FCC REPORT
(Base Station)

Applicant:	Baicells Technologies Co., Ltd.
Address of Applicant:	3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China

Equipment Under Test (EUT)

Product Name:	LTE-TDD Base Station
Model No.:	mBS1100
Trade mark:	BaiCells
FCC ID:	2AG32MBS1100
IC ID:	20982-MBS1100
Applicable standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part90 Subpart Z RSS-Gen Issue 4, November 2014 RSS-197 Issue 1, February 2010
Date of sample receipt:	14 Dec., 2015
Date of Test:	15 Dec., 2015 to 25 Mar., 2016
Date of report issued:	29 Mar., 2016
Test Result:	PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

2. Version

Version No.	Date	Description
00	*29 Mar., 2016*	*Original*

Tested by:  ***Date:*** *29 Mar., 2016*

Test Engineer

Reviewed by:  ***Date:*** *29 Mar., 2016*

Project Engineer

3. Contents

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4. Test Summary

Test Item	Section in CFR 47		Result
	FCC	IC	
RF Output Power	Part 2.1046 Part 90.1321	RSS Gen Section 6.12 RSS 197 section 5.6	Pass
Modulation Characteristics	Part 2.1047	RSS 197 section 5.1	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 90.209	RSS Gen section 6.6	Pass
Emission Mask	Part 90.210(b)	Not applicable	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 90.1323	RSS Gen Section 6.13 RSS 197 section 5.7	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 90.1323	RSS Gen Section 6.13 RSS 197 section 5.7	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b) Part 90.213(a)	RSS Gen section 6.11 RSS 197 section 5.3	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2) Part 90.213(a)	RSS Gen section 6.11 RSS 197 section 5.3	Pass

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

5. General Information

5.1 Client Information

Applicant:	Baicells Technologies Co., Ltd.
Address of Applicant:	3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China
Manufacturer	Baicells Technologies Co., Ltd.
Address of Manufacturer:	3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China

5.2 General Description of E.U.T.

Product Name:	LTE-TDD Base Station
Model No.:	mBS1100
Operation Frequency range:	3655MHz~3695MHz
Modulation type:	BPSK,QPSK,16QAM,64QAM
Antenna type:	External antenna (“N” type)
Antenna gain:	7 dBi
Power supply:	DC 48V

Test Channle:

10MHz		20MHz	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
Lowest	3655	Lowest	3660
Middle	3675	Middle	3675
Highest	3695	Highest	3690

5.3 Test modes

Data mode (QPSK)	Keep the EUT in data communicating mode (QPSK). *(10MHz, 20MHz)*
Data mode (64QAM)	Keep the EUT in data communicating mode (64QAM). *(10MHz, 20MHz)*

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
INVENTRONICS	LED DRIVER	EUV-200S048SV	N/A	N/A

5.5 Related Submittal(s) / Grant (s)

FCC: This submittal(s) (test report) is filing to comply with Section Part 90 subpart Z of the FCC CFR 47 Rules.
IC: This submittal(s) (test report) is filing to comply withRSS 197

5.6 Test Methodology

FCC: Both conducted and radiated testing were performed according to the procedures document on TIA/EIA 603 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057
IC: Both conducted and radiated testing were performed according to RSS Gen, RSS 197, ANSI C63.10:2009.

5.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.8 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282
Fax: +86-755-23116366

5.9 Test Instruments list

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017
BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	03-28-2015	03-28-2016
Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	03-28-2015	03-28-2016
Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2015	03-31-2016
Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2015	03-31-2016
Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	04-01-2015	03-31-2016
Horn Antenna	ETS-LINDGREN	3160	GTS217	04-01-2015	03-31-2016
Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	03-28-2015	03-28-2016
Spectrum Analyzer 20Hz-26.5GHz	Agilent	N9020A	MY50510123	10-29-2015	10-29- 2016
EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	03-28-2015	03-28-2016
Loop antenna	Laplace instrument	RF300	EMC0701	04-01-2015	03-31-2016

6. System test configuration

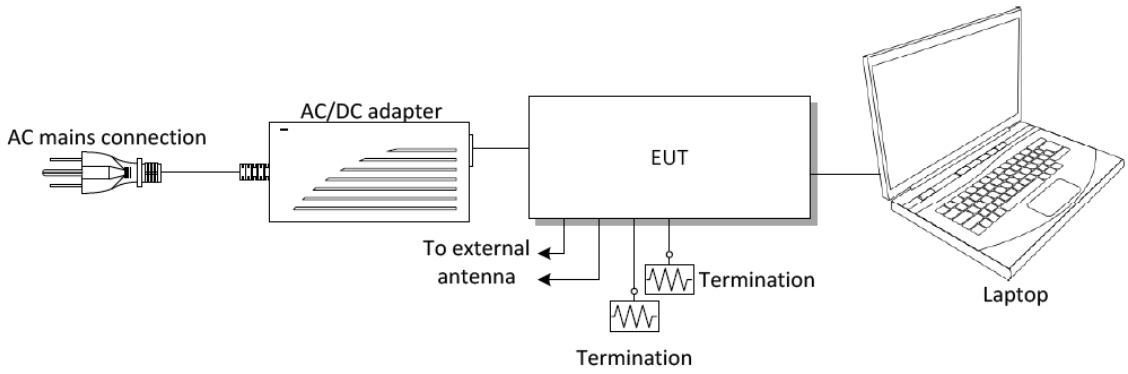
6.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

6.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

6.3 Configuration of Tested System



6.4 Description of Test Modes

The EUT has been tested under operating condition.
EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.
The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for three modes with power adaptor, earphone and Data cable. The worst-case H mode.

6.5 Transmit Output Power and PSD

Test Requirement:	FCC part90.1321(a) and RSS-197 Clause 5.6.2
Test Method:	FCC part2.1046 and RSS Gen section 6.12
Limit:	**FCC:** (a) Base and fixed stations are limited to 25 watts/25 MHz equivalent isotropically radiated power (EIRP). In any event, the peak EIRP powerdensity shall not exceed 1 Watt in any one-megahertz slice of spectrum. (b) In addition to the provisions in paragraph (a) of this section, transmitters operating in the 3650-3700 MHz band that emit multipledirectional beams, simultaneously or sequentially, for the purpose of directing signals to individual receivers or to groups of receivers provided theemissions comply with the following: (1) Different information must be transmitted to each receiver. (2) If the transmitter employs an antenna system that emits multiple directional beams but does not emit multiple directional beamssimultaneously, the total output power conducted to the array or arrays that comprise the device, *i.e.*, the sum of the power supplied to allantennas, antenna elements, staves, etc. and summed across all carriers or frequency channels, shall not exceed the limit specified in paragraph(a) of this section, as applicable. The directional antenna gain shall be computed as follows: (i) The directional gain, in dBi, shall be calculated as the sum of 10 log (number of array elements or staves) plus the directional gain, in dBi,of the individual element or stave having the highest gain. (ii) A lower value for the directional gain than that calculated in paragraph (b)(2)(i) of this section will be accepted if sufficient evidence ispresented, *e.g.*, due to shading of the array or coherence loss in the beam-forming. (3) If a transmitter employs an antenna that operates simultaneously on multiple directional beams using the same or different frequencychannels and if transmitted beams overlap, the power shall be reduced to ensure that the aggregate power from the overlapping beams does notexceed the limit specified in paragraph (b)(2) of this section. In addition, the aggregate power transmitted simultaneously on all beams shall notexceed the limit specified in paragraph (b)(2) of this section by more than 8 dB. (4) Transmitters that emit a single directional beam shall operate under the provisions of paragraph (b)(2) of this section. **IC:** 5.6.2 The maximum transmitter output power density of equipment, other than mobile and portableequipment, shall not exceed 1W in any 1 MHz bandwidth. 5.6.3 In addition, equipment, other than mobile and portable equipment, employing antenna systemsthat emit multiple directional beams, simultaneously or sequentially, for the purpose ofdirecting signals to individual receivers or to groups of receivers, shall comply with therequirements in SRSP-303.65.
Test Procedure:	RBW=1MHz, VBW=3MHz, Detector mode= RMS , Trace mode: Power averaging over 100 sweeps
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Transmit Output Power								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 Output Power (dBm/10MHz)	Chain 1 Output Power (dBm/10MHz)	Total Power (dBm/10MHz)	Antenna Gain (dBi)	EIRP (dBm/10MHz)	EIRP Limit (dBm/10MHz)
10	QPSK	Lowest	25.69	25.66	28.69	10	38.69	40.00
		Middle	25.54	25.57	28.57	10	38.57	
		Highest	25.58	25.55	28.58	10	38.58	
	64QAM	Lowest	25.75	25.74	28.76	10	38.76	
		Middle	25.60	25.61	28.62	10	38.62	
		Highest	25.53	25.49	28.52	10	38.52	
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 Output Power (dBm/20MHz)	Chain 1 Output Power (dBm/20MHz)	Total Power (dBm/20MHz)	Antenna Gain (dBi)	EIRP (dBm/20MHz)	EIRP Limit (dBm/20MHz)
20	QPSK	Lowest	28.55	28.53	31.55	10	41.55	43.01
		Middle	28.44	28.46	31.46	10	41.46	
		Highest	28.58	28.55	31.58	10	41.58	
	64QAM	Lowest	28.72	28.77	31.76	10	41.76	
		Middle	28.66	28.69	31.69	10	41.69	
		Highest	28.61	28.65	31.64	10	41.64	

