RF TEST REPORT

Report No.: SET2019-13393

Product: Industrial tablet

FCC ID: 2AC6AP80B

Model No.: P80

Applicant: Shenzhen Chainway Information Technology Co.,Ltd.

Address: 9/F, Building 2, Daqian Industrial Park, Longchang Rd., District 67, Bao'an, Shenzhen, China

Dates of Testing: 10/01/2019 —01/15/2020

Issued by: CCIC Southern Testing Co., Ltd.

Lab Location: Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.

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Test Report

Product ..... : Industrial tablet

Brand Name..... : CHAINWAY

Trade Name ..... : CHAINWAY

Applicant ..... : Shenzhen Chainway Information Technology Co.,Ltd.

Applicant Address ..... : 9/F, Building 2, Daqian Industrial Park, Longchang Rd., District 67, Bao'an, Shenzhen, China

Manufacturer ..... : Shenzhen Chainway Information Technology Co.,Ltd.

Manufacturer Address ..... : 9/F, Building 2, Daqian Industrial Park, Longchang Rd., District 67, Bao'an, Shenzhen, China

Test Standards ..... : 47 CFR Part 2/22/24/27

Test Result.....: PASS

Tested by ..... : Vincent 2020.01.15

Vincent, Test Engineer

Reviewed by ..... : Chris You 2020.01.15

Chris You, Senior Engineer

Approved by ..... : Shuangwen Zhang 2020.01.15

Shuangwen Zhang, Manager

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Change History		
Issue	Date	Reason for change
1.0	2020.01.15	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type	Industrial tablet
EUT supports Radios application	LTE Band 2/4/5/7/12/13/17
Frequency Range	LTE Band 2: 1850.7MHz~1909.3MHz LTE Band 4: 1710.7MHz~1754.3MHz LTE Band 5: 824.7MHz~848.3MHz LTE Band 7: 2502.5MHz~2567.5MHz LTE Band 12: 699.7MHz~715.3MHz LTE Band 13: 779.5MHz~784.5MHz LTE Band 17: 706.5MHz~713.5MHz
Maximum Output Power to Antenna	LTE Band 2: 22.51dBm LTE Band 4: 22.58dBm LTE Band 5: 22.97dBm LTE Band 7: 21.33dBm LTE Band 12: 22.97dBm LTE Band 13: 23.15dBm LTE Band 17: 23.16dBm
Bandwidth	LTE Band 2: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz LTE Band 4: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz LTE Band 5: 1.4MHz/3MHz/5MHz/10MHz LTE Band 7: 5MHz/10MHz/15MHz/20MHz LTE Band 12: 1.4MHz/3MHz/5MHz/10MHz LTE Band 13: 5MHz/10MHz LTE Band 17: 5MHz/10MHz
Modulation Type	QPSK/16QAM/64QAM(downlink only)
Antenna Type	Internal Antenna
Antenna Gain	LTE Band 2:2.04dBi, LTE Band 4: 1.37dBi LTE Band 5: 2.04dBi, LTE Band 7: 2.04dBi LTE Band 12: -2.71dBi, LTE Band 13:-3.13dBi LTE Band 17: -2.38dBi
Power supply	DC 3.8V from battery DC 5V from adapter

1.2 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

Band	Type of Modulation	BW (MHz)	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP/EIRP(W)
LTE Band 2	QPSK	1.4	1M09G7D	—	0.215
LTE Band 2	16QAM	1.4	1M09W7D	—	0.212
LTE Band 2	QPSK	3	2M68G7D	—	0.198
LTE Band 2	16QAM	3	2M68W7D	—	0.196
LTE Band 2	QPSK	5	4M49G7D	—	0.143
LTE Band 2	16QAM	5	4M48W7D	—	0.144
LTE Band 2	QPSK	10	8M91G7D	-0.005	0.148
LTE Band 2	16QAM	10	8M91W7D	—	0.156
LTE Band 2	QPSK	15	13M4G7D	—	0.126
LTE Band 2	16QAM	15	13M4W7D	—	0.126
LTE Band 2	QPSK	20	17M8G7D	—	0.161
LTE Band 2	16QAM	20	17M8W7D	—	0.162
LTE Band 4	QPSK	1.4	1M09G7D	__	0.110
LTE Band 4	16QAM	1.4	1M09W7D	__	0.089
LTE Band 4	QPSK	3	2M68G7D	__	0.111
LTE Band 4	16QAM	3	2M68W7D	__	0.126
LTE Band 4	QPSK	5	4M48G7D	__	0.149
LTE Band 4	16QAM	5	4M48W7D	__	0.128
LTE Band 4	QPSK	10	8M90G7D	-0.003	0.118
LTE Band 4	16QAM	10	8M90W7D	__	0.102
LTE Band 4	QPSK	15	13M4G7D	__	0.092
LTE Band 4	16QAM	15	13M4W7D	__	0.075
LTE Band 4	QPSK	20	17M8G7D	__	0.094

LTE Band 4	16QAM	20	17M8W7D	—	0.078
LTE Band 5	QPSK	1.4	1M09G7D	—	0.131
LTE Band 5	16QAM	1.4	1M09W7D	—	0.137
LTE Band 5	QPSK	3	2M68G7D	—	0.133
LTE Band 5	16QAM	3	2M68W7D	—	0.141
LTE Band 5	QPSK	5	4M48G7D	—	0.103
LTE Band 5	16QAM	5	4M48W7D	—	0.107
LTE Band 5	QPSK	10	8M90G7D	-0.007	0.106
LTE Band 5	16QAM	10	8M89W7D	—	0.104
LTE Band 7	QPSK	5	4M48G7D	—	0.160
LTE Band 7	16QAM	5	4M48W7D	—	0.102
LTE Band 7	QPSK	10	8M91G7D	-0.004	0.158
LTE Band 7	16QAM	10	8M91W7D	—	0.107
LTE Band 7	QPSK	15	13M4G7D	—	0.164
LTE Band 7	16QAM	15	13M4W7D	—	0.107
LTE Band 7	QPSK	20	17M8G7D	—	0.151
LTE Band 7	16QAM	20	17M8W7D	—	0.193
LTE Band 12	QPSK	1.4	1M09G7D	—	0.111
LTE Band 12	16QAM	1.4	1M09W7D	—	0.091
LTE Band 12	QPSK	3	2M68G7D	—	0.158
LTE Band 12	16QAM	3	2M68W7D	—	0.093
LTE Band 12	QPSK	5	4M49G7D	—	0.115
LTE Band 12	16QAM	5	4M49W7D	—	0.094
LTE Band 12	QPSK	10	8M94G7D	-0.005	0.127
LTE Band 12	16QAM	10	8M93W7D	—	0.104
LTE Band 13	QPSK	5	4M47G7D	—	0.108
LTE Band 13	16QAM	5	4M47W7D	—	0.089
LTE Band 13	QPSK	10	8M87G7D	-0.006	0.110
LTE Band 13	16QAM	10	8M87W7D	—	0.091

LTE Band 17	QPSK	5	4M48G7D	—	0.146
LTE Band 17	16QAM	5	4M49W7D	—	0.093
LTE Band 17	QPSK	10	8M91G7D	-0.005	0.145
LTE Band 17	16QAM	10	8M91 W7D	—	0.098

1.3 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22, Part24, Part27，for the EUT FCC ID Certification:

1.47 CFR Part 2/22/24/27

2. ANSI C63.26:2015

3. FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01

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

No.	Section	Description	Limit	Result
1	2.1046	Conducted RF Output Power	Reporting Only	PASS
2	§24.232(d)	Peak to Average Radio	＜13dB	PASS
3	§22.913(a)(2)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS
	§24.232(c) §27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2/7)	EIRP < 2Watt	PASS
	§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12/13/17)	ERP < 3 Watt	PASS
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt	PASS
4	2.1049	Occupied Bandwidth	Reporting Only	PASS

5	2.1051 §22.917(a)5 §24.238(a)2 §27.53(c)(2)13 §27.53(g)1217 §27.53(h)4	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 17)	＜ 43+10log10(P[watt])	PASS
	27.53(m)(4)7	Conducted Band Edge Measurement (Band 7)	Refer to 27.53m(4) (LTE Band7)	
6	2.1051 §22.917(a)5 §24.238(a)2 §27.53(c)(2)13 §27.53(g)1217 §27.53(h)4	Conducted Spurious Emission Measurement (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 17)	＜ 43+10log10(P[watt])	PASS
	27.53(m)(4)7	Conducted Spurious Emission Measurement (Band 7)	55+10log10(P[watt]) (LTE Band 7)	
7	2.1051 §22.917(a)5 §24.238(a)2 §27.53(c)(2)13 §27.53 (f) §27.53(g)1217 §27.53(h)4	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 17)	＜ 43+10log10(P[watt]) Additional requirements for band 13 Refer to §27.53 (f)	PASS
	27.53(m)(4)7	Radiated Spurious Emission (Band 7)	55+10log10(P[watt]) (LTE Band 7)	
8	2.1055 22.335 24.235 27.54	Frequency Stability	＜2.5ppm	PASS

Remark：

1. All test items were verified and recorded according to the standards and without any deviation during the test.

2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.4 Test Configuration of Equipment Under Test

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth(MHz)						Modulation		RB#			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	4	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	5	√	√	√	√			√	√	√	√	√	√	√	√
	7			√	√	√	√	√	√	√	√	√	√	√	√
	12	√	√	√	√			√	√	√	√	√	√	√	√
	13			√	√			√	√	√	√	√	√	√	√
	17			√	√			√	√	√	√	√	√	√	√
Peak-to-Average Ratio	2				√				√	√		√	√	√	√
	4				√				√	√		√	√	√	√
	5								√	√		√	√	√	√
	7								√	√		√	√	√	√
	12								√	√		√	√	√	√
	13								√	√		√	√	√	√
	17								√	√		√	√	√	√
26dB and 99% Bandwidth	2	√	√	√	√	√	√	√	√			√		√	
	4	√	√	√	√	√	√	√	√			√		√	
	5	√	√	√	√			√	√			√		√	
	7			√	√	√	√	√	√			√		√	
	12	√	√	√	√			√	√			√		√	
	13			√	√			√	√			√		√	
	17			√	√			√	√			√		√	
Conducted Band Edge	2	√	√	√	√	√	√	√	√	√		√	√		√
	4	√	√	√	√	√	√	√	√	√		√	√		√
	5	√	√	√	√			√	√	√		√	√		√
	7			√	√	√	√	√	√	√		√	√		√
	12	√	√	√	√			√	√	√		√	√		√
	13			√	√			√	√	√		√	√		√
	17			√	√			√	√	√		√	√		√
Conducted Spurious Emission	2	√	√	√	√	√	√	√		√			√	√	√
	4	√	√	√	√	√	√	√		√			√	√	√

	5	√	√	√	√			√		√			√	√	√
	7			√	√	√	√	√		√			√	√	√
	12	√	√	√	√			√		√			√	√	√
	13			√				√		√			√	√	√
	17			√				√		√			√	√	√
Frequency Stability	2				√			√				√		√	
	4				√			√				√		√	
	5				√			√				√		√	
	7				√			√				√		√	
	12				√			√				√		√	
	13				√			√				√		√	
	17				√			√				√		√	
ERP/EIRP	2	√	√	√	√	√	√	√	√	√			√	√	√
	4	√	√	√	√	√	√	√	√	√			√	√	√
	5	√	√	√	√			√	√	√			√	√	√
	7			√	√	√	√	√	√	√			√	√	√
	12	√	√	√	√			√	√	√			√	√	√
	13			√	√			√	√	√			√	√	√
	17			√	√			√	√	√			√	√	√
Radiated Spurious Emission	2	Worst case												√	
	4	Worst case												√	
	5	Worst case												√	
	7	Worst case												√	
	12	Worst case												√	
	13	Worst case												√	
	17	Worst case												√	
Note	1. The mark "√" means that this configuration is chosen for testing. 2.The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. For E.R.P/E.I.R.P. measurement, the widest bandwidth and the bandwidth with the highest conducted power of each band is chosen for testing. Besides, the lowest bandwidth of each band is also measured for reporting only.														

1.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 7dB and 10dB attenuator.

Example:

Offset (dB) = RF cable loss(dB) + attenuator factor(dB).
= 7 + 10 = 17 (dB)

1.6 Facilities and Accreditations

1.6.1 Test Facilities

CNAS-Lab Code: L1659

CCIC-SET is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

FCC-Registration No.: CN5031

CCIC Southern 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 our files. Designation Number: CN5031, valid time is until December 31, 2020.

ISED Registration: 11185A-1

CAB identifier: CN0064

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Dec. 03, 2020.

NVLAP Lab Code: 201008-0

CCIC-SET is a third party testing organization accredited by NVLAP according to ISO/IEC 17025. The accreditation certificate number is 201008-0.

1.6.2 Test Environment Conditions

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

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

2. 47 CFR PART 2 REQUIREMENTS

2.1 Conducted RF Output Power

2.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

2.1.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.1.3 Test Setup

2.1.4 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

2.1.5 Test Results

Please refer to Appendix A for detail

2.2 Peak to Average Radio

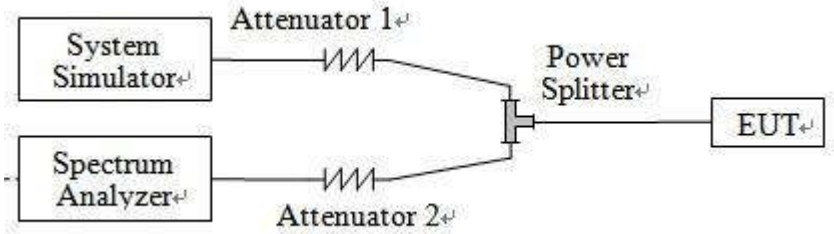
2.2.1 Definition

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

2.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

2.2.3 Test Description



2.2.4 Test Procedures

1. The EUT was connected to spectrum and system simulator via a power divider.
2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
4. Record the deviation as Peak to Average Ratio.

2.2.5 Test Results of Peak-to-Average Ratio

Please refer to Appendix A for detail

2.3 99% Occupied Bandwidth and 26dB Bandwidth

2.3.1 Definition

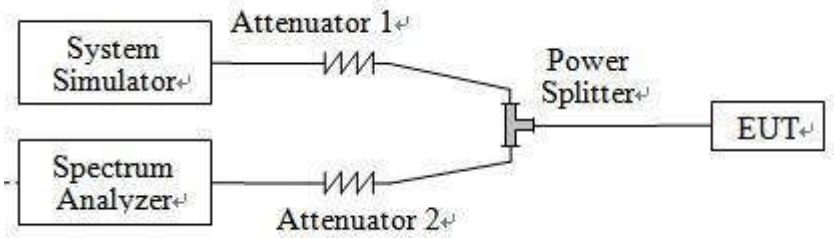
According to FCC section 2.1049, the occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

2.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

2.3.3 Test Setup



2.3.4 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The 26dB and 99% occupied bandwidth (BW) of the middle channel for the highest RF power with full RB sizes were measured.

2.3.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

Please refer to Appendix A for detail

2.4 Frequency Stability

2.4.1 Requirement

According to FCC requirement, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency. According to FCC section 2.1055, the test conditions are:

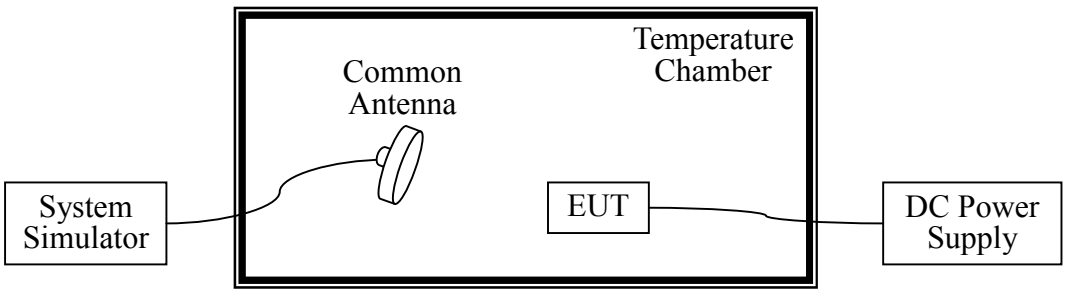
(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.

(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.4.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.4.3 Test Setup



2.4.4 Test Procedures

1. The EUT was set up in the thermal chamber and connected with the system simulator.

2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized

before testing. Power was applied and the maximum change in frequency was recorded within one minute.

3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
4. The nominal, highest and lowest extreme voltages were tested, which are specified by the applicant; the normal temperature here used is 25°C.
5. The variation in frequency was measured for the worst case.

