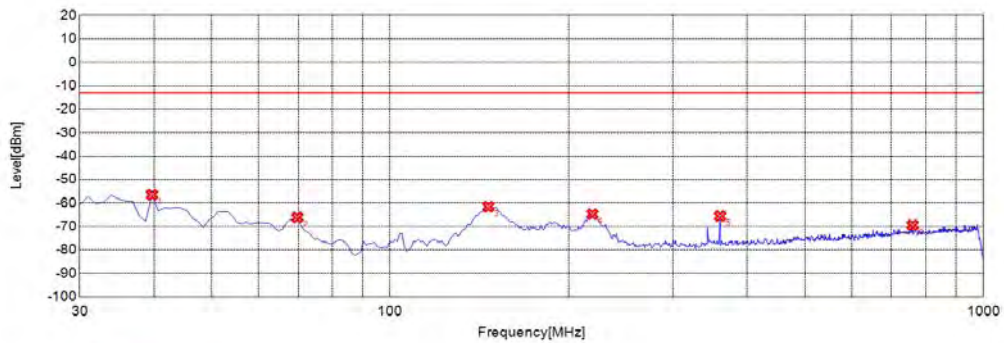
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-52.46	-13.00	Vertical	PASS
2	49.4190	-59.34	-13.00	Vertical	PASS
3	101.8520	-69.54	-13.00	Vertical	PASS
4	145.5460	-59.62	-13.00	Vertical	PASS
5	188.2680	-69.89	-13.00	Vertical	PASS
6	360.1300	-65.52	-13.00	Vertical	PASS



Final Test

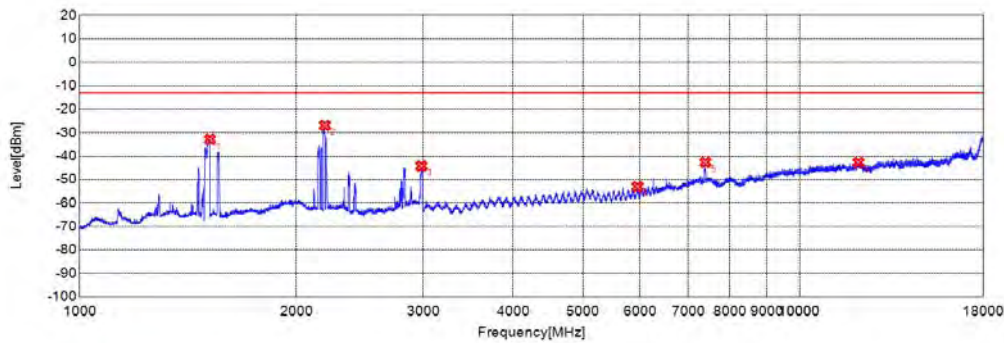
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1612.2040	-32.43	-13.00	Vertical	PASS
2	2013.0040	-32.25	-13.00	Vertical	PASS
3	2375.7920	-44.86	-13.00	Vertical	PASS
4	2853.9510	-38.36	-13.00	Vertical	PASS
5	6275.3640	-47.28	-13.00	Vertical	PASS
6	7220.4690	-42.87	-13.00	Vertical	PASS

LTE Band 43, 20MHz BW, Mid Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-56.5	-13.00	Horizontal	PASS
2	69.8100	-66.16	-13.00	Horizontal	PASS
3	146.5170	-61.62	-13.00	Horizontal	PASS
4	219.3390	-64.76	-13.00	Horizontal	PASS
5	360.1300	-65.6	-13.00	Horizontal	PASS
6	760.1700	-69.46	-13.00	Horizontal	PASS

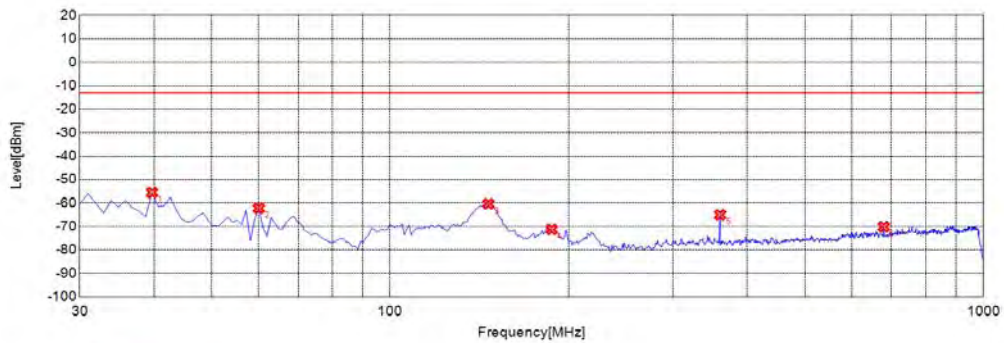


Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1516.8390	-32.81	-13.00	Horizontal	PASS
2	2191.0640	-26.93	-13.00	Horizontal	PASS
3	2982.6610	-44.24	-13.00	Horizontal	PASS
4	5955.3280	-53.01	-13.00	Horizontal	PASS
5	7400.4890	-42.68	-13.00	Horizontal	PASS
6	12077.6750	-42.74	-13.00	Horizontal	PASS

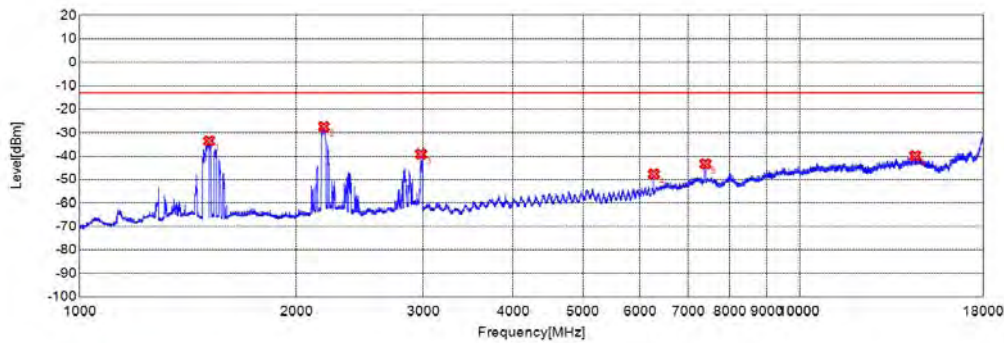


LTE Band 43, 20MHz BW, Mid Channel, QPSK



Final Test

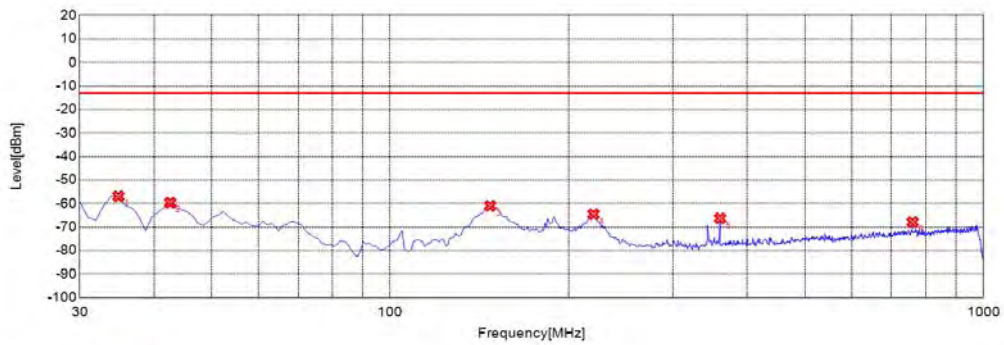
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-55.57	-13.00	Vertical	PASS
2	60.1000	-62.26	-13.00	Vertical	PASS
3	146.5170	-60.36	-13.00	Vertical	PASS
4	187.2970	-71.25	-13.00	Vertical	PASS
5	360.1300	-65.04	-13.00	Vertical	PASS
6	679.5800	-70.09	-13.00	Vertical	PASS