PSD								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 PSD (dBm/MHz)	Chain 1 PSD (dBm/MHz)	Total PSD (dBm/MHz)	Antenna Gain (dBi)	EIRP density (dBm/MHz)	EIRP density Limit (dBm/MHz)
10	QPSK	Lowest	16.68	16.75	19.73	10	29.73	30.00
		Middle	16.76	16.66	19.72	10	29.72	
		Highest	16.60	16.71	19.67	10	29.67	
	64QAM	Lowest	16.60	16.44	19.53	10	29.53	
		Middle	16.49	16.64	19.58	10	29.58	
		Highest	16.42	16.53	19.49	10	29.49	
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 PSD (dBm/MHz)	Chain 1 PSD (dBm/MHz)	Total PSD (dBm/MHz)	Antenna Gain (dBi)	EIRP density (dBm/MHz)	EIRP density Limit (dBm/MHz)
20	QPSK	Lowest	14.98	15.26	18.13	10	28.13	30.00
		Middle	14.94	15.16	18.06	10	28.06	
		Highest	15.12	15.13	18.14	10	28.14	
	64QAM	Lowest	15.16	15.17	18.18	10	28.18	
		Middle	15.28	15.10	18.20	10	28.20	
		Highest	15.06	15.02	18.05	10	28.05	

Remark: Directional antenna Gain = Antenna Gain + 10 lg (ANT_N) = 10 dBi

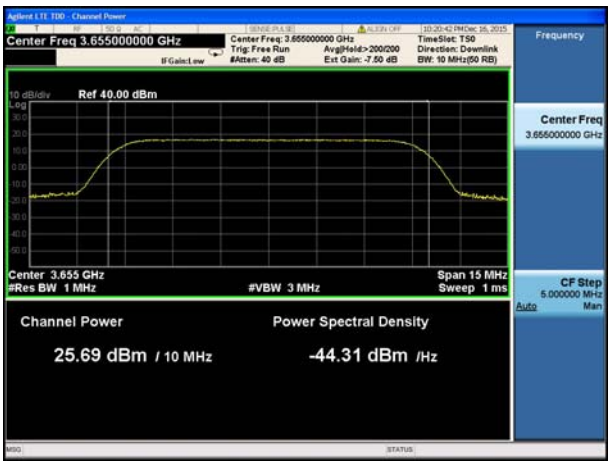
Test plot as follows:

Power

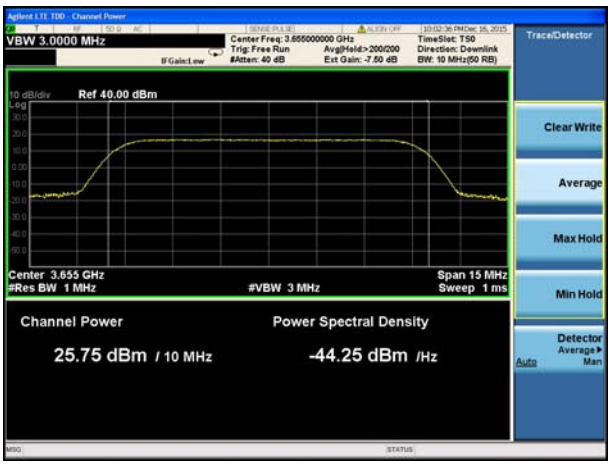
Chain 0:

10MHz

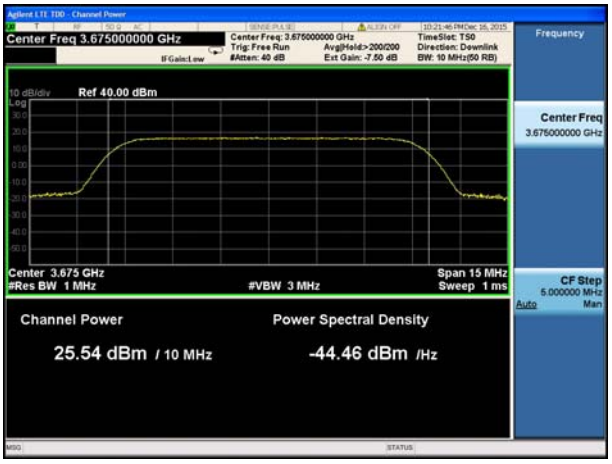
QPSK

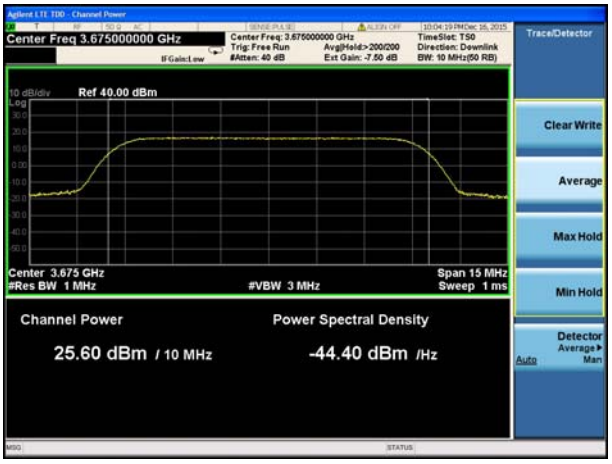


64QAM

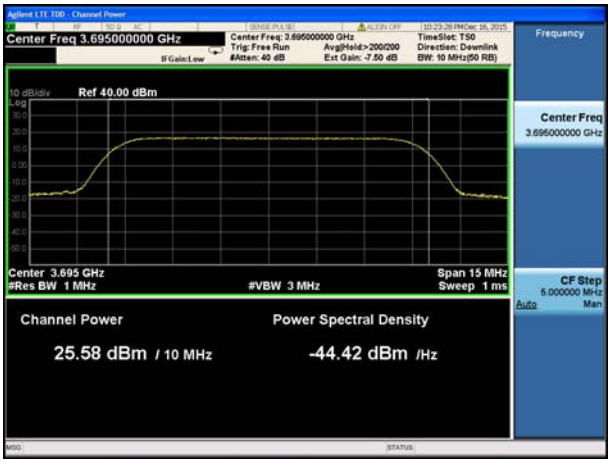


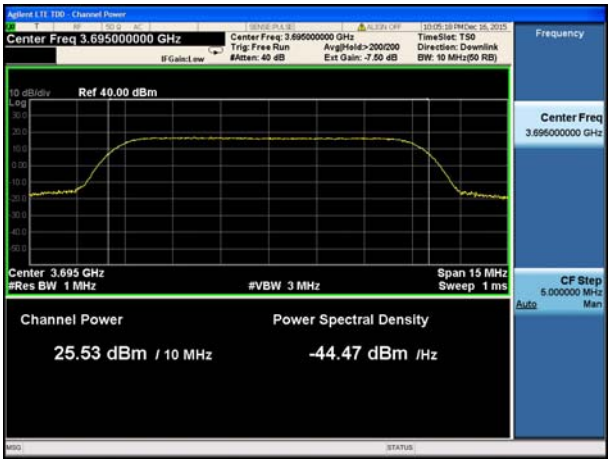
Lowest channel





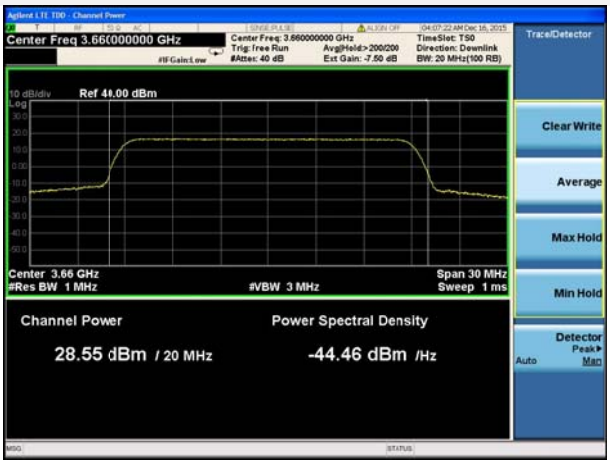
Middle channel

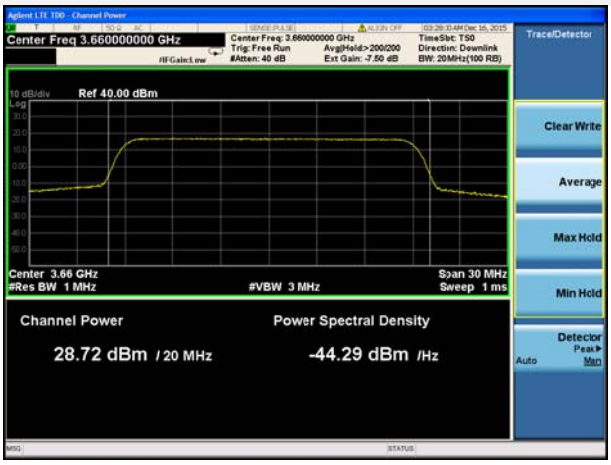




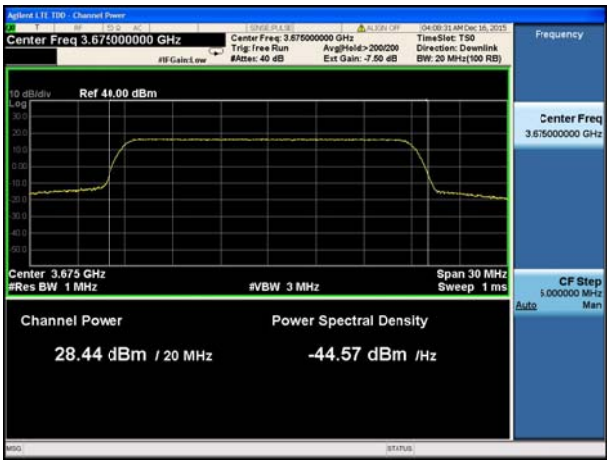
Highest channel

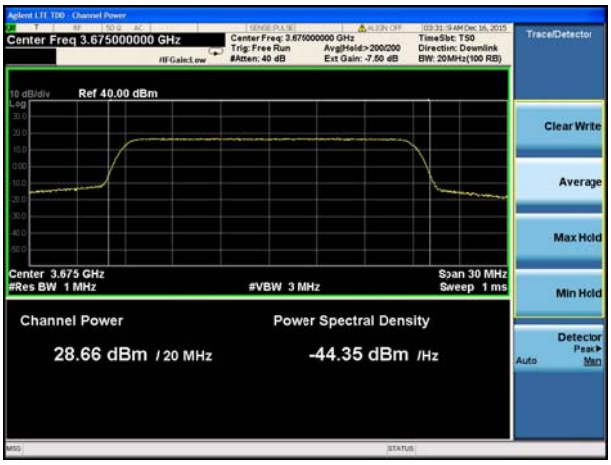
20MHz	
QPSK	64QAM



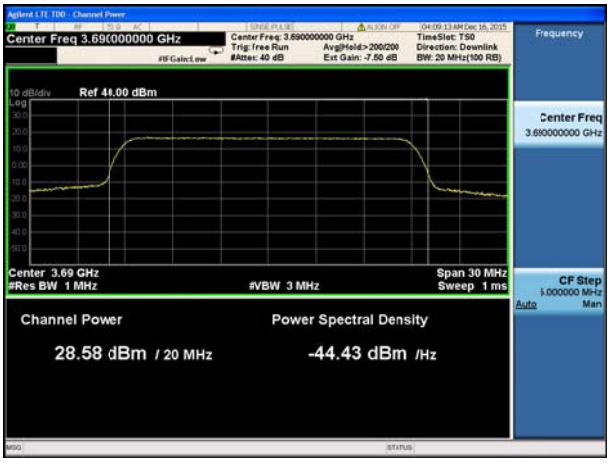


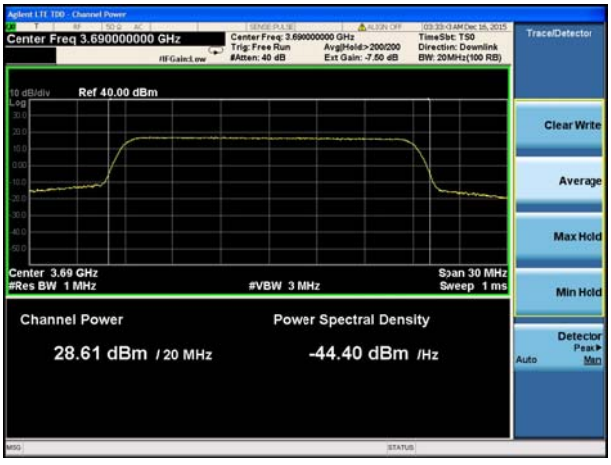
Lowest channel





Middle channel





Highest channel

PSD

Chain 0:

10MHz	
QPSK	64QAM

Lowest channel

Middle channel

Highest channel

20MHz

QPSK

64QAM

Lowest channel

Middle channel

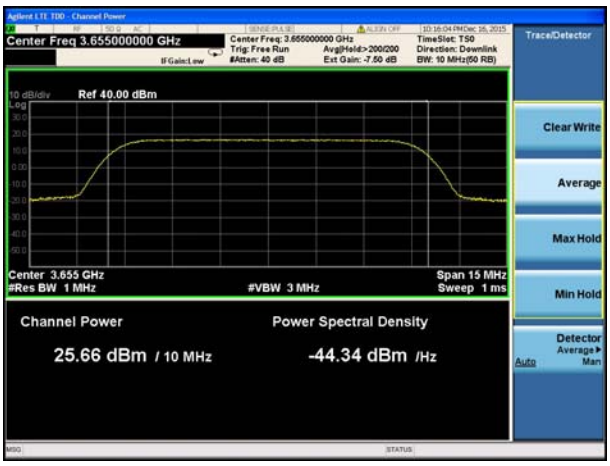
Highest channel

Power

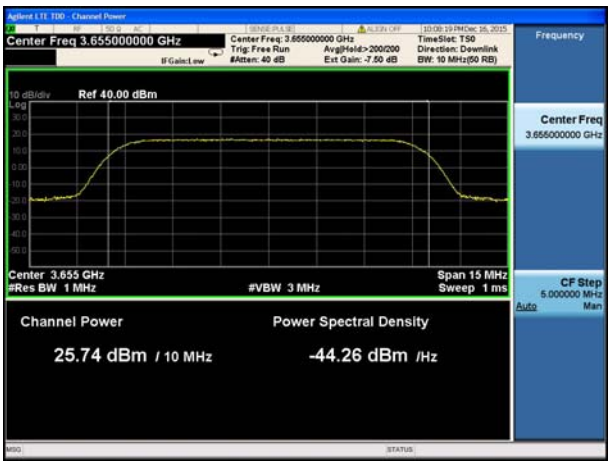
Chain 1:

10MHz

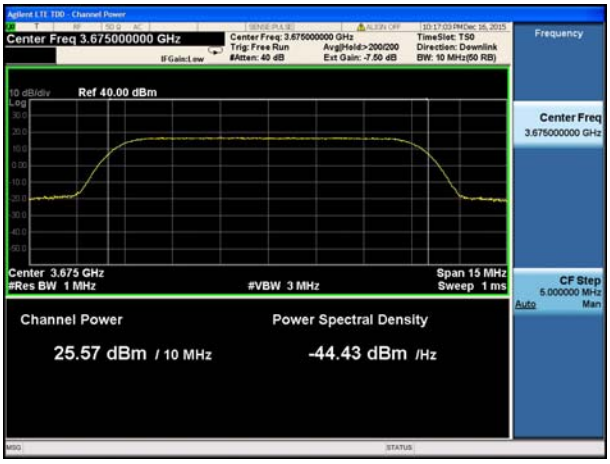
QPSK

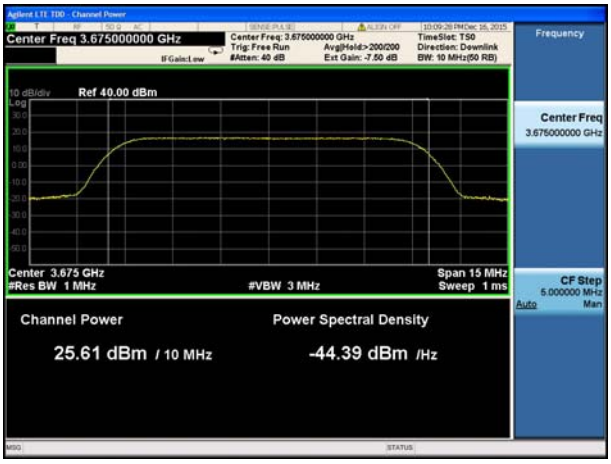


64QAM

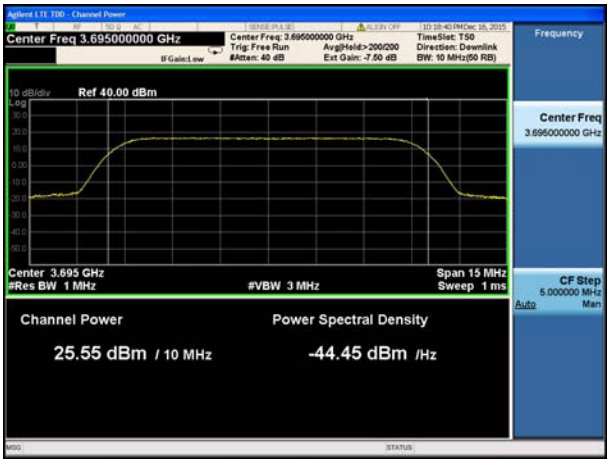


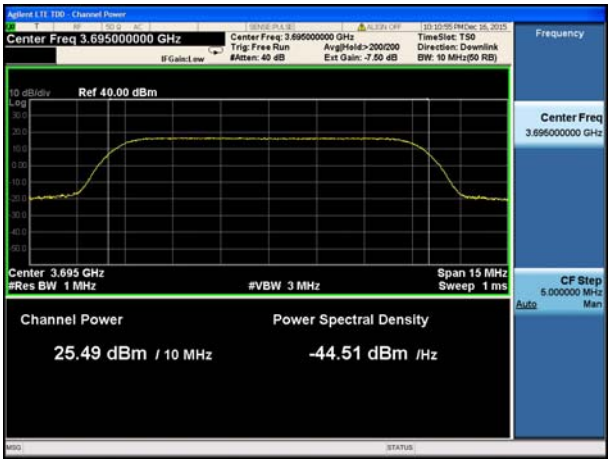
Lowest channel





Middle channel

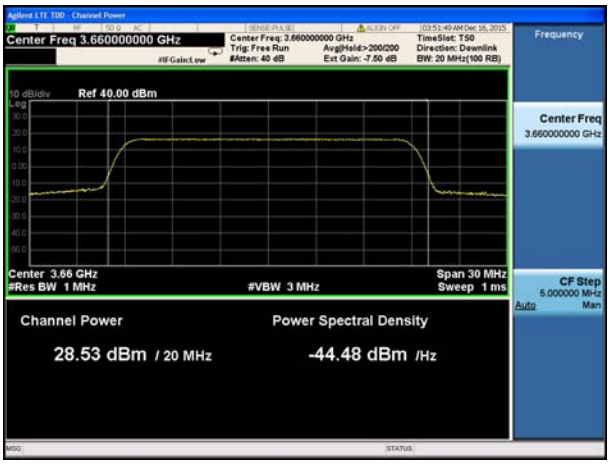




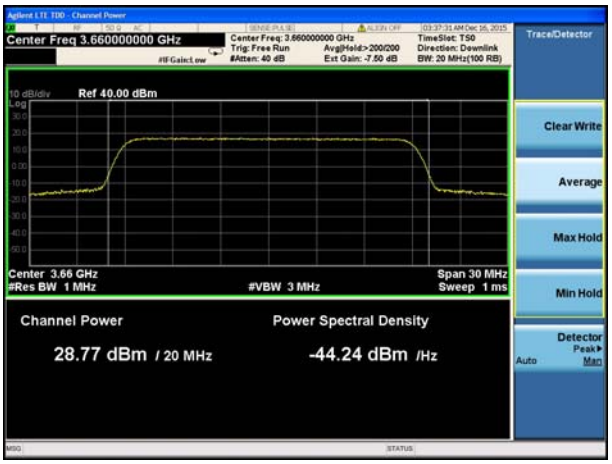
Highest channel

20MHz

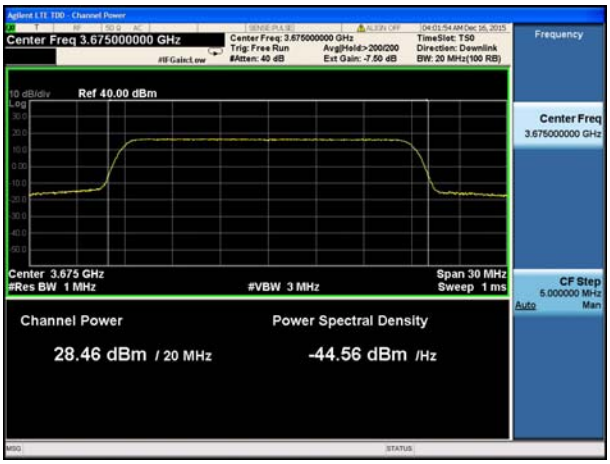
QPSK

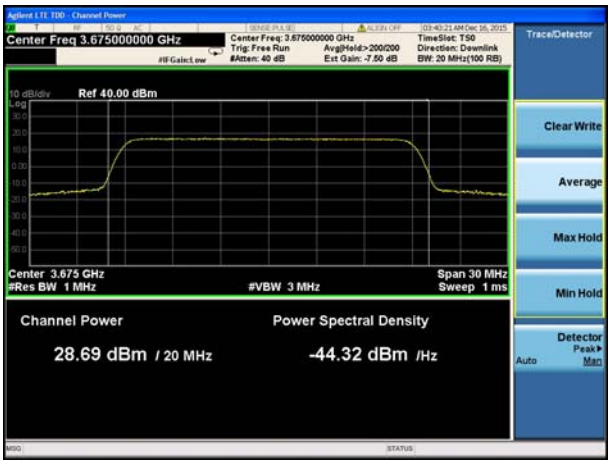


64QAM

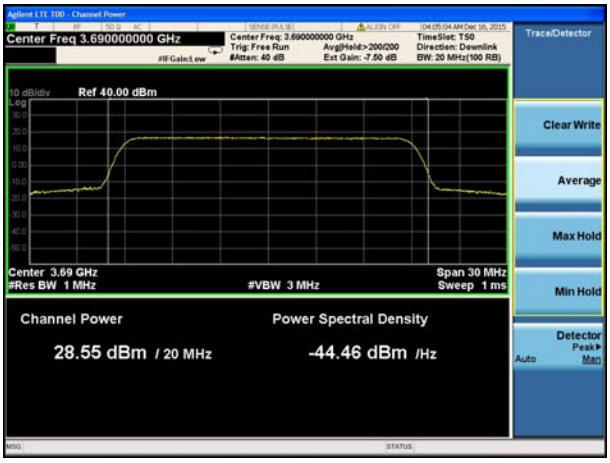


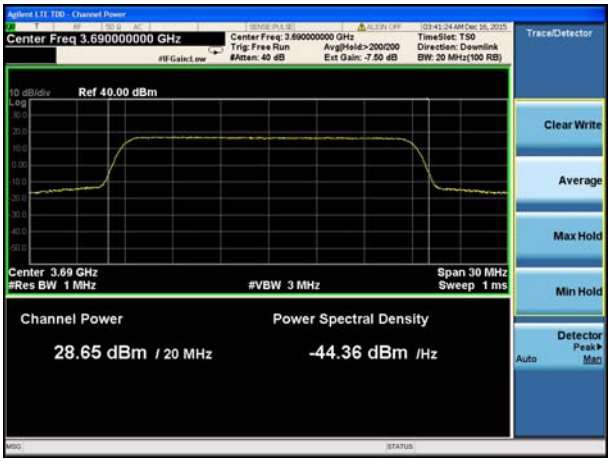
Lowest channel





Middle channel





Highest channel

PSD

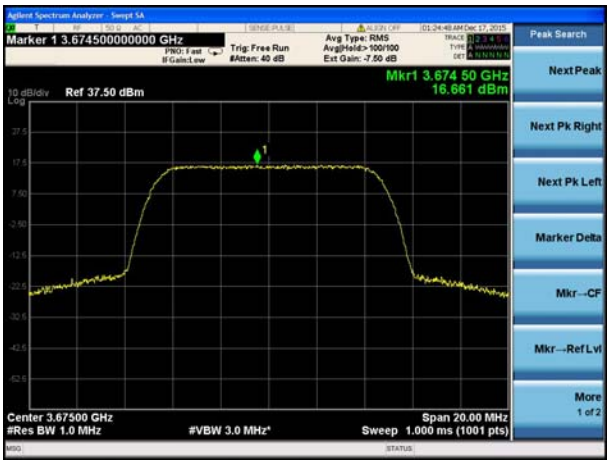
Chain 1:

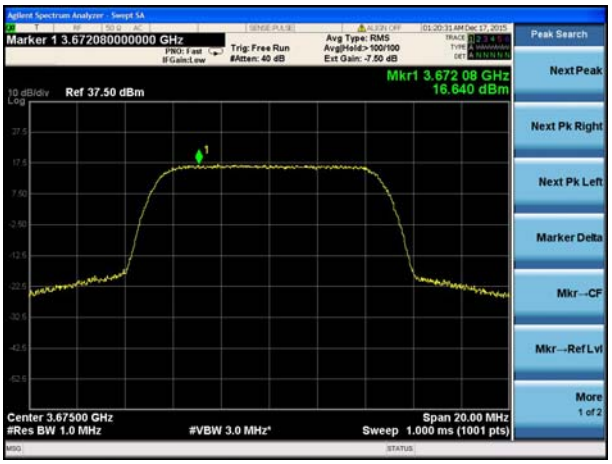
10MHz

QPSK

64QAM

Lowest channel





Middle channel

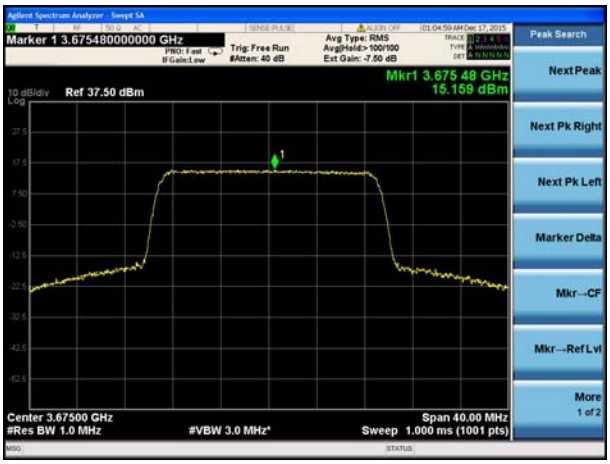
Highest channel

20MHz

QPSK

64QAM

Lowest channel



Middle channel

Highest channel

6.6 Occupy Bandwidth

Test Requirement:	FCC part 90.209 andRSS-Gen 6.6
Test Method:	FCC part 2.1049 and RSS-Gen 6.6
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. The transmitter shall be operated at its maximum carrier powermeasured under normal test conditions. 3. The span of the analyzer shall be set to capture all products of themodulation process, including the emission skirts. 4. The resolution bandwidth (RBW) shall be in the range of 1% to 5% ofthe occupied bandwidth (OBW) and video bandwidth (VBW) shall beapproximately 3x RBW.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Chain 0:

Bandwidth(MHz)	Modulation	Test Channel	99% Occupy bandwidth (MHz)
10	QPSK	Lowest	9.043
		Middle	9.049
		Highest	9.045
	64QAM	Lowest	9.048
		Middle	9.050
		Highest	9.048
20	QPSK	Lowest	17.885
		Middle	17.877
		Highest	17.883
	64QAM	Lowest	17.881
		Middle	17.870
		Highest	17.871

Chain 1:

Bandwidth(MHz)	Modulation	Test Channel	99% Occupy bandwidth (MHz)
10	QPSK	Lowest	9.043
		Middle	9.045
		Highest	9.055
	64QAM	Lowest	9.042
		Middle	9.046
		Highest	9.051
20	QPSK	Lowest	17.870
		Middle	17.871
		Highest	17.880
	64QAM	Lowest	17.883
		Middle	17.876
		Highest	17.870

Test plot as follows:

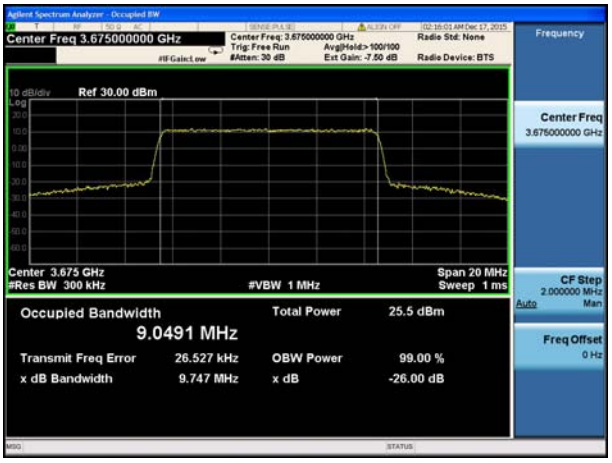
Chain 0:

10MHz

QPSK

64QAM

Lowest channel



Middle channel

Highest channel

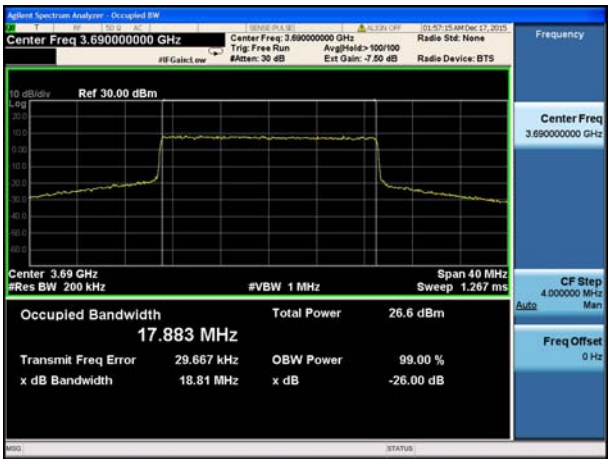
20MHz

QPSK

64QAM

Lowest channel

Middle channel



Highest channel

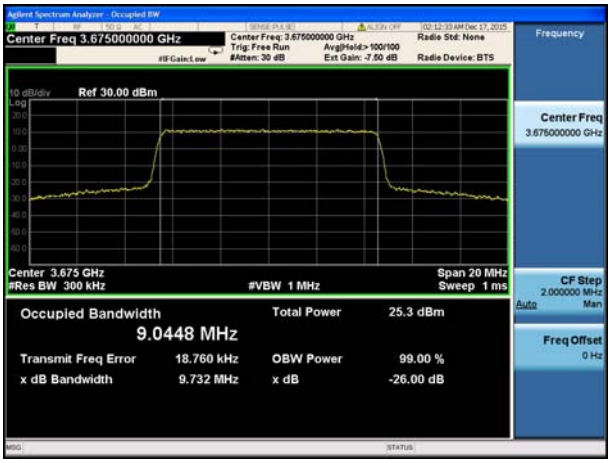
Chain 1:

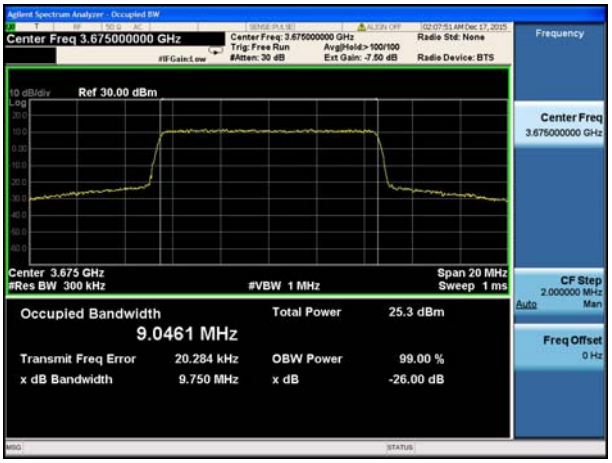
10MHz

QPSK

64QAM

Lowest channel



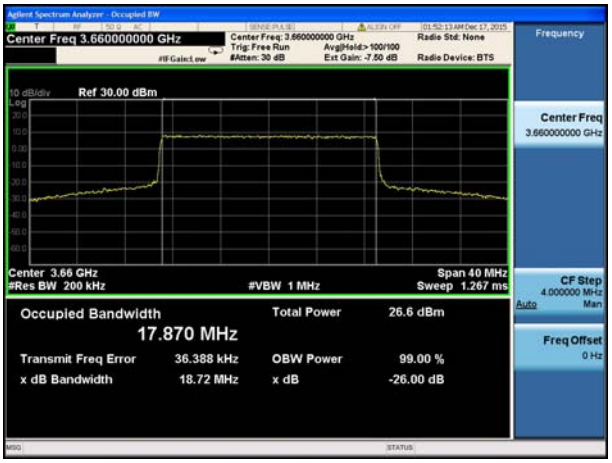


Middle channel

Highest channel

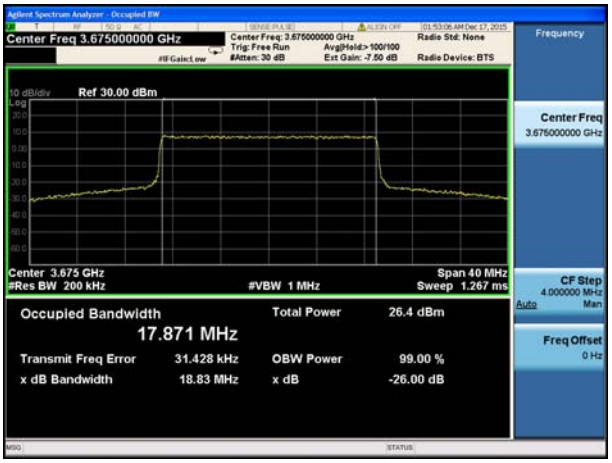
20MHz

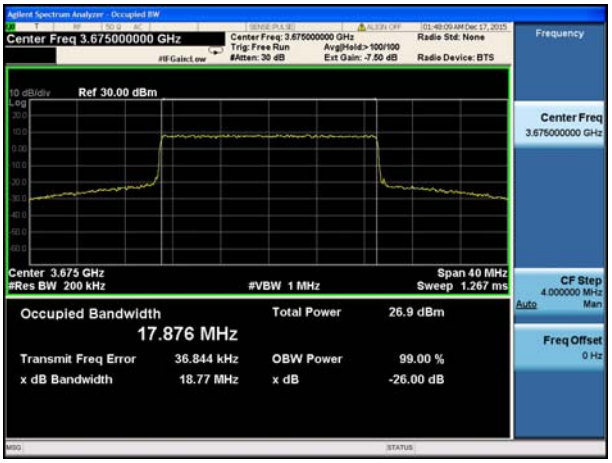
QPSK



64QAM

Lowest channel





Middle channel

Highest channel

6.7 Emission Mask

Test Requirement:	FCC part 90.210(b)
Limit:	Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated belowthe unmodulated carrier power (P) as follows: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorizedbandwidth: At least 25 dB. (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorizedbandwidth: At least 35 dB. (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P)dB.
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 RBW=100kHz, VBW=1MHz, Detector mode= RMS, Trace mode: Power averaging over 100 sweeps
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test plots as below:

Chain 0:

10MHz

QPKS

64QAM

Lowest channel

Middle channel

Highest channel

20MHz

QPKS

64QAM

Lowest channel

Middle channel

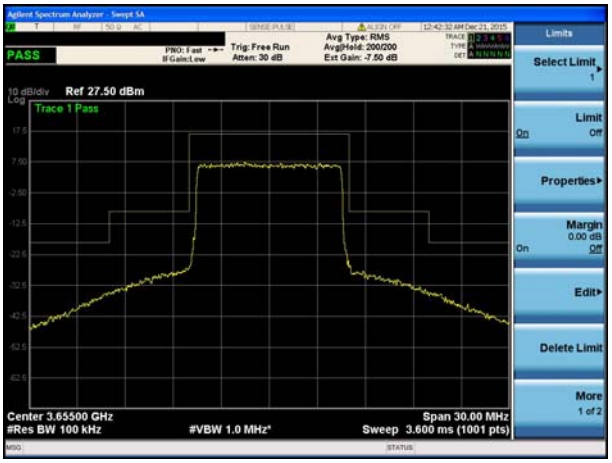
Highest channel

Chain 1:

10MHz

QPKS

64QAM



Lowest channel

Middle channel

Highest channel

20MHz

QPKS

64QAM

Lowest channel

Middle channel

Highest channel

6.8 Out of band emission at antenna terminals

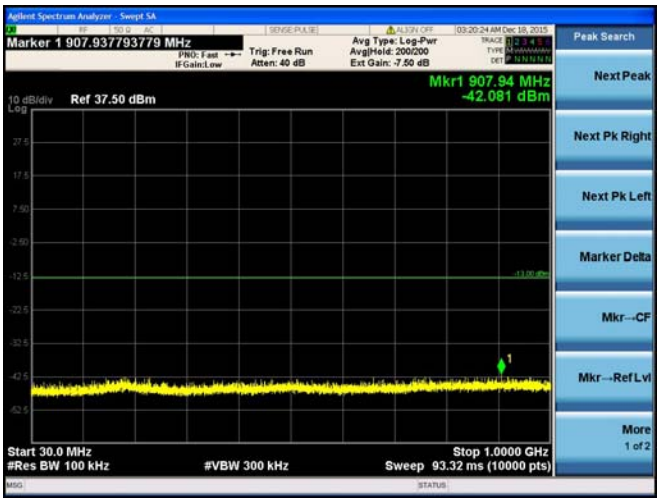
Test Requirement:	FCC part90.1323 and RSS-197 Clause 5.7
Test Method:	FCC part2.1051 and RSS Gen Section 6.13
Limit:	-13dBm
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	During the test, pre-scan the QPSK, 64QAM modulation, and found the QPSK modulation(10MHz/20MHz middle channel) is the worst case.

Test plots as follows(worst case):

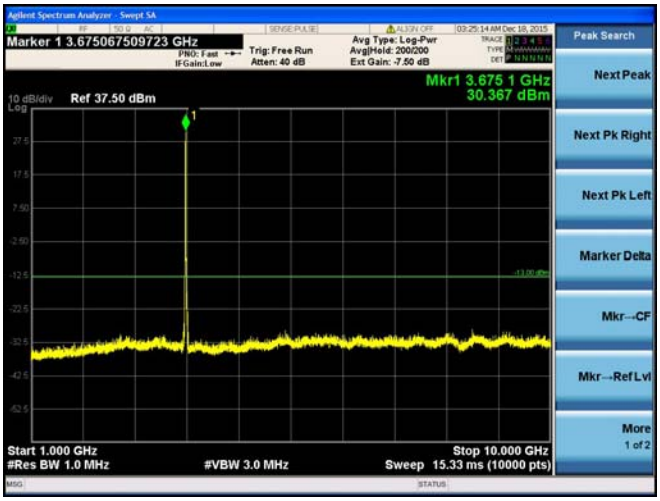
Spurious emission

Chain 0:

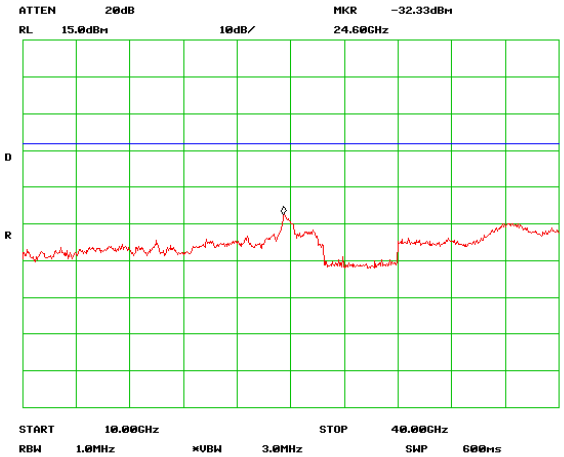
10MHz(Middle channel)



30MHz~1GHz

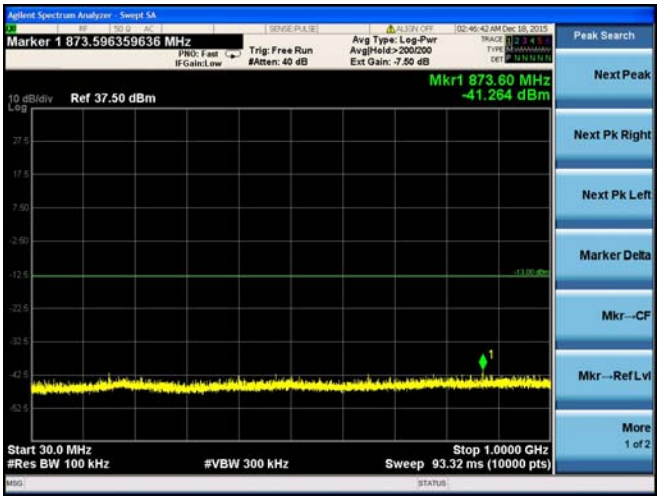


1GHz~10GHz



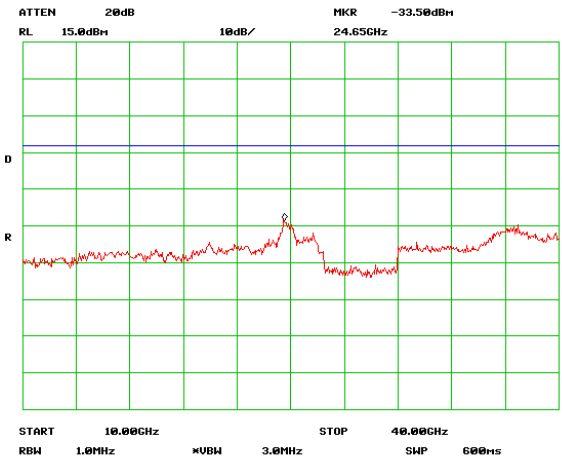
10GHz~40GHz

20MHz(Middle channel)



30MHz~1GHz

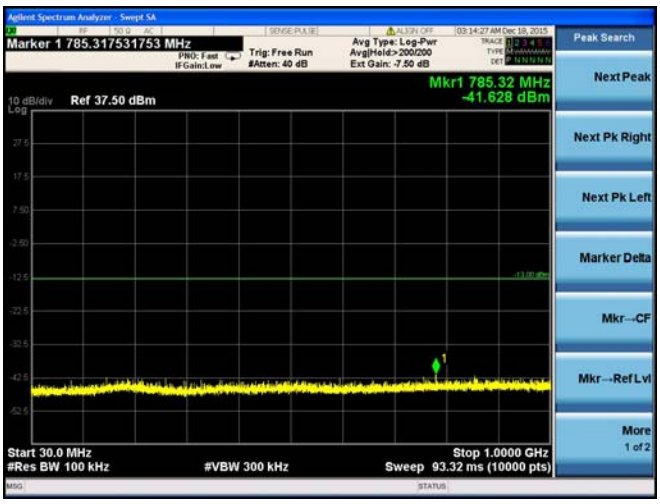
1GHz~10GHz



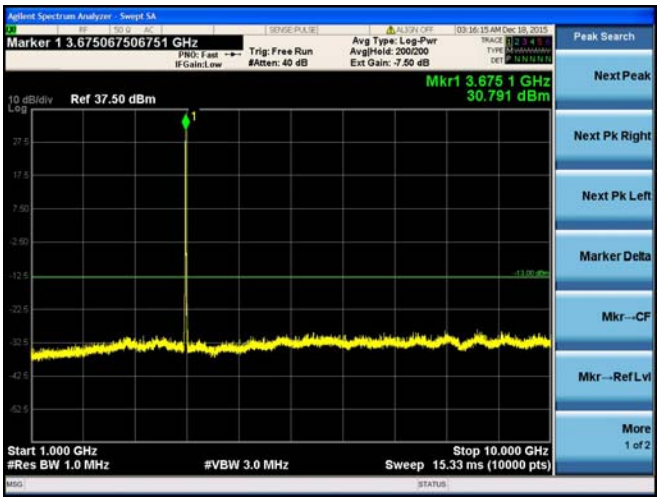
10GHz~40GHz

Chain 1:

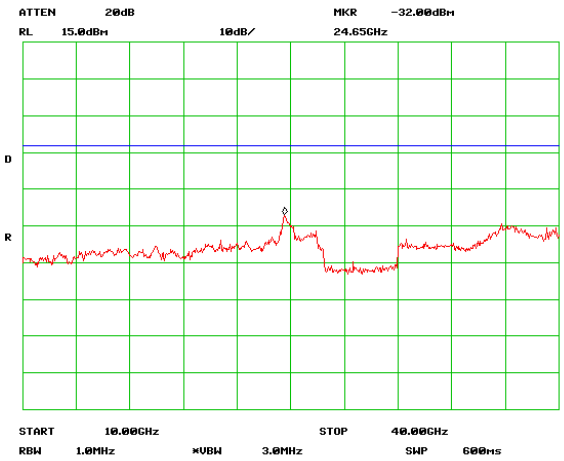
10MHz(Middle channel)



30MHz~1GHz

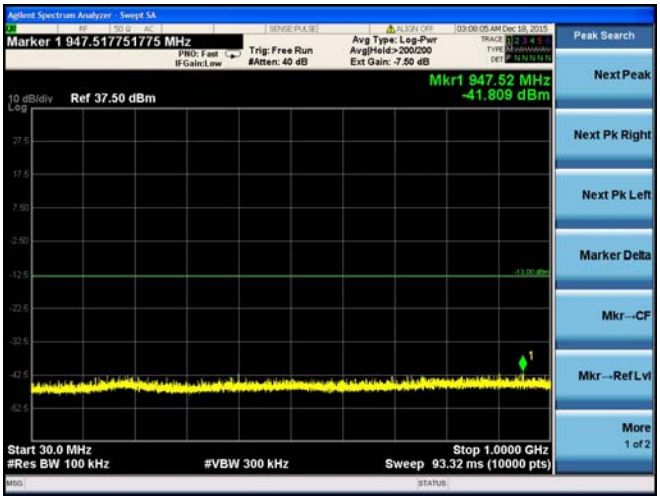


1GHz~10GHz

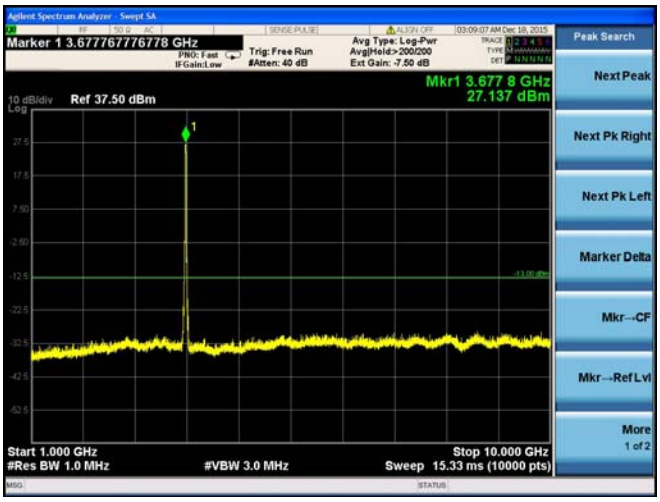


10GHz~40GHz

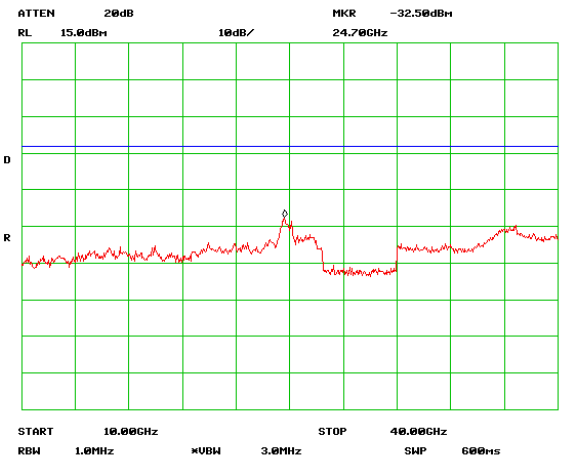
20MHz(Middle channel)



