
 <p>CERTIFICATE 2518.08</p> <p>MS ISO/IEC 17025 TESTING SAMM NO. 0825</p>
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<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>                  Report Revision : Rev.B</p>
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<p><b>Date/s Tested</b> : 31-March-2022 - 1-July-2022</p> <p><b>Manufacturer/Location</b> : Motorola Solutions Malaysia Sdn Bhd</p> <p><b>Manufacturer Address</b> : Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia</p> <p><b>Requestor</b> : SIEW KHENG TAN</p> <p><b>Product Type</b> : Hand-held</p> <p><b>Product Version (PMN)</b> : MSLB-MKZ920</p> <p><b>Model Number (HVIN)</b> : AAH90UCU9RH1AN</p> <p><b>Frequency Band</b> : Refer to section 1.4</p> <p><b>Applicant Name</b> : Motorola Solutions Inc</p> <p><b>Applicant Address</b> : 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322.</p> <p><b>FCC Registrations</b> : 461337</p> <p><b>ISED Registrations</b> : MY0001</p> <p><b>Firmware Version (FVIN)</b> : D02.22.01.0103 (BP), D00.01.86 (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>ISED RSS GEN / 133</b></p> <p style="text-align: right; margin-right: 100px;"><b>PASS</b></p>	

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## REVISION HISTORY

Revision History	Description	Date	Originator
Rev A.	Initial Report	4-July-2022	Lim Khay Kwang

Rev B.	Correct max EIRP values in General Description of EUT	7-July-2022	Lim Khay Kwang
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### 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	734TYF0012
24.232(d)	RSS-133 6.4	Peak-to-Average Power Ratio	Pass	Meet the requirement of limit	734TYF0012
2.1049 24.238(b)	RSS-Gen 6.6 RSS-133 2.3	Occupied Bandwidth (26dBc, 20dBc, 99%)	Pass	Meet the requirement of limit	734TYF0012
2.1055 24.235	RSS-Gen 6.11 RSS-133 6.3	Frequency Stability	Pass	Meet the requirement of limit	734TYF0012
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	734TYF0012
2.1051 24.238(a)(b)	RSS-Gen 6.13 RSS-133 6.5	Conducted Spurious Emissions	Pass	Meet the requirement of limit	734TYF0012
2.1053 24.236, 24.238	RSS-133 6.5	Radiated Spurious Emission	Pass	Meet the requirement of limit	734TYF0069
24.232 (c)	RSS-133 6.4	Equivalent Isotropically Radiated Power (EIRP)	Pass	Meet the requirement of limit	734TYF0012

#### 1.1. Measurement Uncertainty

Measurement	Frequency	Expended 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
Broadband ATE 1 (RF Conducted Tests); Test Software Version: CMWRun v1.8.9				
Signal Analyzer	FSV40	101431	02-Dec-21	02-Dec-23
Chamber	SH-641	92003150	17-Sep-21	17-Sep-22
Wideband Radio Communication Tester	CMW500	154550	07-Mar-21	07-Mar-23
Power Supply	6652A	MY40001437	26-Aug-21	26-Aug-22
Radiated Spurious Emission (EMC Chamber 1); Test Software Version: EMC_FCC_RE_v1.6.2				
Drg Horn Freq.	SAS-571	720	06-Apr-21	06-Apr-23

Drg Horn Freq.	SAS-571	719	13-Sep-21	13-Sep-22
Power Supply	N7977A	MY54420118	17-Aug-21	17-Aug-22
Signal Generator	SMB 100A	182511	4-Jun-21	4-Jun-24
Emi Test Receiver	ESW44	101731	5-Nov-21	5-Nov-22
5m Semi-Anechoic Chamber	S800-HX	J2308	No Cal. Req'd	No Cal. Req'd
Bilog Antenna	CBL6112D	2950	30-Jul-21	30-Jul-22
Bilog Antenna	CBL6112D	30991	05-Oct-21	05-Oct-22
Data Logger Thermohyrometer	SDL500	A.016800	13-Jun-21	13-Jun-23
System Controller	SC104V	050806-1	No Cal. Req'd	No Cal. Req'd
Turntable Flush Mount 2m	FM2011	NA	No Cal. Req'd	No Cal. Req'd
Antenna Positioning Tower	TLT2	NA	No Cal. Req'd	No Cal. Req'd
Broad-Band Horn Antenna	BBHA9170	BBHA9170143	3-Aug-21	3-Aug-22
Preamplifier 18-40ghz	BBV9721	9721-007	No Cal. Req'd	No Cal. Req'd
Preamplifier	PAM-0118P	361	11-Sep-20	11-Sep-23
Loop Antenna	6502	00208416	8-Oct-21	8-Oct-22

### 1.3. General Information

#### General Description of EUT

<b>Product</b>	MACKENZIE 8/900MHZ NAG MODEL			
<b>Brand</b>	Motorola Solutions			
<b>Test Model</b>	AAH90UCU9RH1AN			
<b>Power Supply Rating</b>	7.5Vdc			
<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. EIRP Power</b>	LTE Band 2 QPSK	Channel Bandwidth 1.4MHz	27.225dBm (0.528W)	
		Channel Bandwidth 3MHz	27.272dBm (0.534W)	
		Channel Bandwidth 5MHz	27.228dBm (0.528W)	
		Channel Bandwidth 10MHz	27.358dBm (0.544W)	
		Channel Bandwidth 15MHz	<b>27.387dBm (0.547W)</b>	
		Channel Bandwidth 20MHz	27.387dBm (0.547W)	
	LTE Band 2 16QAM	Channel Bandwidth 1.4MHz	26.381dBm (0.435W)	
		Channel Bandwidth 3MHz	26.528dBm (0.450W)	
		Channel Bandwidth 5MHz	26.482dBm (0.445W)	
		Channel Bandwidth 10MHz	<b>26.739dBm (0.472W)</b>	
		Channel Bandwidth 15MHz	26.553dBm (0.452W)	
		Channel Bandwidth 20MHz	26.956dBm (0.496W)	
<b>Emission Designator</b>	LTE Band 2		<b>QPSK</b>	<b>16QAM</b>

		Channel Bandwidth 1.4MHz	1M07G7D	1M07D7W
		Channel Bandwidth 3MHz	2M68G7D	2M68D7W
		Channel Bandwidth 5MHz	4M47G7D	4M48D7W
		Channel Bandwidth 10MHz	8M93G7D	8M93D7W
		Channel Bandwidth 15MHz	13M4G7D	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W
<b>Antenna Type</b>	LTE Band 2	LTE MID-HIGH BAND MAIN ANTENNA (2.81dBi)		
<b>SW Version</b>	D02.22.01.0103 (BP), D00.01.86 (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	MOTOROLA	PMNN4805A	BATTERY PACK,BATTERY PACK,IMPRES GEN2, LIION,IP68, 4400T

### 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

### Test Mode Applicability and Tested Channel Detail

#### LTE Band 2

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Uplink Modulation	Mode
<b>Conducted RF Output Power</b>	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		
<b>Peak to Average Power Ratio</b>	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
<b>Occupied Bandwidth</b>	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
<b>Frequency Stability</b>	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.

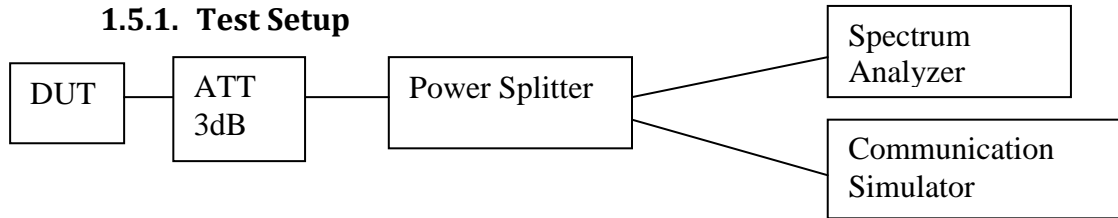
**Test Condition:**

<b>Test Item</b>	<b>Environmental Conditions</b>	<b>Input Power</b>	<b>Tested By</b>
Conducted RF Output Power	25°C, 50% RH	7.5V DC	Khay Kwang
Peak-to-Average Power Ratio	25°C, 50% RH	7.5V DC	Khay Kwang
Occupied Bandwidth	25°C, 50% RH	7.5V DC	Khay Kwang
Frequency Stability	-30°C ~ 60°C	7.5V DC	Khay Kwang
Band Edge Conducted Spurious Emission	25°C, 50% RH	7.5V DC	Khay Kwang
Conducted Spurious Emission	25°C, 50% RH	7.5V DC	Khay Kwang
Radiated Spurious Emission	25°C, 63.7% RH	7.5V DC	Azil&Qawiman
Equivalent Isotropically Radiated Power (EIRP)	25°C, 50% RH	7.5V DC	Khay Kwang



## 1.5. Conducted RF Output Power

### 1.5.1. 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.

### 1.5.2. 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.

### 1.5.3. 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	24.142	24.314	24.3	23.169	23.442	23.406
	1	3	24.235	24.415	24.356	23.266	23.511	23.486
	1	5	24.17	24.336	24.28	23.222	23.465	23.406
	3	0	24.122	24.243	24.334	23.37	23.474	23.356
	3	2	24.178	24.336	24.36	23.446	23.571	23.414
	3	3	24.12	24.269	24.297	23.377	23.484	23.361
	6	0	23.087	23.269	23.346	22.218	22.386	22.38

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	24.229	24.242	24.402	23.262	23.607	23.468
	1	7	24.338	24.354	24.462	23.345	23.718	23.569
	1	14	24.221	24.258	24.34	23.229	23.57	23.454
	8	0	23.241	23.336	23.382	22.311	22.536	22.412
	8	4	23.218	23.333	23.413	22.338	22.58	22.468
	8	7	23.228	23.339	23.376	22.298	22.547	22.405
	15	0	23.179	23.324	23.383	22.298	22.468	22.472

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	24.258	24.383	24.393	23.358	23.671	23.428
	1	13	24.279	24.418	24.414	23.384	23.672	23.432
	1	25	24.202	24.369	24.359	23.362	23.657	23.36
	12	0	23.246	23.38	23.464	22.243	22.434	22.486
	12	6	23.253	23.382	23.454	22.231	22.438	22.506
	12	13	23.228	23.366	23.415	22.228	22.427	22.477
	25	0	23.25	23.4	23.436	22.289	22.456	22.475