Final Test

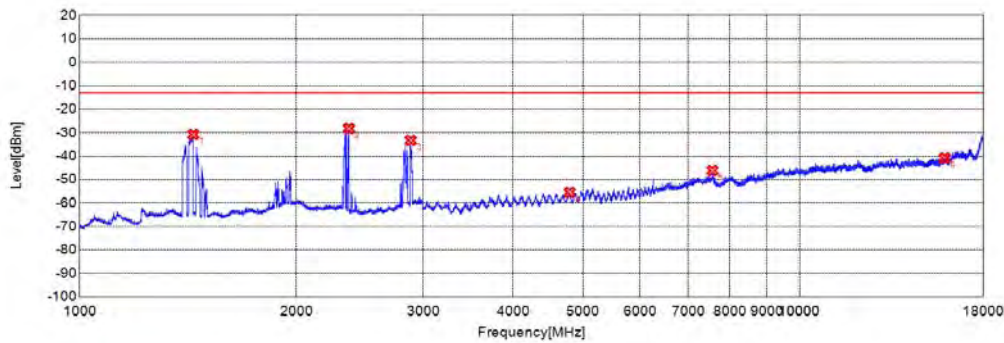
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1512.8380	-33.56	-13.00	Vertical	PASS
2	2183.0610	-27.54	-13.00	Vertical	PASS
3	2979.9930	-39.14	-13.00	Vertical	PASS
4	6275.3640	-47.74	-13.00	Vertical	PASS
5	7398.8220	-43.38	-13.00	Vertical	PASS
6	14476.2750	-39.91	-13.00	Vertical	PASS

LTE Band 43, 20MHz BW, High Channel, QPSK



Final Test

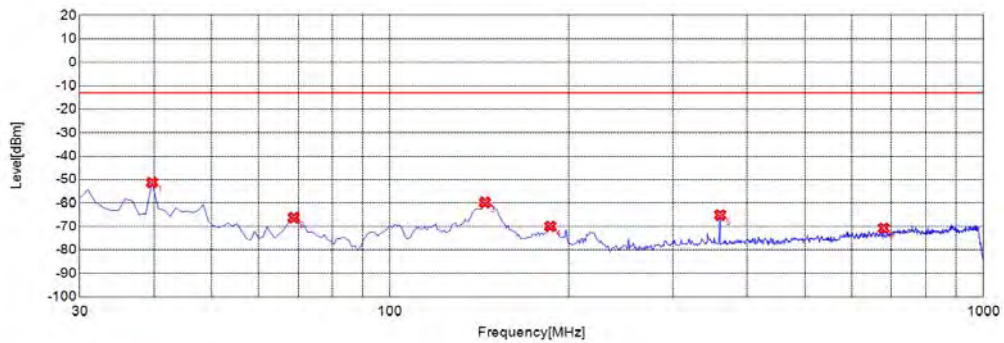
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	34.8550	-56.92	-13.00	Horizontal	PASS
2	42.6230	-59.68	-13.00	Horizontal	PASS
3	147.4870	-61.01	-13.00	Horizontal	PASS
4	220.3100	-64.57	-13.00	Horizontal	PASS
5	360.1300	-66.29	-13.00	Horizontal	PASS
6	760.1700	-67.88	-13.00	Horizontal	PASS



Final Test

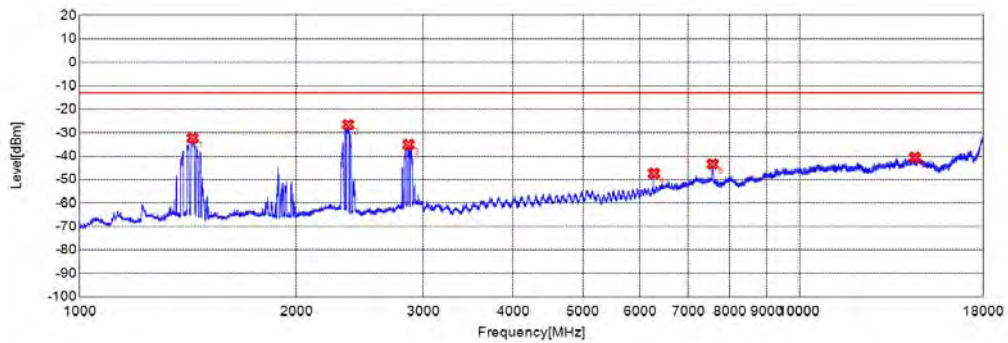
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1438.1460	-30.8	-13.00	Horizontal	PASS
2	2365.7890	-28.24	-13.00	Horizontal	PASS
3	2882.6280	-33.3	-13.00	Horizontal	PASS
4	4793.5330	-55.5	-13.00	Horizontal	PASS
5	7567.1740	-46.18	-13.00	Horizontal	PASS
6	15911.4350	-40.81	-13.00	Horizontal	PASS

LTE Band 43, 20MHz BW, High Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-51.25	-13.00	Vertical	PASS
2	68.8390	-66.29	-13.00	Vertical	PASS
3	144.5750	-59.79	-13.00	Vertical	PASS
4	186.3260	-69.92	-13.00	Vertical	PASS
5	360.1300	-65.15	-13.00	Vertical	PASS
6	679.5800	-70.78	-13.00	Vertical	PASS



