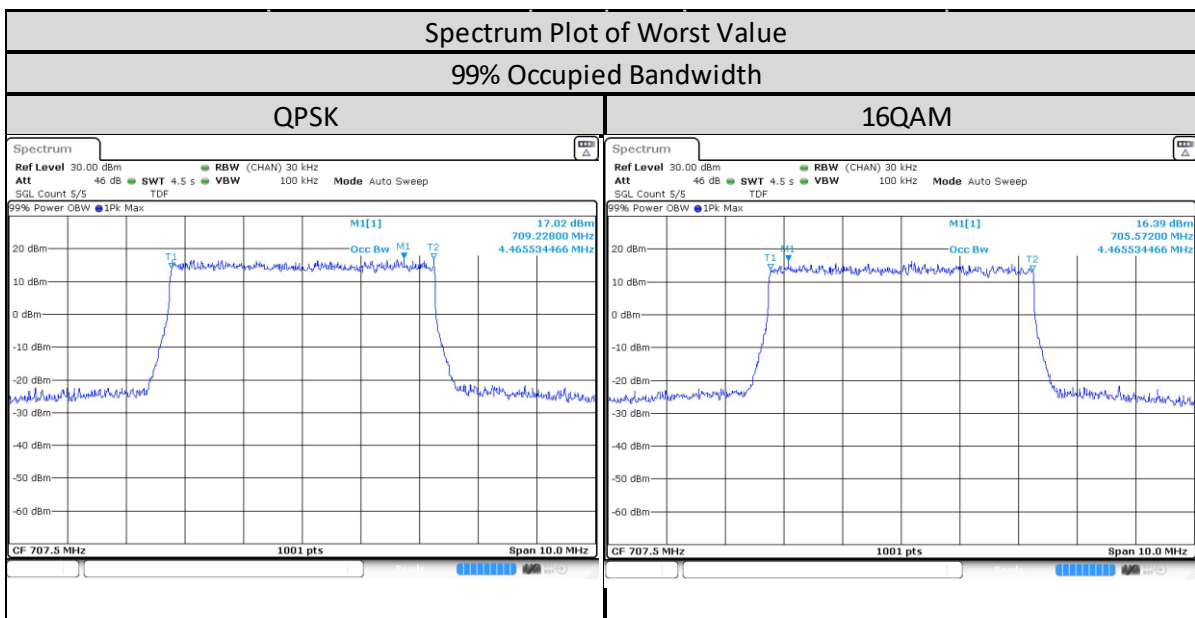
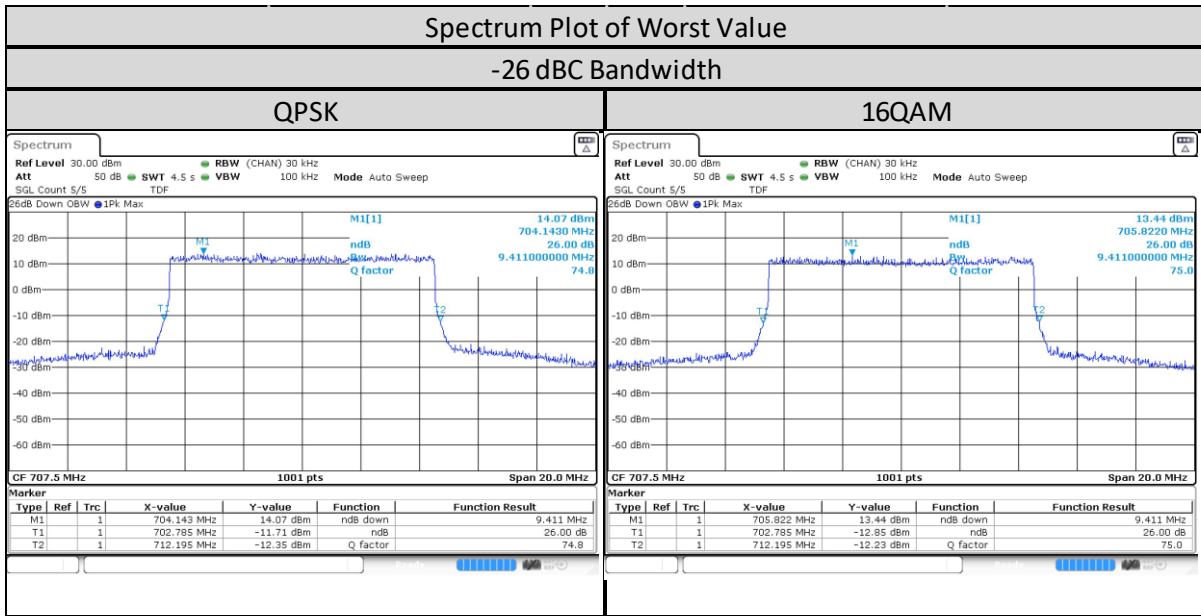