2.4.5 Test Result of Frequency Stability

Please refer to Appendix A for detail

2.5 Conducted Out of Band Emissions

2.5.1 Requirement

For Band 2/4/5/12/17

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7:

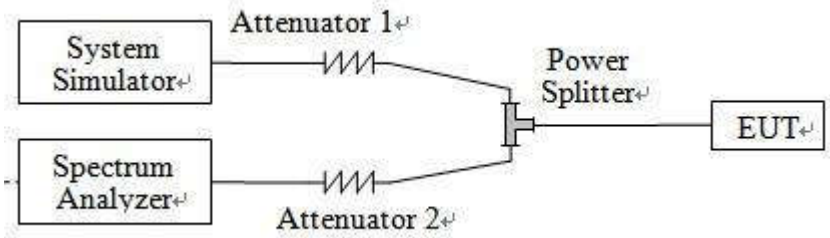
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

2.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

2.5.3 Test Setup



2.5.4 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.

4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. For Band 2/4/5/12/13/17

   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [43 + 10log(P)] (dB)

   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

   = -13dBm.
8. For Band 7

   The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [55 + 10log(P)] (dB)

   = [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)

   = -25dBm.
9. For 9KHz to 30MHz: the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

2.5.5 Test Result of Conducted Spurious Emission

Please refer to Appendix A for detail

2.6 Conducted Band Edge

2.6.1 Description of Conducted Band Edge Measurement

22.917(a)

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

24.238(a)

For operations in the 1850 -1910 MHz band, the FCC limit is 43 + 10log10 (P [Watts]) dB below the transmitter power P(Watts) in a 1MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to a 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.

27.53(h)

For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz 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.

27.53(g)

For operations in the 698 – 746 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100kHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least 30kHz may be employed.

27.53(c)

For operations 776-788 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100kHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least 30kHz may be employed.

27.53m(4)

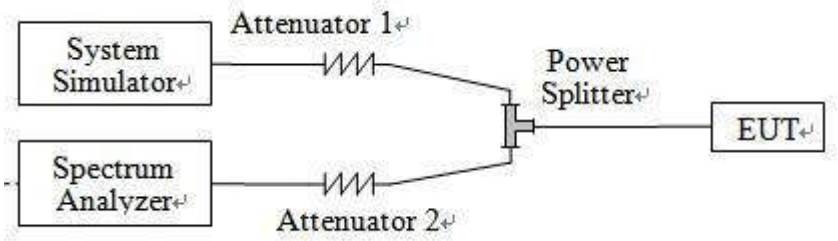
For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition,

the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

2.6.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.6.3 Test Setup



2.6.4 Test Procedures

1. The testing follows FCC KDB 971168 v03r01 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
9. For LTE Band 7 the other 40 dB, and 55 dB have additionally applied same calculation above.

2.6.5 Test Result of Conducted Band Edge

Please refer to Appendix A for detail

2.7 Transmitter Radiated Power (EIRP/ERP)

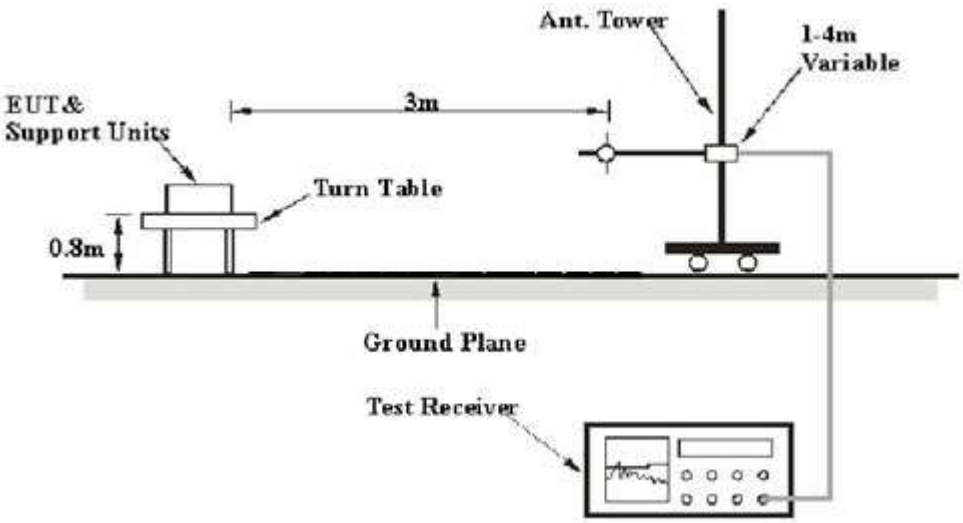
2.7.1 Requirement

Effective radiated power output measurements by substitution method according to ANSI C63.26:2015. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts for LTE band 5 , 3 watts for LTE band 12/13/17.
Equivalent isotropic radiated power output measurements by substitution method according to ANSI C63.26:2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v03r01. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts for LTE band 2 /7 , 1 watt for LTE band 4.

2.7.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.7.3 Test Setup



2.7.4 Test Procedures

1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the

antenna tower.

3. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer which used a channel power option across EUT's signal bandwidth per section 4.0 of KDB 971168 D01v03r01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10. ERP/EIRP = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs

    Ps (dBm)：Input power to substitution antenna.

    Gs (dBi or dBd)：Substitution antenna Gain.

    Et = Rt + AF

    Es = Rs + AF

    AF (dB/m)：Receive antenna factor

    Rt：The highest received signal in spectrum analyzer for EUT.

    Rs：The highest received signal in spectrum analyzer for substitution antenna.

2.7.5 Test Result of ERP/EIRP

1. LTE Band 2 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	Verdict
			RB Size	RB Offset			
2	1.4	QPSK	1	3	1850.7	22.96	PASS
2	1.4	QPSK	1	3	1880	23.33	PASS
2	1.4	QPSK	1	3	1909.3	23.01	PASS
2	1.4	16QAM	1	0	1850.7	22.10	PASS
2	1.4	16QAM	1	0	1880	22.60	PASS
2	1.4	16QAM	1	0	1909.3	23.27	PASS
2	3	QPSK	1	8	1851.5	22.64	PASS
2	3	QPSK	1	8	1880	22.68	PASS
2	3	QPSK	1	8	1908.5	22.96	PASS
2	3	16QAM	1	0	1851.5	22.92	PASS
2	3	16QAM	1	0	1880	22.89	PASS
2	3	16QAM	1	0	1908.5	22.90	PASS
2	5	QPSK	1	0	1852.5	21.56	PASS
2	5	QPSK	1	0	1880	21.53	PASS
2	5	QPSK	1	0	1907.5	21.55	PASS
2	5	16QAM	1	24	1852.5	21.59	PASS
2	5	16QAM	1	24	1880	21.58	PASS
2	5	16QAM	1	24	1907.5	21.56	PASS
2	10	QPSK	1	49	1855	21.68	PASS
2	10	QPSK	1	49	1880	21.70	PASS
2	10	QPSK	1	49	1905	21.67	PASS
2	10	16QAM	1	0	1855	21.93	PASS
2	10	16QAM	1	0	1880	21.91	PASS
2	10	16QAM	1	0	1905	21.94	PASS
2	15	QPSK	1	74	1857.5	20.97	PASS
2	15	QPSK	1	74	1880	20.94	PASS
2	15	QPSK	1	74	1902.5	20.99	PASS
2	15	16QAM	1	0	1857.5	21.01	PASS
2	15	16QAM	1	0	1880	20.99	PASS
2	15	16QAM	1	0	1902.5	21.02	PASS
2	20	QPSK	1	0	1860	22.04	PASS
2	20	QPSK	1	0	1880	22.06	PASS
2	20	QPSK	1	0	1900	22.05	PASS
2	20	16QAM	1	0	1860	22.09	PASS
2	20	16QAM	1	0	1880	22.06	PASS
2	20	16QAM	1	0	1900	21.96	PASS

2. LTE Band 4 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	Verdict
			RB Size	RB Offset			
4	1.4	QPSK	1	0	1710.7	20.35	PASS
4	1.4	QPSK	1	0	1732.5	20.43	PASS
4	1.4	QPSK	1	0	1754.3	20.38	PASS
4	1.4	16QAM	1	3	1710.7	19.45	PASS
4	1.4	16QAM	1	3	1732.5	19.48	PASS
4	1.4	16QAM	1	3	1754.3	19.45	PASS
4	3	QPSK	1	0	1711.5	20.46	PASS
4	3	QPSK	1	0	1732.5	20.47	PASS
4	3	QPSK	1	0	1753.5	20.45	PASS
4	3	16QAM	1	14	1711.5	21.01	PASS
4	3	16QAM	1	14	1732.5	20.99	PASS
4	3	16QAM	1	14	1753.5	20.97	PASS
4	5	QPSK	1	0	1712.5	21.70	PASS
4	5	QPSK	1	0	1732.5	21.69	PASS
4	5	QPSK	1	0	1752.5	21.72	PASS
4	5	16QAM	1	0	1712.5	21.08	PASS
4	5	16QAM	1	0	1732.5	21.04	PASS
4	5	16QAM	1	0	1752.5	21.06	PASS
4	10	QPSK	1	0	1715	20.71	PASS
4	10	QPSK	1	0	1732.5	20.69	PASS
4	10	QPSK	1	0	1750	20.68	PASS
4	10	16QAM	1	24	1715	20.05	PASS
4	10	16QAM	1	24	1732.5	20.07	PASS
4	10	16QAM	1	24	1750	20.04	PASS
4	15	QPSK	1	74	1717.5	19.61	PASS
4	15	QPSK	1	74	1732.5	19.64	PASS
4	15	QPSK	1	74	1747.5	19.62	PASS
4	15	16QAM	1	74	1717.5	18.75	PASS
4	15	16QAM	1	74	1732.5	18.70	PASS
4	15	16QAM	1	74	1747.5	18.72	PASS
4	20	QPSK	1	0	1720	19.68	PASS
4	20	QPSK	1	0	1732.5	19.71	PASS
4	20	QPSK	1	0	1745	19.73	PASS
4	20	16QAM	1	0	1720	18.82	PASS
4	20	16QAM	1	0	1732.5	18.85	PASS
4	20	16QAM	1	0	1745	18.92	PASS

3. LTE Band 5 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	Verdict
			RB Size	RB Offset			
5	1.4	QPSK	1	3	824.7	21.13	PASS
5	1.4	QPSK	1	3	836.5	21.16	PASS
5	1.4	QPSK	1	3	848.3	21.15	PASS
5	1.4	16QAM	1	3	824.7	21.20	PASS
5	1.4	16QAM	1	3	836.5	21.18	PASS
5	1.4	16QAM	1	3	848.3	21.37	PASS
5	3	QPSK	1	0	825.5	21.20	PASS
5	3	QPSK	1	0	836.5	21.24	PASS
5	3	QPSK	1	0	847.5	21.22	PASS
5	3	16QAM	1	0	825.5	21.48	PASS
5	3	16QAM	1	0	836.5	21.45	PASS
5	3	16QAM	1	0	847.5	21.46	PASS
5	5	QPSK	1	0	826.5	20.13	PASS
5	5	QPSK	1	0	836.5	20.10	PASS
5	5	QPSK	1	0	846.5	20.11	PASS
5	5	16QAM	1	0	826.5	20.28	PASS
5	5	16QAM	1	0	836.5	20.25	PASS
5	5	16QAM	1	0	846.5	20.26	PASS
5	10	QPSK	1	49	829.0	19.98	PASS
5	10	QPSK	1	49	836.5	19.99	PASS
5	10	QPSK	1	49	844.0	20.25	PASS
5	10	16QAM	1	0	829.0	19.58	PASS
5	10	16QAM	1	0	836.5	20.17	PASS
5	10	16QAM	1	0	844.0	20.04	PASS

4.LTE Band 7 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	Verdict
			RB Size	RB Offset			
7	5	QPSK	1	12	2502.5	21.93	PASS
7	5	QPSK	1	0	2535	21.97	PASS
7	5	QPSK	1	24	2567.5	22.03	PASS
7	5	16QAM	1	24	2502.5	20.09	PASS
7	5	16QAM	1	24	2535	20.02	PASS
7	5	16QAM	1	0	2567.5	20.07	PASS
7	10	QPSK	1	24	2505	22.00	PASS
7	10	QPSK	1	49	2535	21.95	PASS
7	10	QPSK	1	24	2565	21.90	PASS
7	10	16QAM	1	24	2505	20.31	PASS
7	10	16QAM	1	49	2535	20.24	PASS
7	10	16QAM	1	24	2565	20.22	PASS
7	15	QPSK	1	37	2507.5	22.12	PASS
7	15	QPSK	1	74	2535	22.14	PASS
7	15	QPSK	1	0	2562.5	22.08	PASS
7	15	16QAM	1	37	2507.5	20.25	PASS
7	15	16QAM	1	18	2535	20.30	PASS
7	15	16QAM	1	0	2562.5	20.28	PASS
7	20	QPSK	1	0	2510	21.72	PASS
7	20	QPSK	1	0	2535	21.80	PASS
7	20	QPSK	1	0	2560	21.78	PASS
7	20	16QAM	1	0	2510	22.83	PASS
7	20	16QAM	1	0	2535	22.77	PASS
7	20	16QAM	1	0	2560	22.86	PASS

5.LTE Band 12 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	Verdict
			RB Size	RB Offset			
12	1.4	QPSK	1	0	699.7	20.44	PASS
12	1.4	QPSK	1	0	707.5	20.42	PASS
12	1.4	QPSK	1	0	715.3	20.45	PASS
12	1.4	16QAM	1	0	699.7	19.60	PASS
12	1.4	16QAM	1	0	707.5	19.59	PASS
12	1.4	16QAM	1	0	715.3	19.57	PASS
12	3	QPSK	1	0	700.5	21.00	PASS
12	3	QPSK	1	0	707.5	21.99	PASS
12	3	QPSK	1	0	714.5	21.97	PASS
12	3	16QAM	1	8	700.5	19.65	PASS
12	3	16QAM	1	8	707.5	19.67	PASS
12	3	16QAM	1	8	714.5	19.68	PASS
12	5	QPSK	1	24	701.5	20.60	PASS
12	5	QPSK	1	24	707.5	20.58	PASS
12	5	QPSK	1	24	713.5	20.56	PASS
12	5	16QAM	1	0	701.5	19.70	PASS
12	5	16QAM	1	0	707.5	19.73	PASS
12	5	16QAM	1	0	713.5	19.72	PASS
12	10	QPSK	1	49	704	21.01	PASS
12	10	QPSK	1	49	707.5	21.03	PASS
12	10	QPSK	1	49	711	21.05	PASS
12	10	16QAM	1	0	704	20.18	PASS
12	10	16QAM	1	0	707.5	20.17	PASS
12	10	16QAM	1	0	711	20.14	PASS

6. LTE Band 13 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	Verdict
			RB Size	RB Offset			
13	5	QPSK	1	0	779.5	20.30	PASS
13	5	QPSK	1	0	782	20.33	PASS
13	5	QPSK	1	0	784.5	20.32	PASS
13	5	16QAM	1	24	779.5	19.50	PASS
13	5	16QAM	1	24	782	19.46	PASS
13	5	16QAM	1	24	784.5	19.48	PASS
13	10	QPSK	1	49	782	20.41	PASS
13	10	16QAM	1	0	782	19.57	PASS

7. LTE Band 17 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	Verdict
			RB Size	RB Offset			
17	5	QPSK	1	24	706.5	21.53	PASS
17	5	QPSK	1	24	710	21.57	PASS
17	5	QPSK	1	12	713.5	21.63	PASS
17	5	16QAM	1	24	706.5	19.69	PASS
17	5	16QAM	1	24	710	19.62	PASS
17	5	16QAM	1	12	713.5	19.67	PASS
17	10	QPSK	1	49	709	21.60	PASS
17	10	QPSK	1	49	710	21.55	PASS
17	10	QPSK	1	49	711	21.50	PASS
17	10	16QAM	1	24	709	19.91	PASS
17	10	16QAM	1	49	710	19.84	PASS
17	10	16QAM	1	24	711	19.82	PASS

2.8 Radiated Out of Band Emissions

2.8.1 Requirement

For Band 2/4/5/12/13/17

The radiated spurious emission was measured by substitution method according to ANSI C63.26:2015. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For band 13 Additional requirements: For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