30MHz~1GHz



1GHz~10GHz

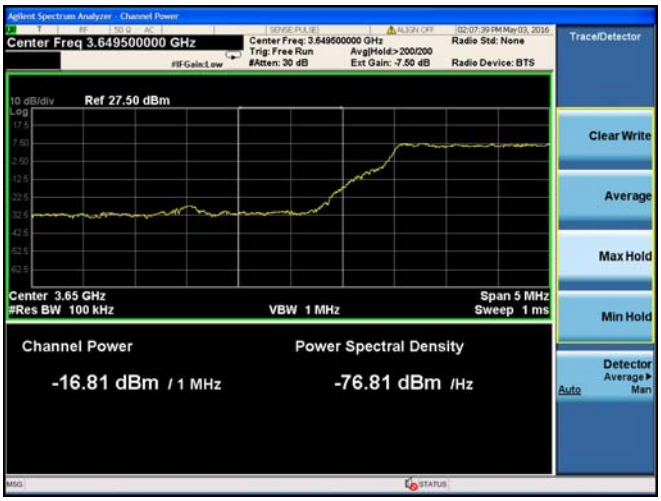


10GHz~40GHz

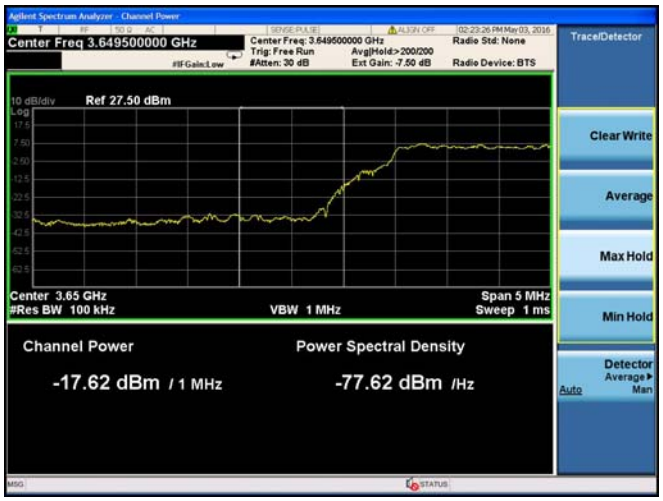
Band edge emission:

Chain 0:

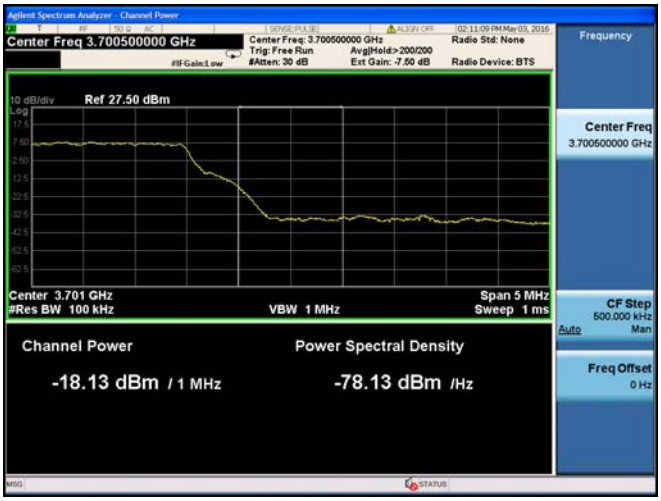
10MHz	
QPSK	64QAM



Lowest channel



Lowest channel



Highest channel

Highest channel

20MHz

QPSK

Lowest channel

64QAM

Lowest channel

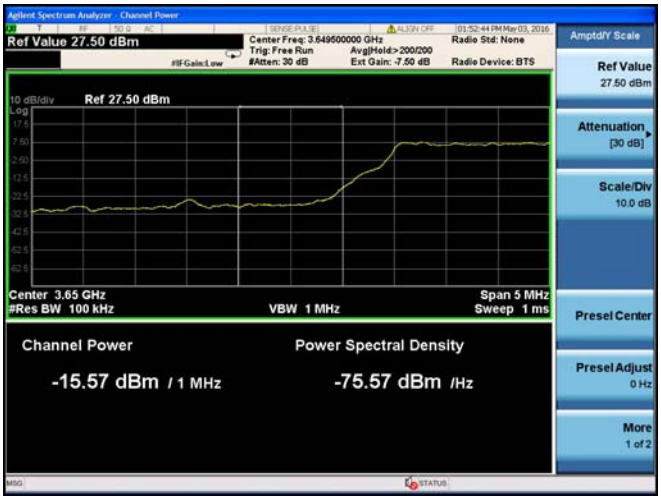
Highest channel

Highest channel

Chain 1:

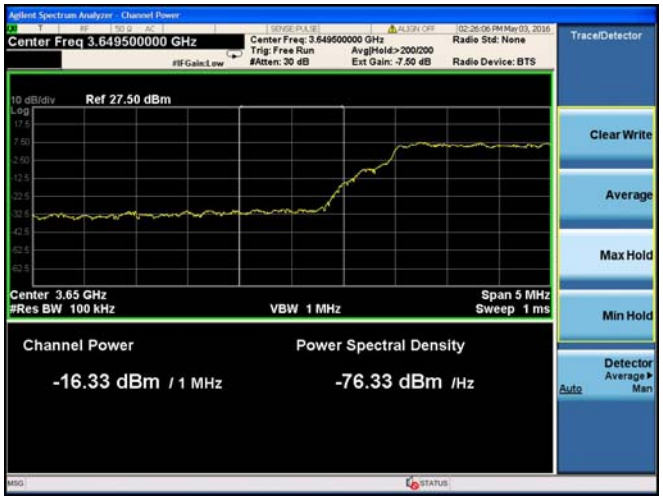
10MHz

QPSK

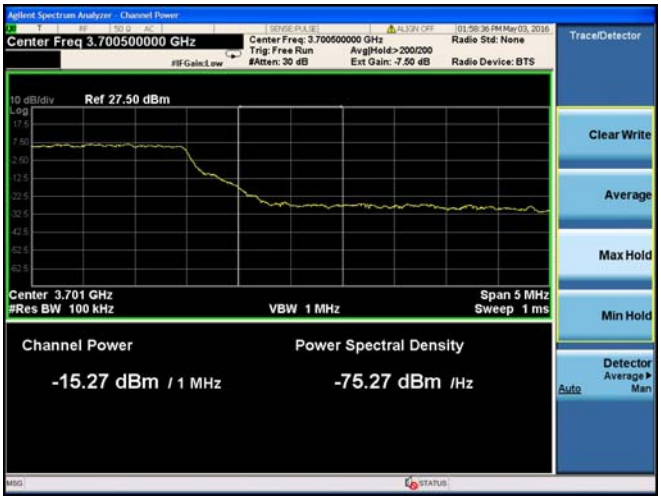


Lowest channel

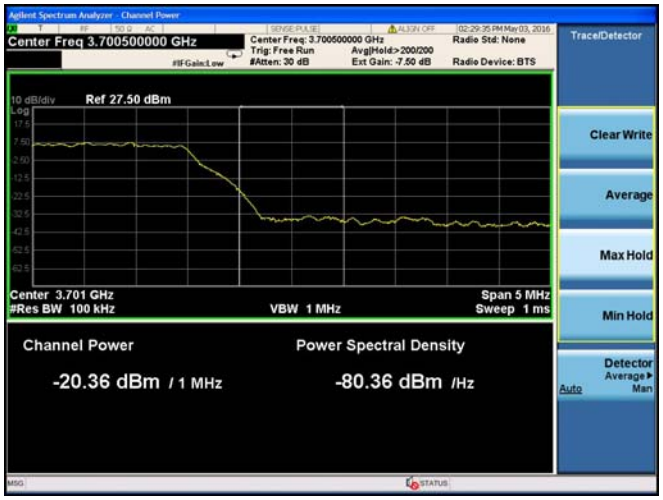
64QAM



Lowest channel



Highest channel



Highest channel

20MHz

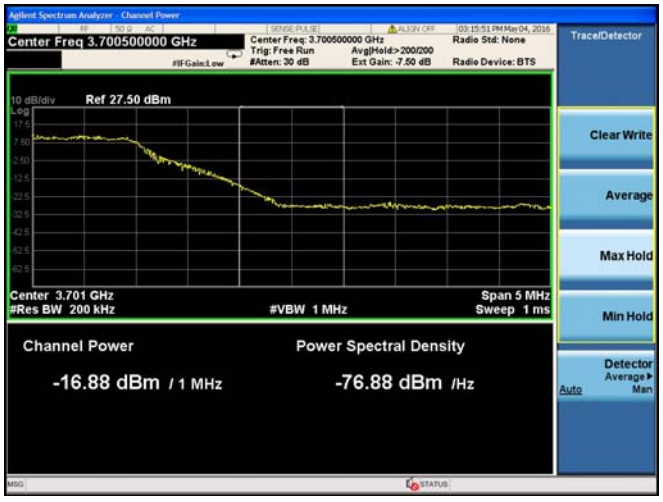
QPSK

Lowest channel

64QAM

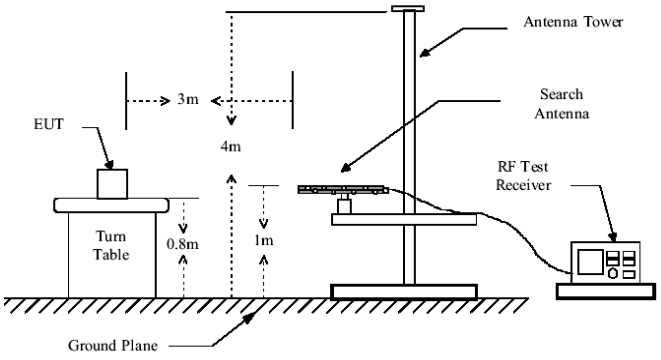
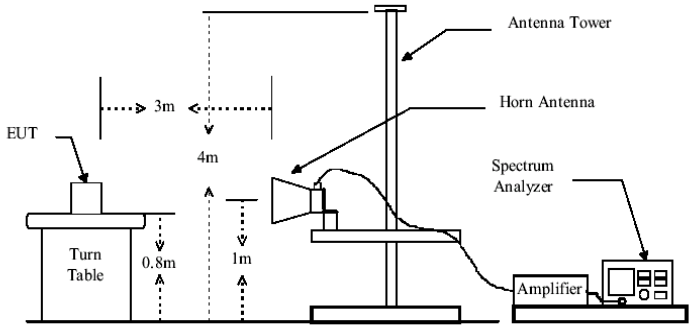
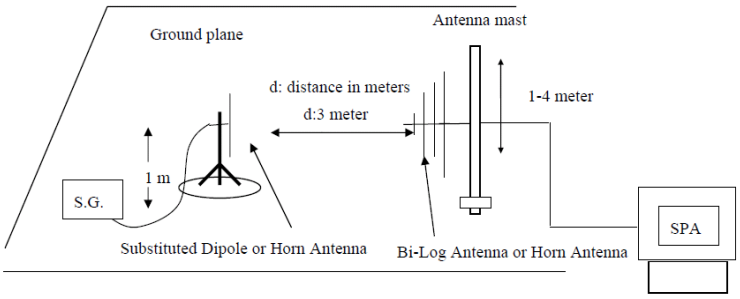
Lowest channel

Highest channel



Highest channel

6.9 Field strength of spurious radiation measurement

Test Requirement:	FCC part22.917(a), FCC part24.238(a)
Test Method:	FCC part2.1053
Limit:	-13dBm
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 
Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

	4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Uncertainty:	± 4.88 dB
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed
Remark:	During the test, pre-scan the QPSK, 64QAM modulation, and found the QPSK modulation is the worst case.