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	24.51	24.544	24.431	23.511	23.929	23.531
	1	25	24.263	24.31	24.37	23.276	23.68	23.486
	1	49	24.508	24.548	24.371	23.496	23.851	23.512
	25	0	23.257	23.369	23.487	22.378	22.509	22.627
	25	13	23.253	23.384	23.445	22.393	22.51	22.609
	25	25	23.239	23.403	23.456	22.357	22.501	22.59
	50	0	23.261	23.412	23.474	22.376	22.487	22.525

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	24.343	24.41	24.577	23.314	23.743	23.635
	1	38	24.241	24.345	24.468	23.225	23.657	23.495
	1	74	24.292	24.409	24.505	23.303	23.74	23.55
	36	0	23.266	23.401	23.476	22.373	22.505	22.606
	36	19	23.251	23.393	23.466	22.371	22.504	22.589
	36	39	23.26	23.396	23.429	22.373	22.511	22.59
	75	0	23.272	23.392	23.456	22.353	22.515	22.567

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	24.304	24.533	24.577	23.785	23.512	24.146
	1	49	24.064	24.3	24.368	23.529	23.351	23.952
	1	99	24.411	24.566	24.427	23.878	23.59	23.977
	50	0	23.234	23.466	23.616	22.293	22.536	22.696
	50	25	23.209	23.452	23.495	22.295	22.542	22.587
	50	50	23.336	23.461	23.493	22.405	22.562	22.567
	100	0	23.32	23.439	23.579	22.412	22.539	22.659

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

Equivalent Isotropically Radiated 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	26.952	27.124	27.11	25.979	26.252	26.216
	1	3	27.045	27.225	27.166	26.076	26.321	26.296
	1	5	26.98	27.146	27.09	26.032	26.275	26.216
	3	0	26.932	27.053	27.144	26.18	26.284	26.166
	3	2	26.988	27.146	27.17	26.256	26.381	26.224
	3	3	26.93	27.079	27.107	26.187	26.294	26.171
	6	0	25.897	26.079	26.156	25.028	25.196	25.19

Equivalent Isotropically Radiated 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	27.039	27.052	27.212	26.072	26.417	26.278
	1	7	27.148	27.164	27.272	26.155	26.528	26.379
	1	14	27.031	27.068	27.15	26.039	26.38	26.264
	8	0	26.051	26.146	26.192	25.121	25.346	25.222
	8	4	26.028	26.143	26.223	25.148	25.39	25.278
	8	7	26.038	26.149	26.186	25.108	25.357	25.215
	15	0	25.989	26.134	26.193	25.108	25.278	25.282

Equivalent Isotropically Radiated 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	27.068	27.193	27.203	26.168	26.481	26.238
	1	13	27.089	27.228	27.224	26.194	26.482	26.242
	1	25	27.012	27.179	27.169	26.172	26.467	26.17
	12	0	26.056	26.19	26.274	25.053	25.244	25.296
	12	6	26.063	26.192	26.264	25.041	25.248	25.316
	12	13	26.038	26.176	26.225	25.038	25.237	25.287
	25	0	26.06	26.21	26.246	25.099	25.266	25.285

Equivalent Isotropically Radiated 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	27.32	27.354	27.241	26.321	26.739	26.341
	1	25	27.073	27.12	27.18	26.086	26.49	26.296
	1	49	27.318	27.358	27.181	26.306	26.661	26.322
	25	0	26.067	26.179	26.297	25.188	25.319	25.437
	25	13	26.063	26.194	26.255	25.203	25.32	25.419
	25	25	26.049	26.213	26.266	25.167	25.311	25.4
	50	0	26.071	26.222	26.284	25.186	25.297	25.335

Equivalent Isotropically Radiated 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	27.153	27.22	27.387	26.124	26.553	26.445
	1	38	27.051	27.155	27.278	26.035	26.467	26.305
	1	74	27.102	27.219	27.315	26.113	26.55	26.36
	36	0	26.076	26.211	26.286	25.183	25.315	25.416
	36	19	26.061	26.203	26.276	25.181	25.314	25.399
	36	39	26.07	26.206	26.239	25.183	25.321	25.4
	75	0	26.082	26.202	26.266	25.163	25.325	25.377

Equivalent Isotropically Radiated 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	27.114	27.343	27.387	26.595	26.322	26.956
	1	49	26.874	27.11	27.178	26.339	26.161	26.762
	1	99	27.221	27.376	27.237	26.688	26.4	26.787
	50	0	26.044	26.276	26.426	25.103	25.346	25.506
	50	25	26.019	26.262	26.305	25.105	25.352	25.397
	50	50	26.146	26.271	26.303	25.215	25.372	25.377
	100	0	26.13	26.249	26.389	25.222	25.349	25.469

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

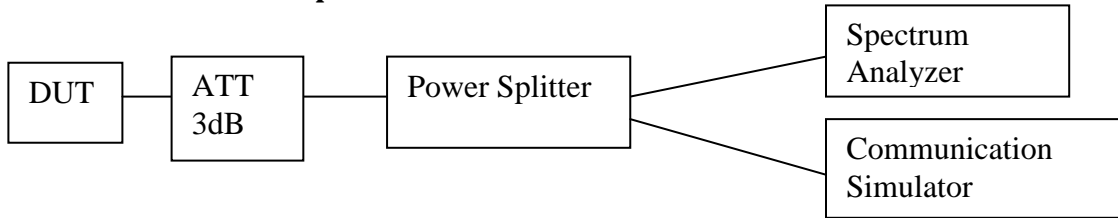
(Expressed in the same units as P<sub>Meas</sub>, e.g., dBm)

P<sub>Meas</sub> measured transmitter output power, in dBm

GT gain of the transmitting antenna, in dBi (EIRP)

## 1.1. Peak-to-Average Power Ratio

### 1.1.1. Test Setup



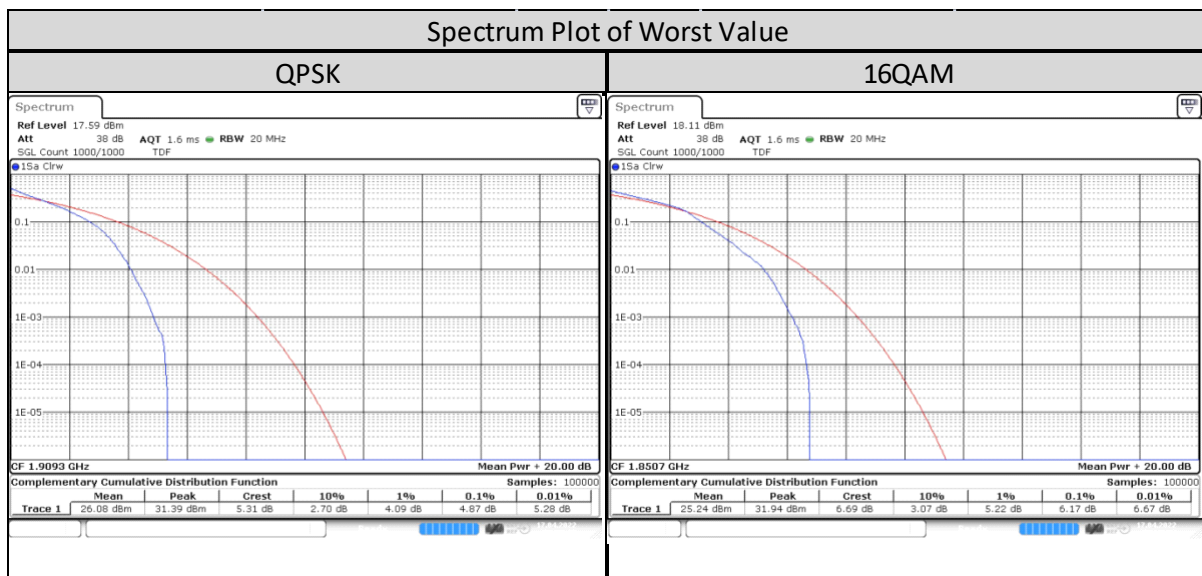
1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. Set the CCDF (Complementary Cumulative Distribution Function) option in the spectrum analyzer.
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.

### 1.1.2. Test Limit

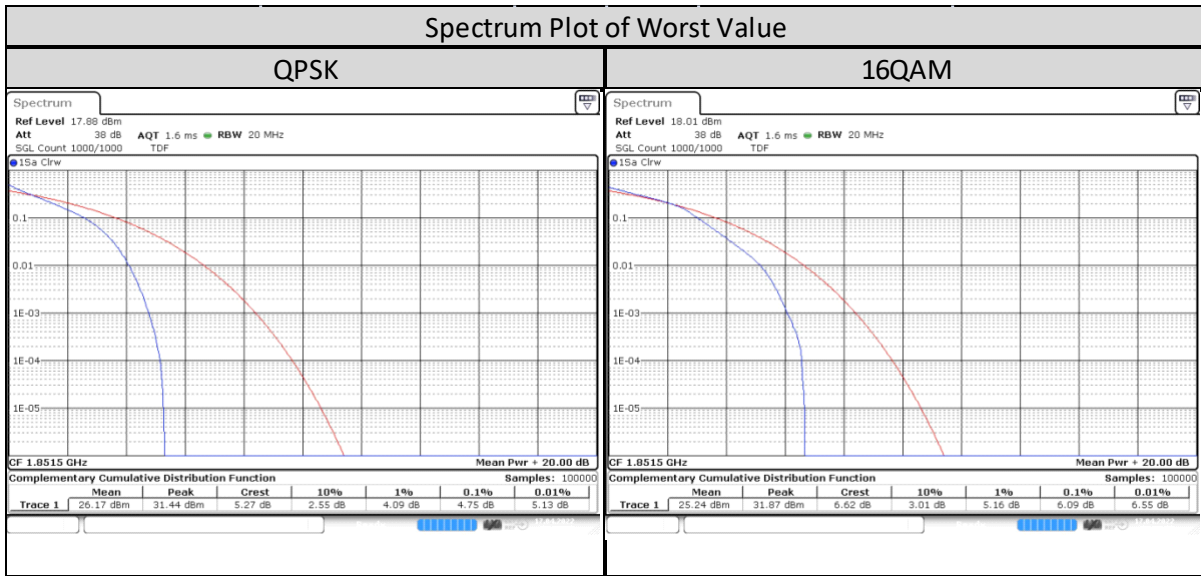
In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 1.1.3. 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	4.841	<b>6.174</b>
	Mid CH 18900	1880 MHz	4.812	6.174
	High CH 19193	1909.3 MHz	<b>4.87</b>	6.029