For Band 7

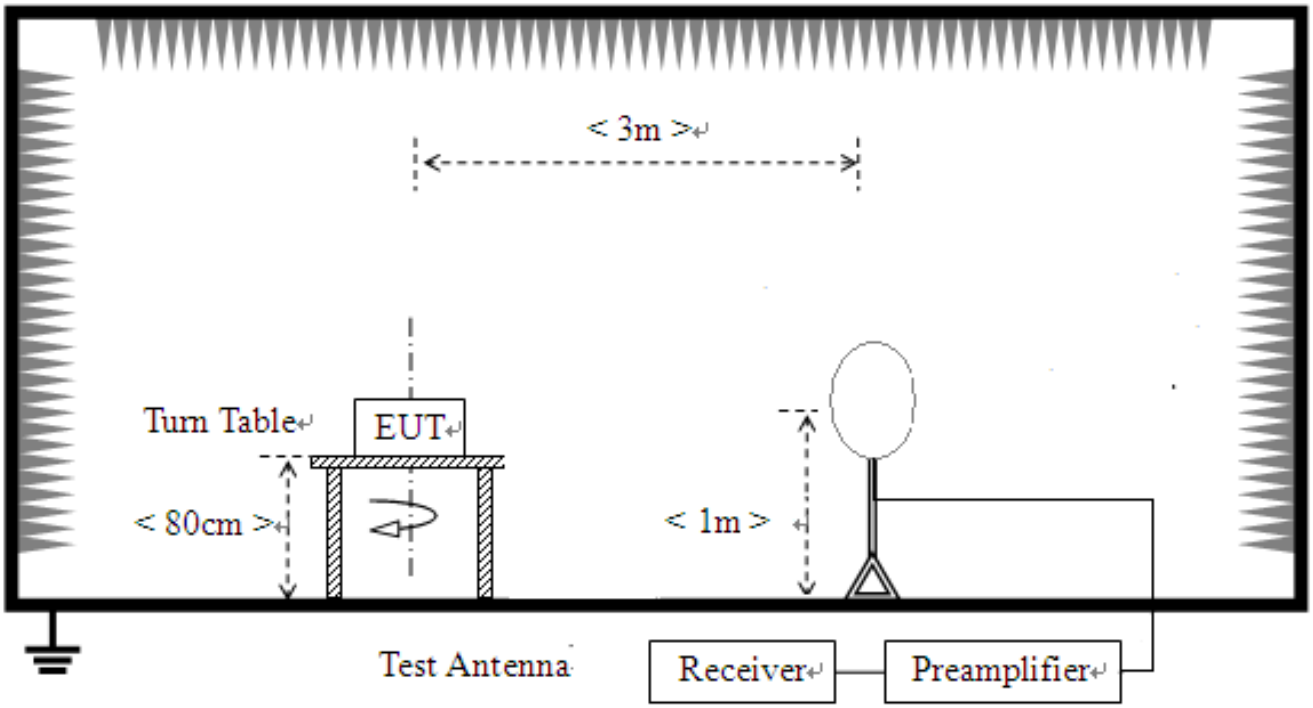
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

2.8.2 Measuring Instruments

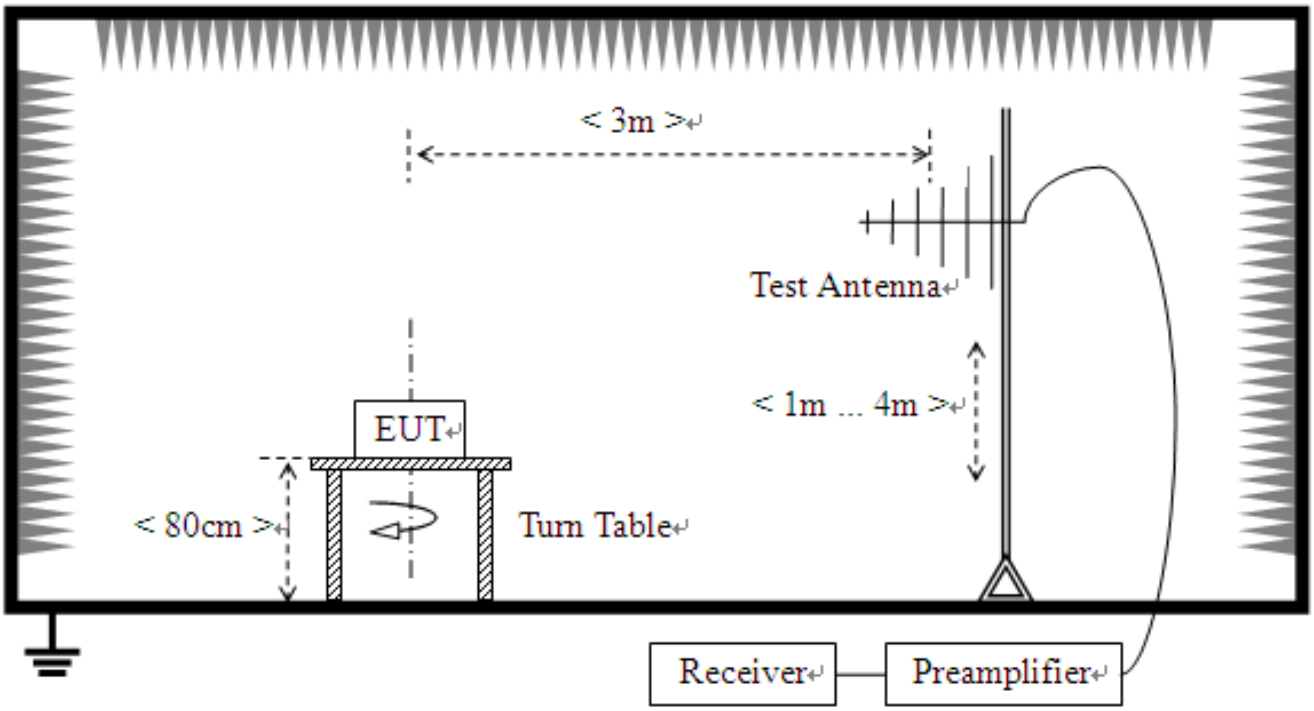
The measuring equipment is listed in the section 3 of this test report.

2.8.3 Test Setup

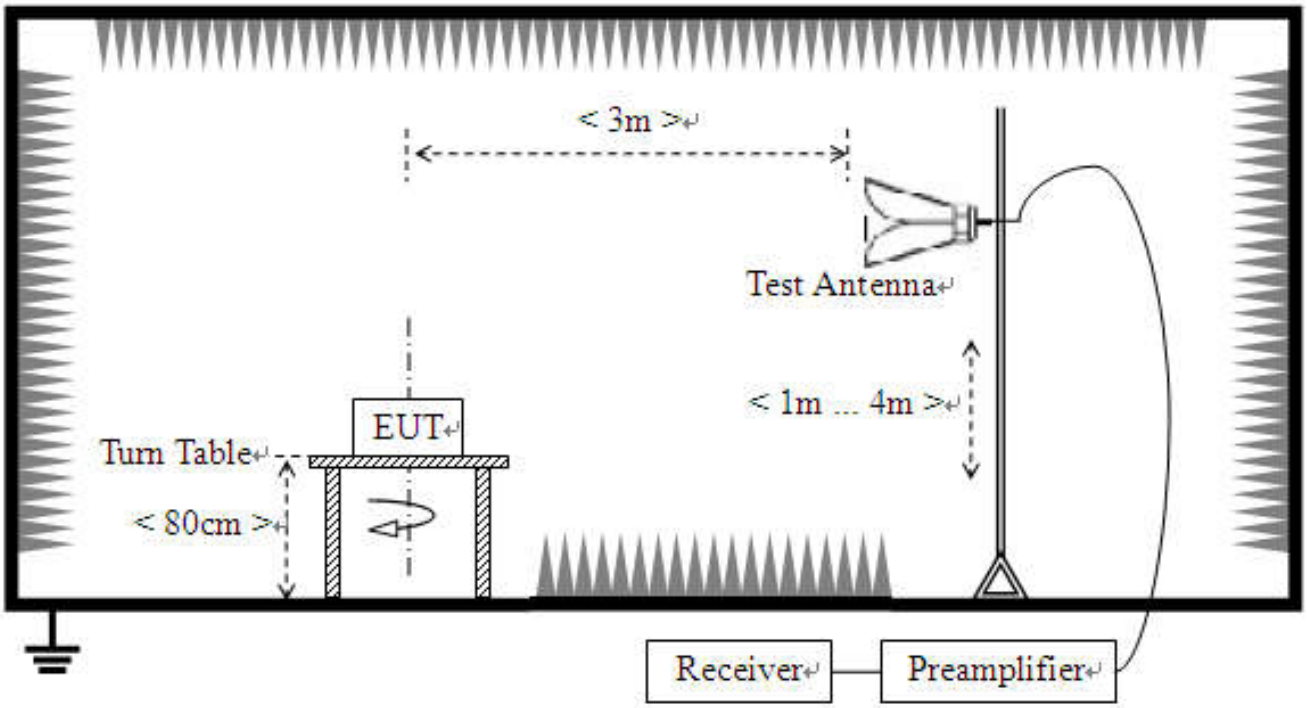
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.8.4 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 /1.5meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. <For Band 2/4/5/12/13/17>

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

= P(W)- [43 + 10log(P)] (dB)

= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

= -13dBm.

<For Band 7>

The limit line is derived from 55+ 10log(P)dB below the transmitter power P(Watts)

= P(W)- [55 + 10log(P)] (dB)

= [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)

= -25dBm.

11. All Spurious Emission tests were performed in X, Y, Z axis direction and low, middle, high channel. And only the worst axis test condition was recorded in this test report.
12. The spectrum is measured from 9 KHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. The worst case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
13. The maximum RB configurations of the Radiated Spurious Emissions as RB Size 1, RB Offset 0

2.8.5 Test Result (Plots) of Radiated Spurious Emission

Note: 1. within 30MHz-1GHz were found more than 20dB below limit line which are not reported

Note: 2. Absolute Level=Reading Level + Factor

LTE Band 2 QPSK 20MHz BW Middle Channel

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	38.7387	-97.20	-75.86	-13.00	62.86	21.34	Horizontal
2	61.0711	-92.04	-73.42	-13.00	60.42	18.62	Horizontal
3	124.1842	-96.74	-77.60	-13.00	64.60	19.14	Horizontal
4	503.8338	-104.39	-73.74	-13.00	60.74	30.65	Horizontal
5	4005.5028	-54.02	-45.13	-13.00	32.13	8.89	Horizontal
6	6390.1951	-54.62	-40.05	-13.00	27.05	14.57	Horizontal
7	12051.025	-56.66	-37.18	-13.00	24.18	19.48	Horizontal

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	34.8549	-94.73	-74.42	-13.00	61.42	20.31	Vertical
2	66.8969	-93.66	-73.57	-13.00	60.57	20.09	Vertical
3	4017.5088	-53.70	-45.14	-13.00	32.14	8.56	Vertical
4	6624.3122	-53.85	-39.85	-13.00	26.85	14.00	Vertical
5	11066.533	-57.12	-38.44	-13.00	25.44	18.68	Vertical
6	14008.004	-58.61	-35.15	-13.00	22.15	23.46	Vertical

Note:other spurious emissions are 20dB below limit line and no need to report

LTE Band 4 QPSK 20MHz BW Middle Channel

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	34.8549	-97.64	-75.37	-13.00	62.37	22.27	Horizontal
2	63.9840	-93.38	-74.77	-13.00	61.77	18.61	Horizontal
3	832.9930	-104.50	-69.83	-13.00	56.83	34.67	Horizontal
4	4079.0395	-53.90	-45.34	-13.00	32.34	8.56	Horizontal
5	6714.3572	-54.98	-40.60	-13.00	27.60	14.38	Horizontal
6	12873.436	-57.14	-36.51	-13.00	23.51	20.63	Horizontal

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	34.8549	-95.94	-75.58	-13.00	62.58	20.36	Vertical
2	63.9840	-93.53	-73.70	-13.00	60.70	19.83	Vertical
3	124.1842	-95.97	-74.60	-13.00	61.60	21.37	Vertical
4	3844.9225	-54.13	-45.68	-13.00	32.68	8.45	Vertical
5	7224.6123	-54.87	-40.95	-13.00	27.95	13.92	Vertical
6	13629.814	-56.59	-36.07	-13.00	23.07	20.52	Vertical

Note:other spurious emissions are 20dB below limit line and no need to report

LTE Band 5 QPSK 10MHz BW Middle Channel

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	34.8549	-99.00	-76.73	-13.00	63.73	22.27	Horizontal
2	66.8969	-90.22	-71.63	-13.00	58.63	18.59	Horizontal
3	124.1842	-98.65	-79.51	-13.00	66.51	19.14	Horizontal
4	3225.1126	-54.45	-45.90	-13.00	32.90	8.55	Horizontal
5	3972.4862	-54.51	-45.77	-13.00	32.77	8.74	Horizontal
6	6468.2341	-54.51	-39.66	-13.00	26.66	14.85	Horizontal

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	63.9840	-94.23	-74.45	-13.00	61.45	19.78	Vertical
2	82.4324	-96.60	-74.80	-13.00	61.80	21.80	Vertical
3	3049.5248	-52.85	-46.29	-13.00	33.29	6.56	Vertical
4	3876.4382	-53.59	-45.34	-13.00	32.34	8.25	Vertical
5	6486.2431	-54.71	-40.67	-13.00	27.67	14.04	Vertical
6	10814.407	-55.50	-37.48	-13.00	24.48	18.02	Vertical

Note:other spurious emissions are 20dB below limit line and no need to report

LTE Band 7 QPSK 10MHz BW Middle Channel

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	5077.0385	-43.55	-32.90	-25	7.9	10.65	Horizontal
2	7614.8074	-56.70	-39.98	-25	14.98	16.72	Horizontal
3	10154.077	-58.23	-36.23	-25	11.23	22.00	Horizontal
4	12693.346	-59.09	-33.40	-25	8.4	25.69	Horizontal
5	15232.616	-61.96	-31.93	-25	6.93	30.03	Horizontal
6	17771.885	-61.80	-27.57	-25	2.57	34.23	Horizontal

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	5077.0385	-47.55	-37.25	-25	12.25	10.30	Vertical
2	7614.8074	-56.65	-40.79	-25	15.79	15.86	Vertical
3	10154.077	-49.71	-28.01	-25	3.01	21.70	Vertical
4	12693.346	-59.01	-32.73	-25	7.73	26.28	Vertical
5	15232.616	-62.44	-32.07	-25	7.07	30.37	Vertical
6	17771.885	-60.34	-26.03	-25	1.03	34.31	Vertical

LTE Band 12 QPSK 10MHz BW Middle Channel

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	38.7387	-97.25	-75.91	-13.00	62.91	21.34	Horizontal
2	65.9259	-92.77	-74.18	-13.00	61.18	18.59	Horizontal
3	124.1842	-97.60	-78.46	-13.00	65.46	19.14	Horizontal
4	3154.5773	-53.96	-45.94	-13.00	32.94	8.02	Horizontal
5	6294.1471	-54.50	-39.96	-13.00	26.96	14.54	Horizontal
6	14020.010	-59.23	-35.74	-13.00	22.74	23.49	Horizontal

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	63.0130	-95.01	-75.33	-13.00	62.33	19.68	Vertical
2	82.4324	-98.35	-76.55	-13.00	63.55	21.80	Vertical
3	124.1842	-96.75	-75.47	-13.00	62.47	21.28	Vertical
4	3201.1006	-55.52	-46.37	-13.00	33.37	9.15	Vertical
5	6414.2071	-54.94	-40.67	-13.00	27.67	14.27	Vertical
6	12303.151	-57.77	-38.11	-13.00	25.11	19.66	Vertical

Note:other spurious emissions are 20dB below limit line and no need to report

` LTE Band 13 QPSK 10MHz BW Middle Channel

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	34.8549	-98.47	-76.20	-13.00	63.20	22.27	Horizontal
2	64.9550	-94.08	-75.48	-13.00	62.48	18.60	Horizontal
3	1575.4739	-55.98	-54.11	-40.00	14.11	1.87	Horizontal
4	2462.7314	-49.88	-46.76	-13.00	33.76	3.12	Horizontal
5	3241.6208	-53.13	-44.91	-13.00	31.91	8.22	Horizontal
6	3807.4037	-53.76	-44.97	-13.00	31.97	8.79	Horizontal
3	6876.4382	-55.80	-40.98	-13.00	27.98	14.82	Horizontal

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	34.8549	-96.65	-76.34	-13.00	63.34	20.31	Vertical
2	69.8098	-93.32	-72.92	-13.00	59.92	20.40	Vertical
3	124.1842	-96.18	-74.90	-13.00	61.90	21.28	Vertical
4	1575.5725	-56.47	-54.60	-40.00	14.60	1.87	Vertical
5	2460.7304	-50.85	-47.19	-13.00	34.19	3.66	Vertical
6	3201.1006	-53.77	-44.62	-13.00	31.62	9.15	Vertical
7	6936.4682	-54.32	-40.45	-13.00	27.45	13.87	Vertical

