

<p><b>MOTOROLA PENANG ADV. COMM. LABORATORY</b> Motorola Solutions Malaysia Sdn Bhd, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.</p>	<p><b>FCC / ISED TEST REPORT</b> <b>Report Revision : Rev.C</b></p>
<p><b>Date/s Tested</b> : 29-February-2024 - 24-May-2024 <b>Report Issue Date</b> : 1-June-2024 <b>Manufacturer/Location</b> : Motorola Solutions Malaysia Sdn Bhd <b>Manufacturer Address</b> : Plot 2A, Medan Bayan Lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia <b>Requestor</b> : HOMICIL HARLY <b>Product Type</b> : Hand-held <b>Product Version (PMN)</b> : APX N70 <b>Model Number (HVIN)</b> : H35XDT9PW8AN &amp; H35XDT9PW8AN-H <b>Frequency Band</b> : Refer to section 1.4 <b>Rated / Max RF Output Power</b> : 199.53mW / 252mW <b>Applicant Name</b> : Motorola Solutions Inc <b>Applicant Address</b> : Plot 2A, Medan Bayan Lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia <b>FCC Registrations</b> : 461337 <b>ISED Registrations</b> : MY0001 <b>Firmware Version (FVIN)</b> : D02.75.76 (BP), R02.00.00 (AP)</p> <p><b>The equipment was tested accordance to the requirement listed below:</b></p> <p><b>( LTE Band 2 )</b> <b>FCC 47 CFR Part 2 / 24</b> <b>PASS</b> <b>ISED RSS GEN / 133</b></p>	
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## REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	05-April-2024	Awatif Rahman
Rev. B	Include additional test data (Peak-to-Average Power Ratio, Frequency Stability, Band Edge Conducted Spurious Emission, and Conducted Spurious Emission).	27-May-2024	Awatif Rahman
Rev. C	Include additional test for OBW (20dBc, and 26dBc)	31-May-2024	Awatif Rahman

### 1.0. Summary of Test Results

FCC Clause	ISED Clause	Test Item	Results	Remarks	Serial Number Tested
2.1046 24.232(e)	RSS-Gen 6.12 RSS-133 4.1	Conducted RF Output Power	Pass	Meet the requirement of limit	022TAB0501
24.232(d)	RSS-133 6.4	Peak-to-Average Power Ratio	Pass	Meet the requirement of limit	022TAB0501
2.1049 24.238(b)	RSS-Gen 6.6 RSS-133 2.3	Occupied Bandwidth (20dBc, 26dBc, and 99%)	Pass	Meet the requirement of limit	022TAB0501
2.1055 24.235	RSS-Gen 6.11 RSS-133 6.3	Frequency Stability	Pass	Meet the requirement of limit	022TAB0501
2.1051 24.238(a)(b)	RSS-Gen 6.13 RSS-133 6.5	Band Edge Conducted Spurious Emission	Pass	Meet the requirement of limit	022TAB0501
2.1051 24.238(a)(b)	RSS-Gen 6.13 RSS-133 6.5	Conducted Spurious Emissions	Pass	Meet the requirement of limit	022TAB0501
2.1053 24.236, 24.238	RSS-133 6.5	Radiated Spurious Emission	Pass	-27.98dBm (Margin: 14.98dBm)	022TAB0346
24.232 (c)	RSS-133 6.4	Equivalent Isotropically Radiated Power (EIRP)	Pass	Meet the requirement of limit	022TAB0501

### 1.1. Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=1.96) (±dB)
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

## 1.2. Equipment List

DESCRIPTION	MODEL	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
<b>BROADBAND ATE 1 (RF CONDUCTED TESTS)</b>				
Wideband Radio Communication Tester	CMW500	154550	09-Aug-23	08-Aug-24
Signal Analyzer	FSV40	101431	07-Aug-23	06-Aug-24
Chamber	SH-641	92003150	15-Sep-23	15-Sep-24
Power Supply	6652A	3640A02967	15-Oct-23	15-Oct-24
Test Software	R&S CMWrun			
Version	V.1.9.8			
<b>RADIATED SPURIOUS EMISSION (EMC CHAMBER 1)</b>				
Drg Horn Freq.	SAS-571	1143	08-Mar-23	08-Mar-25
Drg Horn Freq.	SAS-571	720	18-Apr-23	18-Apr-25
Power Supply	NR973A	MY54180189	30-Aug-23	30-Aug-24
Signal Generator	SMB 100A	182511	04-Jun-21	04-Jun-24
Emi Test Receiver	ESW44	101731	11-Aug-23	11-Aug-24
Bilog Antenna	CBL6112B	2950	14-Dec-23	14-Dec-24
Bilog Antenna	CBL6112B	2964	25-Sep-23	25-Sep-24
Data Logger Thermohygrometer	SDL500	A.016800	21-Jun-23	21-Jun-24
Broad-Band Horn Antenna	BBHA9170	BBHA9170143	28-Aug-23	28-Aug-24
Preamplifier	PAM-0118P	361	29-Sep-23	29-Sep-26
Loop Antenna	6502	00208416	26-Oct-23	26-Oct-24
5m Semi-Anechoic Chamber	S800-HX	J2308	Not Required	Not Required
System Controller	SC104V	050806-1	Not Required	Not Required
Turntable Flush Mount 2m	FM2011	NA	Not Required	Not Required
Antenna Positioning Tower	TLT2	NA	Not Required	Not Required
Preamplifier 18-40Ghz	Miteq Hi Gain Sucoflex	002	Not Required	Not Required
Test Software	EMC_FCC_IC_BLUETOOTH_RE_TEST			
Version	EMC_FCC_RE_v1.6.5			

### 1.3. General Information

#### General Description of EUT

<b>Product</b>	ALOHA UHF				
<b>Brand</b>	Motorola Solutions				
<b>Test Model</b>	H35XDT9PW8AN, H35XDT9PW8AN-H				
<b>Power Supply Rating</b>	7.5 Vdc				
<b>Mode of Operation</b>	LTE Band 2				
<b>Modulation Type</b>	QPSK, 16QAM				
<b>Operating Frequency</b>	LTE Band 2	Channel Bandwidth 1.4MHz	1850.7MHz~1909.3MHz		
		Channel Bandwidth 3MHz	1851.5MHz~1908.5MHz		
		Channel Bandwidth 5MHz	1852.5MHz~1907.5MHz		
		Channel Bandwidth 10MHz	1855.0MHz~1905.0MHz		
		Channel Bandwidth 15MHz	1857.5MHz~1902.5MHz		
		Channel Bandwidth 20MHz	1860.0MHz~1900.0MHz		
<b>Max. Conducted RF Output Power</b>	LTE Band 2 QPSK	Channel Bandwidth 1.4MHz	23.351dBm (0.216W)		
		Channel Bandwidth 3MHz	23.398dBm (0.219W)		
		Channel Bandwidth 5MHz	23.393dBm (0.218W)		
		Channel Bandwidth 10MHz	<b>23.528dBm (0.225W)</b>		
		Channel Bandwidth 15MHz	23.516dBm (0.225W)		
		Channel Bandwidth 20MHz	23.303dBm (0.214W)		
	LTE Band 2 16QAM	Channel Bandwidth 1.4MHz	22.418dBm (0.175W)		
		Channel Bandwidth 3MHz	22.499dBm (0.178W)		
		Channel Bandwidth 5MHz	22.518dBm (0.179W)		
		Channel Bandwidth 10MHz	22.631dBm (0.183W)		
		Channel Bandwidth 15MHz	22.791dBm (0.190W)		
		Channel Bandwidth 20MHz	<b>22.980dBm (0.199W)</b>		
				<b>QPSK</b>	<b>16QAM</b>
		<b>Emission Designator</b>	LTE Band 2	Channel Bandwidth 1.4MHz	1M07G7D
Channel Bandwidth 3MHz	2M68G7D			2M68D7W	
Channel Bandwidth 5MHz	4M47G7D			4M47D7W	
Channel Bandwidth 10MHz	8M93G7D			8M93D7W	
Channel Bandwidth 15MHz	13M40G7D			13M40D7W	
Channel Bandwidth 20MHz	17M86G7D			17M86D7W	
<b>Antenna Type</b>	LTE Band 2			Antenna LTE Main 1850-1910MHz (1.1dBi)	
<b>SW Version</b>	D02.75.76 (BP), R02.00.00 (AP)				
<b>HW Version</b>	P2				

Note:

1. The EUT contains following accessory devices and data cable.

Item	Brand	Model or P/N	Specification
Li-Ion Battery	MOTOROLA	PMNN4818A	UL 3650mAH (using RN 2170 Li-Ion cell)

**Description of Support Units**

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	Product	Brand	Model No.	Serial No.	FCC ID
1	Wideband Radio Communication Tester	R&S	CMW500	154550	NA

NO.	Signal Cable Description of The above Support Units
1	NA

Note:

1. All power cords of the above support units are non-shielded.
2. Item 1 acted as a communication partner to transfer data.

**EUT Operating Conditions**

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

**General Description of Applied Standards**

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

- FCC 47 CFR Part 2**
- FCC 47 CFR Part 24**
- KDB 971168 D01 Power Meas License Digital Systems v03r01**
- ANSI C63.26-2015**

**NOTE:** All test items have been performed and recorded as per the above standards.

### 1.4. Channel Number and Frequency Info

Band	Bandwidth Supported	Available Channel Number	Test Channel Number			Test Channel Frequency (MHz)		
			Low Channel	Mid Channel	High Channel	Low Channel	Mid Channel	High Channel
LTE Band 2	1.4 MHz	18607 ~ 19193	18607	18900	19193	1850.7	1880.0	1909.3
	3 MHz	18615 ~ 19185	18615	18900	19185	1851.5	1880.0	1908.5
	5 MHz	18625 ~ 19175	18625	18900	19175	1852.5	1880.0	1907.5
	10 MHz	18650 ~ 19150	18650	18900	19150	1855.0	1880.0	1905.0
	15 MHz	18675 ~ 19125	18675	18900	19125	1857.5	1880.0	1902.5
	20 MHz	18700 ~ 19100	18700	18900	19100	1860.0	1880.0	1900.0

### 1.5. Test Mode Applicability and Tested Channel Detail

Pre-scan also have been conducted with the accessory devices listed in section table 1.3, only the worst case radiated emission results of the combination test configuration is reported in this report. The following channel(s) was (were) selected for the final test as listed below:

#### LTE Band 2

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Uplink Modulation	Mode
Conducted RF Output Power	18607 ~ 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	As per table 1.6.3
	18615 ~ 19185	18615, 18900, 19185	3 MHz		
	18625 ~ 19175	18625, 18900, 19175	5 MHz		
	18650 ~ 19150	18650, 18900, 19150	10 MHz		
	18675 ~ 19125	18675, 18900, 19125	15 MHz		
	18700 ~ 19100	18700, 18900, 19100	20 MHz		
Peak to Average Power Ratio	18607 ~ 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
	18615 ~ 19185	18615, 18900, 19185	3 MHz		15 RB / 0 RB Offset
	18625 ~ 19175	18625, 18900, 19175	5 MHz		25 RB / 0 RB Offset
	18650 ~ 19150	18650, 18900, 19150	10 MHz		50 RB / 0 RB Offset
	18675 ~ 19125	18675, 18900, 19125	15 MHz		75 RB / 0 RB Offset
	18700 ~ 19100	18700, 18900, 19100	20 MHz		100 RB / 0 RB Offset
Occupied Bandwidth	18607 ~ 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
	18615 ~ 19185	18615, 18900, 19185	3 MHz		15 RB / 0 RB Offset
	18625 ~ 19175	18625, 18900, 19175	5 MHz		25 RB / 0 RB Offset
	18650 ~ 19150	18650, 18900, 19150	10 MHz		50 RB / 0 RB Offset
	18675 ~ 19125	18675, 18900, 19125	15 MHz		75 RB / 0 RB Offset
	18700 ~ 19100	18700, 18900, 19100	20 MHz		100 RB / 0 RB Offset
Frequency Stability	18607 ~ 19193	18607, 19193	1.4 MHz	QPSK	6 RB / 0 RB Offset
	18615 ~ 19185	18615, 19185	3 MHz		15 RB / 0 RB Offset
	18625 ~ 19175	18625, 19175	5 MHz		25 RB / 0 RB Offset
	18650 ~ 19150	18650, 19150	10 MHz		50 RB / 0 RB Offset
	18675 ~ 19125	18675, 19125	15 MHz		75 RB / 0 RB Offset
	18700 ~ 19100	18700, 19100	20 MHz		100 RB / 0 RB Offset