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	4.754	6.087
	Mid CH 18900	1880 MHz	4.754	6.087
	High CH 19185	1908.5 MHz	4.696	5.913

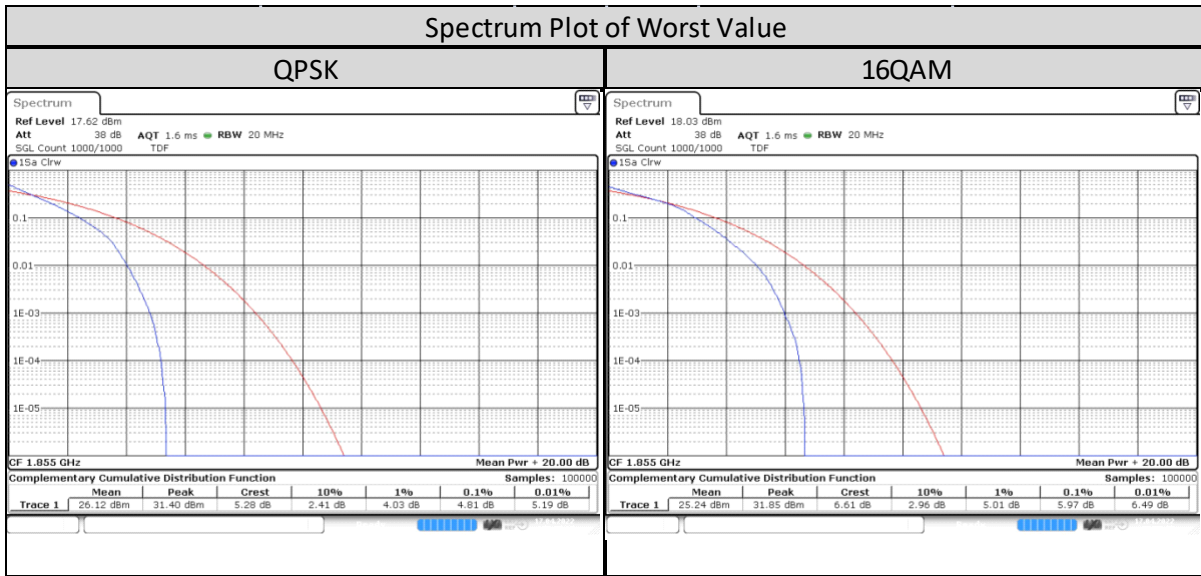


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 2/5MHz/25/0	Low CH 18625	1852.5 MHz	4.87	6.029
	Mid CH 18900	1880 MHz	5.014	6
	High CH 19175	1907.5 MHz	4.87	5.971





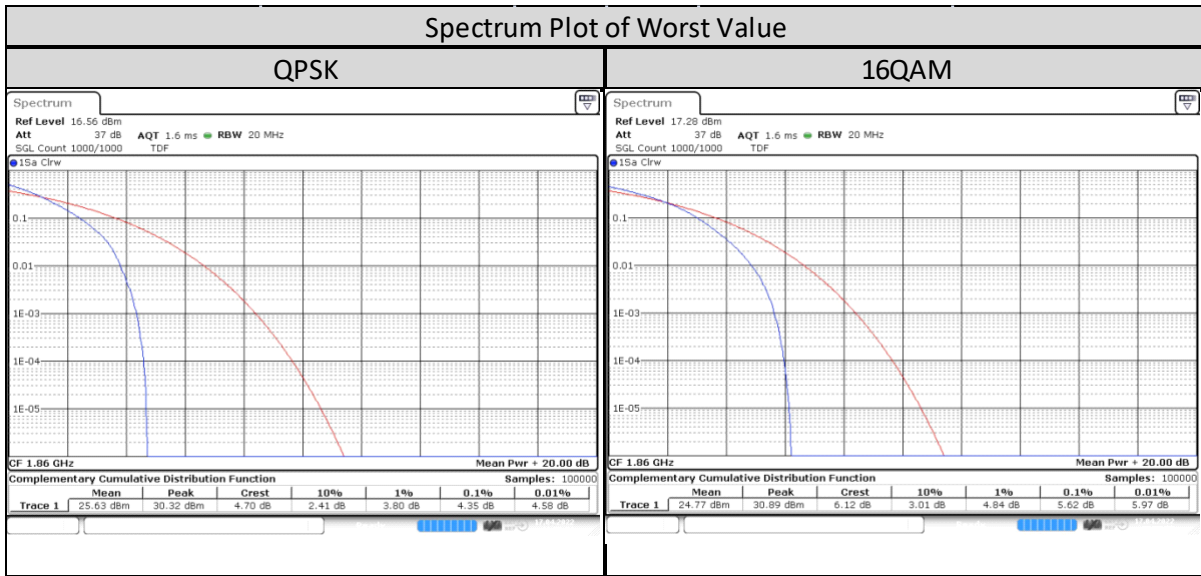
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	4.812	5.971
	Mid CH 18900	1880 MHz	4.783	5.884
	High CH 19150	1905 MHz	4.638	5.739



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	4.812	5.942
	Mid CH 18900	1880 MHz	4.725	5.826
	High CH 19125	1902.5 MHz	4.667	5.739

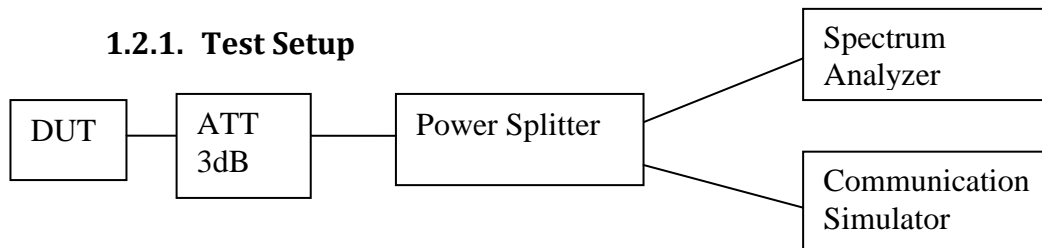


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
<b>Band 2/ 20MHz/100/0</b>	Low CH 18700	1860 MHz	<b>4.348</b>	<b>5.623</b>
	Mid CH 18900	1880 MHz	4.174	5.478
	High CH 19100	1900 MHz	4.145	5.391



## 1.2. Occupied Bandwidth

### 1.2.1. 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.

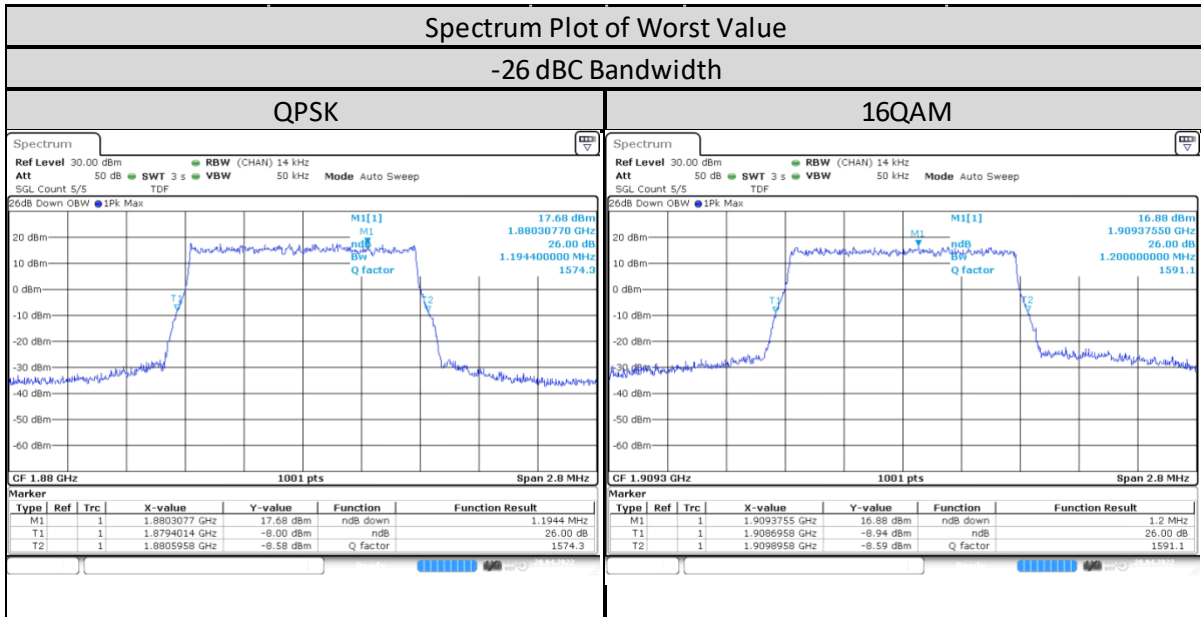
### 1.2.2. Test Limit

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.