Note:other spurious emissions are 20dB below limit line and no need to report

` LTE Band 17 QPSK 10MHz BW Middle Channel

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	38.7387	-97.55	-76.21	-13.00	63.21	21.34	Horizontal
2	61.0711	-94.05	-75.43	-13.00	62.43	18.62	Horizontal
3	3264.1321	-53.99	-46.22	-13.00	33.22	7.77	Horizontal
4	3909.4547	-53.37	-45.01	-13.00	32.01	8.36	Horizontal
5	6798.3992	-54.61	-39.83	-13.00	26.83	14.78	Horizontal
6	14488.244	-58.63	-35.30	-13.00	22.30	23.33	Horizontal

NO.	Freq. [MHz]	Reading Level [dBm]	Absolute Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	34.8549	-96.67	-76.36	-13.00	63.36	20.31	Vertical
2	63.9840	-93.35	-73.57	-13.00	60.57	19.78	Vertical
3	124.1842	-96.76	-75.48	-13.00	62.48	21.28	Vertical
4	2449.7249	-53.95	-50.15	-13.00	37.15	3.80	Vertical
5	3199.5998	-53.63	-44.46	-13.00	31.46	9.17	Vertical
6	6582.2911	-54.75	-40.70	-13.00	27.70	14.05	Vertical

Note:other spurious emissions are 20dB below limit line and no need to report

3. LIST OF MEASURING EQUIPMENT

Description	Manufacturer	Model	Serial No.	Cal. Date	Due Date	Remark
EMI Test Receiver	R&S	ESIB26	A0304218	2019.05.20	2020.05.19	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2019.04.26	2022.04.25	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101341	2017.07.14	2020.07.13	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101339	2017.07.14	2020.07.13	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100150	2019.04.27	2022.04.26	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100149	2019.04.17	2022.04.16	Radiation
Horn antenna (18GHz~26.5GHz)	AR	AT4002A	305753	2017.07.12	2020.07.11	Radiation
Horn antenna (18GHz~26.5GHz)	AR	AT4003A	0329293	2018.09.17	2020.09.16	Radiation
Amplifier 1GHz-18GHz	AR	25S1G4AM1	22018	2018.09.17	2020.09.16	Radiation
Ampilier 20M~3GHz	MILMEGA	80RF1000-250	1064573	2017.10.09	2020.10.08	Radiation
Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2019.06.05	2020.06.04	Conducted
LISN	ROHDE&SCHWARZ	ESH2-Z5	A0304221	2019.04.30	2020.04.29	Conducted
Test Receiver	R&S	ESCS30	A0304260	2019.05.25	2020.05.24	Conducted
Temperature chamber	Dongguan gaoda instrument CO.LTD	GD-7005-100	130130101	2019.04.22	2020.04.21	Conducted
Wideband Radio Communication tester	R&S	CMW500	149332	2019.04.01	2020.03.31	Conducted
Power Supply	R&S	NGMO1	101037	2019.08.03	2020.08.02	Conducted

4. UNCERTAINTY OF EVALUATION

Uncertainty of Conducted Emission Measurement (150KHz~30MHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	2.6dB

Uncertainty of Radiated Emission Measurement (30MHz~1GHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	2.4dB

Uncertainty of Radiated Emission Measurement (1GHz~40GHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	2.8dB

APPENDIX A

Conducted RF (Average) Output Power

Test Result and Data

1. LTE Band 2 Conducted Power Test Verdict:

LTE FDD Band 2				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193
1.4MHz	QPSK	1	0	22.33	22.45	22.16
		1	3	22.32	22.42	22.14
		1	5	22.30	22.40	22.13
		3	0	21.23	21.30	21.29
		3	2	21.22	21.27	21.28
		3	3	21.19	21.23	21.24
		6	0	21.10	21.17	21.13
	16QAM	1	0	21.51	21.63	21.68
		1	3	21.46	21.61	21.65
		1	5	21.44	21.56	21.64
		3	0	20.82	20.83	20.88
		3	2	20.81	20.84	20.87
		3	3	20.80	20.81	20.85
		6	0	20.72	20.71	20.80
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185
3MHz	QPSK	1	0	22.35	22.46	22.17
		1	7	22.33	22.42	22.14
		1	14	22.31	22.40	22.12
		8	0	21.23	21.30	21.29
		8	4	21.22	21.29	21.28
		8	7	21.19	21.20	21.23
		15	0	21.10	21.16	21.16
	16QAM	1	0	21.50	21.61	21.70
		1	7	21.47	21.60	21.68
		1	14	21.44	21.56	21.66
		8	0	20.83	20.85	20.90
		8	4	20.84	20.84	20.92

		8	7	20.82	20.83	20.88
		15	0	20.70	20.72	20.82

Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175
5MHz	QPSK	1	0	22.36	22.47	22.18
		1	13	22.35	22.46	22.17
		1	24	22.33	22.42	22.14
		12	0	21.25	21.30	21.30
		12	6	21.23	21.30	21.29
		12	13	21.22	21.29	21.28
		25	0	21.20	21.23	21.26
	16QAM	1	0	21.64	21.67	21.82
		1	13	21.50	21.60	21.70
		1	24	21.50	21.61	21.70
		12	0	20.81	20.85	20.91
		12	6	20.83	20.85	20.90
		12	13	20.84	20.84	20.92
		25	0	20.70	20.73	20.80
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150
10MHz	QPSK	1	0	22.37	22.48	22.18
		1	25	22.35	22.46	22.17
		1	49	22.33	22.44	22.16
		25	0	21.25	21.31	21.30
		25	13	21.24	21.30	21.29
		25	25	21.22	21.28	21.28
		50	0	21.20	21.25	21.26
	16QAM	1	0	21.64	21.68	21.82
		1	25	21.50	21.60	21.71
		1	49	21.50	21.61	21.70
		25	0	20.81	20.84	20.92
		25	13	20.83	20.85	20.90
		25	25	20.84	20.86	20.92
		50	0	20.70	20.74	20.80

Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125
15MHz	QPSK	1	0	22.40	22.50	22.20
		1	38	22.35	22.47	22.18
		1	74	22.33	22.45	22.17
		36	0	21.26	21.32	21.30
		36	18	21.24	21.31	21.30
		36	39	21.21	21.30	21.28
		75	0	21.20	21.28	21.27
	16QAM	1	0	21.65	21.70	21.83
		1	38	21.51	21.60	21.72
		1	74	21.50	21.61	21.70
		36	0	20.81	20.87	20.92
		36	18	20.82	20.86	20.91
		36	39	20.85	20.88	20.94
		75	0	20.70	20.76	20.81
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100
20MHz	QPSK	1	0	22.41	22.51	22.22
		1	50	22.38	22.49	22.21
		1	99	22.35	22.47	22.21
		50	0	21.29	21.36	21.34
		50	25	21.27	21.35	21.34
		50	50	21.28	21.33	21.32
		100	0	21.24	21.30	21.31
	16QAM	1	0	21.66	21.71	21.85
		1	50	21.53	21.61	21.73
		1	99	21.55	21.6	21.72
		50	0	20.83	20.89	21
		50	25	20.84	20.88	20.97
		50	50	20.85	20.9	20.98
		100	0	20.71	20.77	20.87

2. LTE Band 4 Conducted Power Test Verdict:

LTE FDD Band 4				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393
1.4MHz	QPSK	1	0	21.42	21.51	21.45
		1	3	21.29	21.41	21.33
		1	5	21.31	21.4	21.32
		3	0	20.59	20.69	20.6
		3	2	20.6	20.68	20.57
		3	3	20.61	20.7	20.58
		6	0	20.47	20.57	20.47
	16QAM	1	0	20.29	20.36	20.34
		1	3	20.14	20.25	20.21
		1	5	20.27	20.33	20.33
		3	0	19.36	19.44	19.52
		3	2	19.44	19.54	19.55
		3	3	19.46	19.55	19.49
		6	0	19.34	19.45	19.34
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385
3MHz	QPSK	1	0	21.48	21.66	21.58
		1	7	21.35	21.56	21.46
		1	14	21.37	21.55	21.45
		8	0	20.65	20.84	20.73
		8	4	20.66	20.83	20.7
		8	7	20.67	20.85	20.71
		15	0	20.53	20.72	20.6
	16QAM	1	0	20.35	20.51	20.47
		1	7	20.2	20.4	20.34
		1	14	20.33	20.48	20.46
		8	0	19.42	19.59	19.65
		8	4	19.5	19.69	19.68
		8	7	19.52	19.7	19.62
		15	0	19.4	19.6	19.47

Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375
5MHz	QPSK	1	0	21.74	21.66	21.99
		1	13	21.61	21.56	21.87
		1	24	21.63	21.55	21.86
		12	0	20.91	20.84	21.14
		12	6	20.92	20.83	21.11
		12	13	20.93	20.85	21.12
		25	0	20.79	20.72	21.01
	16QAM	1	0	20.61	20.51	20.88
		1	13	20.46	20.4	20.75
		1	24	20.59	20.48	20.87
		12	0	19.68	19.59	20.06
		12	6	19.76	19.69	20.09
		12	13	19.78	19.7	20.03
		25	0	19.66	19.6	19.88
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350
10MHz	QPSK	1	0	22.15	22.24	22.11
		1	25	22.02	22.14	21.99
		1	49	22.04	22.13	21.98
		25	0	21.32	21.42	21.26
		25	13	21.33	21.41	21.23
		25	25	21.34	21.43	21.24
		50	0	21.2	21.3	21.13
	16QAM	1	0	21.02	21.09	21
		1	25	20.87	20.98	20.87
		1	49	21	21.06	20.99
		25	0	20.09	20.17	20.18
		25	13	20.17	20.27	20.21
		25	25	20.19	20.28	20.15
		50	0	20.07	20.18	20

Bandwidth	Modulation	RB size	RB offset	Channel 20025	Channel 20175	Channel 20325
15MHz	QPSK	1	0	22.34	22.27	22.31
		1	38	22.21	22.17	22.19
		1	74	22.23	22.16	22.18
		36	0	21.51	21.45	21.46
		36	18	21.52	21.44	21.43
		36	39	21.53	21.46	21.44
		75	0	21.39	21.33	21.33
	16QAM	1	0	21.21	21.12	21.2
		1	38	21.06	21.01	21.07
		1	74	21.19	21.09	21.19
		36	0	20.28	20.2	20.38
		36	18	20.36	20.3	20.41
		36	39	20.38	20.31	20.35
		75	0	20.26	20.21	20.2
Bandwidth	Modulation	RB size	RB offset	Channel 20050	Channel 20175	Channel 20300
20MHz	QPSK	1	0	22.49	22.47	22.58
		1	50	22.36	22.37	22.46
		1	99	22.38	22.36	22.45
		50	0	21.33	21.28	21.34
		50	25	21.25	21.18	21.11
		50	50	21.21	21.03	21.08
		100	0	21.21	21.16	21.21
	16QAM	1	0	21.36	21.32	21.47
		1	50	21.21	21.21	21.34
		1	99	21.34	21.29	21.46
		50	0	20.43	20.4	20.65
		50	25	20.51	20.5	20.68
		50	50	20.53	20.51	20.62
		100	0	20.41	20.41	20.47

3. LTE Band 5 Conducted Power Test Verdict:

LTE FDD Band 5				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel 20407	Channel 20525	Channel 20643
1.4MHz	QPSK	1	0	21.55	21.46	21.38
		1	3	21.42	21.35	21.27
		1	5	21.4	21.31	21.24
		3	0	20.74	20.6	20.52
		3	2	20.7	20.63	20.56
		3	3	20.71	20.62	20.51
		6	0	20.56	20.43	20.41
	16QAM	1	0	20.42	20.34	20.23
		1	3	20.31	20.19	20.12
		1	5	20.4	20.3	20.21
		3	0	19.51	19.42	19.4
		3	2	19.54	19.51	19.46
		3	3	19.6	19.53	19.37
		6	0	19.46	19.35	19.16
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635
3MHz	QPSK	1	0	21.75	21.68	21.61
		1	7	21.6	21.54	21.47
		1	14	21.64	21.55	21.46
		8	0	20.93	20.83	20.78
		8	4	20.94	20.86	20.8
		8	7	20.95	20.84	20.73
		15	0	20.77	20.71	20.62
	16QAM	1	0	20.63	20.55	20.44
		1	7	20.48	20.4	20.29
		1	14	20.6	20.49	20.41
		8	0	19.71	19.61	19.63
		8	4	19.77	19.73	19.72
		8	7	19.82	19.71	19.61
		15	0	19.67	19.55	19.37

Bandwidth	Modulation	RB size	RB offset	Channel 20425	Channel 20525	Channel 20625
5MHz	QPSK	1	0	22.25	22.45	22.61
		1	13	22.1	22.3	22.5
		1	24	22.12	22.33	22.46
		12	0	21.43	21.62	21.8
		12	6	21.44	21.61	21.77
		12	13	21.42	21.58	21.76
		25	0	21.28	21.46	21.613
	16QAM	1	0	21.11	21.33	21.45
		1	13	20.98	21.19	21.31
		1	24	21.06	21.31	21.38
		12	0	20.17	20.41	20.6
		12	6	20.3	20.47	20.73
		12	13	20.29	20.5	20.59
		25	0	20.14	20.39	20.35
Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600
10MHz	QPSK	1	0	22.8	22.97	22.96
		1	25	22.62	22.85	22.81
		1	49	22.64	22.85	22.85
		25	0	21.46	21.53	21.55
		25	13	21.08	21.33	21.43
		25	25	21.25	21.14	21.15
		50	0	21.33	21.4	21.37
	16QAM	1	0	21.67	21.82	21.81
		1	25	21.56	21.71	21.7
		1	49	21.62	21.74	21.78
		25	0	20.76	20.88	20.97
		25	13	20.81	20.93	21.05
		25	25	20.82	20.96	20.93
		50	0	20.69	20.79	20.71

4. LTE Band 7 Conducted Power Test Verdict:

LTE FDD Band 7				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425
5MHz	QPSK	1	0	20.85	20.71	20.79
		1	13	20.74	20.56	20.64
		1	24	20.72	20.58	20.68
		12	0	19.97	19.86	19.96
		12	6	20	19.9	19.93
		12	13	20.02	19.88	19.94
		25	0	19.86	19.68	19.85
	16QAM	1	0	19.74	19.59	19.63
		1	13	19.62	19.46	19.52
		1	24	19.69	19.54	19.62
		12	0	18.83	18.61	18.78
		12	6	18.86	18.75	18.87
		12	13	18.88	18.7	18.8
		25	0	18.77	18.55	18.68
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400
10MHz	QPSK	1	0	21.01	21.03	20.95
		1	25	20.9	20.88	20.8
		1	49	20.88	20.9	20.84
		25	0	20.13	20.18	20.12
		25	13	20.16	20.22	20.09
		25	25	20.18	20.2	20.1
		50	0	20.02	20	20.01
	16QAM	1	0	19.9	19.91	19.79
		1	25	19.78	19.78	19.68
		1	49	19.85	19.86	19.78
		25	0	18.99	18.93	18.94
		25	13	19.02	19.07	19.03
		25	25	19.04	19.02	18.96
		50	0	18.93	18.87	18.84
Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375
15MHz	QPSK	1	0	21.05	21.08	21.11

		1	38	20.94	20.93	20.96
		1	74	20.92	20.95	21
		36	0	20.17	20.23	20.28
		36	18	20.2	20.27	20.25
		36	39	20.22	20.25	20.26
		75	0	20.06	20.05	20.17
	16QAM	1	0	19.94	19.96	19.95
		1	38	19.82	19.83	19.84
		1	74	19.89	19.91	19.94
		36	0	19.03	18.98	19.1
		36	18	19.06	19.12	19.19
		36	39	19.08	19.07	19.12
		75	0	18.97	18.92	19
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350
20MHz	QPSK	1	0	21.25	21.33	21.18
		1	50	21.14	21.18	21.03
		1	99	21.12	21.2	21.07
		50	0	20.37	20.48	20.35
		50	25	20.4	20.52	20.32
		50	50	20.42	20.5	20.33
		100	0	20.26	20.3	20.24
	16QAM	1	0	20.14	20.21	20.02
		1	50	20.02	20.08	19.91
		1	99	20.09	20.16	20.01
		50	0	19.23	19.23	19.17
		50	25	19.26	19.37	19.26
		50	50	19.28	19.32	19.19
		100	0	19.17	19.17	19.07