<b>Band Edge Conducted Spurious Emission</b>	18607 ~ 19193	18607, 19193	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
	18615 ~ 19185	18615, 19185	3 MHz		1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
	18625 ~ 19175	18625, 19175	5 MHz		1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
	18650 ~ 19150	18650, 19150	10 MHz		1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
	18675 ~ 19125	18675, 19125	15 MHz		1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
	18700 ~ 19100	18700, 19100	20 MHz		1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset
<b>Conducted Spurious Emission</b>	18607 ~ 19193	18607, 18900, 19193	1.4 MHz	QPSK	1 RB / 3 RB Offset
	18615 ~ 19185	18615, 18900, 19185	3 MHz		1 RB / 7 RB Offset
	18625 ~ 19175	18625, 18900, 19175	5 MHz		1 RB / 13 RB Offset
	18650 ~ 19150	18650, 18900, 19150	10 MHz		1 RB / 49 RB Offset
	18675 ~ 19125	18675, 18900, 19125	15 MHz		1 RB / 0 RB Offset
	18700 ~ 19100	18700, 18900, 19100	20 MHz		1 RB / 0 RB Offset
<b>Radiated Spurious Emission</b>	18650 ~ 19150	18650	10 MHz	QPSK	1 RB / 0 RB Offset
	18700 ~ 19100	18900	20 MHz		1 RB / 99 RB Offset
	18675 ~ 19125	19125	15 MHz		1 RB / 0 RB Offset
<b>Equivalent Isotropically Radiated Power (EIRP)</b>	18607 ~ 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	As per table 1.6.4
	18615 ~ 19185	18615, 18900, 19185	3 MHz		
	18625 ~ 19175	18625, 18900, 19175	5 MHz		
	18650 ~ 19150	18650, 18900, 19150	10 MHz		
	18675 ~ 19125	18675, 18900, 19125	15 MHz		
	18700 ~ 19100	18700, 18900, 19100	20 MHz		

**NOTE:**

1. The Conducted RF Output Power for QPSK and 16QAM, measured value of QPSK mode is higher than 16QAM mode. Therefore, only Conducted Spurious Emission and Radiated Emission had been tested under QPSK modes.
2. Band Edge was performed with 1 and full Resource Block at the lowest and highest operating frequency band.
3. The Equivalent Isotropically Radiated Power (EIRP) was calculated from Conducted RF Output Power results in QPSK and 16QAM modulation.
4. Peak to Average and Occupied Bandwidth were performed with full Resource Block which is the worst case.
5. Frequency stability was performed with full Resource Block in QPSK modulation.

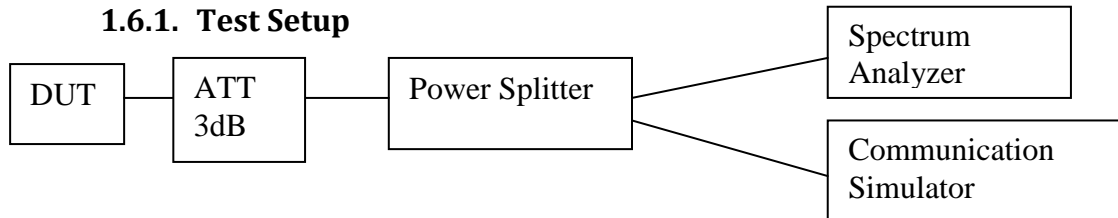


**Test Condition:**

<b>Test Item</b>	<b>Environmental Conditions</b>	<b>Input Power</b>	<b>Tested By</b>
Conducted RF Output Power	25°C, 50% RH	7.5 Vdc	Awatif Rahman
Peak-to-Average Power Ratio	25°C, 50% RH	7.5 Vdc	Awatif Rahman
Occupied Bandwidth	25°C, 50% RH	7.5 Vdc	Awatif Rahman
Frequency Stability	-30°C ~ 60°C	7.5 Vdc	Awatif Rahman
Band Edge	25°C, 50% RH	7.5 Vdc	Awatif Rahman
Conducted Spurious Emission	25°C, 50% RH	7.5 Vdc	Awatif Rahman
Radiated Spurious Emission	23.4°C, 69.3% RH	7.5 Vdc	Rezza & Fuad
Equivalent Isotropically Radiated Power (EIRP)	25°C, 50% RH	7.5 Vdc	Awatif Rahman

## 1.6. Conducted RF Output Power

### 1.6.1. Test Setup



1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. All the measurement was done at low, mid, high channel for each band and different modulation.
5. Record the average power into the test report.

### 1.6.2. Test Limits

FCC: Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

ISED: Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. The equipment shall employ means to limit the power to the minimum necessary for successful communication.

### 1.6.3. Conducted RF Output Power – LTE Band 2 (1850-1910MHz)

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18607	18900	19193	18607	18900	19193
			1850.7 MHz	1880.0 MHz	1909.3 MHz	1850.7 MHz	1880.0 MHz	1909.3 MHz
Band 2 / 1.4 MHz	1	0	23.229	23.162	23.267	22.258	22.219	22.375
	1	3	23.331	23.174	23.351	22.302	22.234	22.418
	1	5	23.23	23.132	23.32	22.274	22.189	22.349
	3	0	23.196	23.148	23.299	22.323	22.121	22.268
	3	2	23.265	23.158	23.334	22.348	22.107	22.301
	3	3	23.208	23.094	23.285	22.334	22.092	22.285
	6	0	22.102	22.133	22.276	21.19	21.096	21.276

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18615	18900	19185	18615	18900	19185
			1851.5 MHz	1880.0 MHz	1908.5 MHz	1851.5 MHz	1880.0 MHz	1908.5 MHz
Band 2 / 3MHz	1	0	23.267	23.134	23.398	22.329	22.499	22.488
	1	7	23.289	23.1	23.398	22.239	22.471	22.497
	1	14	23.202	23.104	23.316	22.199	22.395	22.382
	8	0	22.226	22.181	22.312	21.209	21.369	21.287
	8	4	22.209	22.151	22.317	21.178	21.261	21.283
	8	7	22.165	22.09	22.278	21.164	21.215	21.281
	15	0	22.171	22.178	22.31	21.211	21.189	21.291

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18625	18900	19175	18625	18900	19175
			1852.5MHz	1880.0MHz	1907.5MHz	1852.5MHz	1880.0MHz	1907.5MHz
Band 2 / 5MHz	1	0	23.334	23.345	23.393	22.419	22.51	22.419
	1	13	23.199	23.235	23.308	22.296	22.472	22.291
	1	25	23.209	23.27	23.283	22.332	22.518	22.288
	12	0	22.238	22.181	22.379	21.222	21.2	21.384
	12	6	22.186	22.156	22.344	21.143	21.176	21.362
	12	13	22.125	22.175	22.306	21.068	21.167	21.329
	25	0	22.202	22.159	22.351	21.218	21.165	21.329

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18650	18900	19150	18650	18900	19150
			1855.0MHz	1880.0MHz	1905.0MHz	1855.0MHz	1880.0MHz	1905.0MHz
Band 2 / 10MHz	1	0	23.372	23.205	23.528	22.378	22.631	22.527
	1	25	23.266	23.109	23.457	22.156	22.59	22.481
	1	49	23.316	23.256	23.492	22.138	22.586	22.609
	25	0	22.146	22.103	22.467	21.229	21.146	21.52
	25	13	22.131	22.122	22.41	21.169	21.165	21.452
	25	25	22.061	22.196	22.452	21.14	21.226	21.504
	50	0	22.187	22.159	22.403	21.18	21.151	21.388

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18675	18900	19125	18675	18900	19125
			1857.5MHz	1880.0MHz	1902.5MHz	1857.5MHz	1880.0MHz	1902.5MHz
Band 2 / 15MHz	1	0	23.435	23.415	23.512	22.412	22.791	22.462
	1	38	23.213	23.09	23.275	22.157	22.418	22.267
	1	74	23.32	23.266	23.516	22.205	22.656	22.477
	36	0	22.235	22.148	22.236	21.235	21.204	21.257
	36	19	22.223	22.166	22.276	21.209	21.165	21.304
	36	39	22.126	22.172	22.29	21.105	21.177	21.353
	75	0	22.133	22.219	22.269	21.12	21.24	21.295

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18700	18900	19100	18700	18900	19100
			1860.0MHz	1880.0MHz	1900.0MHz	1860.0MHz	1880.0MHz	1900.0MHz
Band 2 / 20MHz	1	0	23.183	23.25	23.303	22.701	22.235	22.98
	1	49	23.173	23.12	23.18	22.501	22.107	22.793
	1	99	22.828	22.906	23.014	22.229	21.691	22.571
	50	0	22.269	22.197	22.203	21.25	21.194	21.166
	50	25	22.161	22.165	22.335	21.18	21.167	21.297
	50	50	21.976	22.056	22.199	21.004	21.029	21.187
	100	0	22.068	22.203	22.29	21.086	21.194	21.302

### 1.6.4. Equivalent Isotropically Radiated Power (EIRP) – LTE Band 2 (1850-1910MHz)

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19957	20175	20393	19957	20175	20393
			1710.7 MHz	1732.5 MHz	1754.3 MHz	1710.7 MHz	1732.5 MHz	1754.3 MHz
Band 4 / 1.4 MHz	1	0	24.329	24.262	24.367	23.358	23.319	23.475
	1	3	24.431	24.274	24.451	23.402	23.334	23.518
	1	5	24.33	24.232	24.42	23.374	23.289	23.449
	3	0	24.296	24.248	24.399	23.423	23.221	23.368
	3	2	24.365	24.258	24.434	23.448	23.207	23.401
	3	3	24.308	24.194	24.385	23.434	23.192	23.385
	6	0	23.202	23.233	23.376	22.29	22.196	22.376

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19965	20175	20385	19965	20175	20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz	1711.5 MHz	1732.5 MHz	1753.5 MHz
Band 4 / 3MHz	1	0	24.367	24.234	24.498	23.429	23.599	23.588
	1	7	24.389	24.2	24.498	23.339	23.571	23.597
	1	14	24.302	24.204	24.416	23.299	23.495	23.482
	8	0	23.326	23.281	23.412	22.309	22.469	22.387
	8	4	23.309	23.251	23.417	22.278	22.361	22.383
	8	7	23.265	23.19	23.378	22.264	22.315	22.381
	15	0	23.271	23.278	23.41	22.311	22.289	22.391

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19975	20175	20375	19975	20175	20375
			1712.5MHz	1732.5MHz	1752.5MHz	1712.5MHz	1732.5MHz	1752.5MHz
Band 4 / 5MHz	1	0	24.434	24.445	24.493	23.519	23.61	23.519
	1	13	24.299	24.335	24.408	23.396	23.572	23.391
	1	25	24.309	24.37	24.383	23.432	23.618	23.388
	12	0	23.338	23.281	23.479	22.322	22.3	22.484
	12	6	23.286	23.256	23.444	22.243	22.276	22.462
	12	13	23.225	23.275	23.406	22.168	22.267	22.429
	25	0	23.302	23.259	23.451	22.318	22.265	22.429

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20000	20175	20350	20000	20175	20350
			1715MHz	1732.5MHz	1750MHz	1715MHz	1732.5MHz	1750MHz
Band 4 / 10MHz	1	0	24.472	24.305	24.628	23.478	23.731	23.627
	1	25	24.366	24.209	24.557	23.256	23.69	23.581
	1	49	24.416	24.356	24.592	23.238	23.686	23.709
	25	0	23.246	23.203	23.567	22.329	22.246	22.62
	25	13	23.231	23.222	23.51	22.269	22.265	22.552
	25	25	23.161	23.296	23.552	22.24	22.326	22.604
	50	0	23.287	23.259	23.503	22.28	22.251	22.488

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20025	20175	20325	20025	20175	20325
			1717.5MHz	1732.5MHz	1747.5MHz	1717.5MHz	1732.5MHz	1747.5MHz
Band 4 / 15MHz	1	0	24.535	24.515	24.612	23.512	23.891	23.562
	1	38	24.313	24.19	24.375	23.257	23.518	23.367
	1	74	24.42	24.366	24.616	23.305	23.756	23.577
	36	0	23.335	23.248	23.336	22.335	22.304	22.357
	36	19	23.323	23.266	23.376	22.309	22.265	22.404
	36	39	23.226	23.272	23.39	22.205	22.277	22.453
	75	0	23.233	23.319	23.369	22.22	22.34	22.395