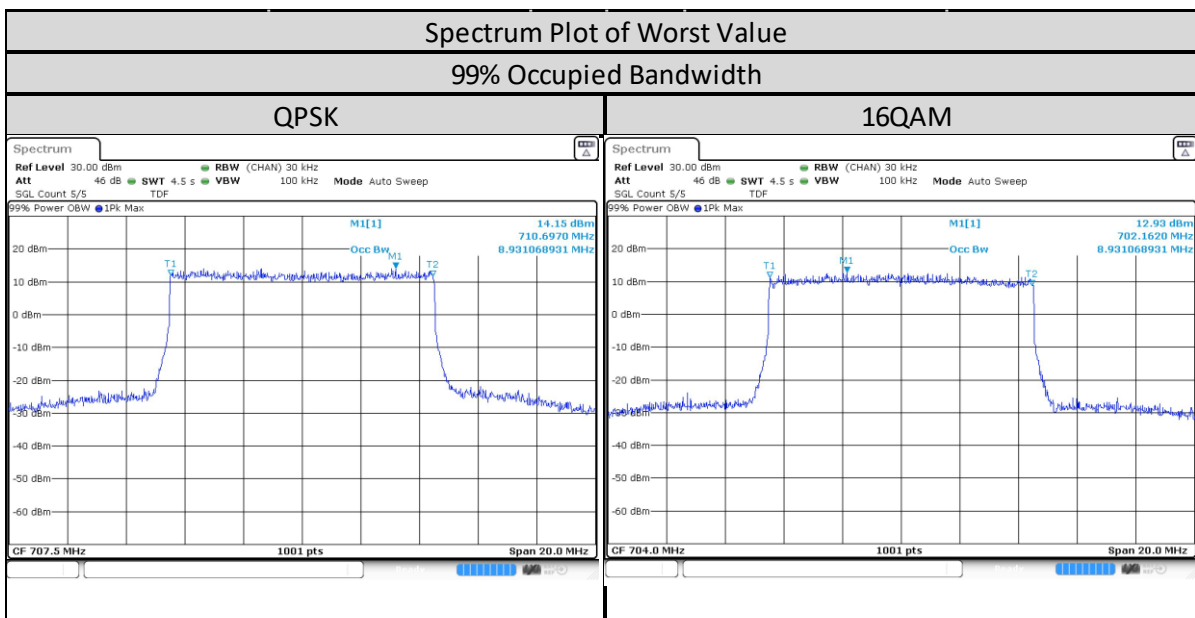
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 12/5MHz/25/0	Low CH 23035	701.5 MHz	4.456	4.456
	Mid CH 23095	707.5 MHz	<b>4.466</b>	<b>4.466</b>
	High CH 23155	713.5 MHz	4.466	4.466



LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band 12/10MHz/50/0</b>	Low CH 23060	704 MHz	9.271	9.271
	Mid CH 23095	707.5 MHz	<b>9.411</b>	<b>9.411</b>
	High CH 23130	711 MHz	9.291	9.311

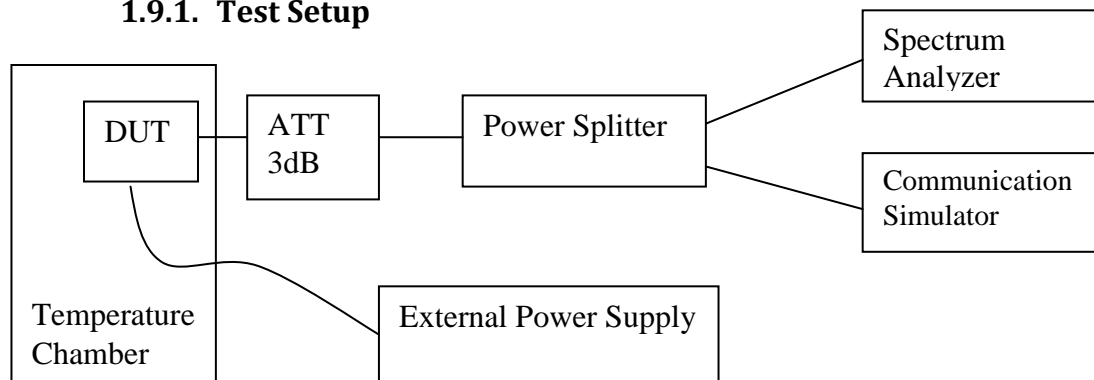


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
<b>Band 12/10MHz/50/0</b>	Low CH 23060	704 MHz	8.911	<b>8.931</b>
	Mid CH 23095	707.5 MHz	<b>8.931</b>	8.931
	High CH 23130	711 MHz	8.911	8.911



## 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 ~ 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.

### 1.9.2. Test Limit

As per manufacturer declared product operating at -30 to 60 deg C with spec of +/- 0.1ppm.