5. LTE Band 12 Conducted Power Test Verdict:

LTE FDD Band 12				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel 23017	Channel 23095	Channel 23173
1.4MHz	QPSK	1	0	21.33	21.45	21.67
		1	3	21.21	21.33	21.55
		1	5	21.22	21.34	21.54
		3	0	20.48	20.63	20.85
		3	2	20.51	20.6	20.83
		3	3	20.45	20.64	20.84
		6	0	20.35	20.5	20.7
	16QAM	1	0	20.2	20.3	20.55
		1	3	20.09	20.19	20.42
		1	5	20.18	20.27	20.5
		3	0	19.25	19.35	19.71
		3	2	19.37	19.48	19.82
		3	3	19.36	19.45	19.74
		6	0	19.18	19.32	19.52
Bandwidth	Modulation	RB size	RB offset	Channel 23025	Channel 23095	Channel 23165
3MHz	QPSK	1	0	21.75	21.84	21.78
		1	7	21.63	21.72	21.66
		1	14	21.64	21.73	21.65
		8	0	20.9	21.02	20.96
		8	4	20.93	20.99	20.94
		8	7	20.87	21.03	20.95
		15	0	20.77	20.89	20.81
	16QAM	1	0	20.62	20.69	20.66
		1	7	20.51	20.58	20.53
		1	14	20.6	20.66	20.61
		8	0	19.67	19.74	19.82
		8	4	19.79	19.87	19.93
		8	7	19.78	19.84	19.85
		15	0	19.6	19.71	19.63

Bandwidth	Modulation	RB size	RB offset	Channel 23035	Channel 23095	Channel 23155
5MHz	QPSK	1	0	22.25	22.43	22.51
		1	13	22.13	22.31	22.39
		1	24	22.14	22.32	22.38
		12	0	21.4	21.61	21.69
		12	6	21.43	21.58	21.67
		12	13	21.37	21.62	21.68
		25	0	21.27	21.48	21.54
	16QAM	1	0	21.12	21.28	21.39
		1	13	21.01	21.17	21.26
		1	24	21.1	21.25	21.34
		12	0	20.17	20.33	20.55
		12	6	20.29	20.46	20.66
		12	13	20.28	20.43	20.58
		25	0	20.1	20.3	20.36
Bandwidth	Modulation	RB size	RB offset	Channel 23060	Channel 23095	Channel 23130
10MHz	QPSK	1	0	22.83	22.95	22.97
		1	25	22.71	22.83	22.85
		1	49	22.72	22.84	22.84
		25	0	21.16	21.27	21.24
		25	13	21.05	21.08	21.12
		25	25	21.01	21	21.09
		50	0	21.03	21.14	21.09
	16QAM	1	0	21.7	21.8	21.85
		1	25	21.59	21.69	21.72
		1	49	21.68	21.77	21.8
		25	0	20.75	20.85	21.01
		25	13	20.87	20.98	21.12
		25	25	20.86	20.95	21.04
		50	0	20.68	20.82	20.82

6. LTE Band 13 Conducted Power Test Verdict

LTE FDD Band 13				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel 23035	Channel 23095	Channel 23155
5MHz	QPSK	1	0	22.61	22.75	22.68
		1	13	22.49	22.63	22.56
		1	24	22.5	22.64	22.55
		12	0	21.76	21.93	21.86
		12	6	21.79	21.9	21.84
		12	13	21.73	21.94	21.85
		25	0	21.63	21.8	21.71
	16QAM	1	0	21.48	21.6	21.56
		1	13	21.37	21.49	21.43
		1	24	21.46	21.57	21.51
		12	0	20.53	20.65	20.72
		12	6	20.65	20.78	20.83
		12	13	20.64	20.75	20.75
		25	0	20.46	20.62	20.53
Bandwidth	Modulation	RB size	RB offset	Channel	Channel 23230	Channel
10MHz	QPSK	1	0		23.15	
		1	25		23.03	
		1	49		23.04	
		25	0		21.92	
		25	13		21.75	
		25	25		21.87	
		50	0		21.14	
	16QAM	1	0		22	
		1	25		21.89	
		1	49		21.97	
		25	0		21.05	
		25	13		21.18	
		25	25		21.15	
		50	0		21.02	

7. LTE Band 17 Conducted Power Test Verdict:

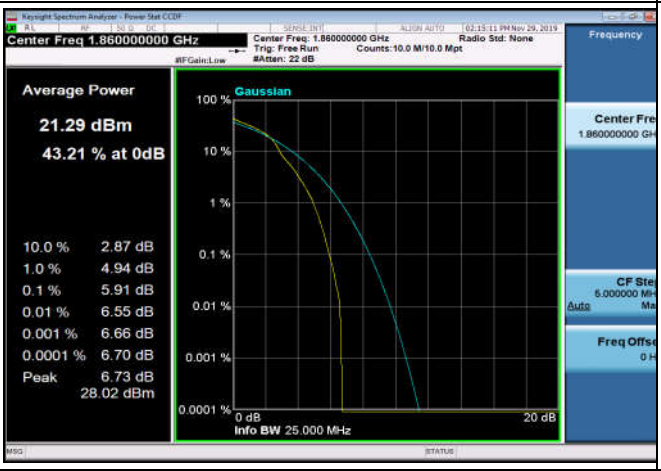
LTE FDD Band 17				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel 23755	Channel 23790	Channel 23825
5MHz	QPSK	1	0	22.41	22.38	22.55
		1	13	22.26	22.25	22.4
		1	24	22.23	22.23	22.36
		12	0	21.58	21.54	21.7
		12	6	21.53	21.55	21.66
		12	13	21.52	21.56	21.67
		25	0	21.47	21.39	21.56
	16QAM	1	0	21.29	21.21	21.42
		1	13	21.14	21.08	21.29
		1	24	21.24	21.16	21.34
		12	0	20.33	20.28	20.61
		12	6	20.44	20.17	20.66
		12	13	20.42	20.23	20.57
		25	0	20.29	19.36	20.33
Bandwidth	Modulation	RB size	RB offset	Channel 23780	Channel 23790	Channel 23800
10MHz	QPSK	1	0	22.85	23.16	22.88
		1	25	22.73	23.01	22.75
		1	49	22.71	23.03	22.73
		25	0	21.24	21.32	21.27
		25	13	21.15	21.25	21.18
		25	25	21.05	21.11	21.02
		50	0	21.12	21.2	21.15
	16QAM	1	0	21.72	22.01	21.77
		1	25	21.58	21.9	21.61
		1	49	21.7	21.99	21.72
		25	0	20.78	21.06	20.92
		25	13	20.89	20.98	21.03
		25	25	20.9	21.08	20.95
		50	0	20.79	20.18	20.72

Peak To Average Ratio

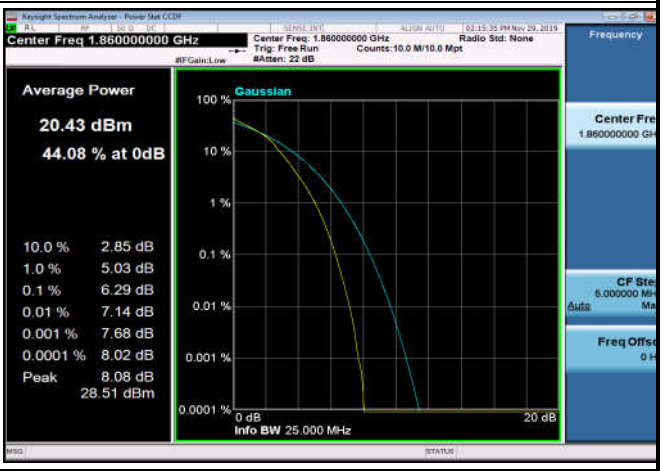
Test Result and Data

PeakToAveragePowerRatio NormalTC_NormalVol							
Band	Range	BandWidth	RbMode	Modulation	PAPR (dBm)	Limit (dBm)	Result
FDD02	LowRange	20	OneRB_high	Q16	5.91	13.00	Pass
FDD02	LowRange	20	fullRB	Q16	6.29	13.00	Pass
FDD02	MidRange	20	OneRB_high	Q16	5.62	13.00	Pass
FDD02	MidRange	20	fullRB	Q16	6.33	13.00	Pass
FDD02	HighRange	20	OneRB_high	Q16	5.46	13.00	Pass
FDD02	HighRange	20	fullRB	Q16	6.31	13.00	Pass
FDD04	LowRange	20	OneRB_high	Q16	5.58	13.00	Pass
FDD04	LowRange	20	fullRB	Q16	6.26	13.00	Pass
FDD04	MidRange	20	OneRB_high	Q16	5.78	13.00	Pass
FDD04	MidRange	20	fullRB	Q16	6.29	13.00	Pass
FDD04	HighRange	20	OneRB_high	Q16	5.48	13.00	Pass
FDD04	HighRange	20	fullRB	Q16	6.21	13.00	Pass

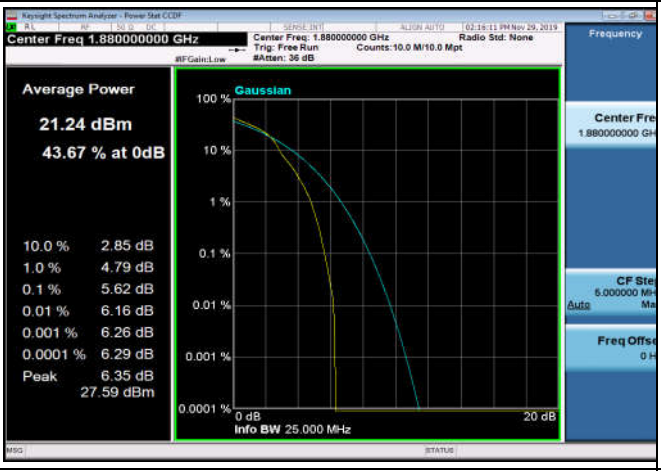
FDD02_LowRange_20MHz_1860_OneRB_high_Q16



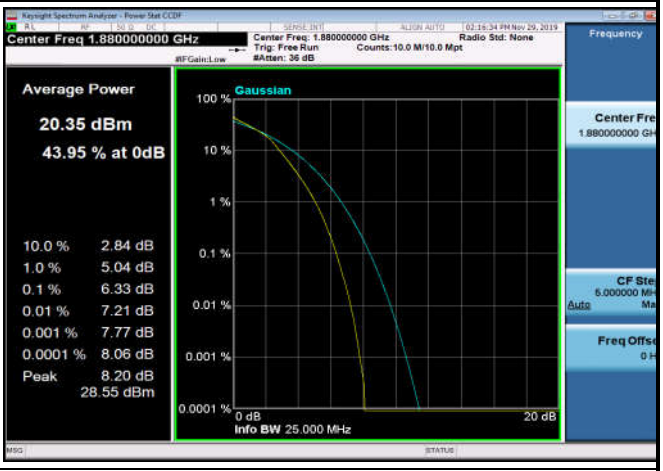
FDD02_LowRange_20MHz_1860_fullRB_Q16



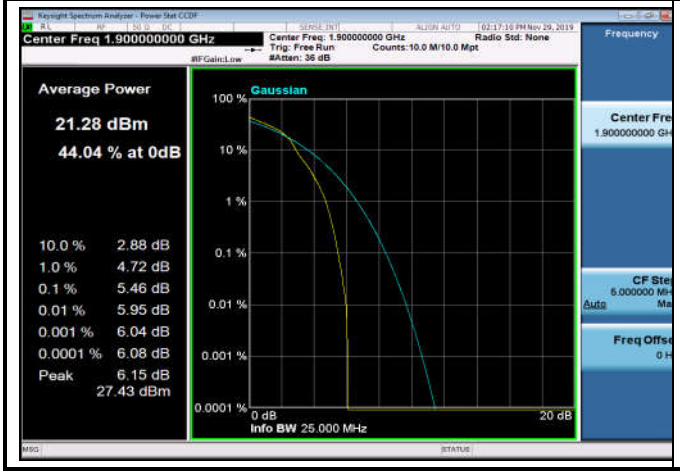
FDD02_MidRange_20MHz_1880_OneRB_high_Q16



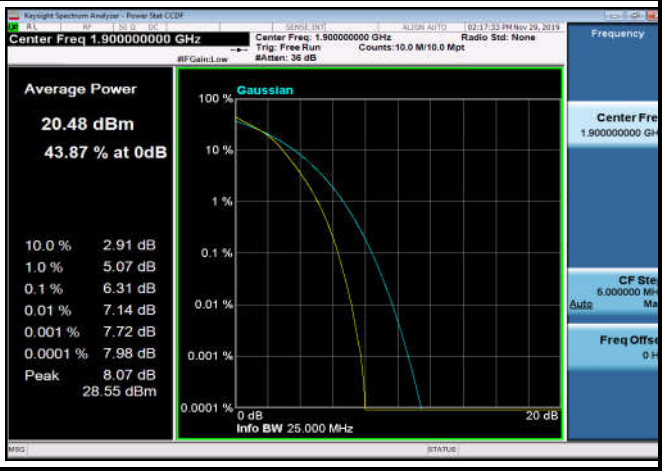
FDD02_MidRange_20MHz_1880_fullRB_Q16



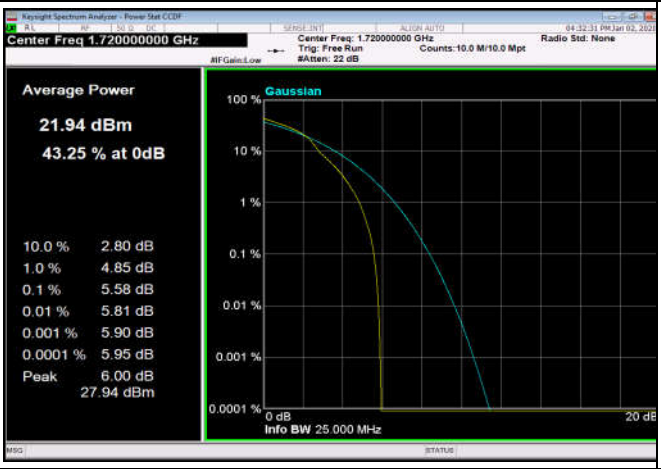
FDD02_HighRange_20MHz_1900_OneRB_high_Q16



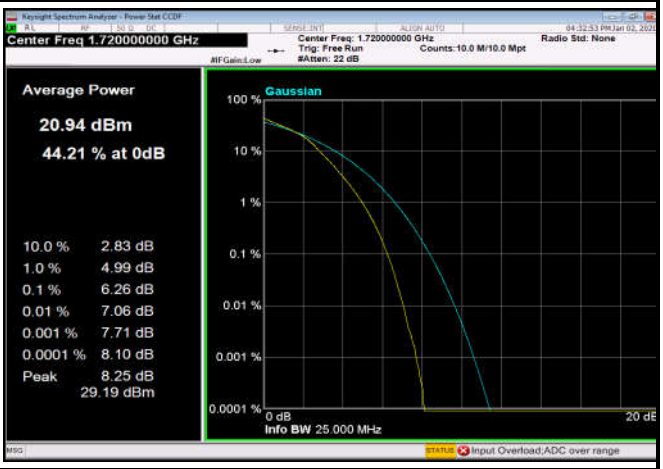
FDD02_HighRange_20MHz_1900_fullRB_Q16



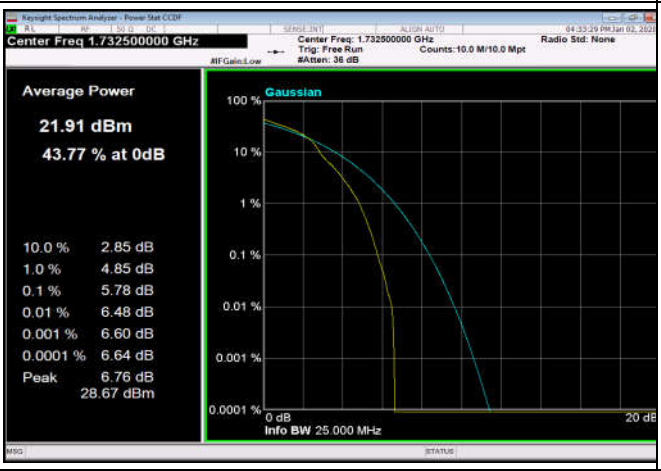
FDD04_LowRange_20MHz_1720_OneRB _high_Q16