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20050	20175	20300	20050	20175	20300
			1720MHz	1732.5MHz	1745MHz	1720MHz	1732.5MHz	1745MHz
Band 4 / 20MHz	1	0	24.283	24.35	24.403	23.801	23.335	24.08
	1	49	24.273	24.22	24.28	23.601	23.207	23.893
	1	99	23.928	24.006	24.114	23.329	22.791	23.671
	50	0	23.369	23.297	23.303	22.35	22.294	22.266
	50	25	23.261	23.265	23.435	22.28	22.267	22.397
	50	50	23.076	23.156	23.299	22.104	22.129	22.287
	100	0	23.168	23.303	23.39	22.186	22.294	22.402

The maximum ERP/EIRP from the measured RF output power is given in Equation as follows:

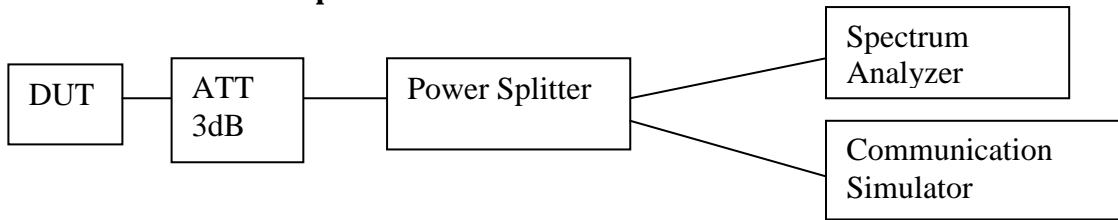
$$\mathbf{EIRP = P_{Meas} + GT}$$
$$\mathbf{ERP = EIRP - 2.15}$$

Where, ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (Expressed in the same units as P<sub>Meas</sub>, e.g., dBm)

**P<sub>Meas</sub>** measured transmitter output power, in dBm  
**GT** gain of the transmitting antenna, in dBi (EIRP)

## 1.7. Peak-to-Average Power Ratio

### 1.7.1. Test Setup



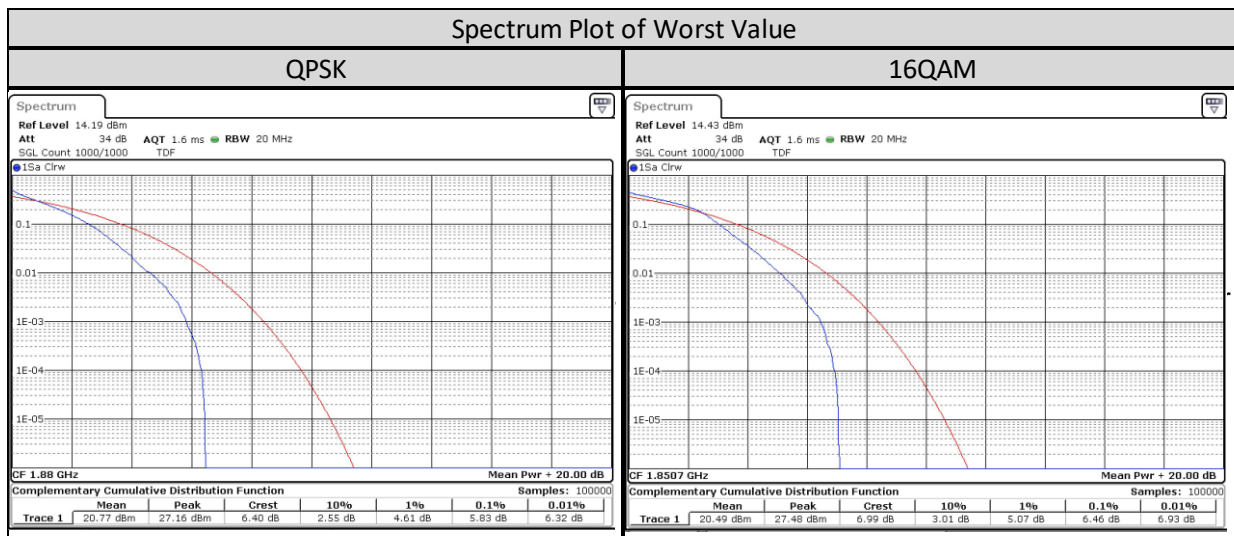
1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. Set the CCDF (Complementary Cumulative Distribution Function) option in the spectrum analyzer.
5. Spectrum Analyzer setting, RBW = 20MHz.
6. Recorded the maximum PAR level associated with a probability of 0.1% as Peak to Average Ratio.
7. All the measurement was done at low, mid, high channel for each band and different modulation.

### 1.7.2. Test Limit

In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

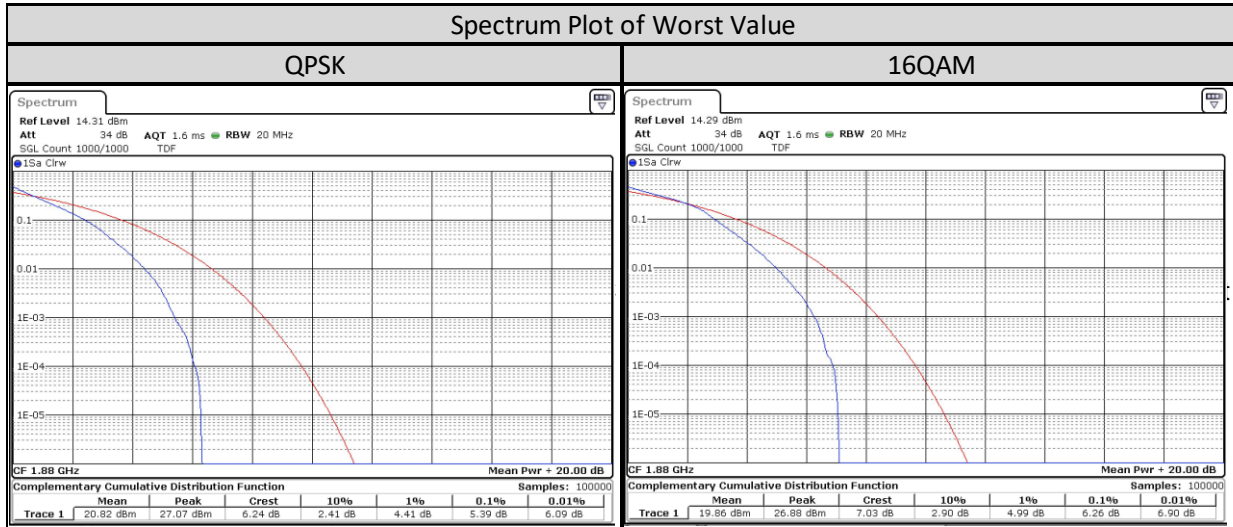
### 1.7.3. Peak-to-Average Power Ratio - LTE Band 2 (1850-1910MHz)

LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 2/1.4MHz/6/0	Low CH 18607	1850.7 MHz	5.362	<b>6.464</b>
	Mid CH 18900	1880 MHz	<b>5.826</b>	6.203
	High CH 19193	1909.3 MHz	5.391	6.174

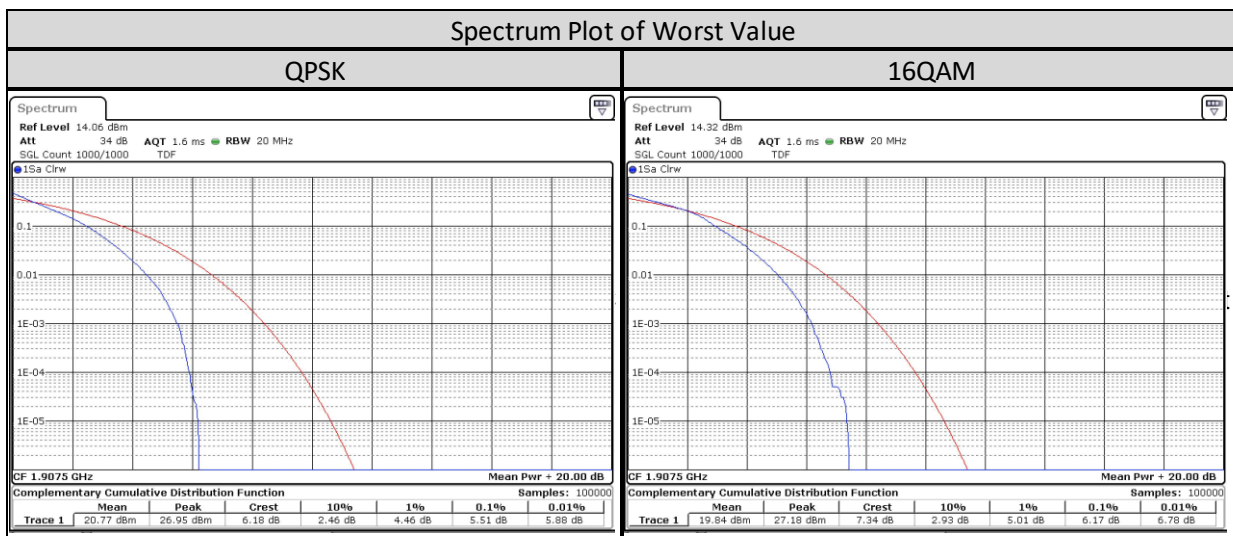




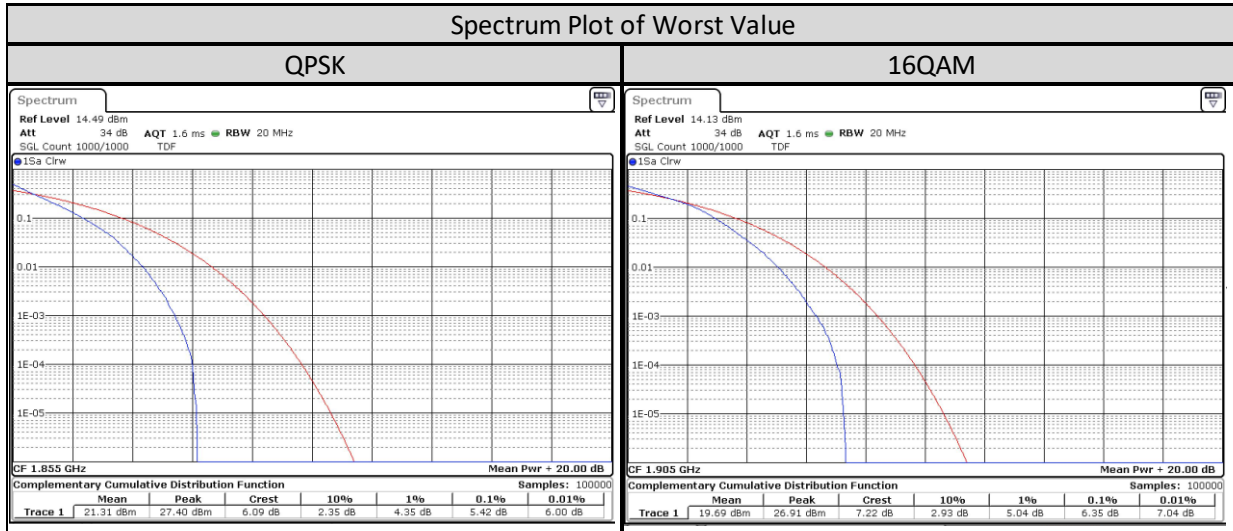
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 2/3MHz/15/0	Low CH 18615	1851.5 MHz	5.333	6.029
	Mid CH 18900	1880 MHz	<b>5.391</b>	<b>6.261</b>
	High CH 19185	1908.5 MHz	5.362	6.232