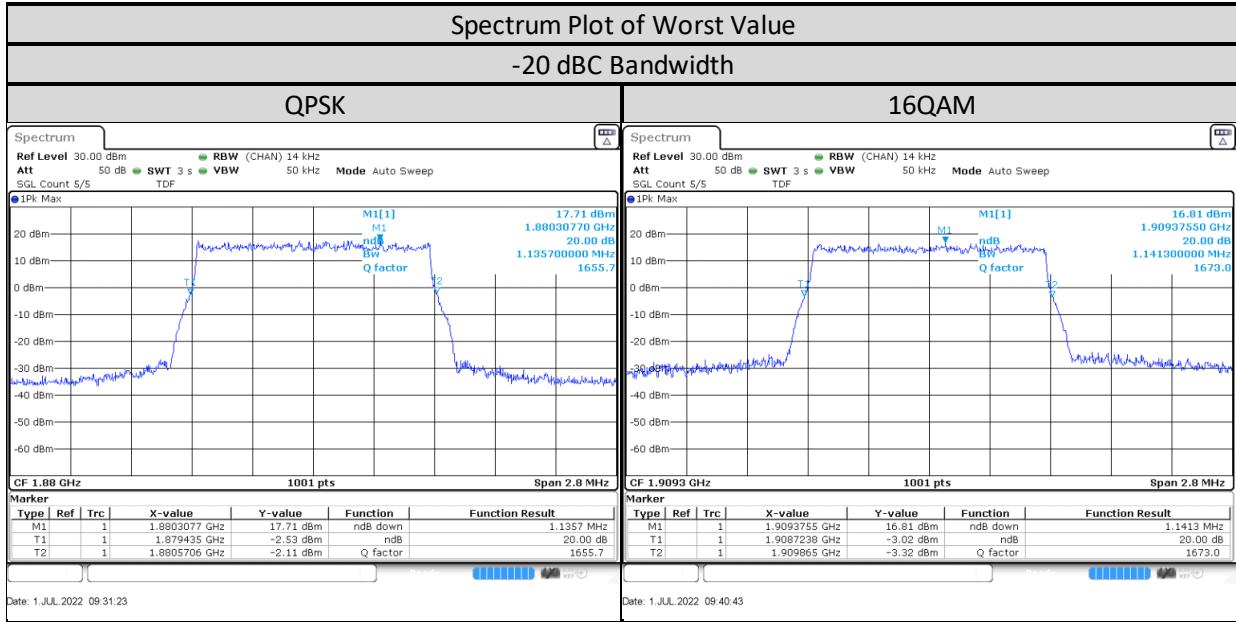
ISED: Emission bandwidth is, for the purpose of this document, defined as the width of the signal between two points, one below the carrier frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 20 dB below the transmitter power (i.e. -20 dBc), when measured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

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

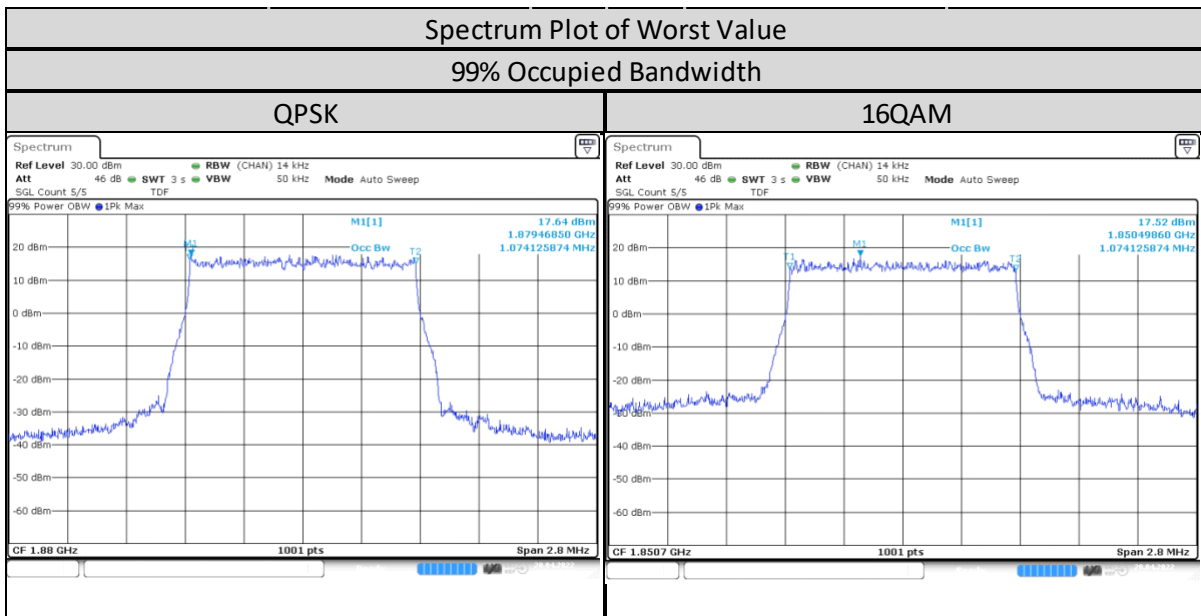
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/1.4MHz/6/0	Low CH 18607	1850.7 MHz	1.189	1.186
	Mid CH 18900	1880 MHz	<b>1.194</b>	1.178
	High CH 19193	1909.3 MHz	1.183	<b>1.2</b>



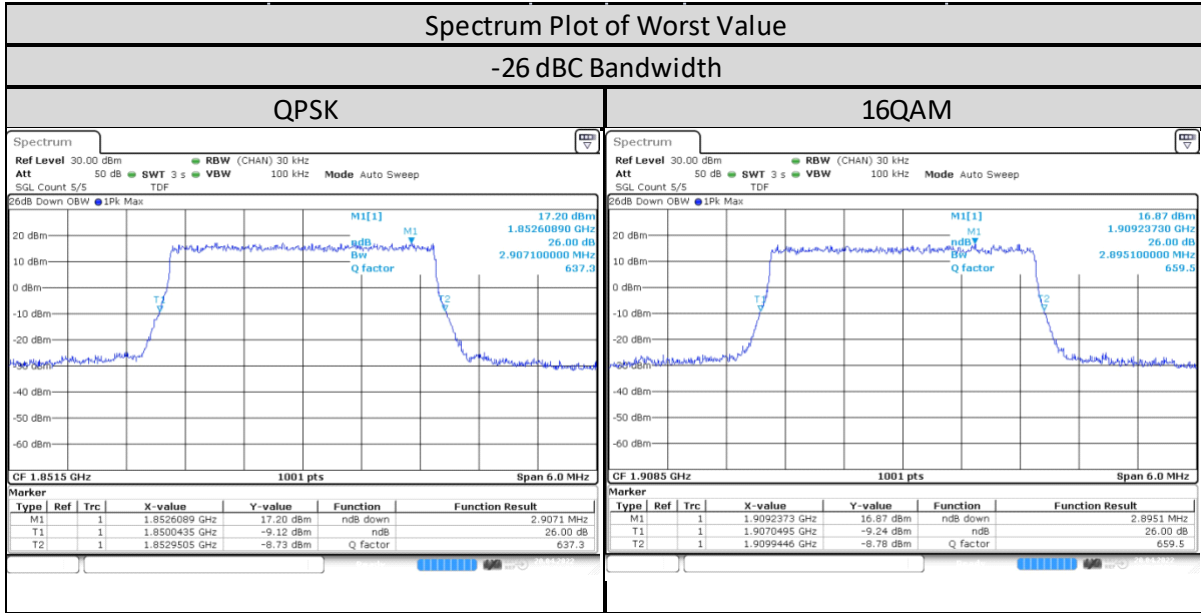
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/1.4MHz/6/0	Low CH 18607	1850.7 MHz	1.133	1.127
	Mid CH 18900	1880 MHz	<b>1.136</b>	1.122
	High CH 19193	1909.3 MHz	1.127	<b>1.141</b>



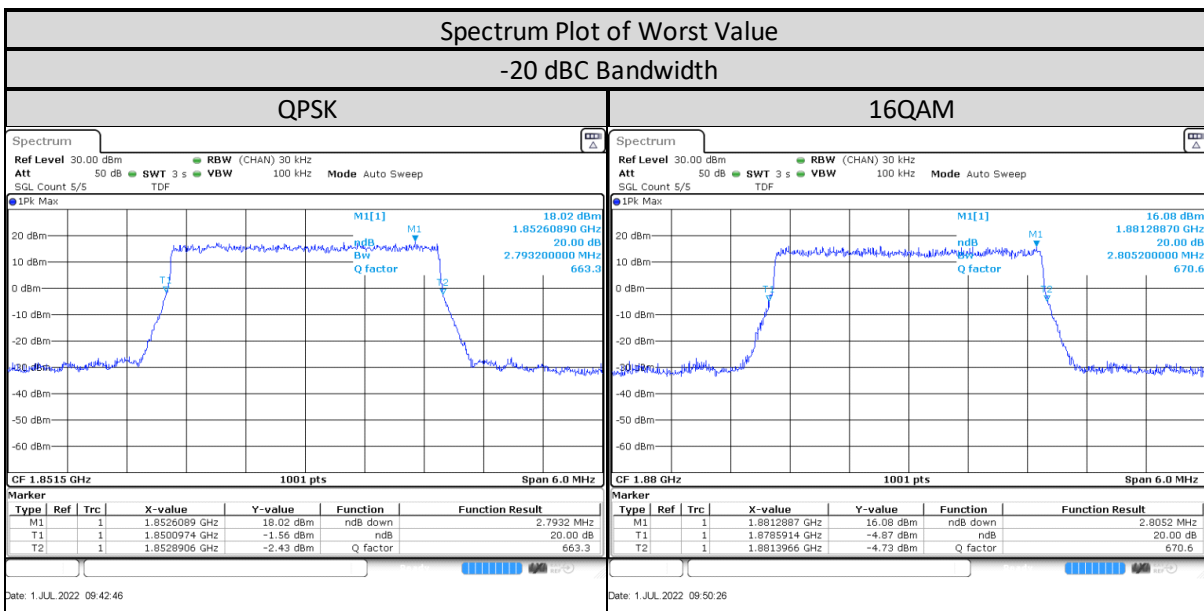
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/1.4MHz/6/0	Low CH 18607	1850.7 MHz	1.071	<b>1.074</b>
	Mid CH 18900	1880 MHz	<b>1.074</b>	1.071
	High CH 19193	1909.3 MHz	1.074	1.074