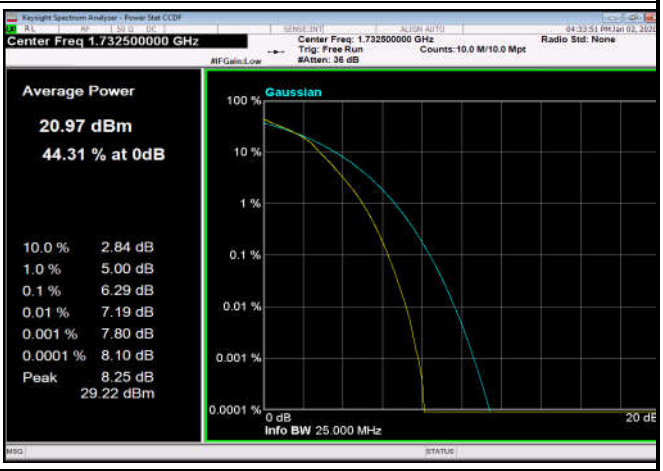
FDD04_LowRange_20MHz_1720_fullRB _Q16



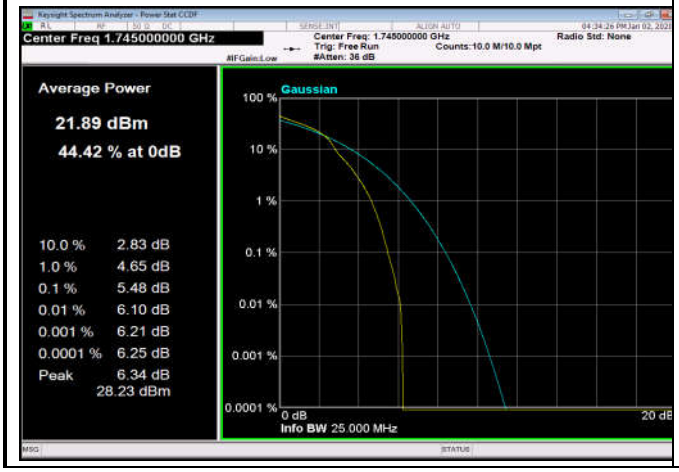
FDD04_MidRange_20MHz_1732.5_OneRB _high_Q16



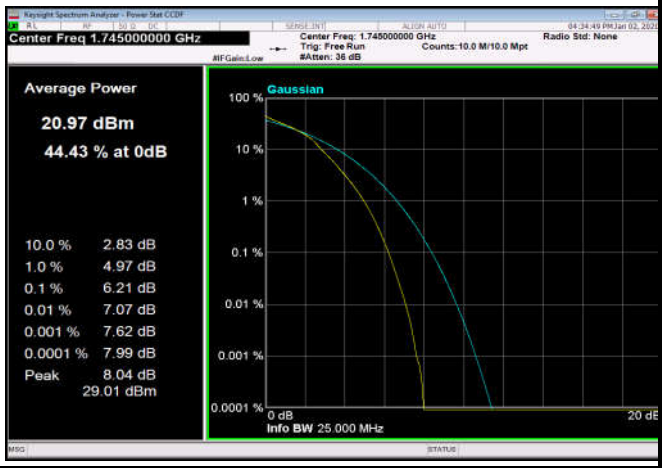
FDD04_MidRange_20MHz_1732.5_fullRB _Q16



FDD04_HighRange_20MHz_1745_OneRB _high_Q16



FDD04_HighRange_20MHz_1745_fullRB _Q16



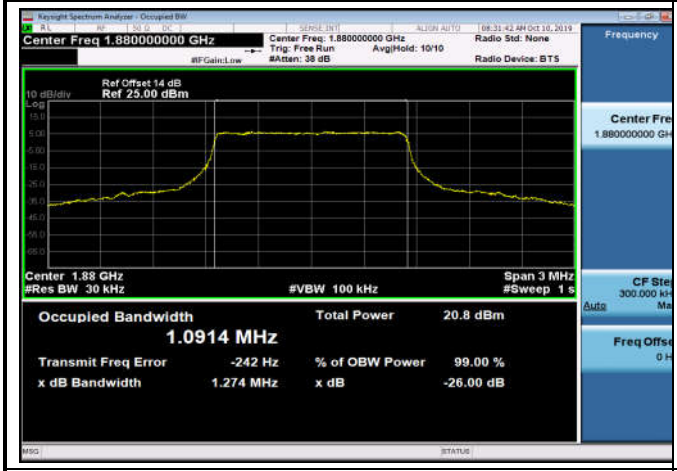
99% Occupied Bandwidth

Test Result and Data

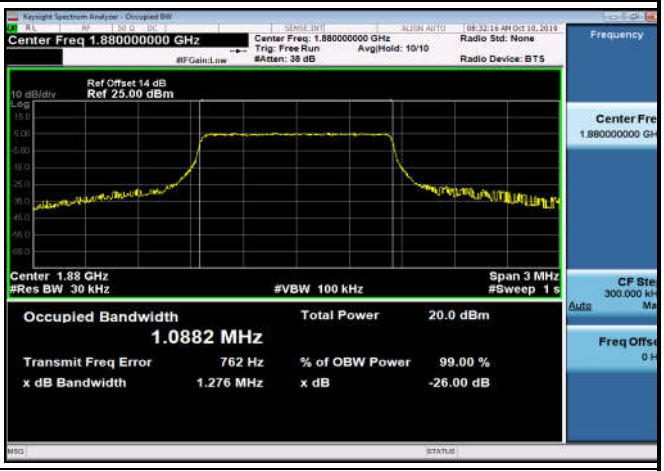
Occupied Bandwidth NormalTC_NormalVol					
Band	Range	BandWidth	Frequency (MHz)	Modulation	Occupied Bandwidth(99%) (MHz)
FDD02	MidRange	1.4	1880	QPSK	1.091
FDD02	MidRange	1.4	1880	Q16	1.088
FDD02	MidRange	3	1880	QPSK	2.679
FDD02	MidRange	3	1880	Q16	2.677
FDD02	MidRange	5	1880	QPSK	4.486
FDD02	MidRange	5	1880	Q16	4.482
FDD02	MidRange	10	1880	QPSK	8.913
FDD02	MidRange	10	1880	Q16	8.909
FDD02	MidRange	15	1880	QPSK	13.4
FDD02	MidRange	15	1880	Q16	13.405
FDD02	MidRange	20	1880	QPSK	17.818
FDD02	MidRange	20	1880	Q16	17.819
FDD04	MidRange	1.4	1732.5	QPSK	1.09
FDD04	MidRange	1.4	1732.5	Q16	1.087
FDD04	MidRange	3	1732.5	QPSK	2.677
FDD04	MidRange	3	1732.5	Q16	2.676
FDD04	MidRange	5	1732.5	QPSK	4.482
FDD04	MidRange	5	1732.5	Q16	4.479
FDD04	MidRange	10	1732.5	QPSK	8.909
FDD04	MidRange	10	1732.5	Q16	8.899
FDD04	MidRange	15	1732.5	QPSK	13.385
FDD04	MidRange	15	1732.5	Q16	13.382
FDD04	MidRange	20	1732.5	QPSK	17.782
FDD04	MidRange	20	1732.5	Q16	17.774
FDD05	MidRange	1.4	836.5	QPSK	1.085
FDD05	MidRange	1.4	836.5	Q16	1.085

FDD05	MidRange	3	836.5	QPSK	2.676
FDD05	MidRange	3	836.5	Q16	2.676
FDD05	MidRange	5	836.5	QPSK	4.48
FDD05	MidRange	5	836.5	Q16	4.477
FDD05	MidRange	10	836.5	QPSK	8.901
FDD05	MidRange	10	836.5	Q16	8.892
FDD07	MidRange	5	2535	QPSK	4.478
FDD07	MidRange	5	2535	Q16	4.48
FDD07	MidRange	10	2535	QPSK	8.913
FDD07	MidRange	10	2535	Q16	8.907
FDD07	MidRange	15	2535	QPSK	13.416
FDD07	MidRange	15	2535	Q16	13.417
FDD07	MidRange	20	2535	QPSK	17.844
FDD07	MidRange	20	2535	Q16	17.842
FDD12	MidRange	1.4	707.5	QPSK	1.091
FDD12	MidRange	1.4	707.5	Q16	1.087
FDD12	MidRange	3	707.5	QPSK	2.678
FDD12	MidRange	3	707.5	Q16	2.677
FDD12	MidRange	5	707.5	QPSK	4.489
FDD12	MidRange	5	707.5	Q16	4.486
FDD12	MidRange	10	707.5	QPSK	8.939
FDD12	MidRange	10	707.5	Q16	8.933
FDD13	MidRange	5	782	QPSK	4.473
FDD13	MidRange	5	782	Q16	4.47
FDD13	MidRange	10	782	QPSK	8.873
FDD13	MidRange	10	782	Q16	8.87
FDD17	MidRange	5	710	QPSK	4.479
FDD17	MidRange	5	710	Q16	4.486
FDD17	MidRange	10	710	QPSK	8.914
FDD17	MidRange	10	710	Q16	8.908

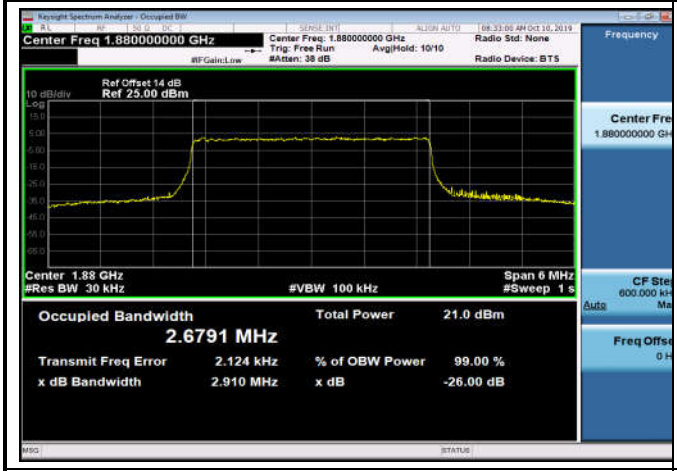
FDD02_MidRange_1.4_1880_QPSK



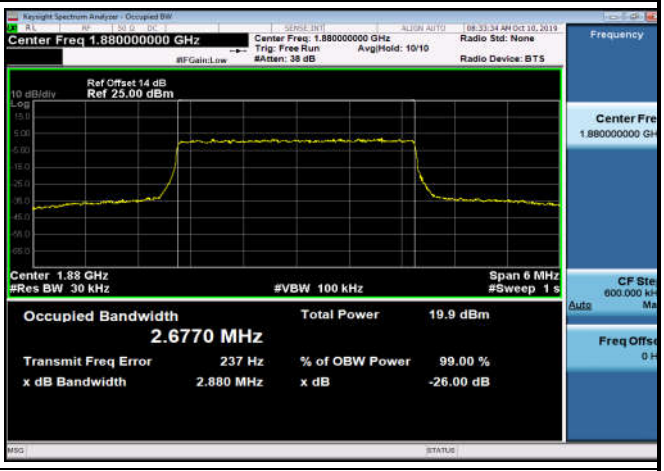
FDD02_MidRange_1.4_1880_Q16



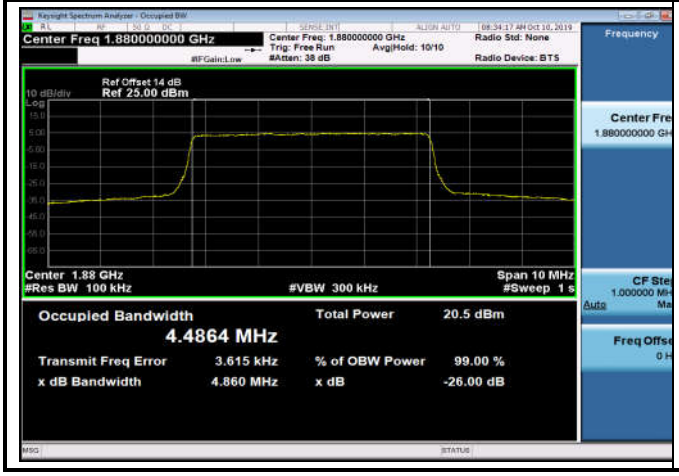
FDD02_MidRange_3_1880_QPSK



FDD02_MidRange_3_1880_Q16



FDD02_MidRange_5_1880_QPSK



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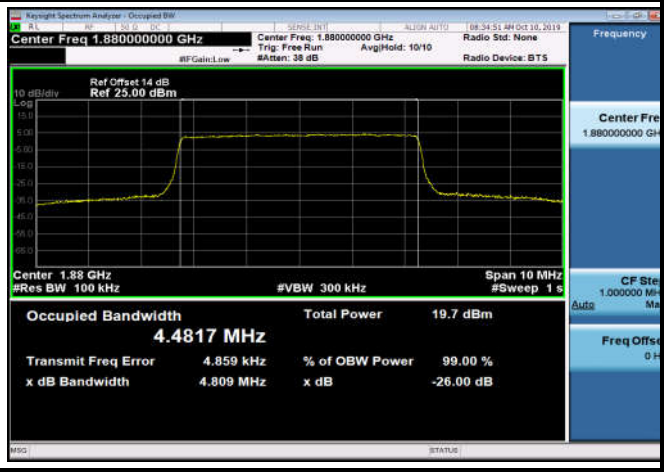

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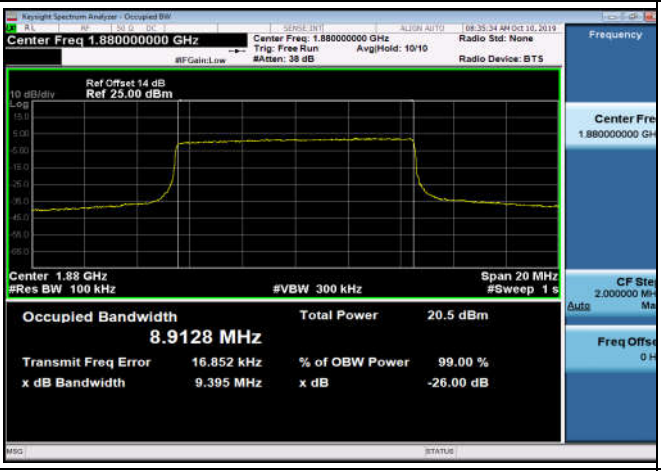

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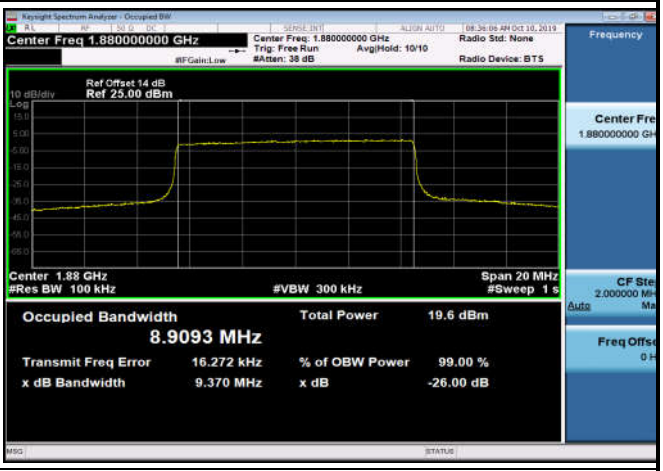
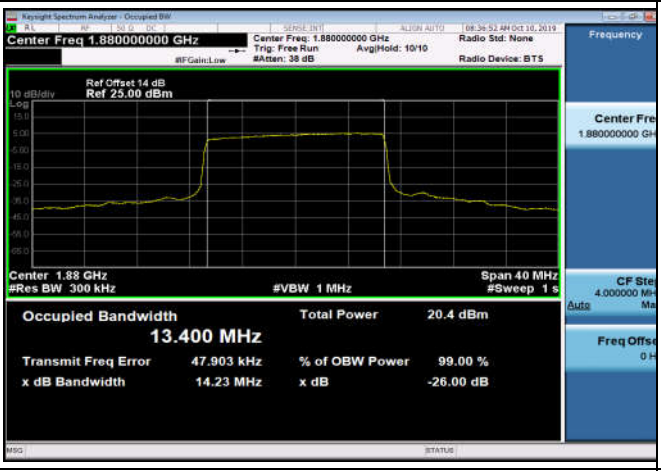


FDD02_MidRange_15_1880_QPSK



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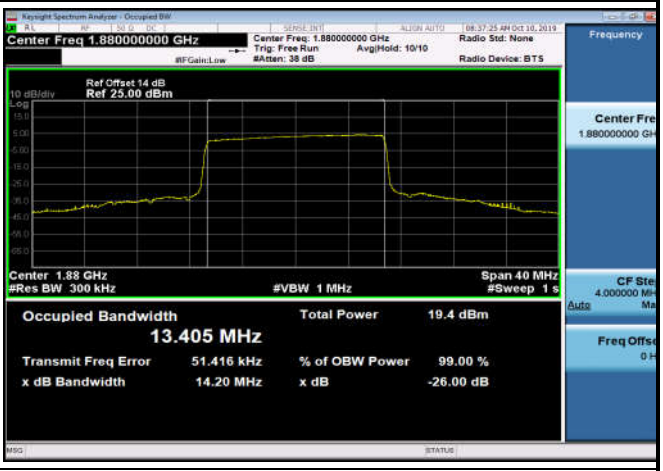