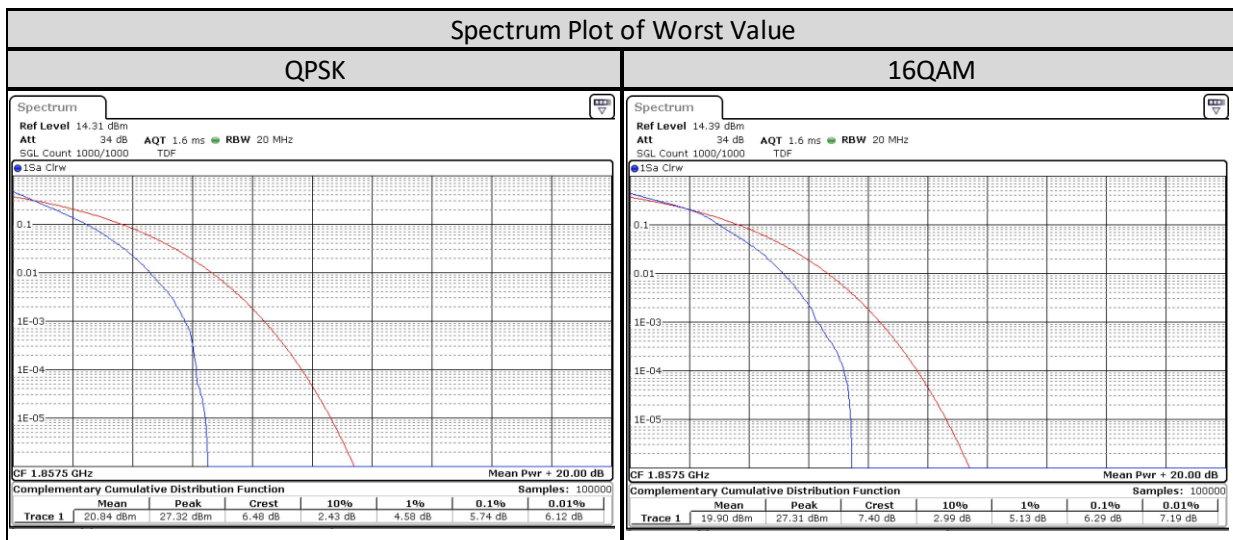
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 2/5MHz/25/0	Low CH 18625	1852.5 MHz	5.333	6
	Mid CH 18900	1880 MHz	5.449	6.058
	High CH 19175	1907.5 MHz	<b>5.507</b>	<b>6.174</b>



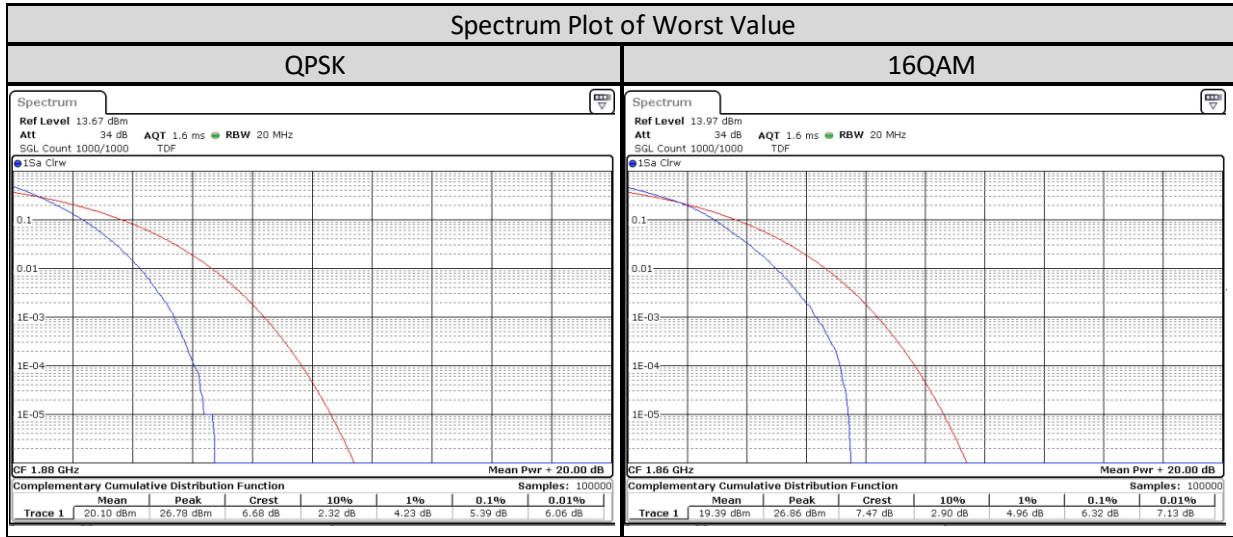
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	5.42	6.087
	Mid CH 18900	1880 MHz	5.333	6.087
	High CH 19150	1905 MHz	5.246	6.348



LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 2/15MHz/75/0	Low CH 18675	1857.5 MHz	5.739	6.29
	Mid CH 18900	1880 MHz	5.71	6.145
	High CH 19125	1902.5 MHz	5.681	6.29

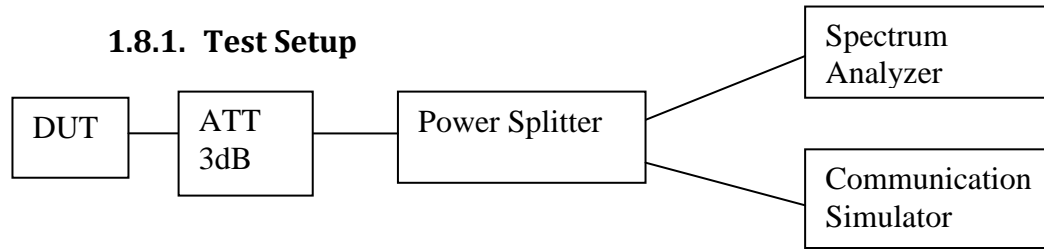


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
<b>Band 2/ 20MHz/100/0</b>	Low CH 18700	1860 MHz	5.362	<b>6.319</b>
	Mid CH 18900	1880 MHz	<b>5.391</b>	6.116
	High CH 19100	1900 MHz	5.217	6.261



## 1.8. Occupied Bandwidth

### 1.8.1. Test Setup



- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) For LTE measurement, set DUT to transmit maximum power & full RB size through communication simulator.
- 4) For LTE measurement, set DUT to transmit maximum power through communication simulator.
- 5) Spectrum Analyzer setting, RBW is 1% of OBW and VBW is 3 times of RBW.
- 6) Measure & record -26dBc and 99% occupied bandwidth (BW).
- 7) All the measurement was done at low, mid, high channel for each band and different modulation.

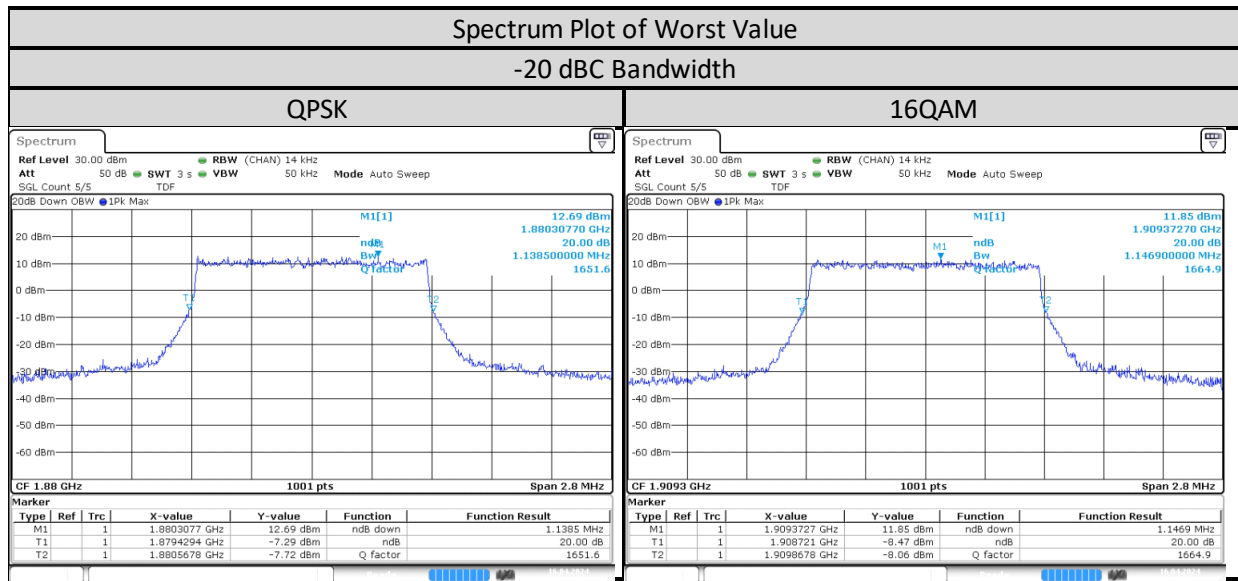
### 1.8.2. Test Limit

FCC: 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.

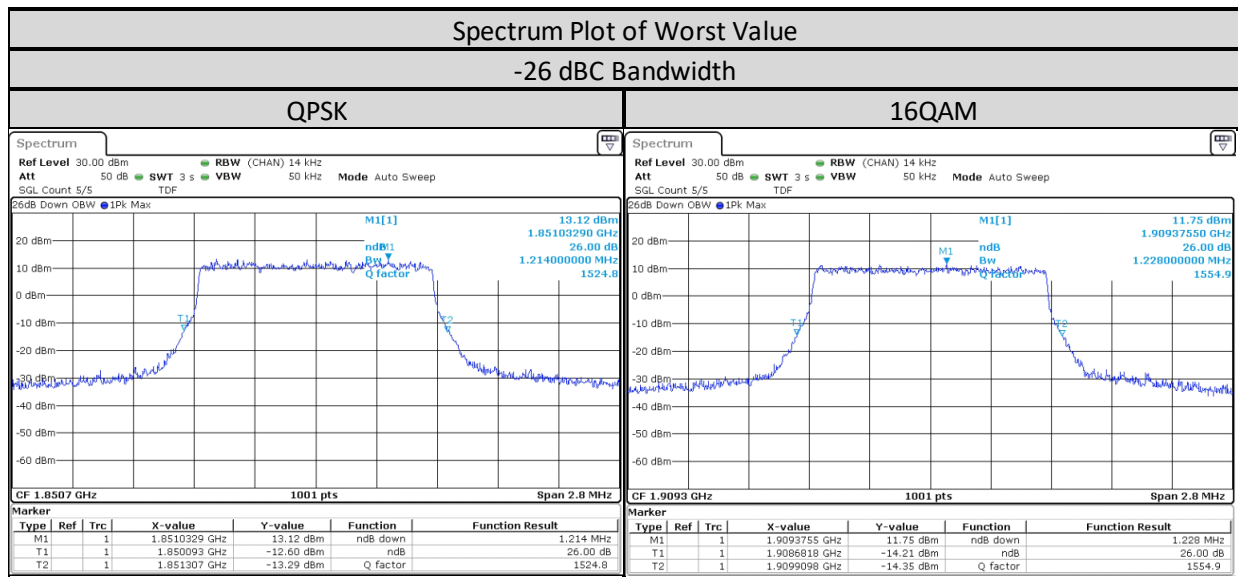
ISED: Emission bandwidth is, for the purpose of this document, defined as the width of the signal between two points, one below the carrier frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 20 dB below the transmitter power (i.e. -20 dBc), when measured with a resolution bandwidth of approximately 1% of the occupied bandwidth. In lieu of the -20 dBc bandwidth, the occupied bandwidth may be used.