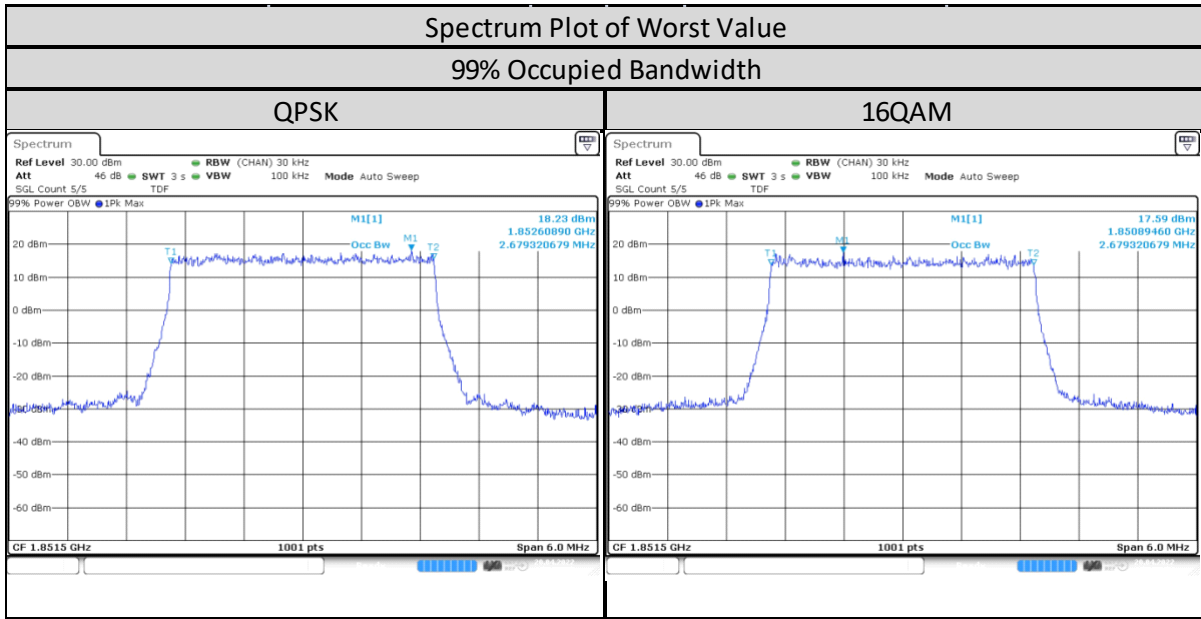
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/3MHz/15/0	Low CH 18615	1851.5 MHz	2.907	2.883
	Mid CH 18900	1880 MHz	2.883	2.877
	High CH 19185	1908.5 MHz	2.895	2.895



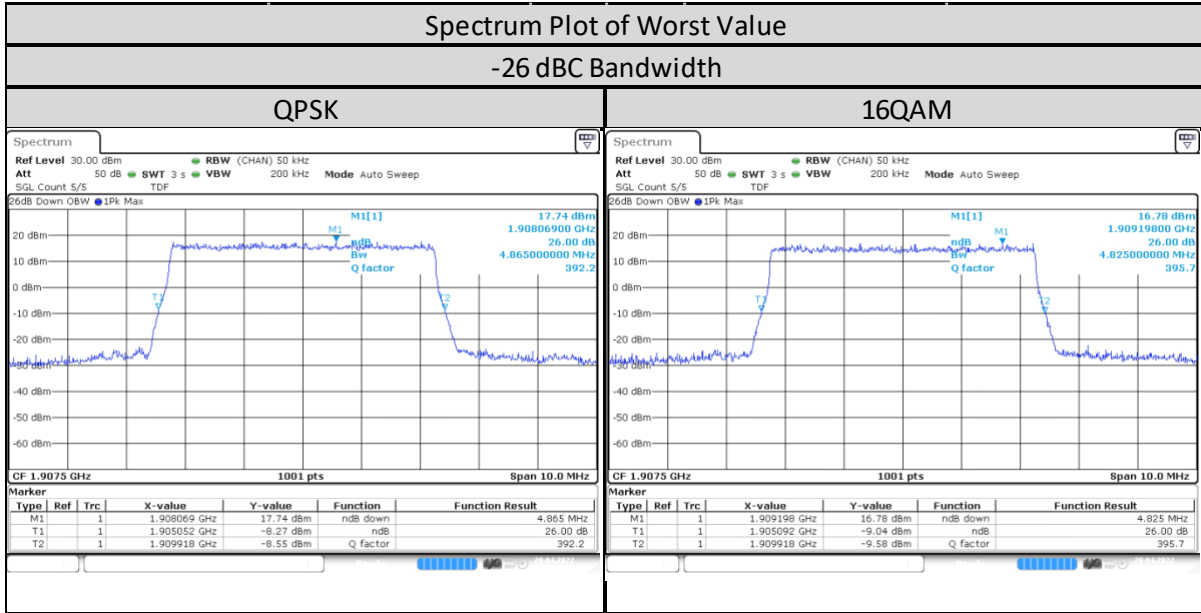
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/3MHz/15/0	Low CH 18615	1851.5 MHz	2.793	2.787
	Mid CH 18900	1880 MHz	2.787	2.805
	High CH 19185	1908.5 MHz	2.781	2.793



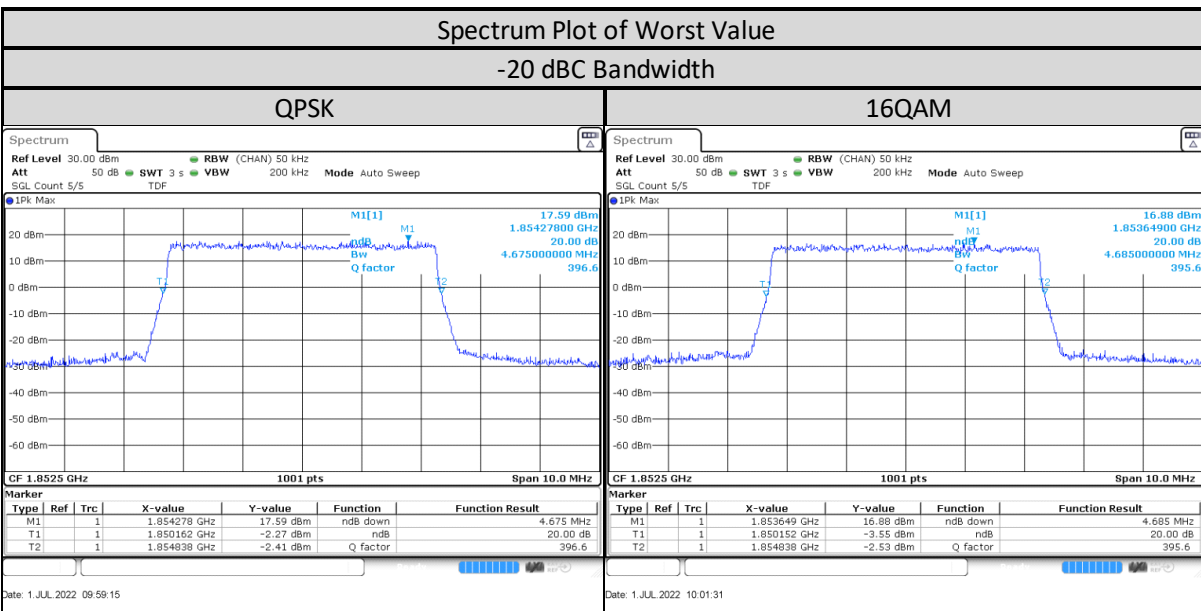
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/3MHz/15/0	Low CH 18615	1851.5 MHz	2.679	2.679
	Mid CH 18900	1880 MHz	2.673	2.679
	High CH 19185	1908.5 MHz	2.673	2.673



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	4.805	4.815
	Mid CH 18900	1880 MHz	4.795	4.785
	High CH 19175	1907.5 MHz	<b>4.865</b>	<b>4.825</b>

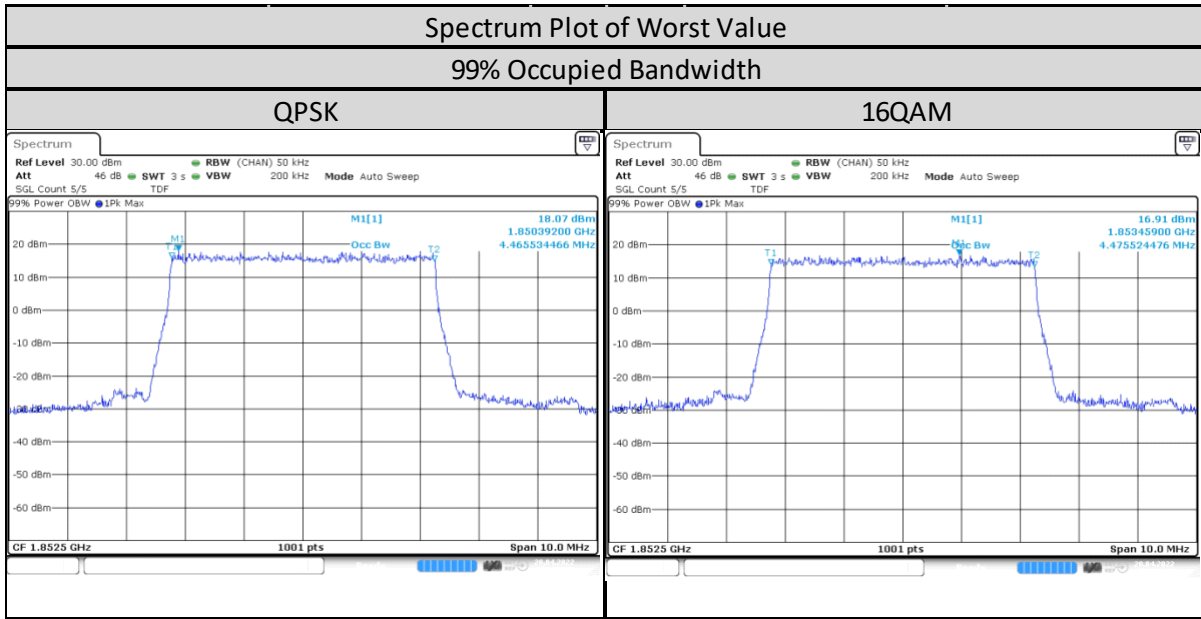


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/5MHz/25/0	Low CH 18625	1852.5 MHz	<b>4.675</b>	<b>4.685</b>
	Mid CH 18900	1880 MHz	4.645	4.635
	High CH 19175	1907.5 MHz	4.675	4.665