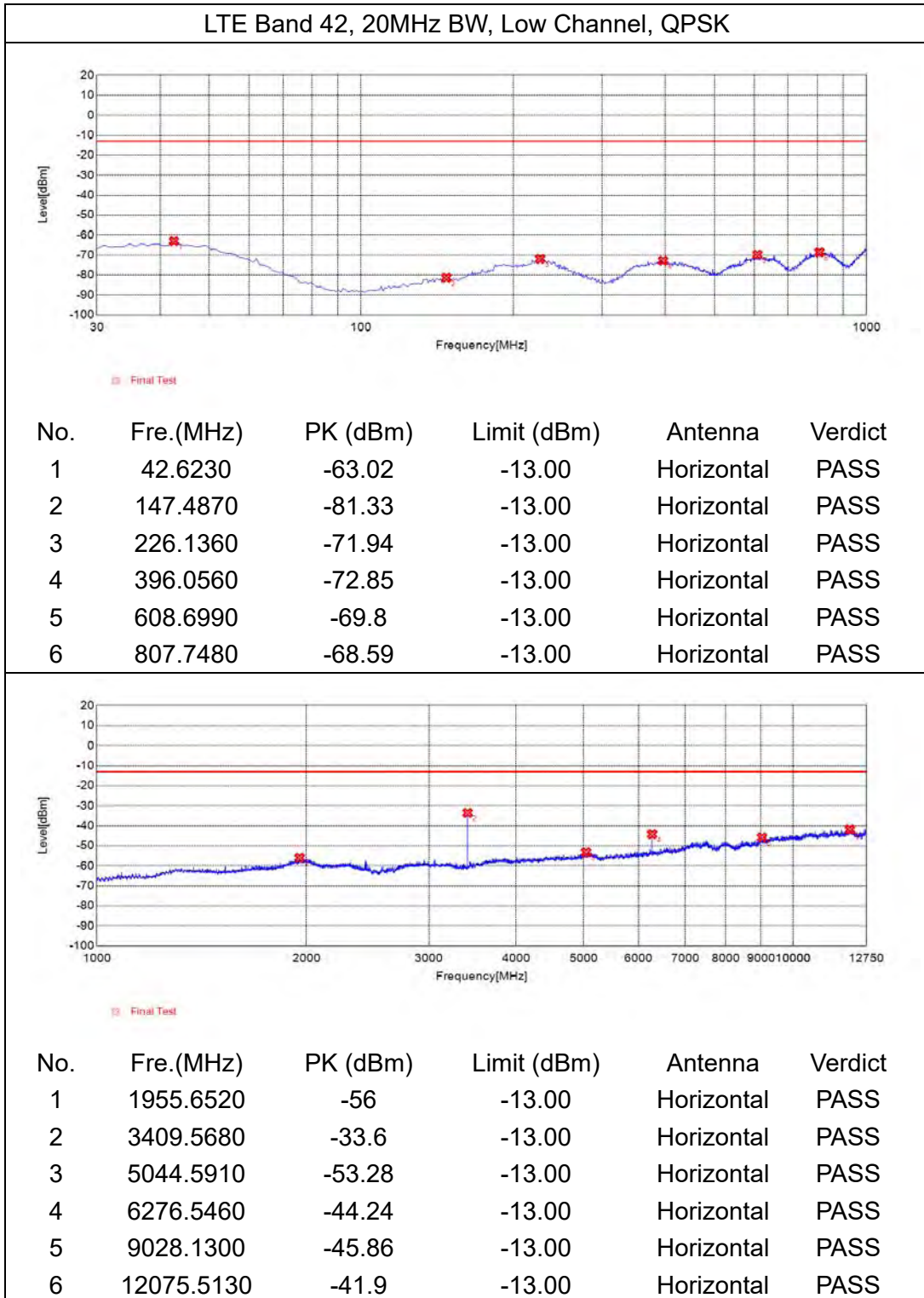
Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1434.8120	-32.36	-13.00	Vertical	PASS
2	2359.1200	-26.59	-13.00	Vertical	PASS
3	2862.6210	-35.11	-13.00	Vertical	PASS
4	6275.3640	-47.41	-13.00	Vertical	PASS
5	7572.1750	-43.46	-13.00	Vertical	PASS
6	14466.2740	-40.6	-13.00	Vertical	PASS

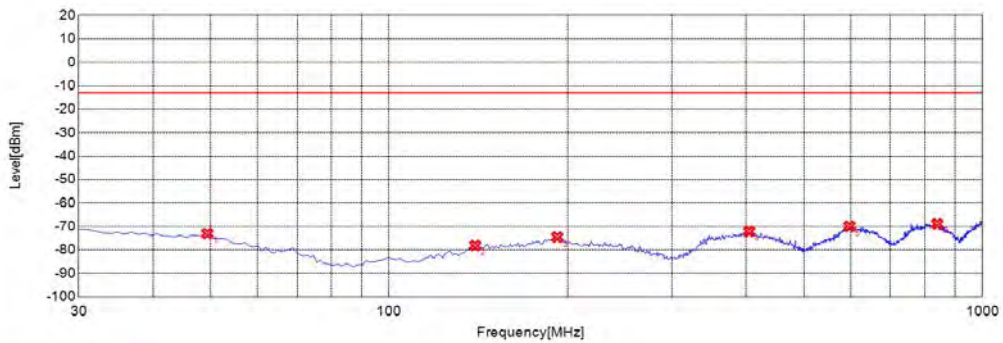




**Fixed External Antenna**

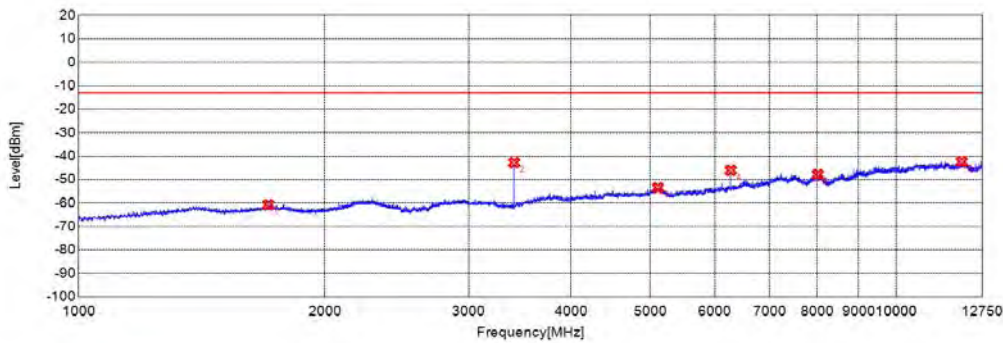


LTE Band 42, 20MHz BW, Low Channel, QPSK



Final Test

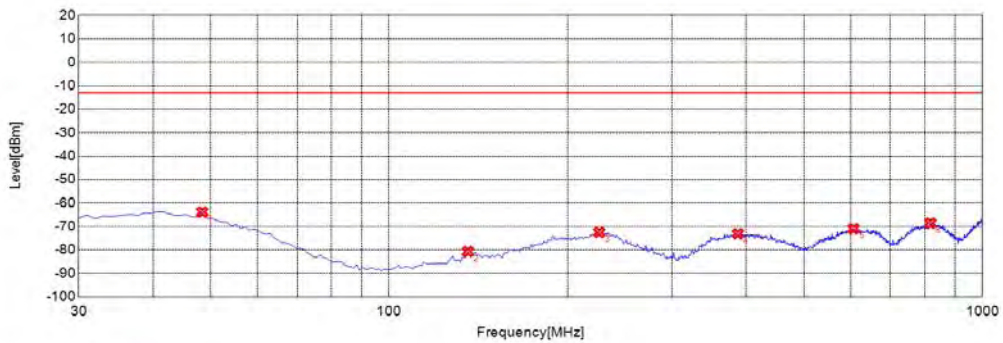
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	49.4190	-73.03	-13.00	Vertical	PASS
2	139.7200	-78.12	-13.00	Vertical	PASS
3	192.1520	-74.5	-13.00	Vertical	PASS
4	404.7950	-72.11	-13.00	Vertical	PASS
5	597.0470	-69.91	-13.00	Vertical	PASS
6	839.7900	-68.9	-13.00	Vertical	PASS