### 1.8.3. Occupied Bandwidth - LTE Band 2 (1850 -1910 MHz)

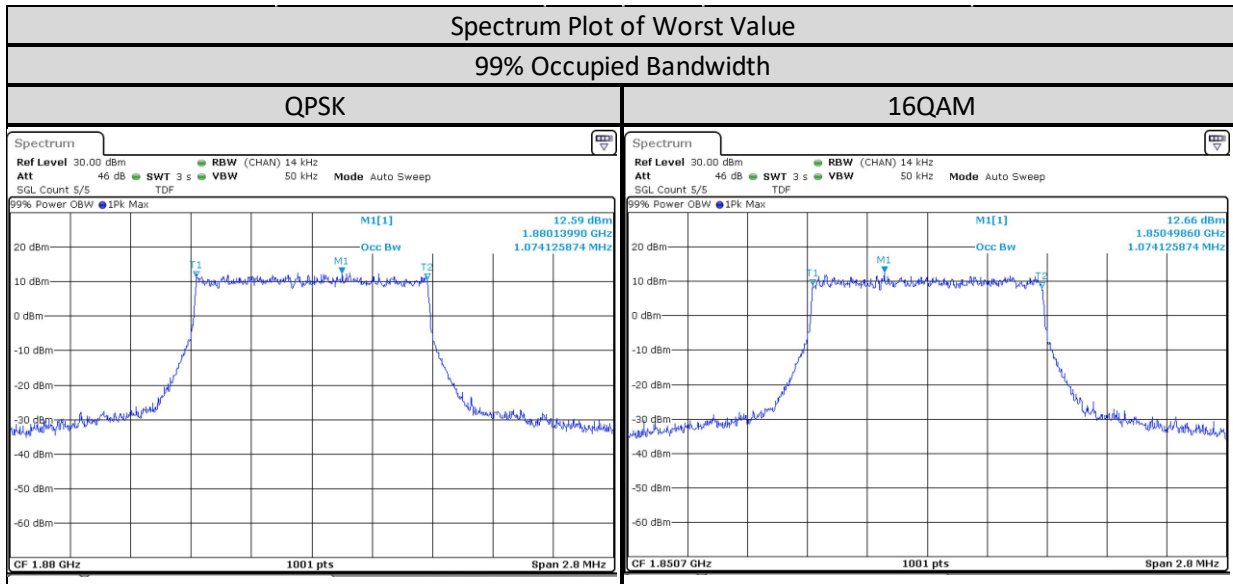
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/1.4MHz/6/0	Low CH 18607	1850.7 MHz	1.133	1.127
	Mid CH 18900	1880 MHz	<b>1.139</b>	1.122
	High CH 19193	1909.3 MHz	1.127	<b>1.147</b>



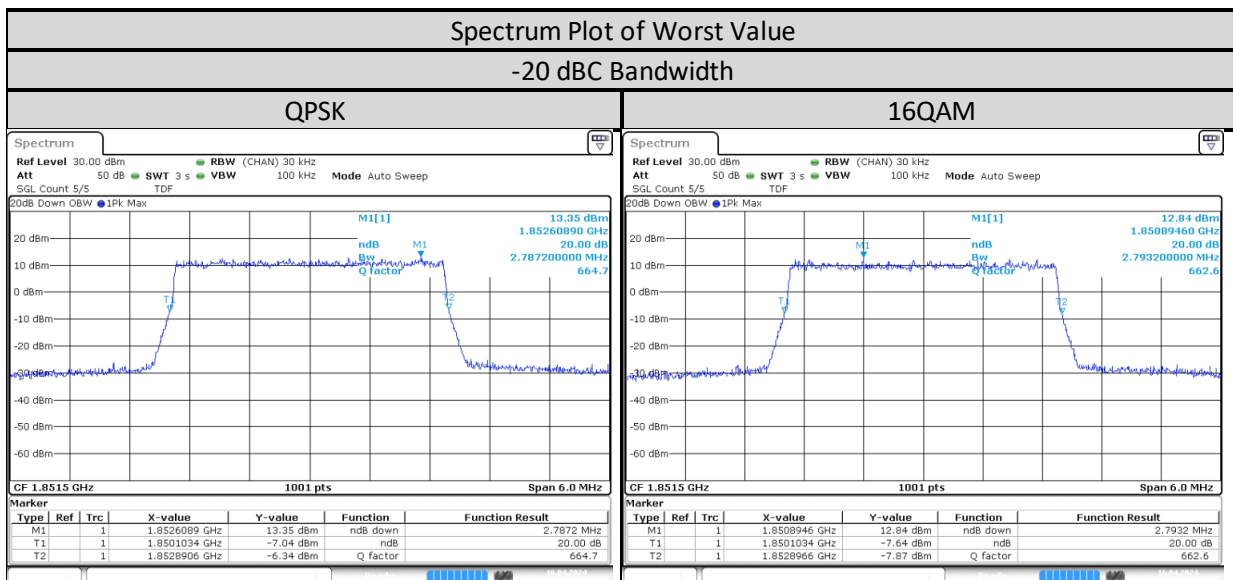
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/1.4MHz/6/0	Low CH 18607	1850.7 MHz	<b>1.214</b>	1.211
	Mid CH 18900	1880 MHz	1.211	1.189
	High CH 19193	1909.3 MHz	1.197	<b>1.228</b>



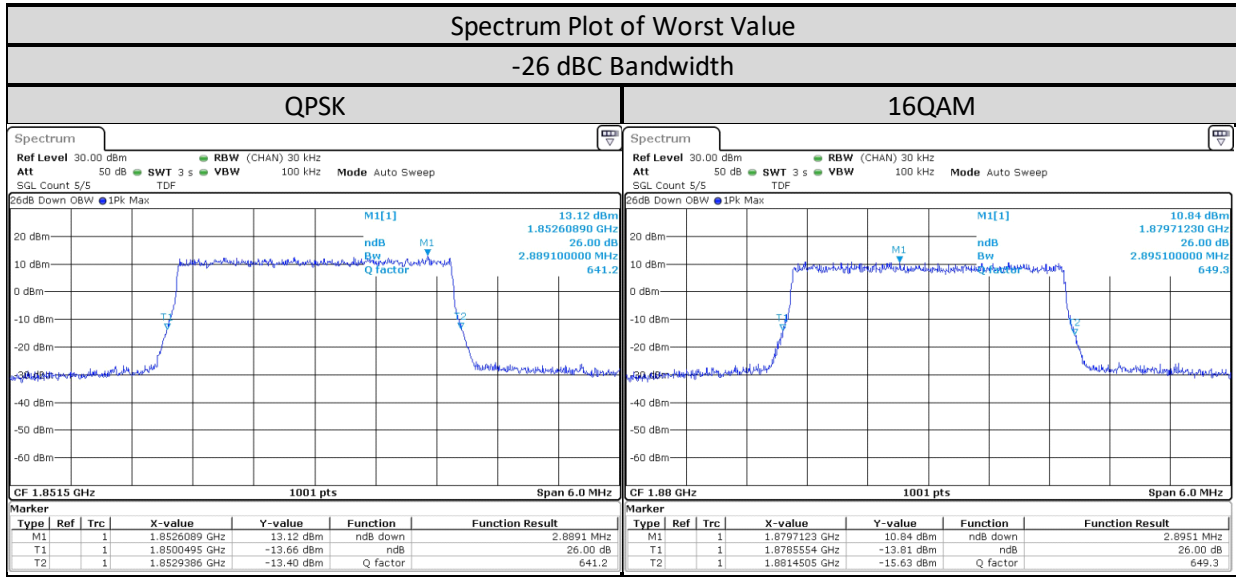
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band 2/1.4MHz/6/0</b>	Low CH 18607	1850.7 MHz	1.071	<b>1.074</b>
	Mid CH 18900	1880 MHz	<b>1.074</b>	1.071
	High CH 19193	1909.3 MHz	1.074	1.074



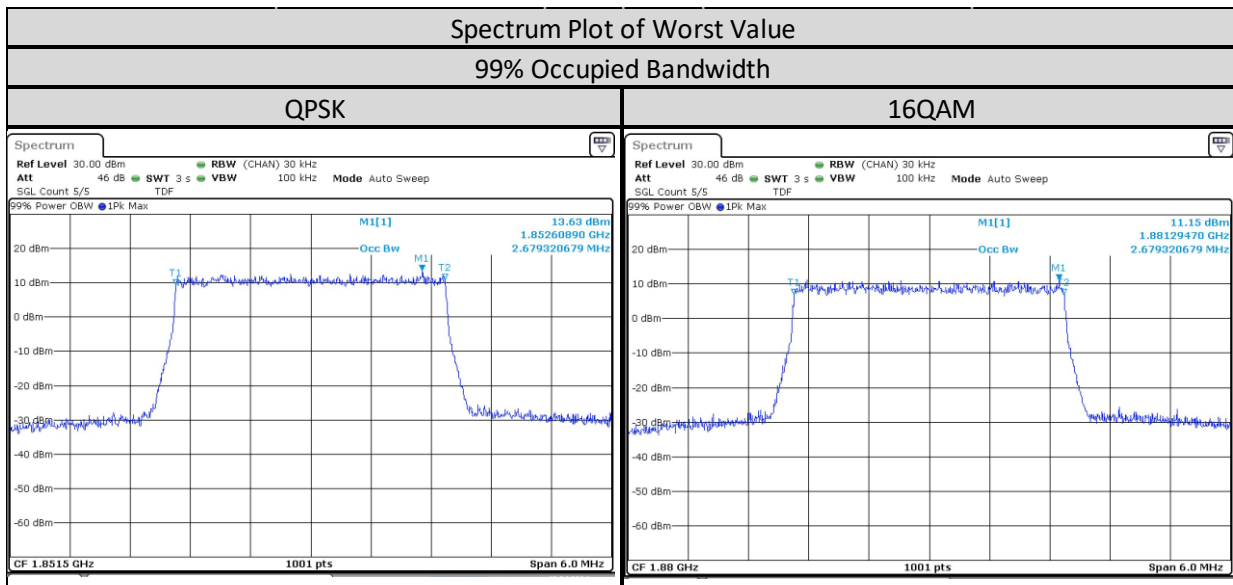
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band 2/3MHz/15/0</b>	Low CH 18615	1851.5 MHz	2.787	2.793
	Mid CH 18900	1880 MHz	<b>2.787</b>	2.793
	High CH 19185	1908.5 MHz	2.775	<b>2.793</b>



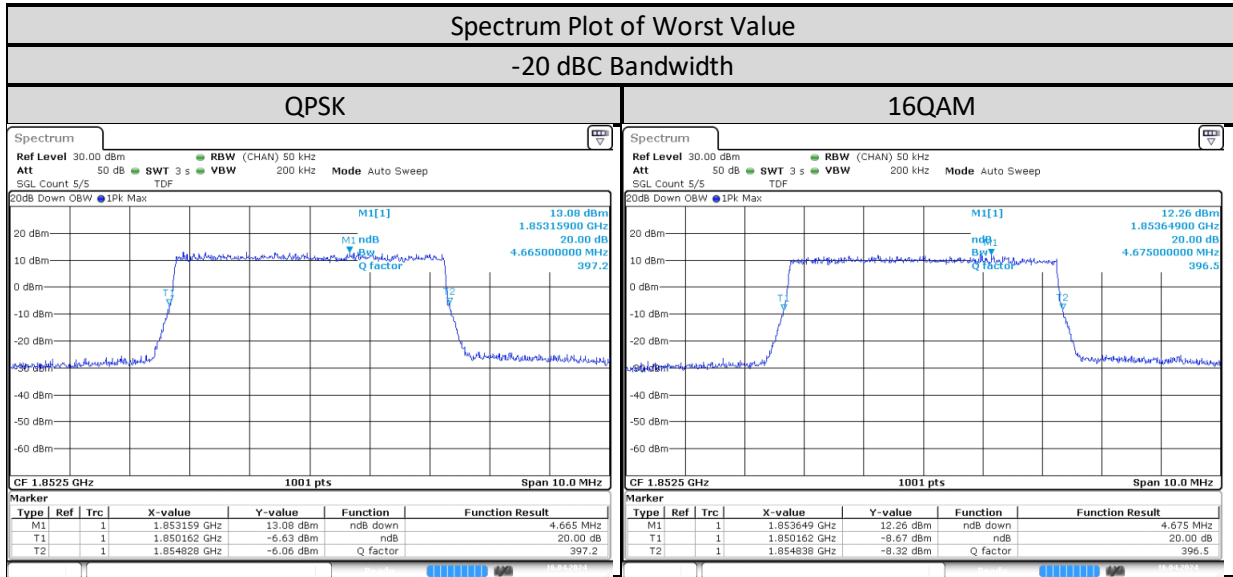
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/3MHz/15/0	Low CH 18615	1851.5 MHz	2.889	2.883
	Mid CH 18900	1880 MHz	2.871	2.895
	High CH 19185	1908.5 MHz	2.877	2.883