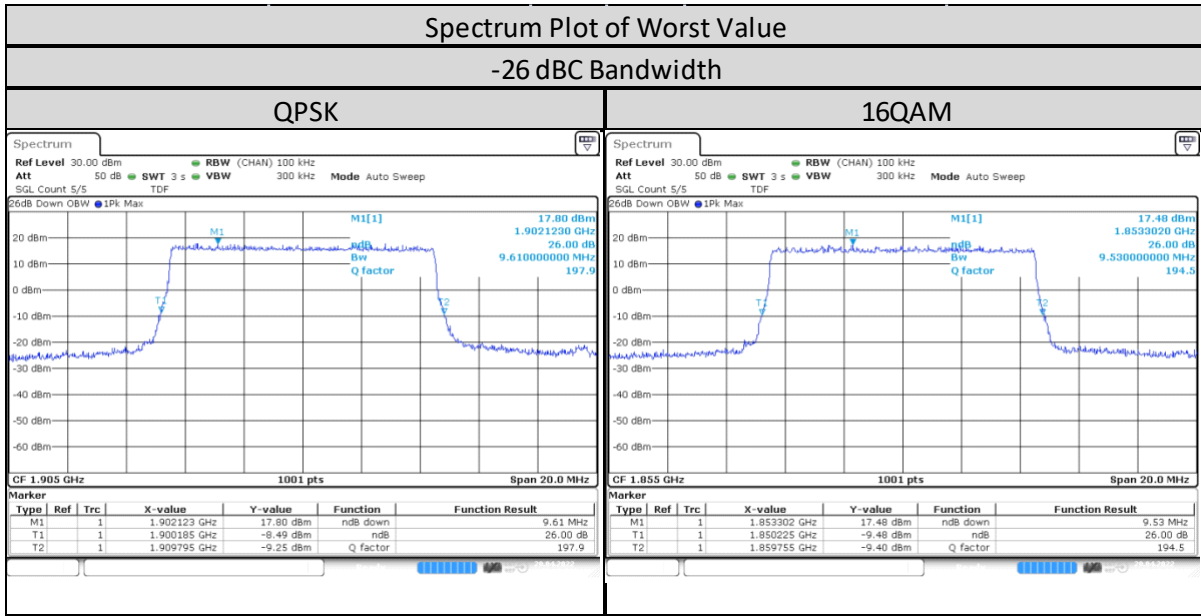




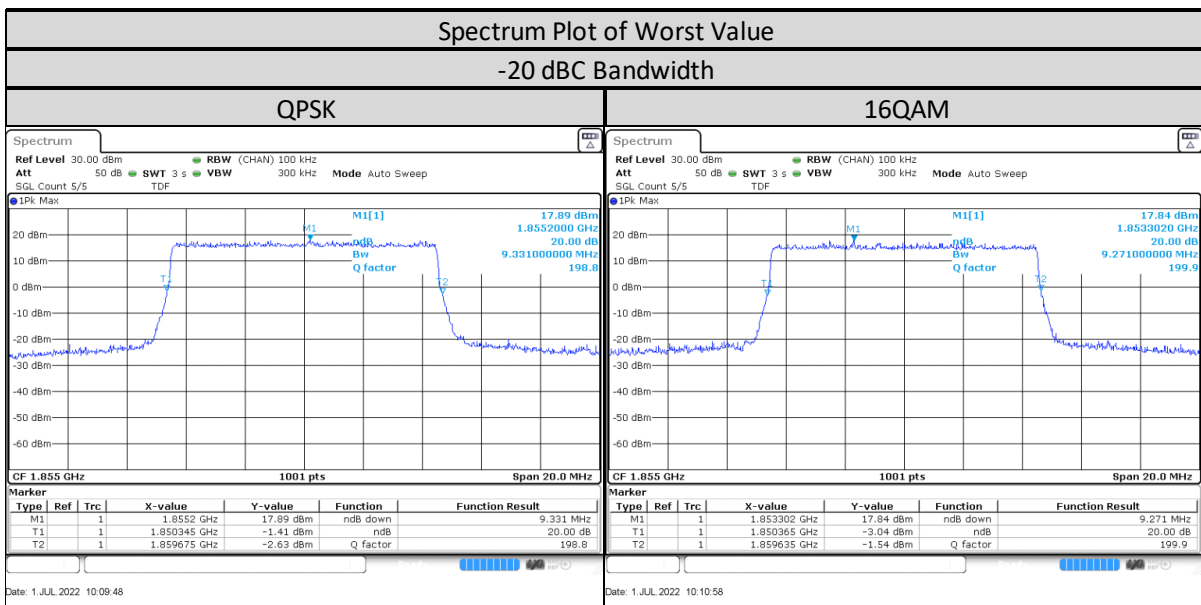
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/5MHz/25/0	Low CH 18625	1852.5 MHz	4.466	4.476
	Mid CH 18900	1880 MHz	4.456	4.466
	High CH 19175	1907.5 MHz	4.466	4.466



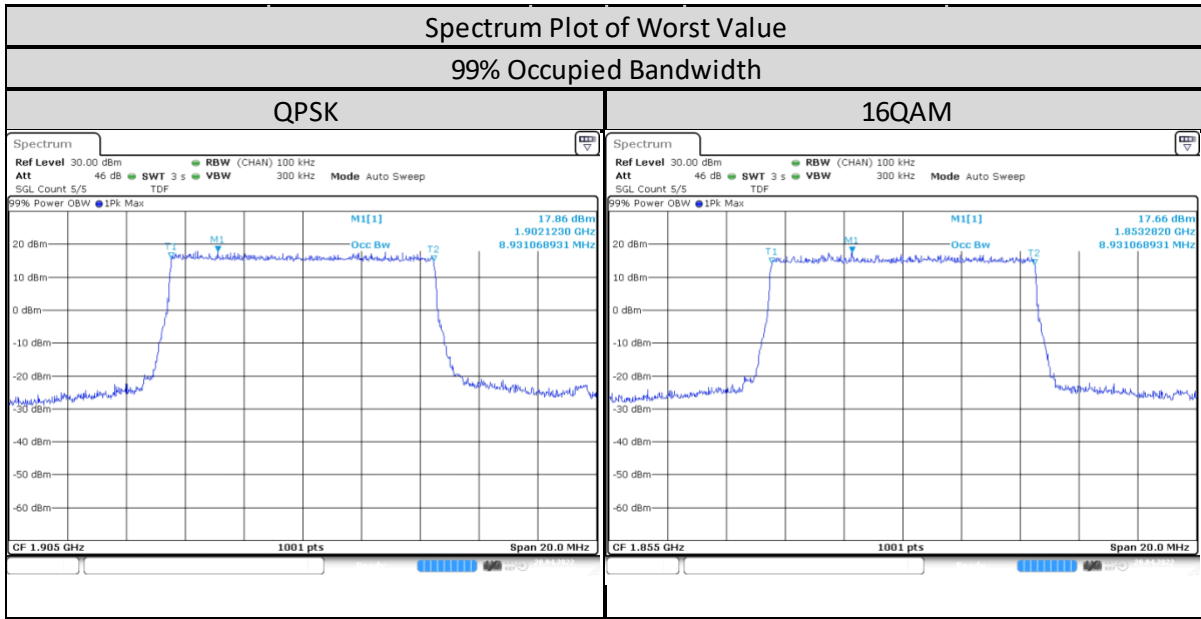
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	9.55	<b>9.53</b>
	Mid CH 18900	1880 MHz	9.53	9.491
	High CH 19150	1905 MHz	<b>9.61</b>	9.471



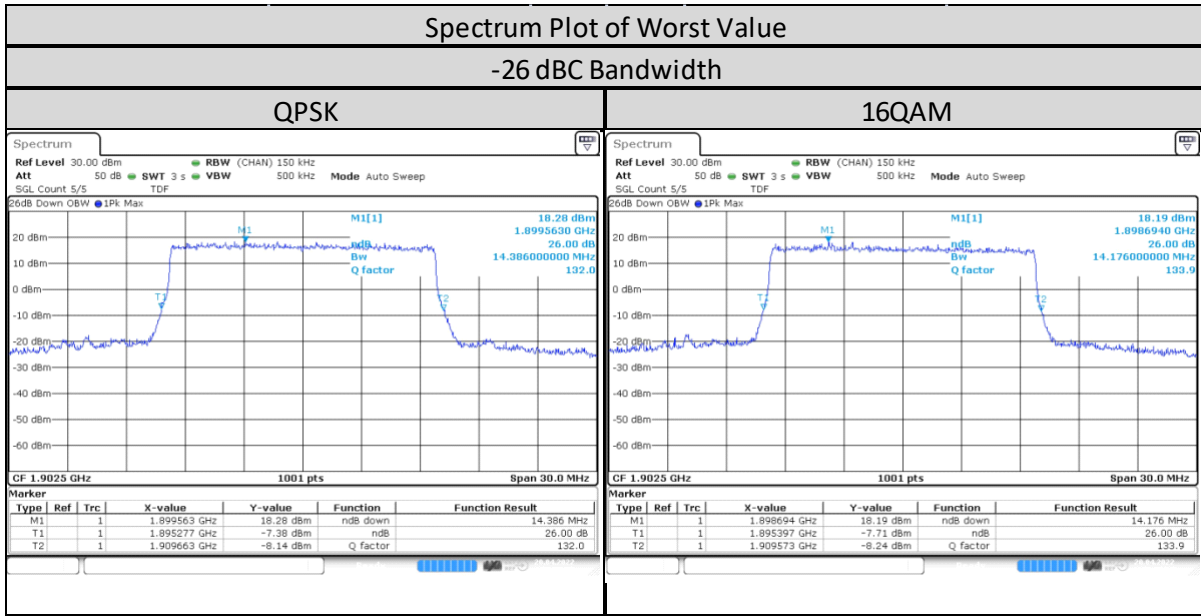
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	<b>9.331</b>	<b>9.271</b>
	Mid CH 18900	1880 MHz	9.251	9.251
	High CH 19150	1905 MHz	9.291	9.211