Final Test

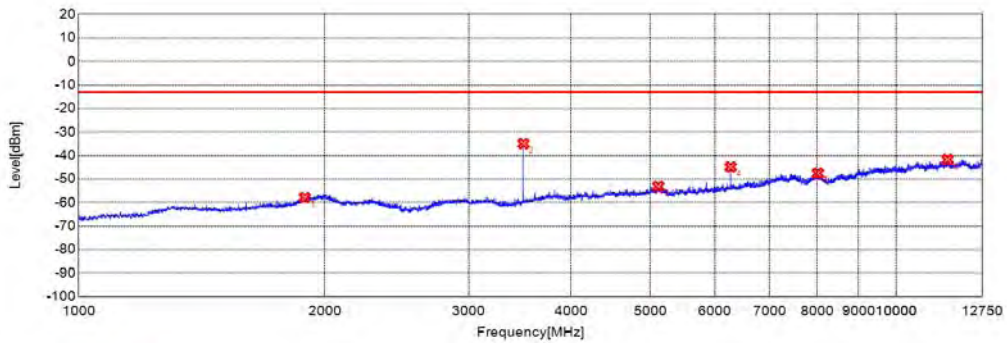
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1705.5690	-60.74	-13.00	Vertical	PASS
2	3409.5680	-42.81	-13.00	Vertical	PASS
3	5112.8520	-53.54	-13.00	Vertical	PASS
4	6276.5460	-46.09	-13.00	Vertical	PASS
5	8022.0870	-47.88	-13.00	Vertical	PASS
6	12030.0050	-42.38	-13.00	Vertical	PASS

LTE Band 42, 20MHz BW, Mid Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	48.4480	-63.87	-13.00	Horizontal	PASS
2	135.8360	-80.71	-13.00	Horizontal	PASS
3	226.1360	-72.5	-13.00	Horizontal	PASS
4	387.3170	-73.1	-13.00	Horizontal	PASS
5	606.7570	-71.03	-13.00	Horizontal	PASS
6	817.4570	-68.6	-13.00	Horizontal	PASS

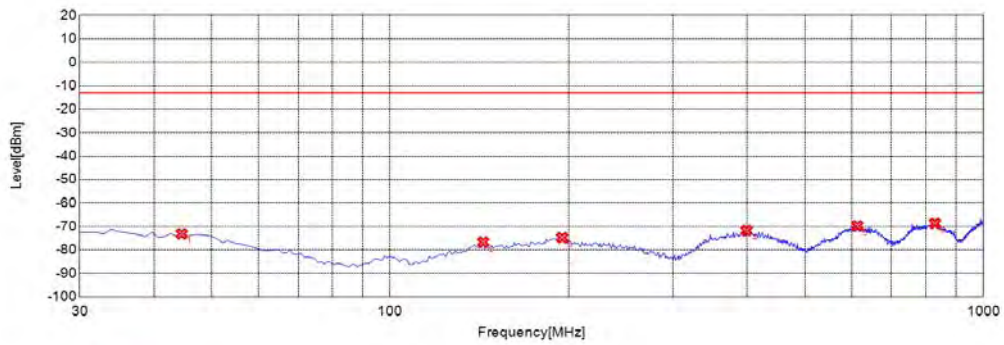


Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1889.6300	-57.87	-13.00	Horizontal	PASS
2	3500.5830	-34.95	-13.00	Horizontal	PASS
3	5117.7280	-53.17	-13.00	Horizontal	PASS
4	6276.5460	-44.88	-13.00	Horizontal	PASS
5	8022.0870	-47.61	-13.00	Horizontal	PASS
6	11561.9270	-41.73	-13.00	Horizontal	PASS

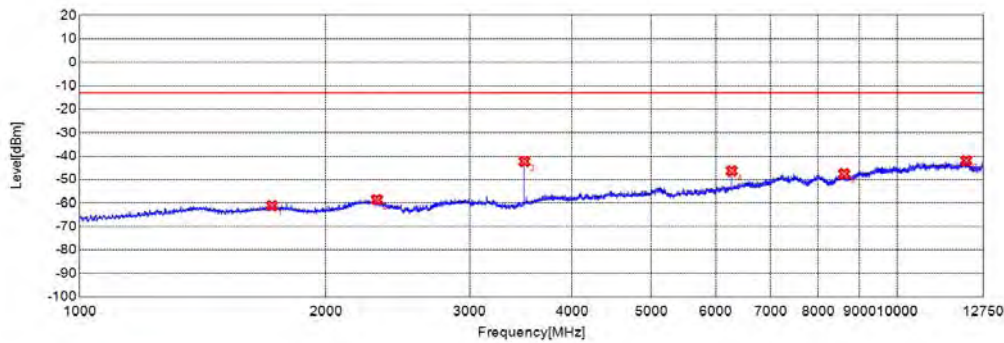


LTE Band 42, 20MHz BW, Mid Channel, QPSK



Final Test

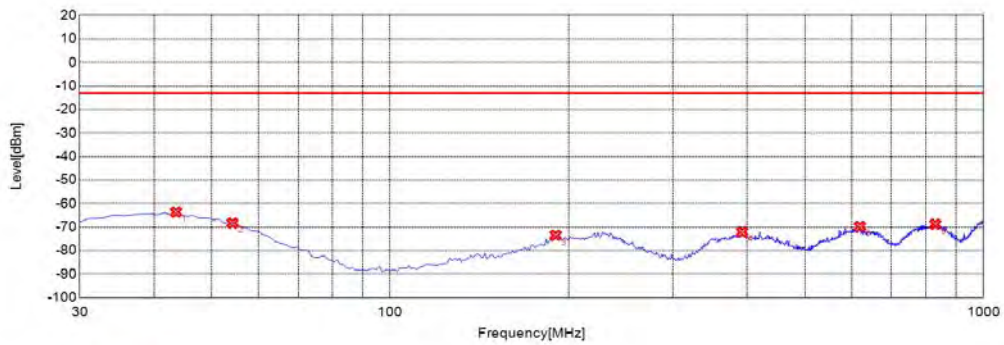
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	44.5650	-73.14	-13.00	Vertical	PASS
2	143.6040	-76.66	-13.00	Vertical	PASS
3	195.0650	-74.76	-13.00	Vertical	PASS
4	398.9690	-71.73	-13.00	Vertical	PASS
5	613.5540	-69.75	-13.00	Vertical	PASS
6	829.1090	-68.72	-13.00	Vertical	PASS