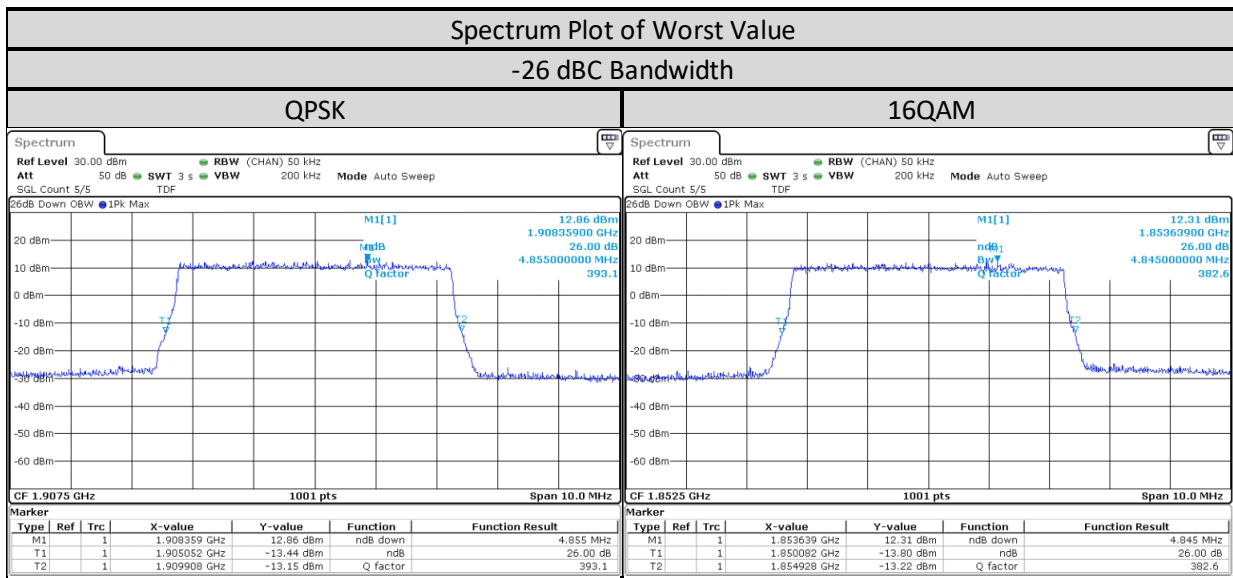
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/3MHz/15/0	Low CH 18615	1851.5 MHz	2.679	2.673
	Mid CH 18900	1880 MHz	2.679	2.679
	High CH 19185	1908.5 MHz	2.673	2.673



LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/5MHz/25/0	Low CH 18625	1852.5 MHz	4.665	<b>4.675</b>
	Mid CH 18900	1880 MHz	4.635	4.645
	High CH 19175	1907.5 MHz	<b>4.665</b>	4.655

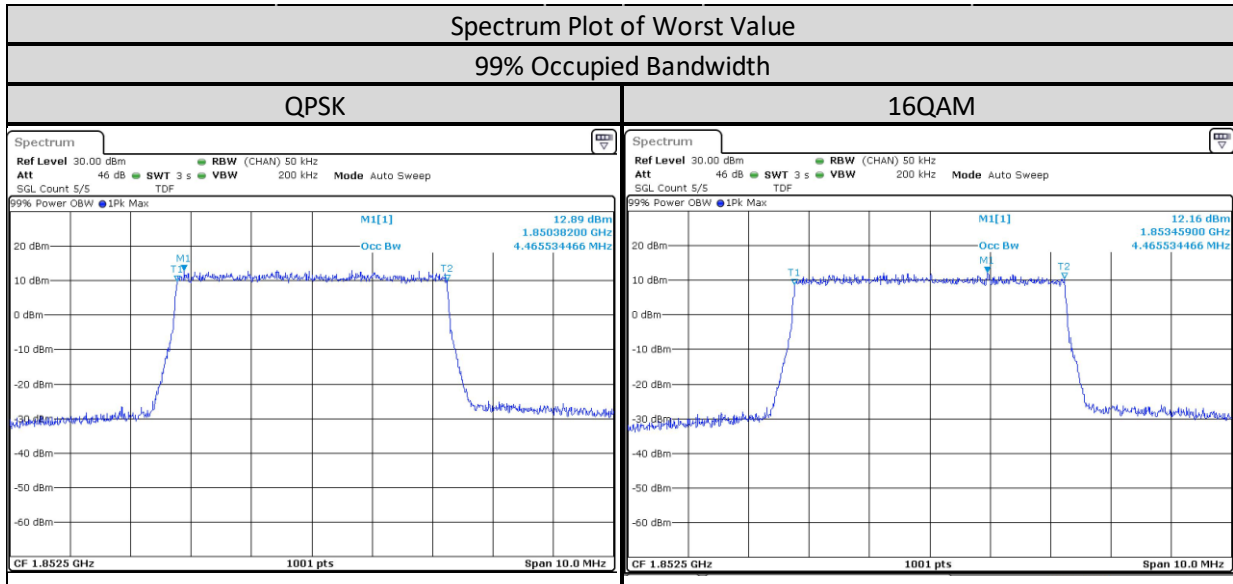


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/5MHz/25/0	Low CH 18625	1852.5 MHz	4.835	<b>4.845</b>
	Mid CH 18900	1880 MHz	4.795	4.805
	High CH 19175	1907.5 MHz	<b>4.855</b>	4.835

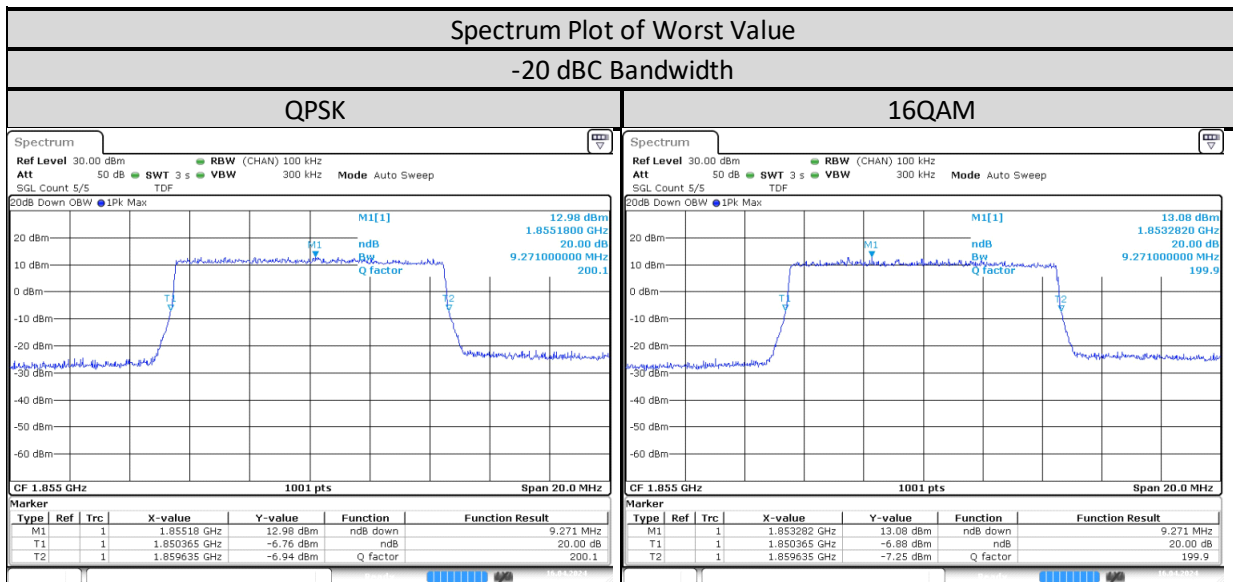




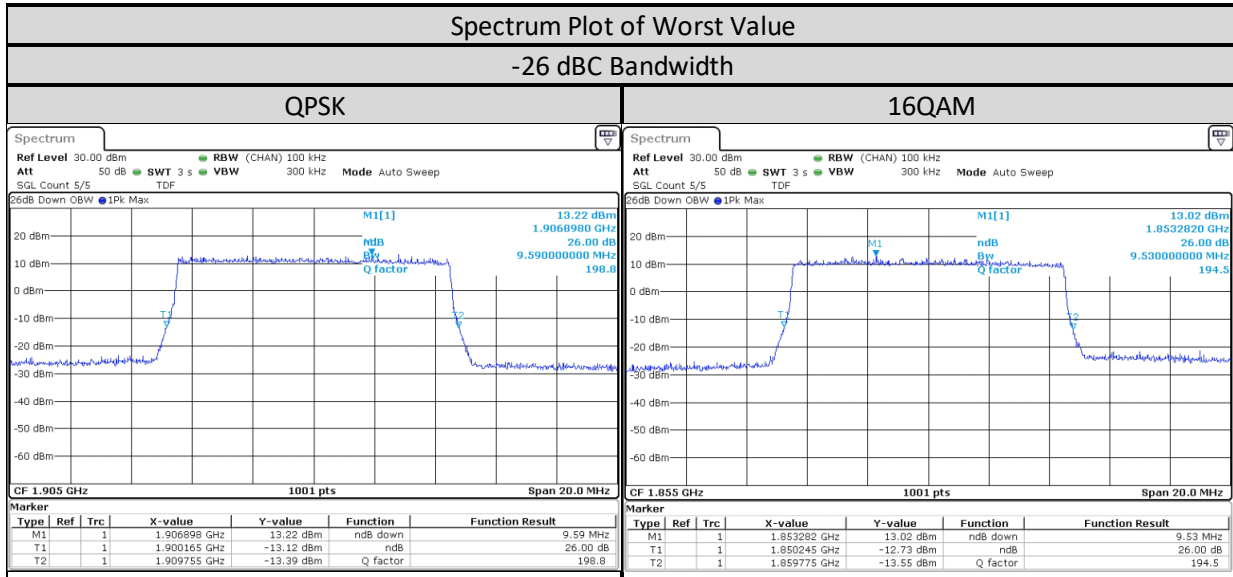
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/5MHz/25/0	Low CH 18625	1852.5 MHz	4.466	4.466
	Mid CH 18900	1880 MHz	4.456	4.466
	High CH 19175	1907.5 MHz	4.466	4.466



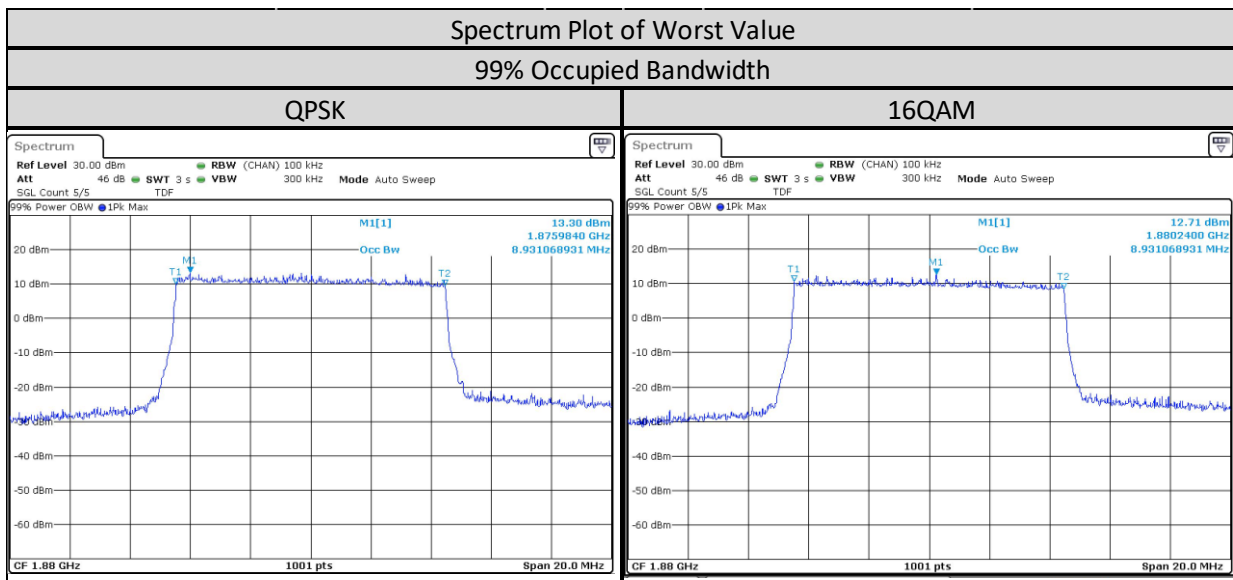
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	9.271	9.271
	Mid CH 18900	1880 MHz	9.251	9.231
	High CH 19150	1905 MHz	9.271	9.231