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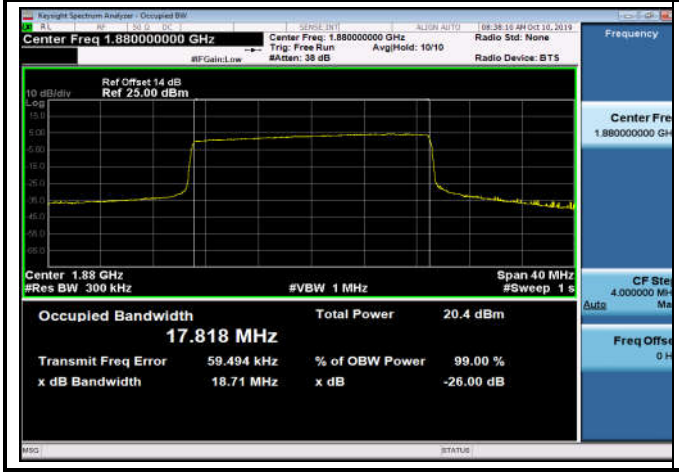

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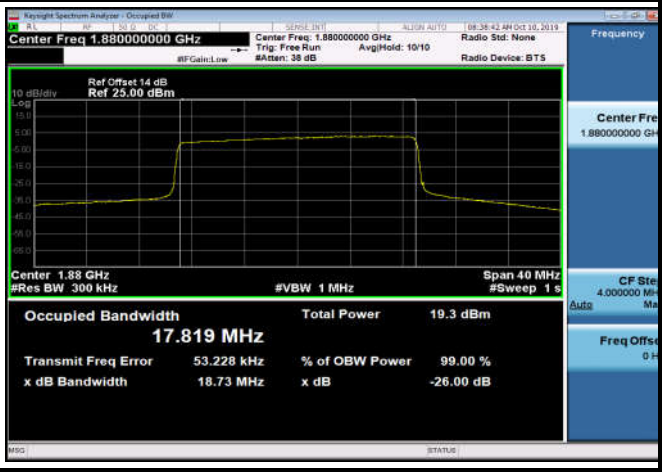
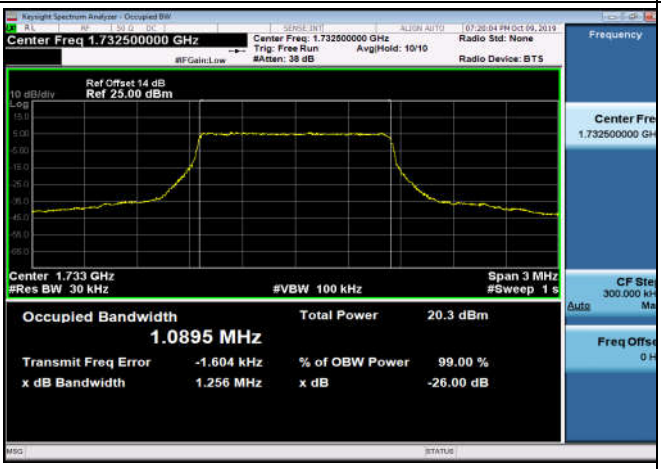


FDD04_MidRange_1.4_1732.5_QPSK



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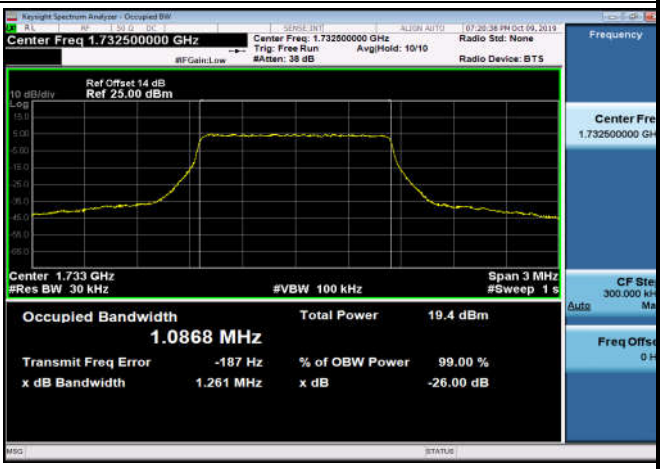
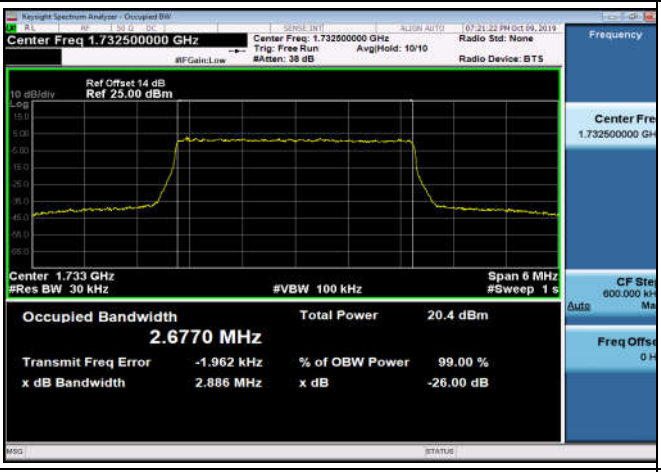
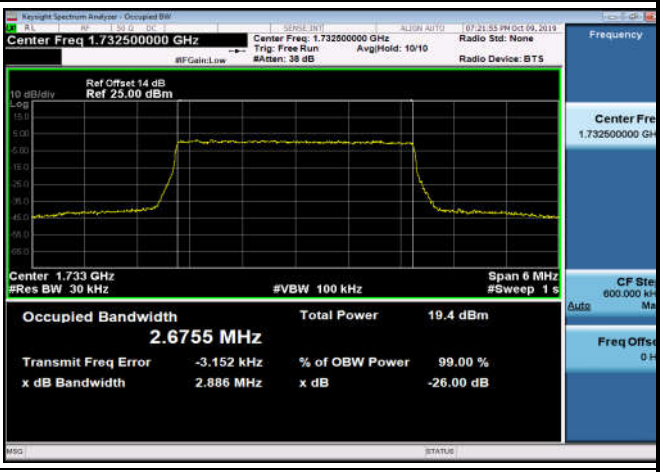


FDD04_MidRange_3_1732.5_QPSK



FDD04_MidRange_3_1732.5_Q16



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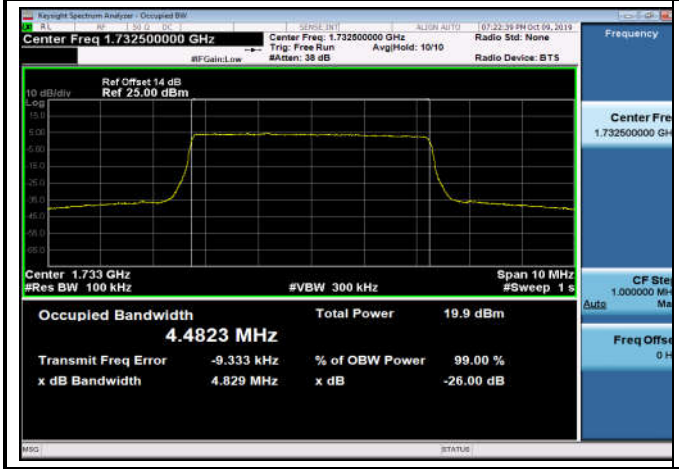
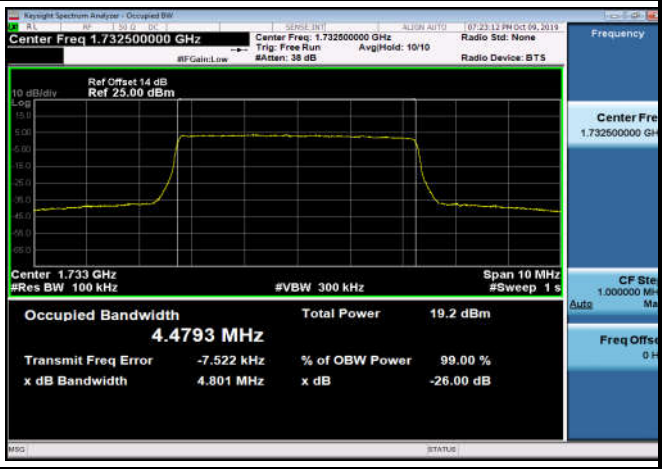
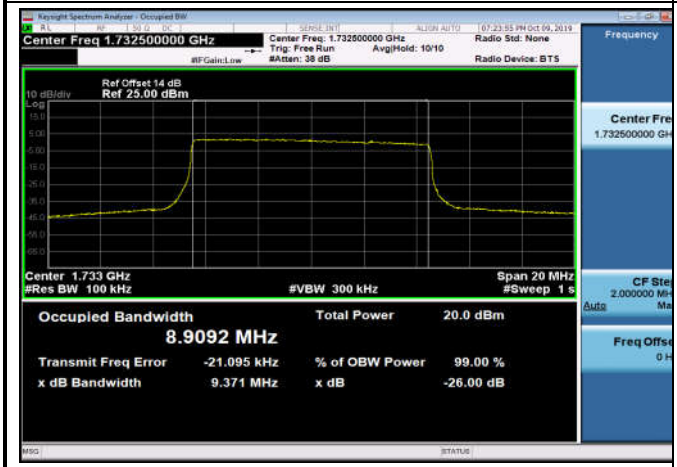


FDD04_MidRange_5_1732.5_Q16



FDD04_MidRange_10_1732.5_QPSK



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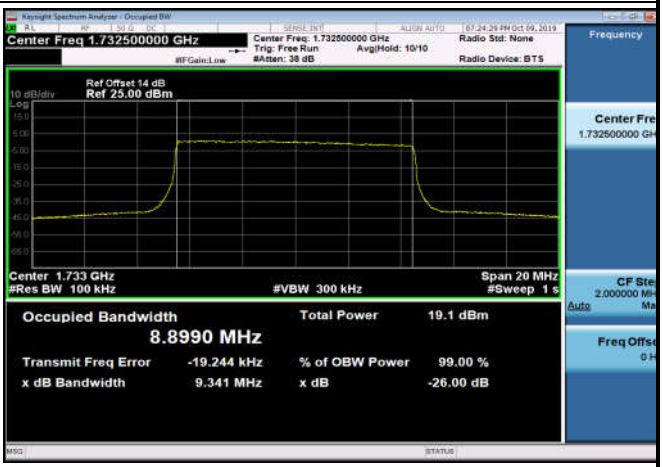

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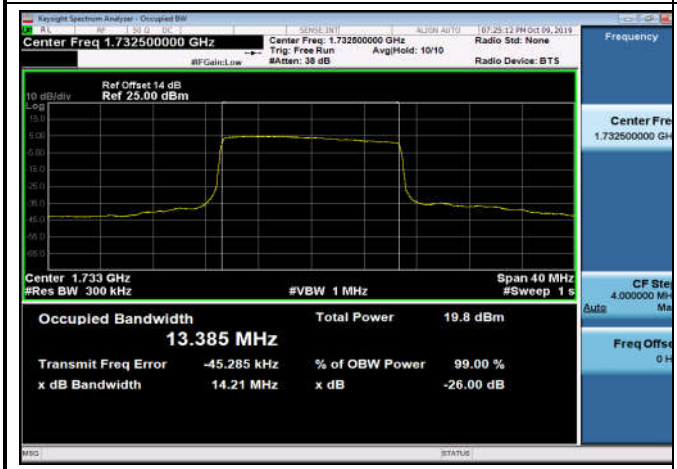

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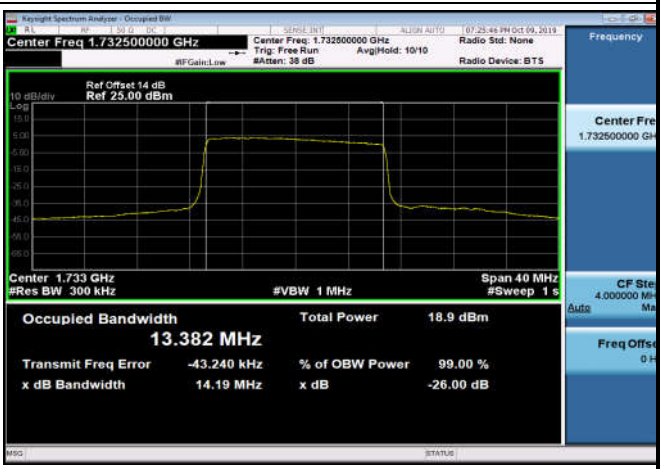

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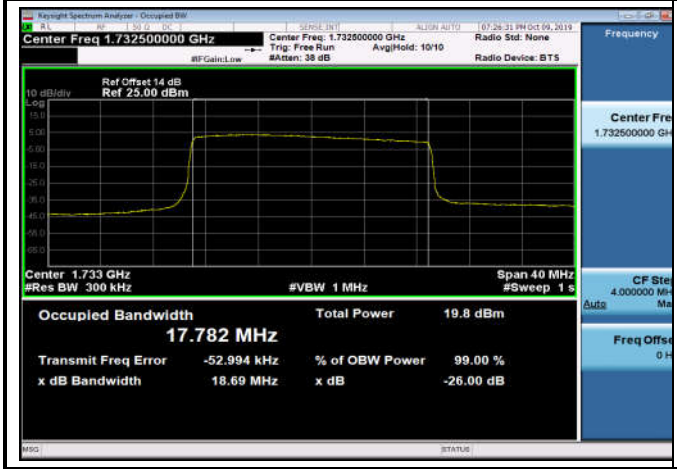

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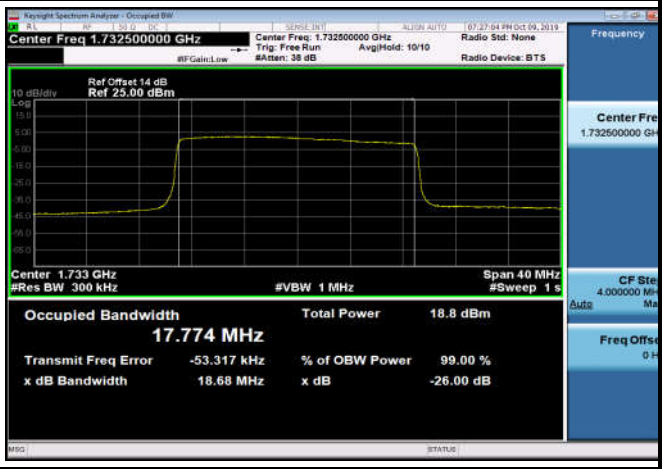
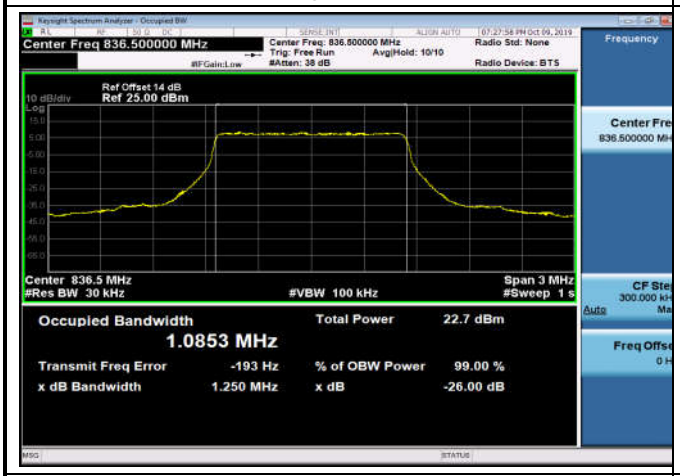


FDD05_MidRange_1.4_836.5_QPSK



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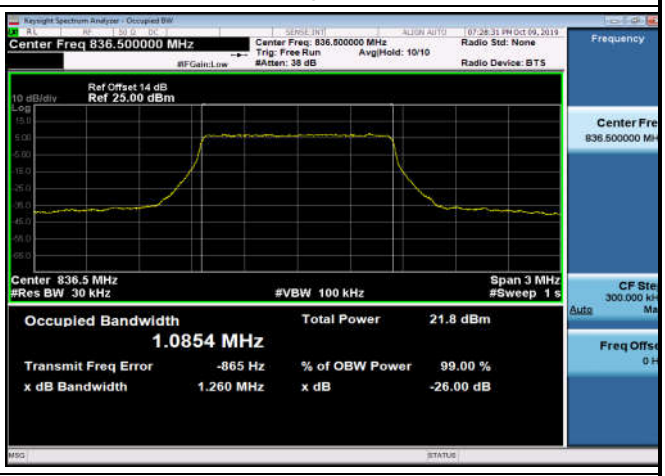