Final Test

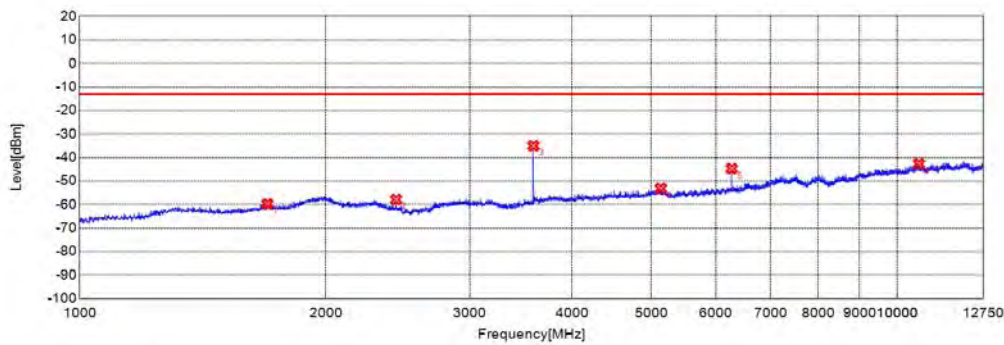
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1718.9060	-61.16	-13.00	Vertical	PASS
2	2309.7700	-58.58	-13.00	Vertical	PASS
3	3500.5830	-42.28	-13.00	Vertical	PASS
4	6276.5460	-46.35	-13.00	Vertical	PASS
5	8615.3110	-47.59	-13.00	Vertical	PASS
6	12151.9000	-41.94	-13.00	Vertical	PASS

LTE Band 42, 20MHz BW, High Channel, QPSK



Final Test

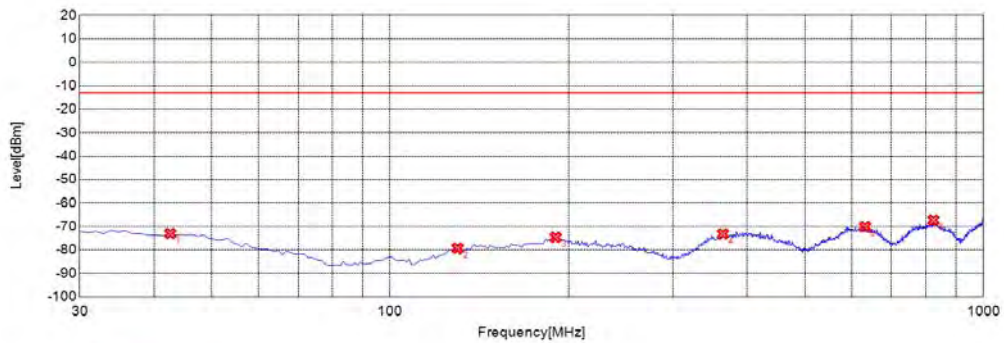
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	43.5940	-63.62	-13.00	Horizontal	PASS
2	54.2740	-68.32	-13.00	Horizontal	PASS
3	190.2100	-73.48	-13.00	Horizontal	PASS
4	392.1720	-72.13	-13.00	Horizontal	PASS
5	619.3790	-69.77	-13.00	Horizontal	PASS
6	830.0800	-68.79	-13.00	Horizontal	PASS



Final Test

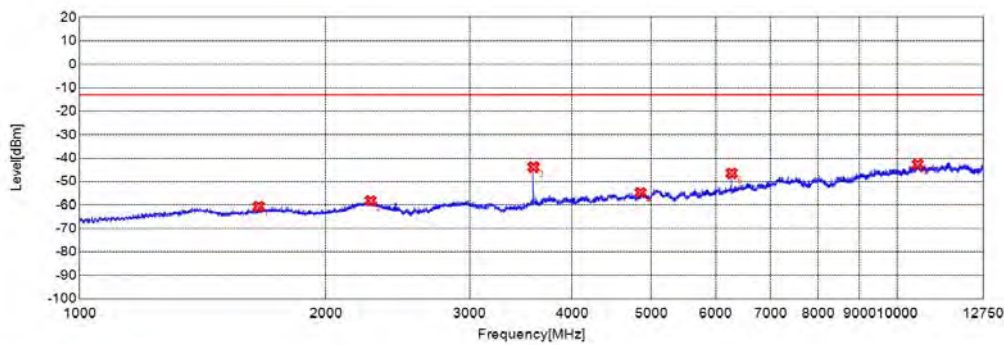
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1696.8990	-59.78	-13.00	Horizontal	PASS
2	2437.8130	-57.86	-13.00	Horizontal	PASS
3	3589.9730	-35.03	-13.00	Horizontal	PASS
4	5140.4820	-53.18	-13.00	Horizontal	PASS
5	6276.5460	-44.74	-13.00	Horizontal	PASS
6	10633.8970	-42.67	-13.00	Horizontal	PASS

LTE Band 42, 20MHz BW, High Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	42.6230	-73.02	-13.00	Vertical	PASS
2	130.0100	-79.25	-13.00	Vertical	PASS
3	190.2100	-74.63	-13.00	Vertical	PASS
4	364.0140	-73.18	-13.00	Vertical	PASS
5	632.0020	-70.06	-13.00	Vertical	PASS
6	824.2540	-67.34	-13.00	Vertical	PASS

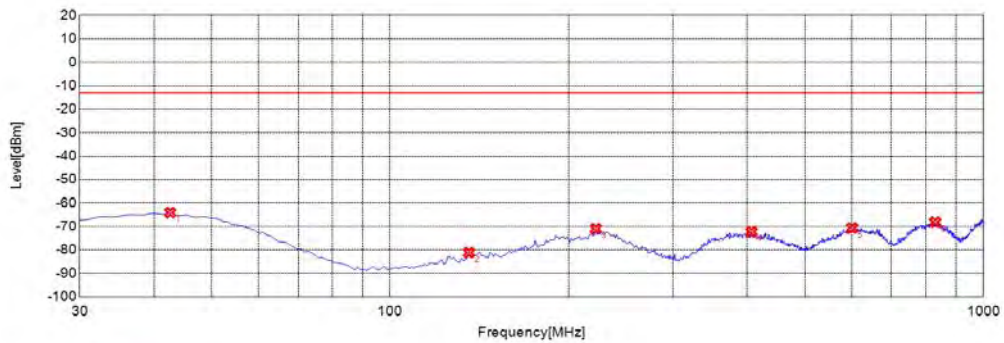


Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1655.5520	-60.59	-13.00	Vertical	PASS
2	2269.7570	-58.24	-13.00	Vertical	PASS
3	3589.9730	-43.84	-13.00	Vertical	PASS
4	4854.4340	-54.74	-13.00	Vertical	PASS
5	6276.5460	-46.5	-13.00	Vertical	PASS
6	10599.7670	-42.72	-13.00	Vertical	PASS