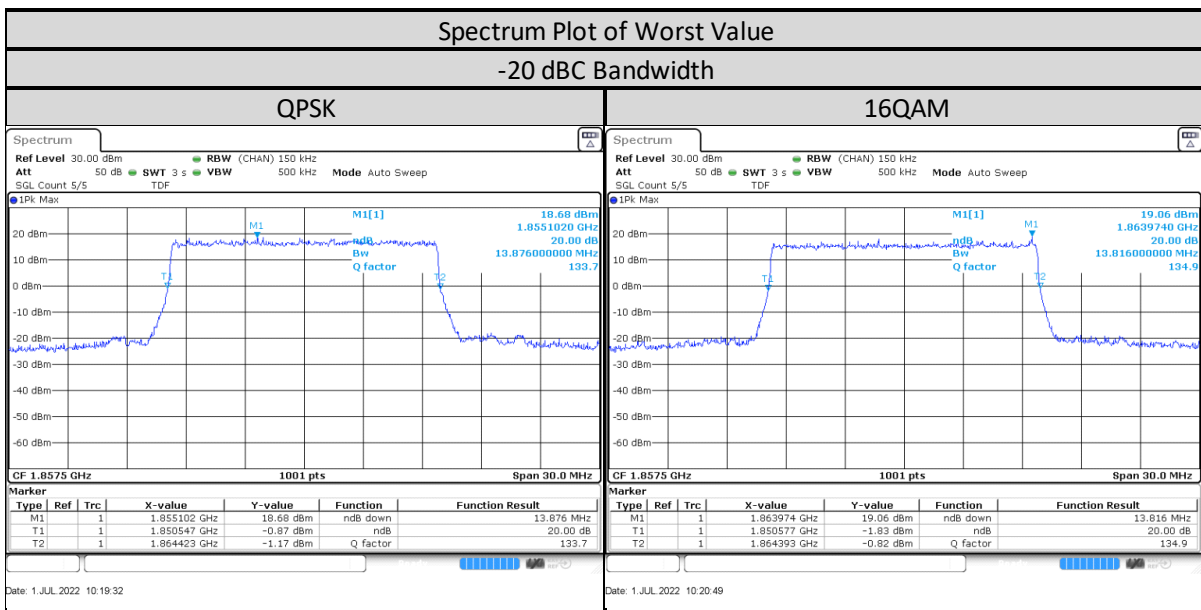
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/10MHz/50/0	Low CH 18650	1855 MHz	8.911	<b>8.931</b>
	Mid CH 18900	1880 MHz	8.911	8.931
	High CH 19150	1905 MHz	<b>8.931</b>	8.911



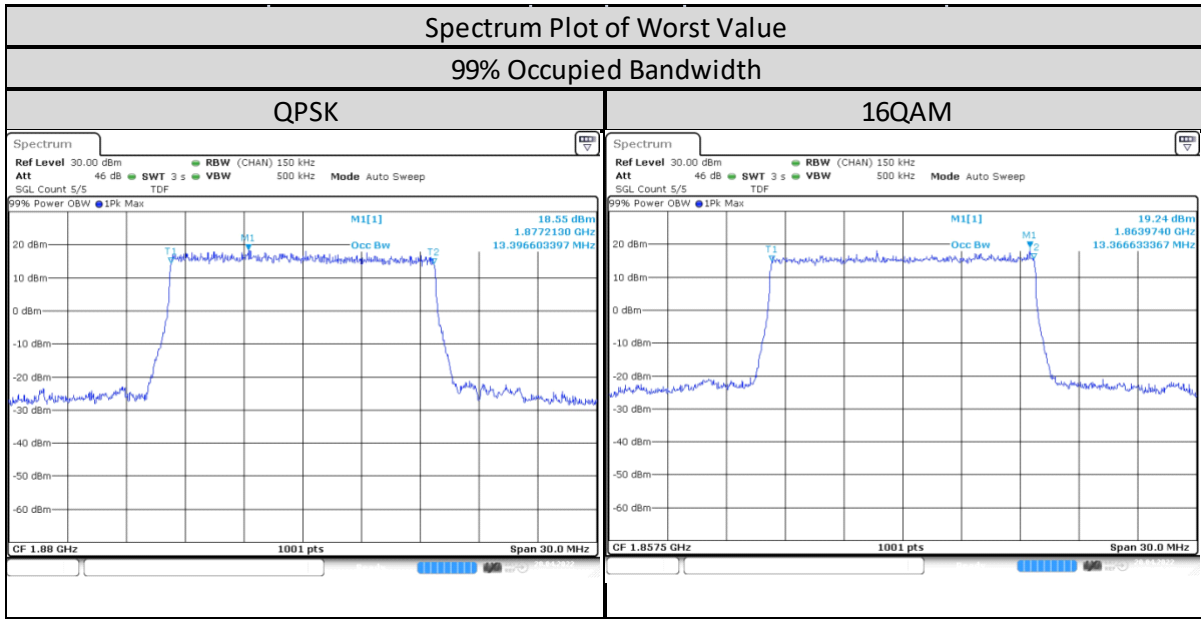
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/15MHz/75/0	Low CH 18675	1857.5 MHz	14.296	14.146
	Mid CH 18900	1880 MHz	14.296	14.086
	High CH 19125	1902.5 MHz	<b>14.386</b>	<b>14.176</b>



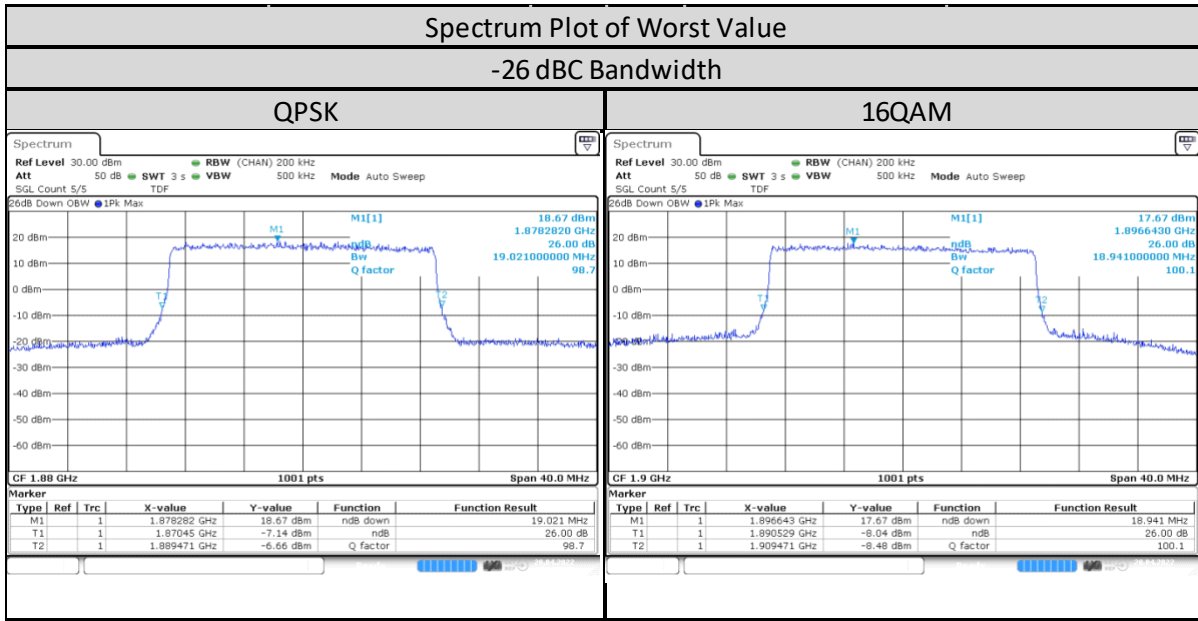
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-20 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/15MHz/75/0	Low CH 18675	1857.5 MHz	<b>13.876</b>	<b>13.816</b>
	Mid CH 18900	1880 MHz	13.846	13.816
	High CH 19125	1902.5 MHz	13.846	13.816



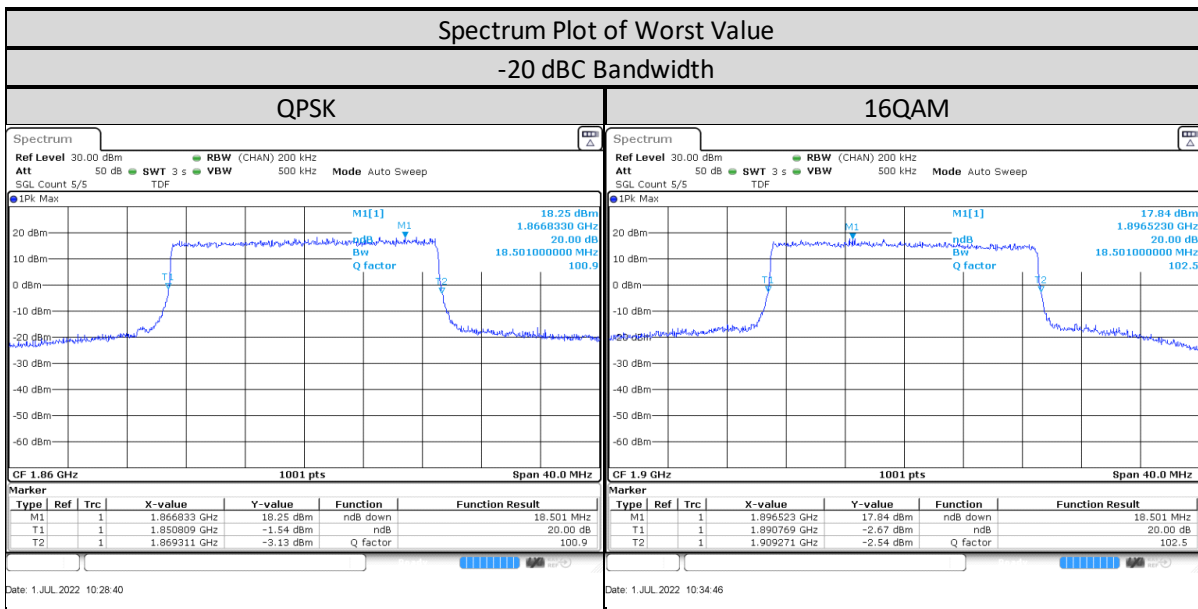
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 2/15MHz/75/0	Low CH 18675	1857.5 MHz	13.367	<b>13.367</b>
	Mid CH 18900	1880 MHz	<b>13.397</b>	13.367
	High CH 19125	1902.5 MHz	13.397	13.367