Measurement Data (worst case):

10MHz for QPSK				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
5164.10	Vertical	-36.98	-13	Pass
5478.26	V	-38.19		
7310.00	V	-42.92		
10965.00	V	-38.46		
5300.20	Horizontal	-42.35		
5487.26	H	-34.53		
7310.00	H	-42.52		
10965.00	H	-38.40		
Middle				
5330.93	Vertical	-42.36	-13	Pass
5519.07	V	-40.36		
7350.00	V	-43.02		
11025.00	V	-39.64		
5300.20	Horizontal	-42.89		
5519.07	H	-34.22		
7350.00	H	-42.77		
11025.00	H	-39.69		
Highest				
5179.05	Vertical	-41.29	-13	Pass
5535.05	V	-39.70		
7390.00	V	-42.21		
11085.00	V	-39.48		
5269.65	Horizontal	-39.25		
5551.07	H	-35.33		
7390.00	H	-40.49		
11085.00	H	-39.28		

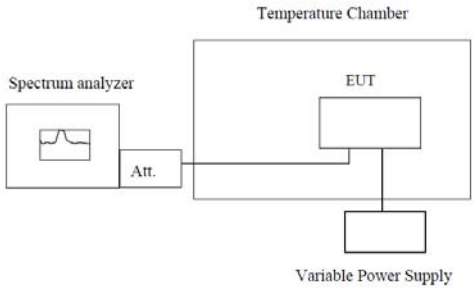
Remark:

1. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

20MHz for QPSK				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
5300.02	Vertical	-40.84	-13	Pass
5487.26	V	-37.88		
7320.00	V	-42.49		
10980.00	V	-38.68		
5487.26	Horizontal	-34.55		
5915.52	H	-39.33		
7320.00	H	-42.73		
10980.00	H	-39.00		
Middle				
5179.05	Vertical	-37.91	-13	Pass
5503.14	V	-41.49		
7350.00	V	-41.94		
11025.00	V	-39.14		
5179.05	Horizontal	-35.89		
5519.07	H	-32.42		
7350.00	H	-41.70		
11025.00	H	-40.14		
Highest				
5179.05	Vertical	-42.96	-13	Pass
5330.93	V	-41.63		
7380.00	V	-41.28		
11070.00	V	-38.53		
5194.04	Horizontal	-40.48		
5535.05	H	-36.15		
7380.00	H	-40.87		
11070.00	H	-39.23		

Remark:
1. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

6.10 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC Part90.213(a) and RSS 197 section 5.3
Test Method:	FCC Part2.1055(a)(1)(b) and RSS Gen section 6.1.1
Limit:	FCC: Frequency range (MHz) / Fixed and base stations (±ppm) / Mobile stations (±ppm): Over 2 watts output power / 2 watts or less output power Below 25: 100 / 100 / 200 25–50: 20 / 20 / 50 72–76: 5 / / 50 150–174: 5 / 5 / 50 216–220: 1.0 / / 1.0 220–222: 0.1 / 1.5 / 1.5 421–512: 2.5 / 5 / 5 806–809: 1.0 / 1.5 / 1.5 809–824: 1.5 / 2.5 / 2.5 851–854: 1.0 / 1.5 / 1.5 854–869: 1.5 / 2.5 / 2.5 896–901: 0.1 / 1.5 / 1.5 902–928: 2.5 / 2.5 / 2.5 902–928: 2.5 / 2.5 / 2.5 929–930: 1.5 / / 935–940: 0.1 / 1.5 / 1.5 1427–1435: 300 / 300 / 300 Above 2450 / / / IC: The transmitter frequency stability limit shall be determined as follows: (a) The frequency offset shall be measured according to the procedure described in RSS-Gen and recorded; (b) Using a resolution bandwidth of 1% of the occupied bandwidth, a reference point at the unwanted emission level specified in Section 5.7 on the emission mask of the lowest and highest channel shall be selected, and the frequency at these points shall be recorded as fL and fH respectively. The applicant shall ensure frequency stability by showing that fL minus the frequency offset and fH plus the frequency offset shall be within the 3650-3700 MHz band.
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

Measurement Data (the worst channel):

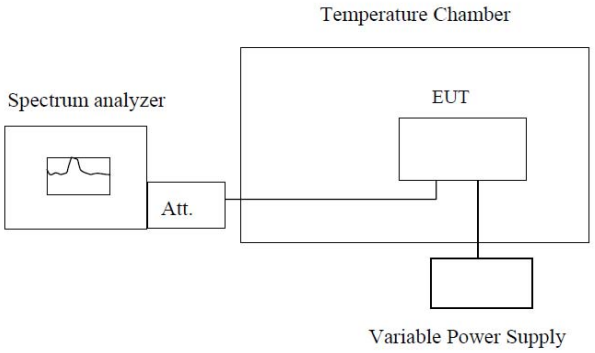
Chain 0:

Reference Frequency: Lowest channel=3655MHz(10MHz for QPSK)			
Power supplied (Vdc)	Temperature (℃)	Frequency error	
		Hz	ppm
48.00	-35	162	0.044323
	-20	124	0.033926
	-10	105	0.028728
	0	123	0.033653
	10	130	0.035568
	20	133	0.036389
	30	107	0.029275
	40	145	0.039672
	55	139	0.038030
Reference Frequency: Lowest channel=3660MHz(20MHz for QPSK)			
Power supplied (Vdc)	Temperature (℃)	Frequency error	
		Hz	ppm
48.00	-35	154	0.042134
	-20	126	0.034473
	-10	104	0.028454
	0	135	0.036936
	10	147	0.040219
	20	108	0.029549
	30	126	0.034473
	40	128	0.035021
	55	150	0.041040

Chain 1:

Reference Frequency: Lowest channel=3655MHz(10MHz for QPSK)			
Power supplied (Vdc)	Temperature (℃)	Frequency error	
		Hz	ppm
48.00	-35	159	0.043502
	-20	127	0.034747
	-10	110	0.030096
	0	126	0.034473
	10	129	0.035294
	20	130	0.035568
	30	111	0.030369
	40	147	0.040219
	55	140	0.038304
Reference Frequency: Lowest channel=3660MHz(20MHz for QPSK)			
Power supplied (Vdc)	Temperature (℃)	Frequency error	
		Hz	ppm
48.00	-35	150	0.041040
	-20	122	0.033379
	-10	111	0.030369
	0	139	0.038030
	10	144	0.039398
	20	112	0.030643
	30	123	0.033652
	40	124	0.033926
	55	153	0.041860

6.11 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part 90.213(a) and RSS 197 section 5.3
Test Method:	FCC Part 2.1055(a)(1)(b) and RSS Gen section 6.1.1
Limit:	FCC: Frequency range (MHz) / Fixed and base stations (±ppm) / Mobile stations (±ppm): Over 2 watts output power / 2 watts or less output power Below 25: 100 / 100 / 200 25–50: 20 / 20 / 50 72–76: 5 / / 50 150–174: 5 / 5 / 50 216–220: 1.0 / / 1.0 220–222: 0.1 / 1.5 / 1.5 421–512: 2.5 / 5 / 5 806–809: 1.0 / 1.5 / 1.5 809–824: 1.5 / 2.5 / 2.5 851–854: 1.0 / 1.5 / 1.5 854–869: 1.5 / 2.5 / 2.5 896–901: 0.1 / 1.5 / 1.5 902–928: 2.5 / 2.5 / 2.5 902–928: 2.5 / 2.5 / 2.5 929–930: 1.5 / / 935–940: 0.1 / 1.5 / 1.5 1427–1435: 300 / 300 / 300 Above 2450: / / / IC: The transmitter frequency stability limit shall be determined as follows: (a) The frequency offset shall be measured according to the procedure described in RSS-Gen andrecorded; (b) Using a resolution bandwidth of 1% of the occupied bandwidth, a reference point at the unwantedemission level specified in Section 5.7 on the emission mask of the lowest and highest channel shallbe selected, and the frequency at these points shall be recorded as fL and fH respectively. The applicant shall ensure frequency stability by showing that fL minus the frequency offset and fH plusthe frequency offset shall be within the 3650-3700 MHz band.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 25℃. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details, and all channels have been tested, only shows the worst channel data in this report.
Test results:	Passed
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

Measurement Data (the worst channel):

Chain 0:

Reference Frequency: Lowest channel=3655MHz(10MHz for QPSK)			
Temperature (℃)	Power supplied (Vdc)	Frequency error	
		Hz	ppm
25	42	99	0.027086
	48	85	0.023256
	58	74	0.020246
Reference Frequency: Lowest channel=3660MHz(20MHz for QPSK)			
Temperature (℃)	Power supplied (Vdc)	Frequency error	
		Hz	ppm
25	42	86	0.023497
	48	85	0.023224
	58	59	0.016120

Chain 1:

Reference Frequency: Lowest channel=3655MHz(10MHz for QPSK)			
Temperature (℃)	Power supplied (Vdc)	Frequency error	
		Hz	ppm
25	42	102	0.027907
	48	91	0.024897
	58	73	0.019973
Reference Frequency: Lowest channel=3660MHz(20MHz for QPSK)			
Temperature (℃)	Power supplied (Vdc)	Frequency error	
		Hz	ppm
25	42	90	0.024590
	48	88	0.024044
	58	64	0.017486