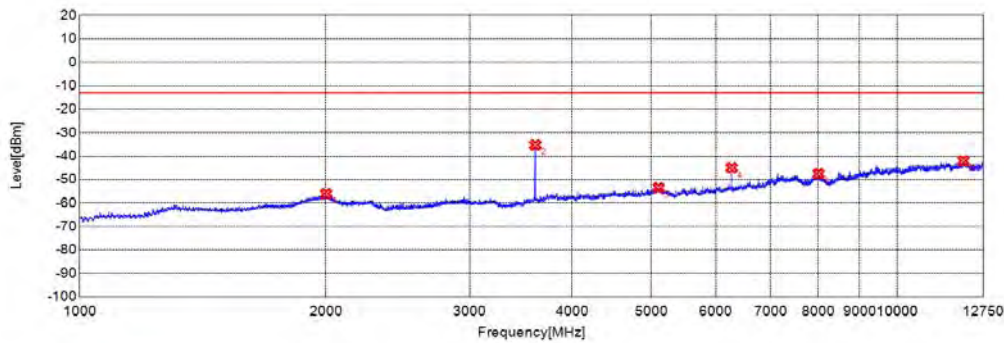


LTE Band 43, 20MHz BW, Low Channel, QPSK



Final Test

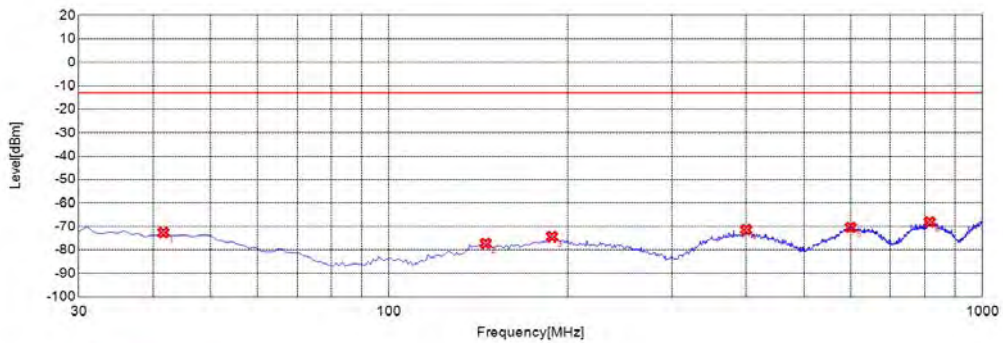
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	42.6230	-64.11	-13.00	Horizontal	PASS
2	135.8360	-81.14	-13.00	Horizontal	PASS
3	222.2520	-71.02	-13.00	Horizontal	PASS
4	406.7370	-72.25	-13.00	Horizontal	PASS
5	600.9310	-70.67	-13.00	Horizontal	PASS
6	830.0800	-68.16	-13.00	Horizontal	PASS



Final Test

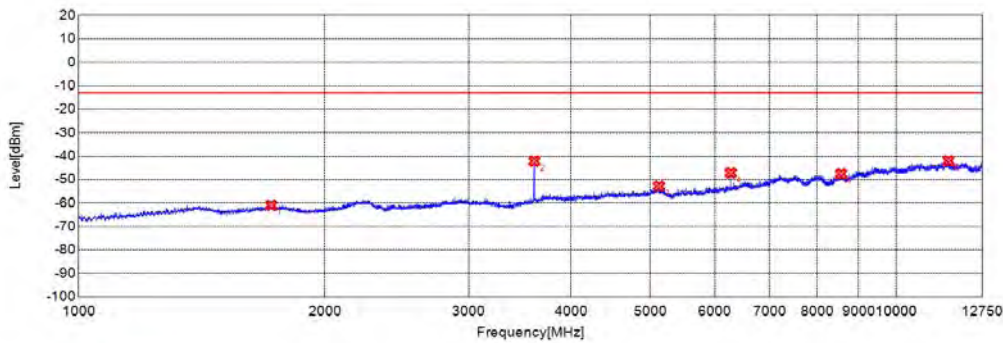
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	2001.6670	-56.08	-13.00	Horizontal	PASS
2	3609.4770	-35.28	-13.00	Horizontal	PASS
3	5107.9760	-53.52	-13.00	Horizontal	PASS
4	6276.5460	-45	-13.00	Horizontal	PASS
5	8015.5860	-47.54	-13.00	Horizontal	PASS
6	12056.0090	-42	-13.00	Horizontal	PASS

LTE Band 43, 20MHz BW, Low Channel, QPSK



Final Test

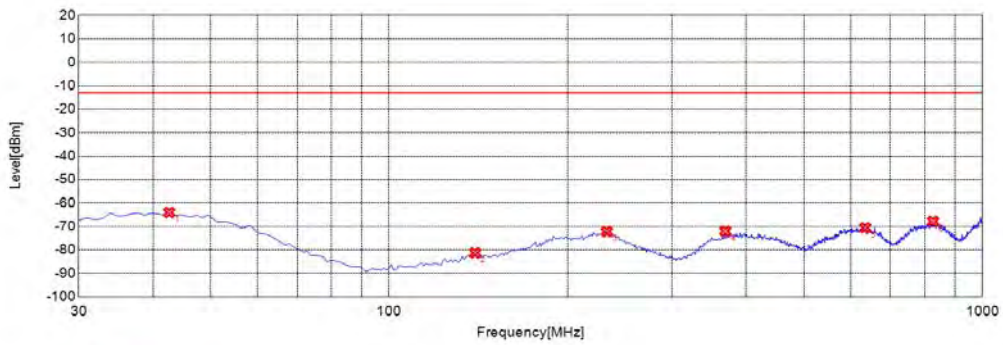
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	41.6520	-72.61	-13.00	Vertical	PASS
2	145.5460	-77.27	-13.00	Vertical	PASS
3	188.2680	-74.38	-13.00	Vertical	PASS
4	399.9400	-71.38	-13.00	Vertical	PASS
5	599.9600	-70.4	-13.00	Vertical	PASS
6	815.5160	-68.1	-13.00	Vertical	PASS



Final Test

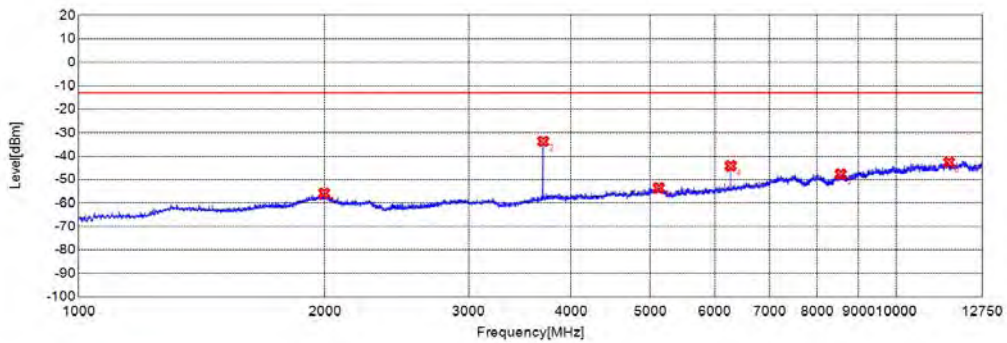
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1720.2400	-60.94	-13.00	Vertical	PASS
2	3609.4770	-42.13	-13.00	Vertical	PASS
3	5127.4800	-52.8	-13.00	Vertical	PASS
4	6276.5460	-47.16	-13.00	Vertical	PASS
5	8566.5530	-47.59	-13.00	Vertical	PASS
6	11592.8070	-41.98	-13.00	Vertical	PASS