### 1.9.3. Frequency Stability – LTE Band 12 (699-716MHz)

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 1.4 MHz			
		Low Channel		High Channel	
		699.7MHz		715.3MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 12	60	699.699995	-0.007749	715.299995	-0.00652
	50	699.699994	-0.009221	715.299995	-0.0073
	40	699.699994	-0.008362	715.299995	-0.00666
	30	699.699995	-0.00691	715.300004	0.00546
	20	699.700004	0.006072	715.300005	0.00662
	10	699.700005	0.006481	715.299995	-0.00742
	0	699.70002	0.027907	715.300004	0.00598
	-10	699.700003	0.004804	715.299995	-0.0063
	-20	699.699996	-0.005909	715.299995	-0.00686
	-30	699.699995	-0.006461	715.299996	-0.00544

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 1.4 MHz			
		Low Channel		High Channel	
		699.7MHz		715.3MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 12	9	699.699996	-0.005847	715.299995	-0.007
	7.5	699.699995	-0.006931	715.300003	0.00482
	6	699.699995	-0.007421	715.299994	-0.00782

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 3 MHz			
		Low Channel		High Channel	
		700.5MHz		714.5MHz	
LTE Band 12		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	700.500004	0.005432	714.500006	0.008129
	50	700.500005	0.006555	714.500006	0.008769
	40	700.500005	0.006739	714.500006	0.008089
	30	700.500006	0.008046	714.500007	0.010211
	20	700.500006	0.009006	714.500008	0.010571
	10	700.500007	0.009721	714.500008	0.011212
	0	700.500005	0.006759	714.500006	0.008429
	-10	700.500005	0.006616	714.500006	0.00907
	-20	700.500006	0.008638	714.500008	0.010671
-30	700.500005	0.007658	714.500007	0.00983	

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 3 MHz			
		Low Channel		High Channel	
		700.5MHz		714.5MHz	
LTE Band 12		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9	700.500004	0.00631	714.499996	-0.005506
	7.5	700.500004	0.00631	714.500004	0.005746
	6	700.500006	0.008965	714.500006	0.008429

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 5 MHz			
		Low Channel		High Channel	
		701.5MHz		713.5MHz	
LTE Band 12		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	701.500008	0.010747	713.500004	0.005012
	50	701.500006	0.008361	713.500005	0.006636
	40	701.500007	0.01042	713.500006	0.00804
	30	701.500008	0.01142	713.500007	0.009122
	20	701.500008	0.01195	713.500007	0.010506
	10	701.500005	0.007667	713.500006	0.0081
	0	701.500007	0.010196	713.500006	0.008822
	-10	701.500003	0.004853	713.500006	0.008701
	-20	701.500008	0.011501	713.500006	0.008601
-30	701.500005	0.006505	713.500006	0.00802	

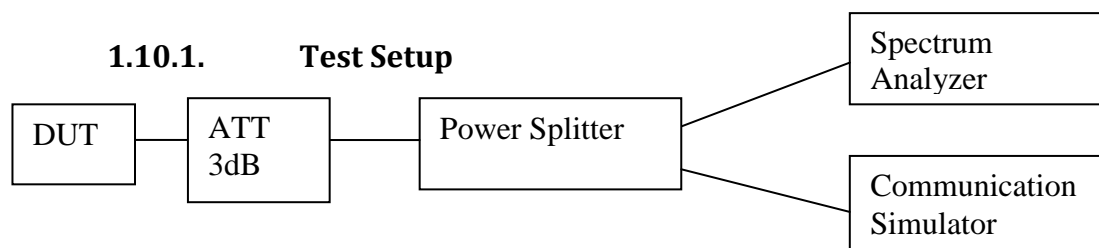
Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 5 MHz			
		Low Channel		High Channel	
		701.5MHz		713.5MHz	
LTE Band 12		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9	701.500006	0.008198	713.499996	-0.005012
	7.5	701.500004	0.006118	713.500005	0.007077
	6	701.500006	0.008136	713.500008	0.010947

Band	Temp ( Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 10 MHz			
		Low Channel		High Channel	
		704MHz		711MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 12	60	703.999996	-0.006218	710.999996	-0.005935
	50	704.000004	0.006157	710.999995	-0.00666
	40	704.000006	0.007884	710.999996	-0.006096
	30	704.000005	0.007803	710.999996	-0.005794
	20	704.000004	0.006116	710.999996	-0.005915
	10	704.000005	0.007498	711.000005	0.006519
	0	704.000006	0.008108	711.000005	0.007605
	-10	704.000005	0.007376	711.000005	0.006599
	-20	704.000005	0.006827	711.000004	0.005734
	-30	704.000005	0.006949	711.000005	0.006418

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 10 MHz			
		Low Channel		High Channel	
		704MHz		711MHz	
		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
LTE Band 12	9	704.000006	0.008169	710.999996	-0.006318
	7.5	704.000005	0.007274	710.999996	-0.005815
	6	704.000004	0.00636	711.000005	0.006458



## 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

For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

### 1.10.3. Band Edge / Emission Mask Conducted Spurious Emission - LTE Band 12 (699-716MHz)