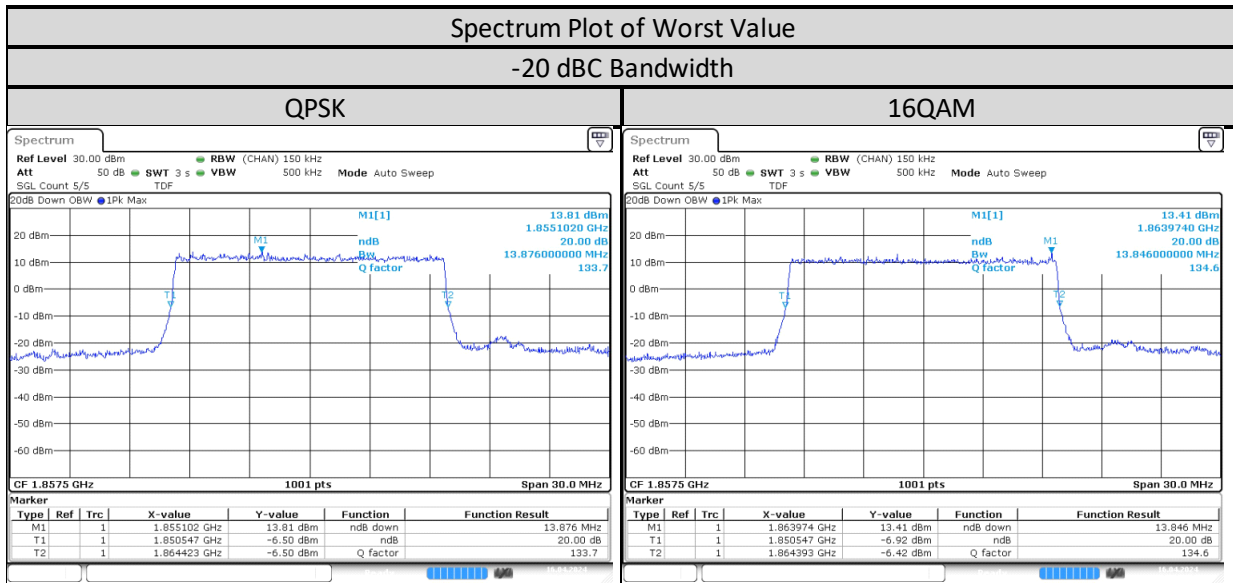
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	9.57	9.53
	Mid CH 18900	1880 MHz	9.57	9.491
	High CH 19150	1905 MHz	9.59	9.491



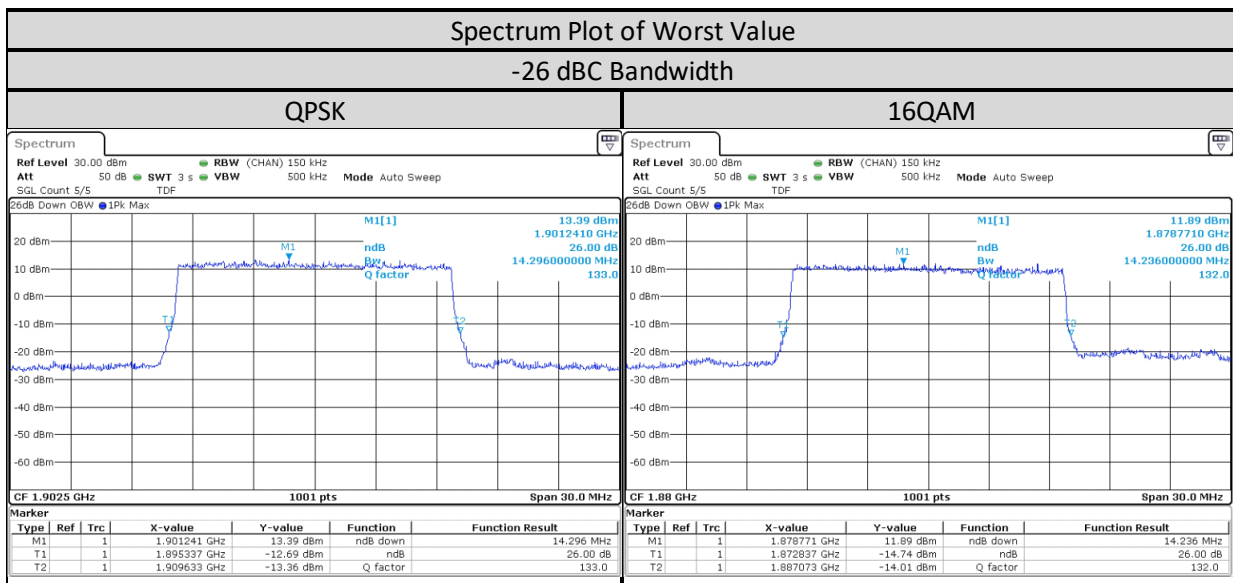
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	8.911	8.911
	Mid CH 18900	1880 MHz	8.931	8.931
	High CH 19150	1905 MHz	8.931	8.911



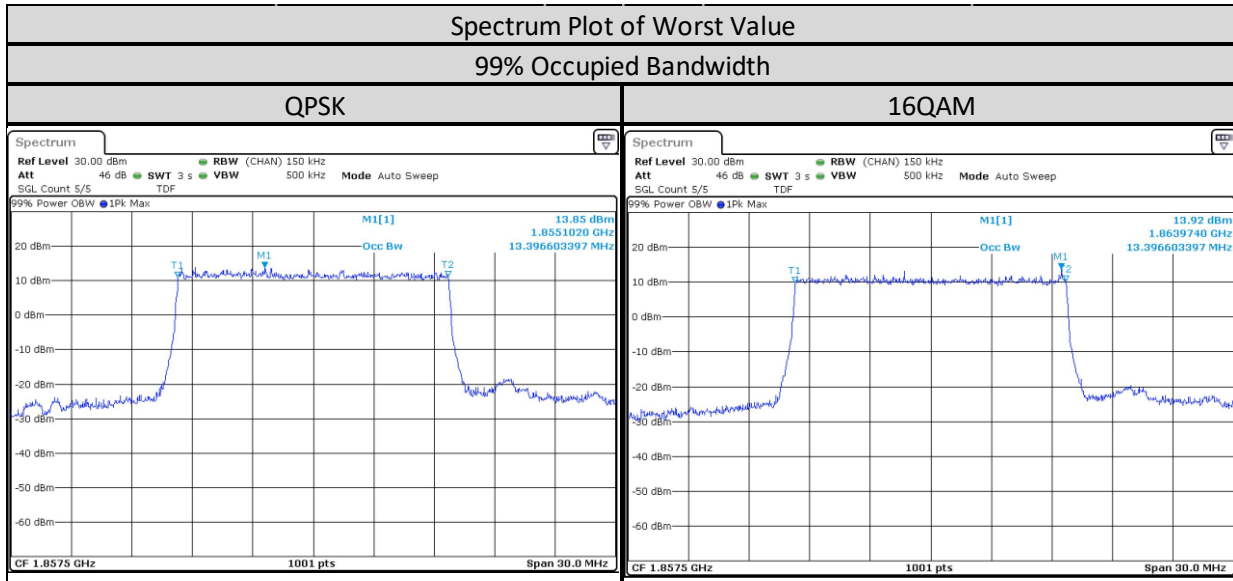
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/15MHz/75/0	Low CH 18675	1857.5 MHz	13.876	13.846
	Mid CH 18900	1880 MHz	13.846	13.816
	High CH 19125	1902.5 MHz	13.846	13.816



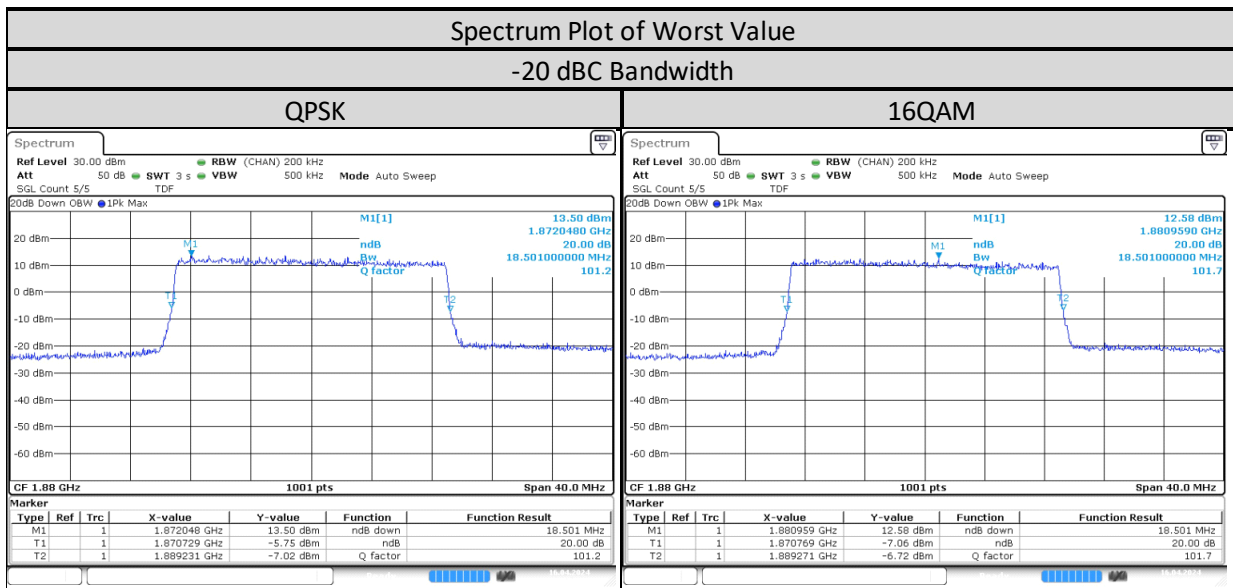
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/15MHz/75/0	Low CH 18675	1857.5 MHz	14.236	14.176
	Mid CH 18900	1880 MHz	14.266	14.236
	High CH 19125	1902.5 MHz	14.296	14.236



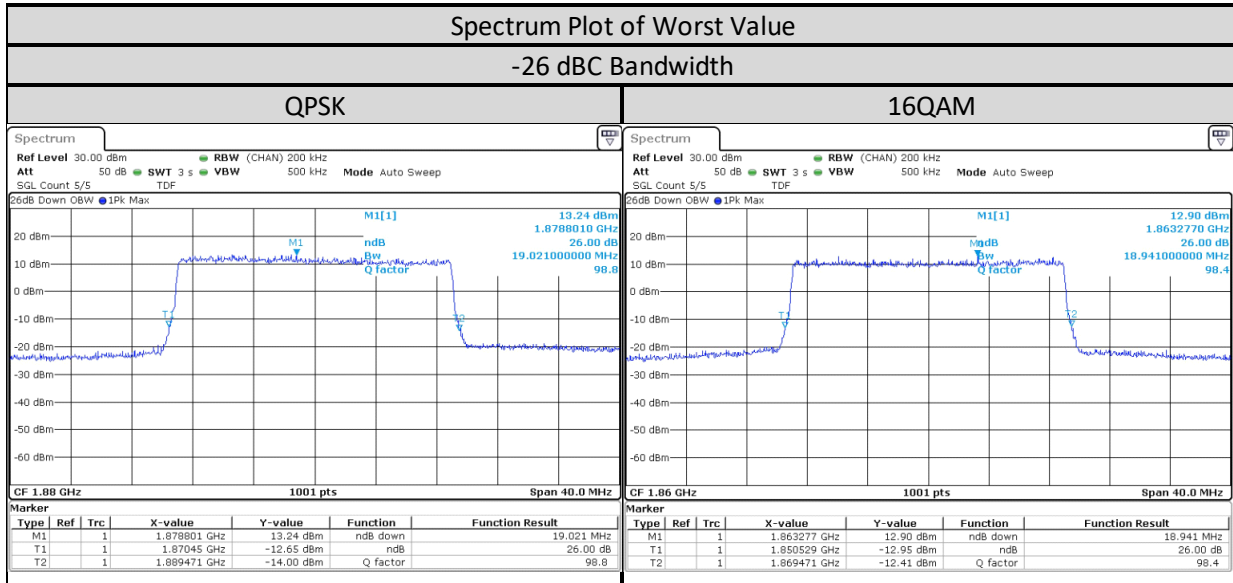
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/15MHz/75/0	Low CH 18675	1857.5 MHz	13.397	13.397
	Mid CH 18900	1880 MHz	13.397	13.397
	High CH 19125	1902.5 MHz	13.367	13.367