LTE Band 43, 20MHz BW, Mid Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	42.6230	-64.03	-13.00	Horizontal	PASS
2	139.7200	-81.26	-13.00	Horizontal	PASS
3	232.9330	-72.19	-13.00	Horizontal	PASS
4	368.8690	-72.03	-13.00	Horizontal	PASS
5	634.9150	-70.54	-13.00	Horizontal	PASS
6	826.1960	-67.82	-13.00	Horizontal	PASS

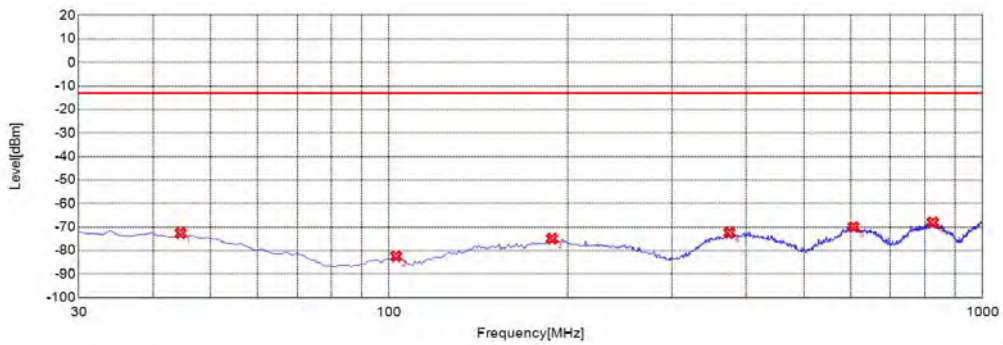


Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1996.3320	-55.82	-13.00	Horizontal	PASS
2	3700.4920	-33.76	-13.00	Horizontal	PASS
3	5124.2290	-53.58	-13.00	Horizontal	PASS
4	6276.5460	-44.2	-13.00	Horizontal	PASS
5	8556.8010	-47.73	-13.00	Horizontal	PASS
6	11609.0600	-42.68	-13.00	Horizontal	PASS

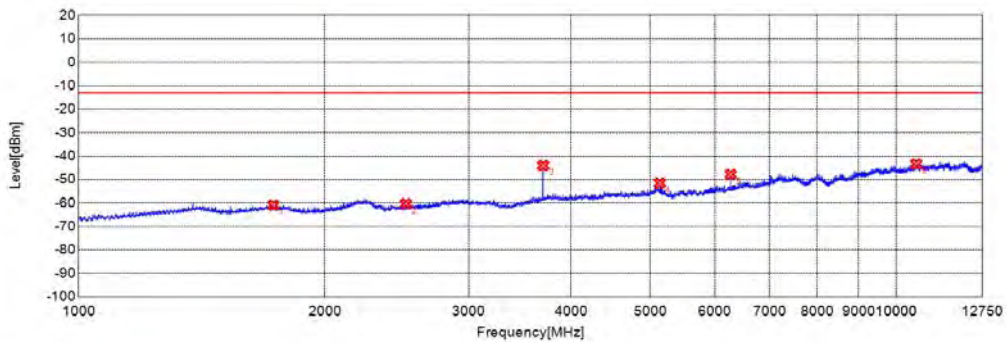


LTE Band 43, 20MHz BW, Mid Channel, QPSK



Final Test

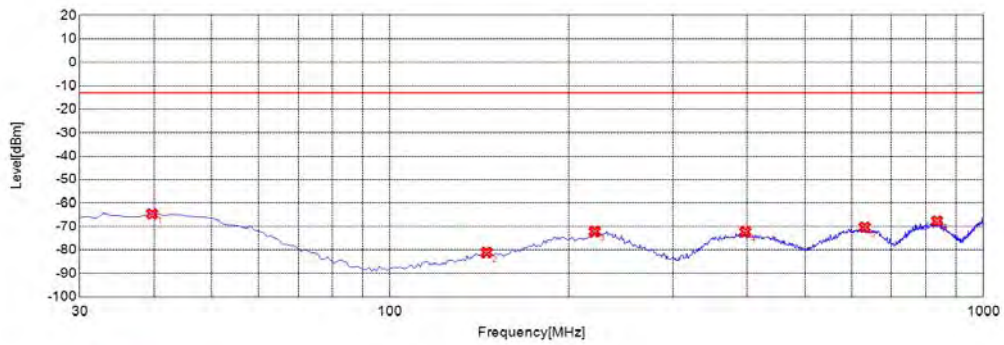
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	44.5650	-72.61	-13.00	Vertical	PASS
2	102.8230	-82.5	-13.00	Vertical	PASS
3	188.2680	-74.94	-13.00	Vertical	PASS
4	374.6950	-72.42	-13.00	Vertical	PASS
5	606.7570	-69.97	-13.00	Vertical	PASS
6	825.2250	-68.02	-13.00	Vertical	PASS



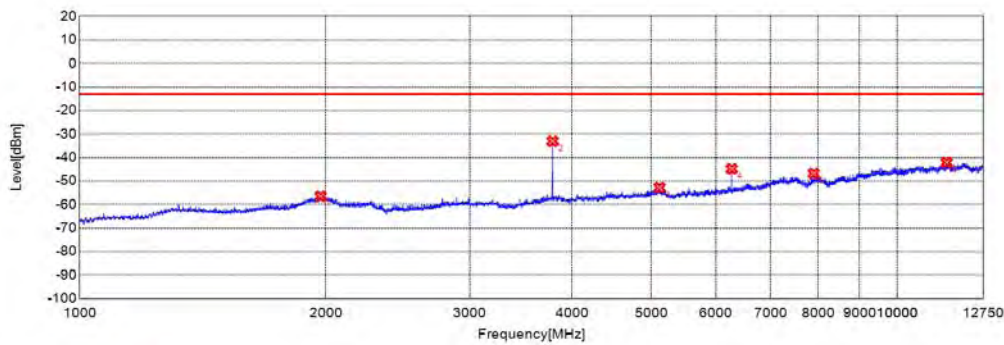
Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1730.2430	-60.89	-13.00	Vertical	PASS
2	2513.1710	-60.31	-13.00	Vertical	PASS
3	3700.4920	-44.04	-13.00	Vertical	PASS
4	5140.4820	-51.54	-13.00	Vertical	PASS
5	6276.5460	-47.84	-13.00	Vertical	PASS
6	10588.3900	-43.4	-13.00	Vertical	PASS