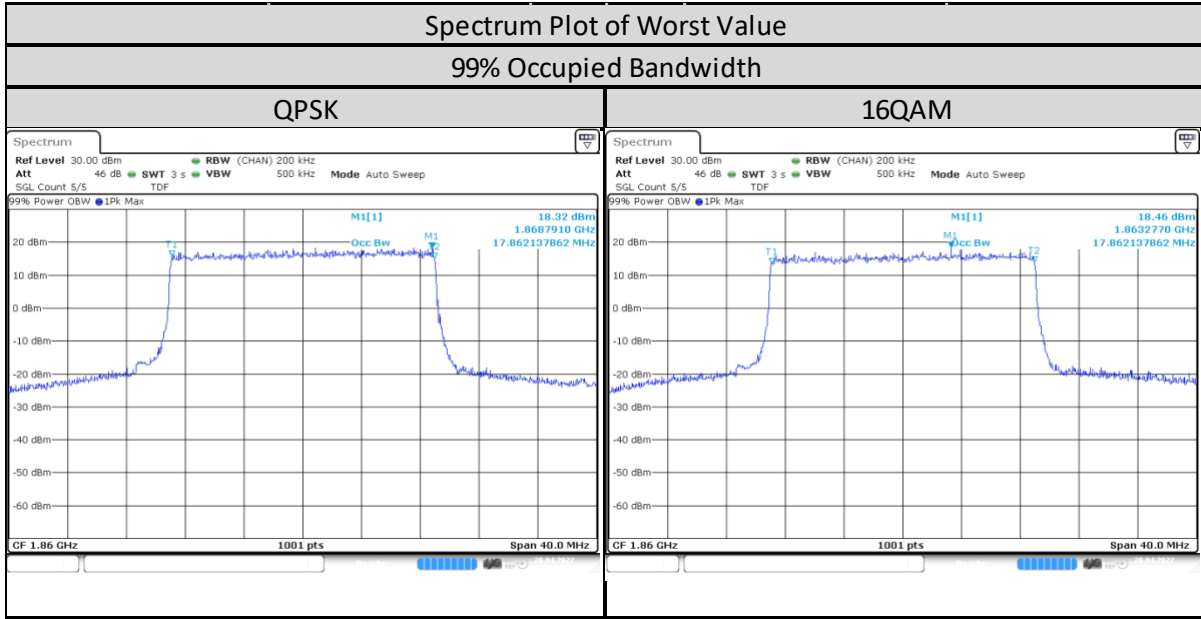
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band</b> 2/20MHz/100/0	Low CH 18700	1860 MHz	18.901	18.861
	Mid CH 18900	1880 MHz	<b>19.021</b>	18.861
	High CH 19100	1900 MHz	18.901	<b>18.941</b>



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

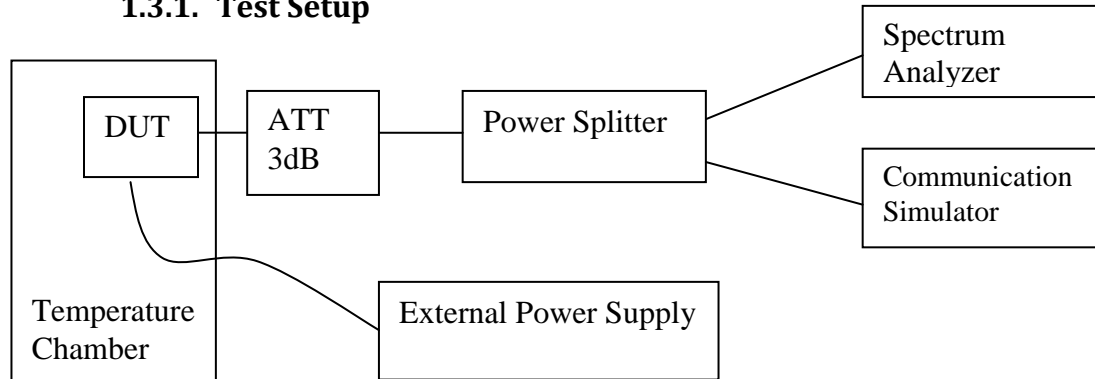


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band 2/20MHz/100/0</b>	Low CH 18700	1860 MHz	<b>17.862</b>	<b>17.862</b>
	Mid CH 18900	1880 MHz	17.862	17.822
	High CH 19100	1900 MHz	17.822	17.822



### 1.3. Frequency Stability

#### 1.3.1. 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 ~ 60 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.

#### 1.3.2. 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.



### 1.3.3. 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	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	1850.699982	-0.009538	1909.29998	-0.010437
	50	1850.69998	-0.010845	1909.299983	-0.009066
	40	1850.699978	-0.011826	1909.299963	-0.01948
	30	1850.699983	-0.009376	1909.299977	-0.011823
	20	1850.699978	-0.011618	1909.299981	-0.01004
	10	1850.699971	-0.015745	1909.299984	-0.008451
	0	1850.699979	-0.011587	1909.300021	0.010811
	-10	1850.700019	0.010056	1909.299988	-0.006039
	-20	1850.699984	-0.008533	1909.299974	-0.013771
-30	1850.699986	-0.00742	1909.299975	-0.013134	

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 1.4 MHz			
		Low Channel		High Channel	
		1850.7MHz		1909.3MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9.0V	1850.699986	-0.007428	1909.299985	-0.008099
	7.5V	1850.699981	-0.010342	1909.299982	-0.009395
	6.0V	1850.699968	-0.017152	1909.299973	-0.013928

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	1851.500023	0.012393	1908.500025	0.013319
	50	1851.500027	0.014595	1908.500026	0.013739
	40	1851.500023	0.012153	1908.500021	0.011086
	30	1851.500021	0.011558	1908.500021	0.011191
	20	1851.500031	0.017013	1908.500026	0.013447
	10	1851.500027	0.01485	1908.500022	0.011266
	0	1851.500018	0.009828	1908.500023	0.012098
	-10	1851.50003	0.016279	1908.500016	0.008372
	-20	1851.500025	0.013521	1908.500027	0.014189
	-30	1851.500022	0.012014	1908.500043	0.022366

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)
	9.0V	1851.500023	0.012594	1908.500021	0.010981
	7.5V	1851.500026	0.014	1908.500034	0.018057
	6.0V	1851.500026	0.014247	1908.500029	0.015358

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)
	<b>60</b>	1852.499972	-0.015035	1907.500013	0.007049
	<b>50</b>	1852.499973	-0.014494	1907.50002	0.010492
	<b>40</b>	1852.499981	-0.010317	1907.499985	-0.008077
	<b>30</b>	1852.499986	-0.007784	1907.500022	0.011512
	<b>20</b>	1852.500017	0.00939	1907.500018	0.009359
	<b>10</b>	1852.500023	0.012378	1907.500015	0.007859
	<b>0</b>	1852.499987	-0.007066	1907.500019	0.010019
	<b>-10</b>	1852.499983	-0.009336	1907.500016	0.008444
	<b>-20</b>	1852.499973	-0.014324	1907.499977	-0.011909
<b>-30</b>	1852.499976	-0.012703	1907.499983	-0.008812	

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)
	<b>9.0V</b>	1852.499979	-0.011313	1907.500018	0.009299
	<b>7.5V</b>	1852.499978	-0.011985	1907.500015	0.007964
	<b>6.0V</b>	1852.499979	-0.011212	1907.499973	-0.014316

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	1855.000027	0.014714	1905.000018	0.009229
	50	1854.99998	-0.010796	1904.999981	-0.009732
	40	1855.000015	0.007943	1905.000018	0.009349
	30	1854.999983	-0.009285	1904.999981	-0.0098
	20	1855.000014	0.007796	1904.999981	-0.010062
	10	1855.000017	0.009416	1905.000019	0.010002
	0	1855.000021	0.011359	1904.999979	-0.010873
	-10	1855.000016	0.008606	1904.999976	-0.012848
	-20	1855.000021	0.01149	1904.999983	-0.009094
	-30	1854.999987	-0.00718	1904.999981	-0.009852

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	9.0V	1855.000015	0.008151	1904.999983	-0.009139
	7.5V	1855.000016	0.00876	1904.999985	-0.007795
	6.0V	1855.000022	0.011714	1904.999975	-0.013134

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	1857.500028	0.01481	1902.500025	0.013249
	50	1857.500019	0.010381	1902.500024	0.012482
	40	1857.500025	0.013369	1902.500018	0.009218
	30	1857.500024	0.012753	1902.500019	0.010113
	20	1857.500019	0.010096	1902.500021	0.010888
	10	1857.500027	0.014609	1902.500026	0.013527
	0	1857.50002	0.010928	1902.500024	0.012685
	-10	1857.50003	0.016196	1902.500019	0.009985
	-20	1857.500021	0.011537	1902.500025	0.013046
-30	1857.50002	0.011021	1902.500019	0.010166	

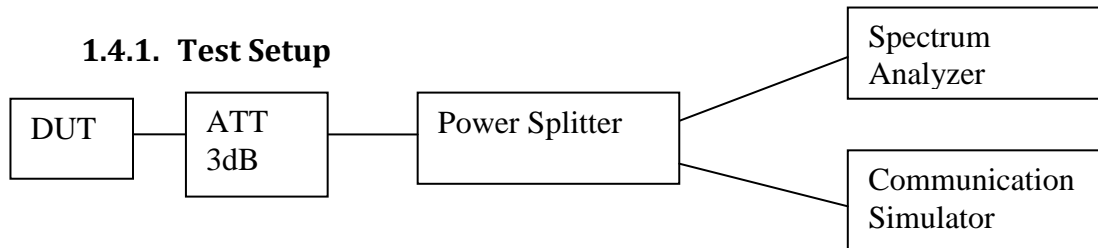
Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 15 MHz			
		Low Channel		High Channel	
		1857.5MHz		1902.5MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9.0V	1857.500019	0.010204	1902.500022	0.011655
	7.5V	1857.50002	0.010982	1902.500021	0.011076
	6.0V	1857.50003	0.016034	1902.500028	0.014933

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 20 MHz			
		Low Channel		High Channel	
		1860MHz		1900MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	1859.999978	-0.011929	1899.999985	-0.008086
	50	1859.999972	-0.015136	1900.000013	0.00701
	40	1859.999982	-0.009575	1900.000018	0.009276
	30	1859.999981	-0.010244	1900.000018	0.009547
	20	1859.999978	-0.011721	1900.000017	0.009035
	10	1859.999977	-0.012429	1900.000017	0.009178
	0	1859.999978	-0.011736	1899.999973	-0.014049
	-10	1859.999979	-0.011298	1900.000027	0.014343
	-20	1859.999979	-0.011206	1900.000024	0.012558
-30	1860.000025	0.013382	1899.999981	-0.009923	

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 20 MHz			
		Low Channel		High Channel	
		1860MHz		1900MHz	
LTE Band 2		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9.0V	1859.999983	-0.009391	1900.000015	0.007634
	7.5V	1859.999981	-0.01039	1900.000013	0.00704
	6.0V	1859.99998	-0.010683	1899.99998	-0.01027

## 1.4. Band Edge Conducted Spurious Emission

### 1.4.1. 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) 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.

### 1.4.2. 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.

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