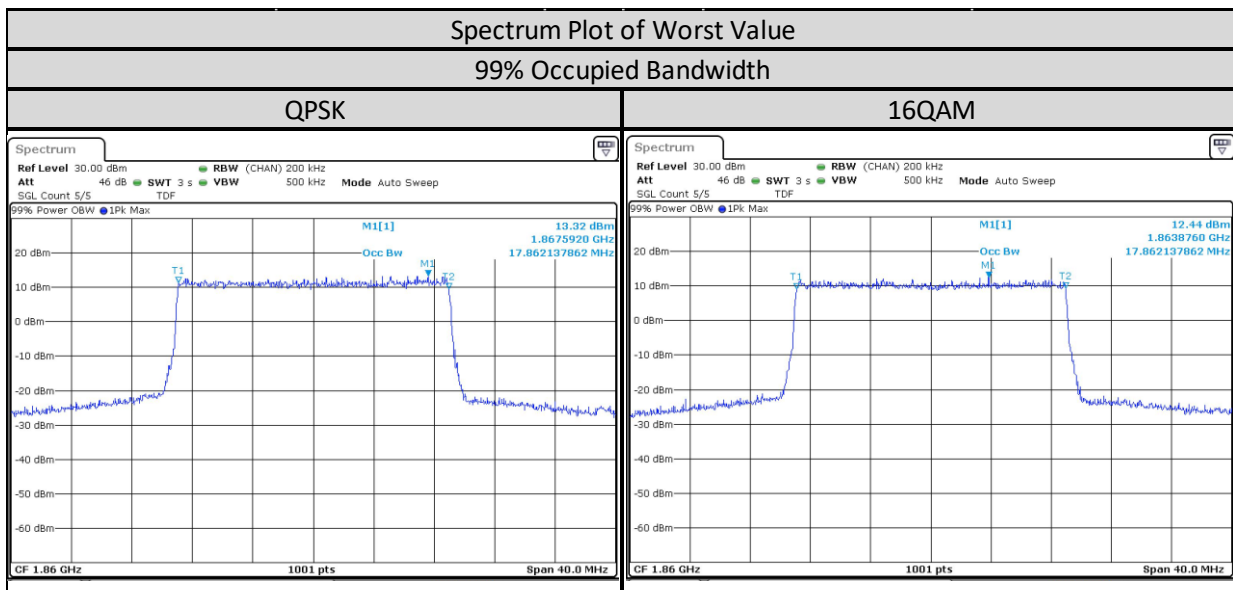
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/20MHz/100/0	Low CH 18700	1860 MHz	18.422	18.422
	Mid CH 18900	1880 MHz	18.501	18.501
	High CH 19100	1900 MHz	18.501	18.462



LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band 2/20MHz/100/0</b>	Low CH 18700	1860 MHz	18.941	<b>18.941</b>
	Mid CH 18900	1880 MHz	<b>19.021</b>	18.941
	High CH 19100	1900 MHz	18.941	18.861

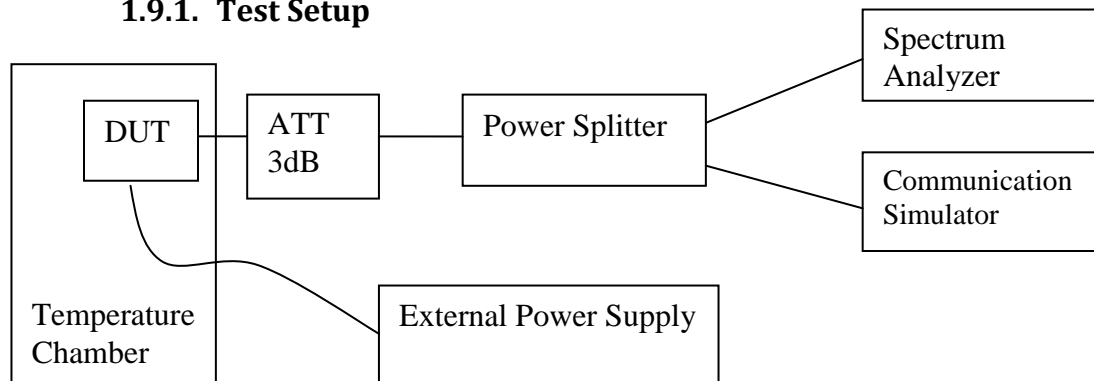


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band 2/20MHz/100/0</b>	Low CH 18700	1860 MHz	<b>17.862</b>	<b>17.862</b>
	Mid CH 18900	1880 MHz	17.862	17.862
	High CH 19100	1900 MHz	17.822	17.822



## 1.9. Frequency Stability

### 1.9.1. Test Setup



- 1) The DUT is placed in the temperature chamber and DUT is power up by external power supply to control the DC input voltage.
- 2) The temperature chamber could control the temperature and humidity and external power supply could control the test voltage range from minimum to maximum operating voltage.
- 3) Measured frequency error from the communication simulator by vary below step :
  - i. Vary temperature of the temperature chamber from -30 ~ 50 deg C (10 deg C / Step) and set external supply voltage constant at nominal voltage.
  - ii. Vary external supply voltage from minimum to maximum operation voltage support by DUT and set temperature chamber constant at room temp.
- 4) All the measurement was done at mid channel for each band.

### 1.9.2. Test Limit

FCC: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

ISED: The carrier frequency shall not depart from the reference frequency, in excess of  $\pm 2.5$  ppm for mobile stations and  $\pm 1.0$  ppm for base stations.

### 1.9.3. Frequency Stability – LTE Band 2 (1850 -1910 MHz)

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 1.4 MHz			
		Low Channel		High Channel	
		1850.7MHz		1909.3MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 2	60	1850.700012	0.006562	1909.299989	-0.005769
	50	1850.700008	0.004499	1909.299982	-0.00944
	40	1850.70001	0.005388	1909.29999	-0.005305
	30	1850.699988	-0.006477	1909.29999	-0.005072
	20	1850.700015	0.00817	1909.299989	-0.005919
	10	1850.700016	0.008889	1909.299988	-0.006114
	0	1850.700021	0.011579	1909.300018	0.009665
	-10	1850.699992	-0.004104	1909.299994	-0.003319
	-20	1850.700017	0.009322	1909.299991	-0.004555
	-30	1850.700012	0.006462	1909.299989	-0.005559

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 1.4 MHz			
		Low Channel		High Channel	
		1850.7MHz		1909.3MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 2	9	1850.700021	0.014678	1909.300018	0.016131
	7.5	1850.699992	0.006941	1909.299994	-0.003709
	6	1850.700017	0.012398	1909.299991	-0.003836

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 3 MHz			
		Low Channel		High Channel	
		1851.5MHz		1908.5MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	1851.500009	0.005014	1908.500009	0.004722
	50	1851.50001	0.0052	1908.500009	0.004707
	40	1851.50001	0.005555	1908.500008	0.004235
	30	1851.50001	0.005138	1908.500008	0.00401
	20	1851.500009	0.004868	1908.500008	0.004108
	10	1851.500009	0.005053	1908.500011	0.005801
	0	1851.500009	0.004736	1908.500012	0.006236
	-10	1851.50001	0.005246	1908.500008	0.004235
	-20	1851.500014	0.007487	1908.50001	0.005179
-30	1851.500013	0.007154	1908.500009	0.004572	

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 3 MHz			
		Low Channel		High Channel	
		1851.5MHz		1908.5MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9	1851.500013	-0.005285	1908.500009	0.004115
	7.5	1851.500014	0.004929	1908.500012	0.004617
	6	1851.500009	0.004953	1908.500012	0.00431



Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 5 MHz			
		Low Channel		High Channel	
		1852.5MHz		1907.5MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	1852.50001	0.005274	1907.499992	-0.00411
	50	1852.500011	0.005853	1907.499993	-0.003547
	40	1852.500009	0.004788	1907.499991	-0.004492
	30	1852.500009	0.005104	1907.499992	-0.00411
	20	1852.500014	0.007336	1907.499993	-0.00384
	10	1852.500009	0.004911	1907.499992	-0.00396
	0	1852.50001	0.005375	1907.499993	-0.003607
	-10	1852.500011	0.005907	1907.499993	-0.003892
	-20	1852.500012	0.006378	1907.499995	-0.002722
-30	1852.500013	0.007004	1907.499942	-0.030388	

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 5 MHz			
		Low Channel		High Channel	
		1852.5MHz		1907.5MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9	1852.500009	0.008093	1907.499993	0.030515
	7.5	1852.500009	0.004965	1907.499995	-0.004425
	6	1852.500009	0.005066	1907.499991	-0.003727

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 10 MHz			
		Low Channel		High Channel	
		1855MHz		1905MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 2	60	1854.999992	-0.004457	1905.000007	0.00383
	50	1854.999991	-0.004789	1905.000009	0.004874
	40	1854.999991	-0.004712	1905.000009	0.004663
	30	1854.999993	-0.003756	1905.000008	0.004228
	20	1854.999993	-0.003864	1905.000011	0.005745
	10	1854.999991	-0.004935	1905.000001	0.005069
	0	1854.999993	-0.004002	1905.000009	0.004663
	-10	1854.999992	-0.004049	1905.000011	0.005932
	-20	1854.999993	-0.003856	1905.000001	0.005256
	-30	1854.999992	-0.004249	1905.000011	0.005745

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 10 MHz			
		Low Channel		High Channel	
		1855MHz		1905MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 2	9	1854.999991	-0.003794	1905.000009	0.004941
	7.5	1854.999993	-0.004187	1905.000009	0.00615
	6	1854.999993	-0.003979	1905.000008	0.005422

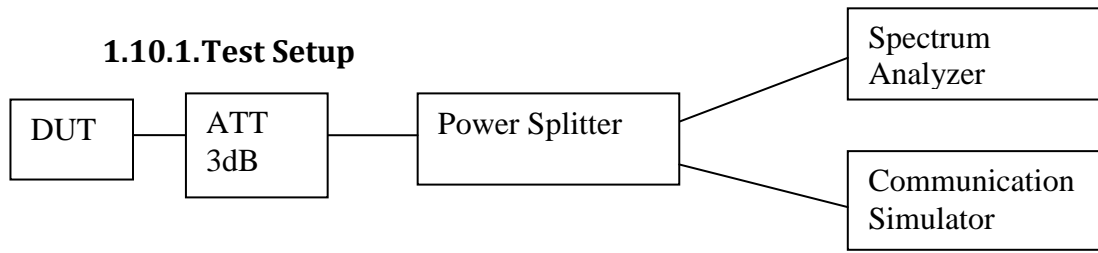
Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 15 MHz			
		Low Channel		High Channel	
		1857.5MHz		1902.5MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	1857.500008	0.004205	1902.500007	0.003842
	50	1857.500008	0.004274	1902.500007	0.003451
	40	1857.500006	0.003258	1902.500009	0.004511
	30	1857.500008	0.004105	1902.500007	0.003699
	20	1857.500007	0.003866	1902.500007	0.003511
	10	1857.500007	0.00372	1902.500009	0.004564
	0	1857.500008	0.004559	1902.500012	0.006534
	-10	1857.500009	0.005091	1902.50001	0.005136
	-20	1857.500009	0.004667	1902.500009	0.004527
-30	1857.500056	0.030097	1902.50001	0.005023	

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 15 MHz			
		Low Channel		High Channel	
		1857.5MHz		1902.5MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9	1857.500009	0.006438	1902.500009	0.004023
	7.5	1857.500009	0.004421	1902.500007	0.00409
	6	1857.500056	0.00372	1902.500007	-0.022257

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 20 MHz			
		Low Channel		High Channel	
		1860MHz		1900MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 2	60	1860.00001	0.005338	1899.999992	-0.003968
	50	1860.000008	0.004207	1899.999992	-0.004186
	40	1860.000008	0.004353	1899.999992	-0.017535
	30	1860.000008	0.005414	1899.999992	-0.005376
	20	1860.00001	0.005476	1899.999991	-0.004623
	10	1860.00001	0.005168	1900.000063	0.033406
	0	1860.00001	0.005238	1899.999993	-0.003478
	-10	1860.00001	0.005161	1899.999994	-0.003365
	-20	1860.00001	0.005338	1899.999993	-0.003516
	-30	1860.000012	0.006383	1899.999991	-0.004788

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 20 MHz			
		Low Channel		High Channel	
		1860MHz		1900MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 2	9	1860.00001	0.004515	1899.999991	-0.004141
	7.5	1860.00001	0.004545	1899.999991	-0.004111
	6	1860.00001	0.004722	1899.999991	-0.005323

### 1.10. Band Edge Conducted Spurious Emission



- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) Set DUT to transmit maximum power through communication simulator.
- 4) The band edges of lowest and highest channels with the highest RF powers were measured.
- 5) The center frequency of spectrum is the band edge frequency, span is 3MHz, RBW is 1~3% of EBW and VBW is at least 3 times of RBW.
- 6) Record the maximum trace plot into the test report.

#### 1.10.2. Test Limit

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

#### 1.10.3. Band Edge Conducted Spurious Emission – LTE Band 2 (1850 -1910 MHz)