LTE Band 43, 20MHz BW, High Channel, QPSK

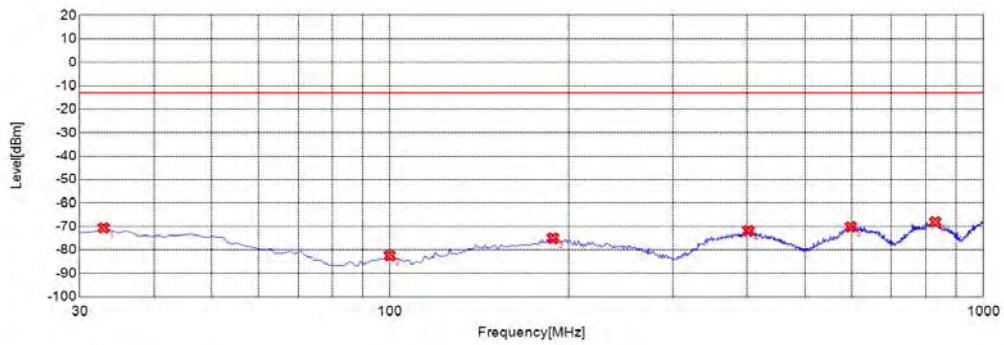


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	39.7100	-64.67	-13.00	Horizontal	PASS
2	145.5460	-81.07	-13.00	Horizontal	PASS
3	221.2810	-72.17	-13.00	Horizontal	PASS
4	397.0270	-72.31	-13.00	Horizontal	PASS
5	631.0310	-70.27	-13.00	Horizontal	PASS
6	835.9060	-67.73	-13.00	Horizontal	PASS



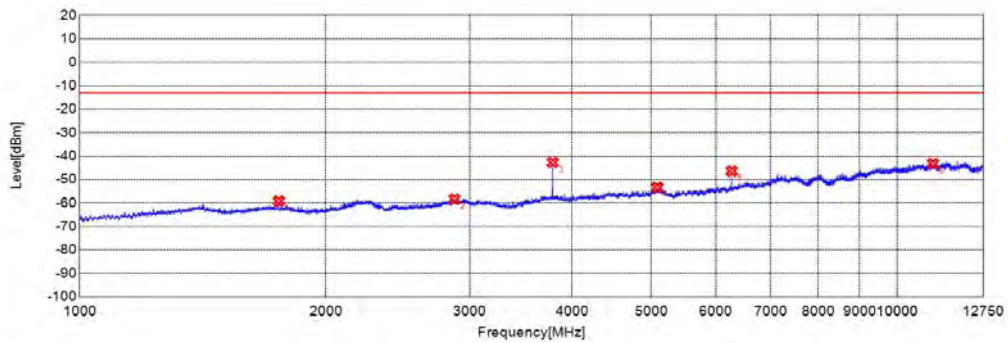
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1970.9900	-56.54	-13.00	Horizontal	PASS
2	3789.8820	-33.06	-13.00	Horizontal	PASS
3	5120.9780	-52.84	-13.00	Horizontal	PASS
4	6276.5460	-44.84	-13.00	Horizontal	PASS
5	7905.0680	-46.82	-13.00	Horizontal	PASS
6	11503.4170	-42.19	-13.00	Horizontal	PASS

LTE Band 43, 20MHz BW, High Channel, QPSK



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	32.9130	-70.64	-13.00	Vertical	PASS
2	99.9100	-82.45	-13.00	Vertical	PASS
3	188.2680	-75	-13.00	Vertical	PASS
4	401.8820	-71.84	-13.00	Vertical	PASS
5	598.0180	-70.11	-13.00	Vertical	PASS
6	830.0800	-68.07	-13.00	Vertical	PASS



Final Test

No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	1752.2510	-59.2	-13.00	Vertical	PASS
2	2874.6250	-58.34	-13.00	Vertical	PASS
3	3789.8820	-42.72	-13.00	Vertical	PASS
4	5090.0980	-53.38	-13.00	Vertical	PASS
5	6276.5460	-46.4	-13.00	Vertical	PASS
6	11066.2190	-43.25	-13.00	Vertical	PASS





## Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test Items	Uncertainty
Output Power	$\pm 2.22$ dB
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	$\pm 2.77$ dB
Band Edge	$\pm 2.77$ dB
Equivalent Isotropic Radiated Power	$\pm 2.22$ dB
Radiated Spurious Emissions	$\pm 6$ dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .



## Annex B Testing Laboratory Information

### 1. Identification of the Responsible Testing Laboratory

<b>Laboratory Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd.
<b>Laboratory Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
<b>Telephone:</b>	+86 755 36698555
<b>Facsimile:</b>	+86 755 36698525

### 2. Identification of the Responsible Testing Location

<b>Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd.
<b>Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

### 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.



#### 4. Test Equipments Utilized

##### 4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
EXA Signal Analyzer	MY54170556	N9030A	Agilent	2022.10.10	2023.10.09
Communication Test Station	6261830572	MT8821C	Anritsu	2022.02.14	2023.02.13
Temperature Chamber	S022177101 00089002	KMT-36LF 1A0	KOMEG	2022.11.18	2023.11.17

##### 4.2 List of Software Used

Description	Manufacturer	Software Version
Morlab FCC LTE Test System	MORLAB	V3.1
TS+ -[JS36-RSE]	Tonscend	V2.0.1.3



**4.3 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
System Simulator	152038	CMW500	R&S	2022.10.11	2023.10.10
System Simulator	MY48364176	8960-E5515C	Agilent	2022.03.01	2023.02.28
Receiver	MY54130016	N9038A	Agilent	2022.07.07	2023.07.06
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2022.05.25	2025.05.24
Test Antenna - Horn	9120D-963	BBHA 9120D	Schwarzbeck	2022.05.23	2025.05.24
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2022.07.08	2023.07.07
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2022.07.08	2023.07.07
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2022.07.08	2023.07.07
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	2022.07.08	2023.07.07
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KK F-2	Qualwave	2022.07.08	2023.07.07
Pre-amplifier (10MHz-6GHz)	46732	S10M100L380 2	LUCIX CORP.	2022.07.08	2023.07.07
Pre-amplifier (2GHz-18GHz)	61171/61172	S020180L320 3	LUCIX CORP.	2022.07.08	2023.07.07
Pre-amplifier (18GHz-40GHz)	DS77209	DCLNA0118-4 0C-S	Decentest	2022.07.23	2023.07.22
Notch Filter	N/A	WRCGV -LTE B42	Wainwright	2022.07.08	2023.07.07
Notch Filter	N/A	WRCGV -LTE B43	Wainwright	2022.07.08	2023.07.07
Anechoic Chamber	N/A	9m*6m*6m	CRT	2022.05.10	2025.05.09

END OF REPORT