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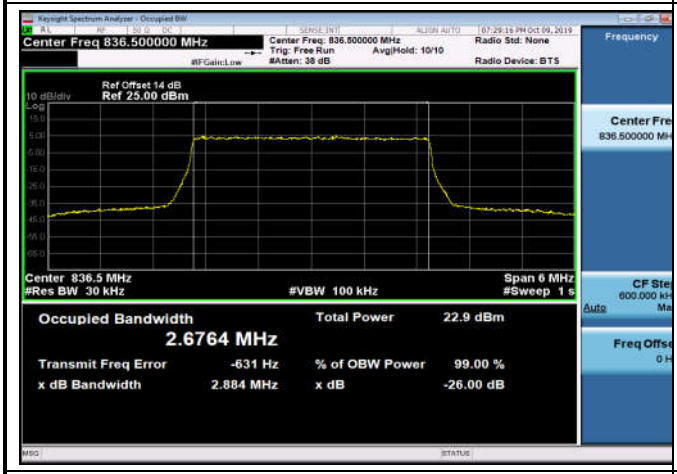

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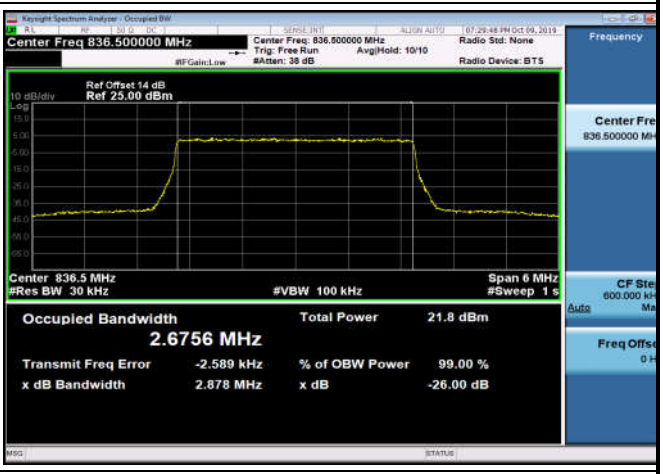

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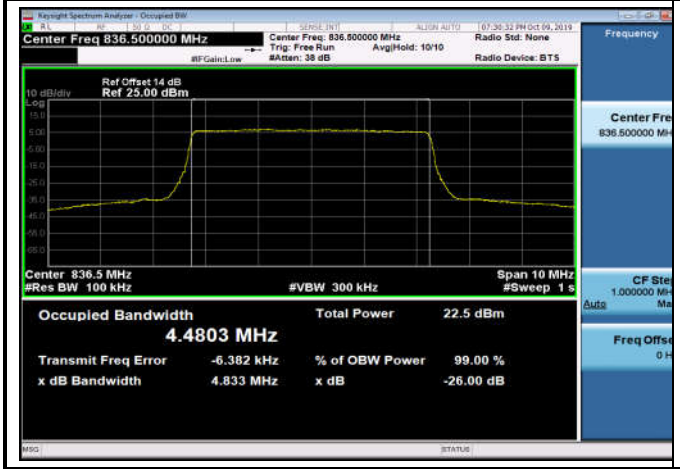

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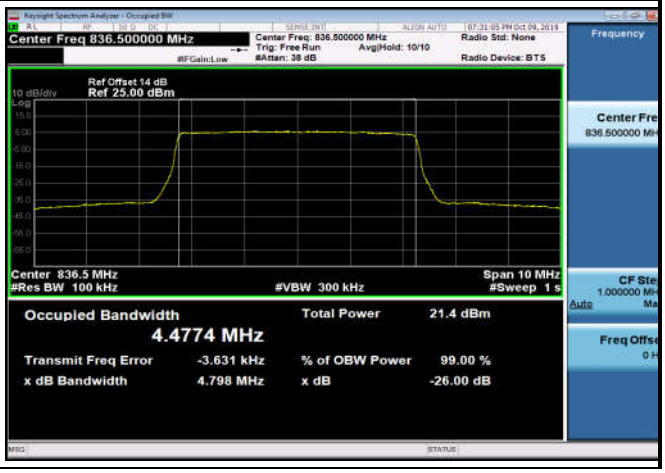
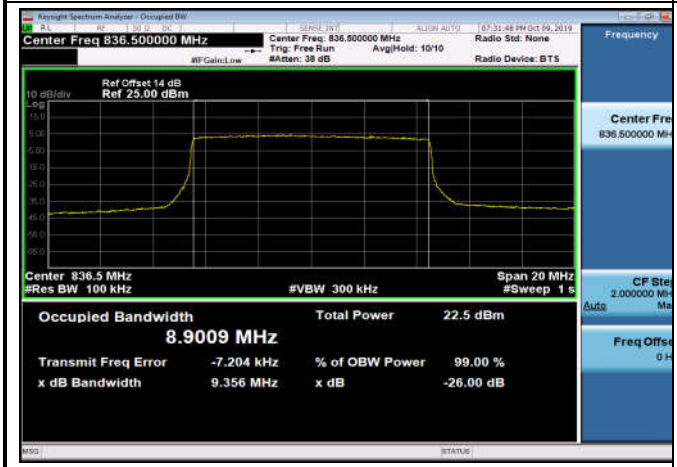


FDD05_MidRange_10_836.5_QPSK



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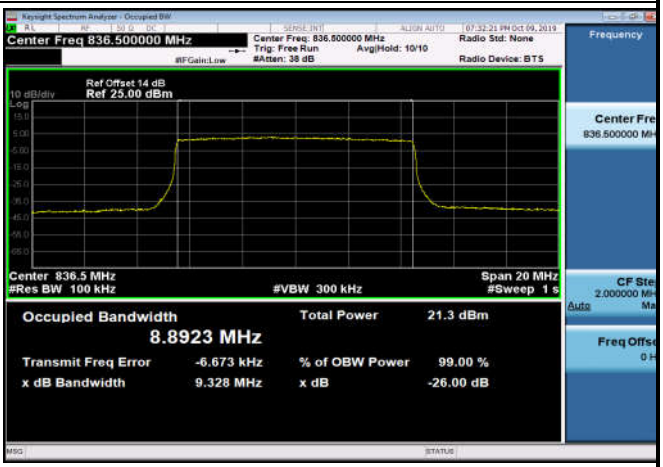
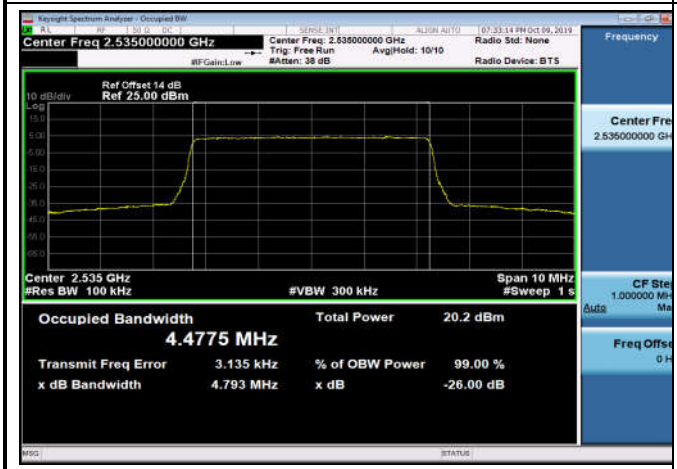


FDD07_MidRange_5_2535_QPSK



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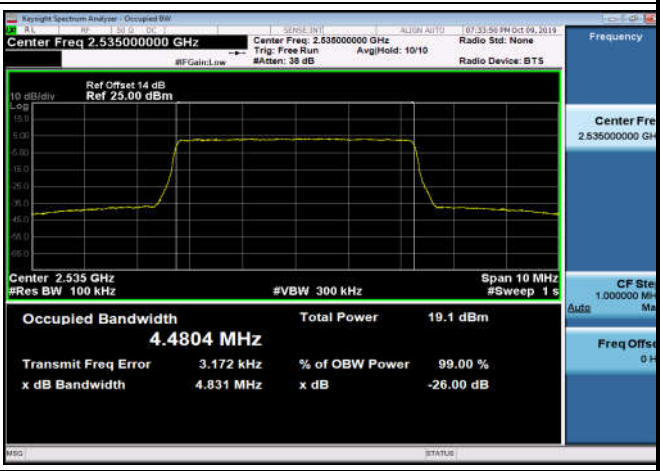

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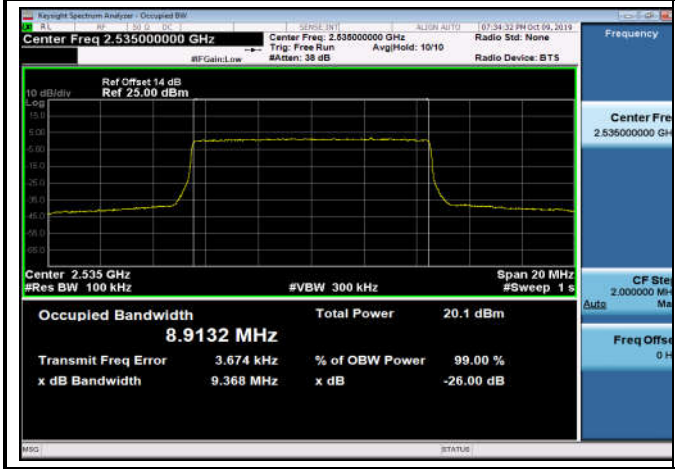

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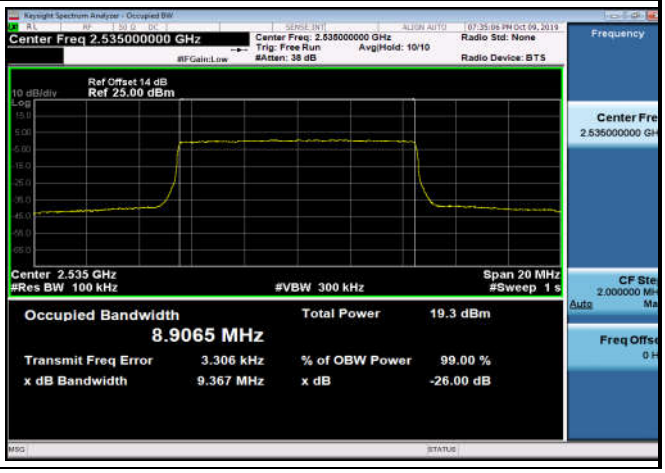

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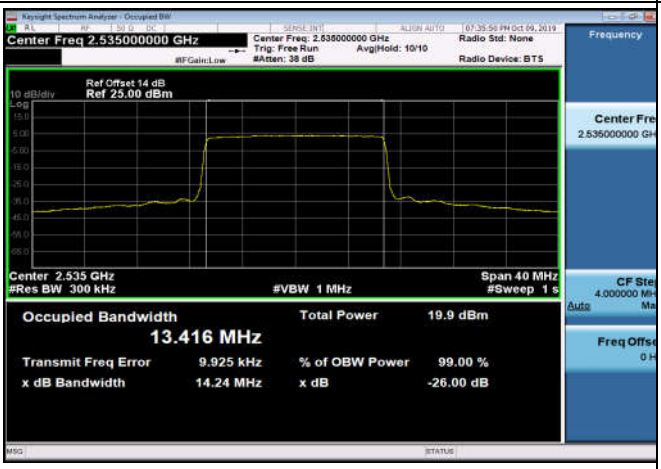

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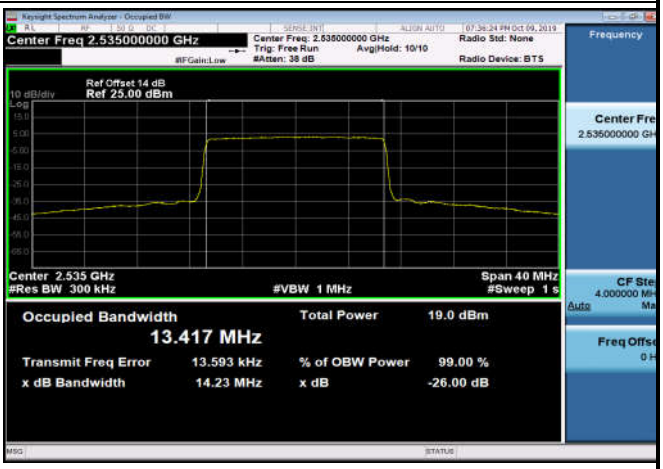

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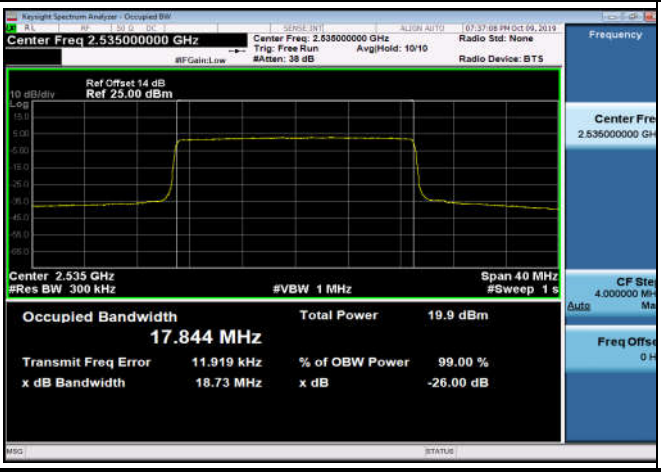

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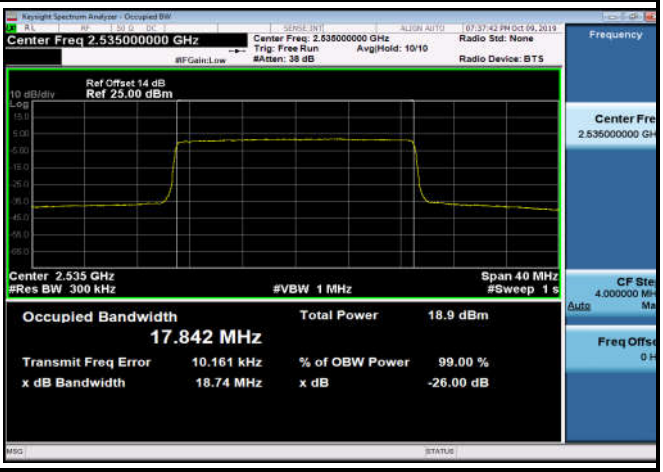
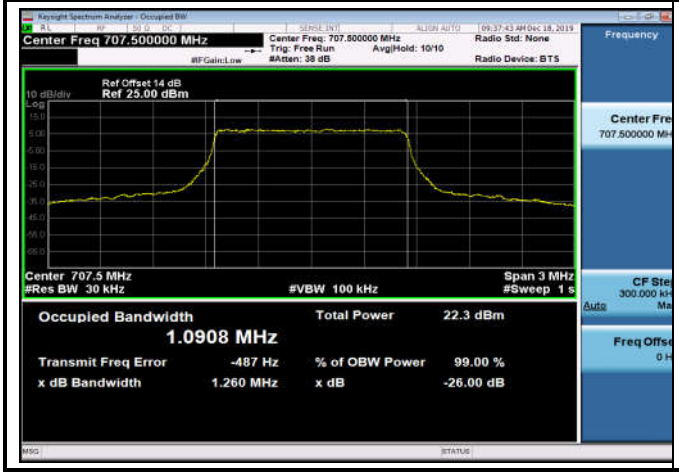


FDD12_MidRange_1.4_707.5_QPSK



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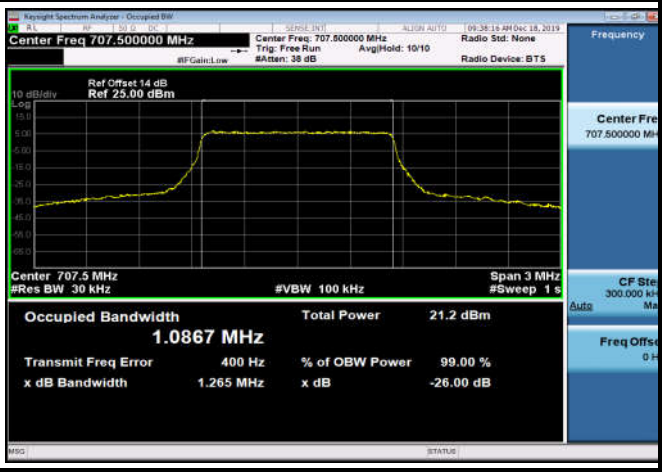
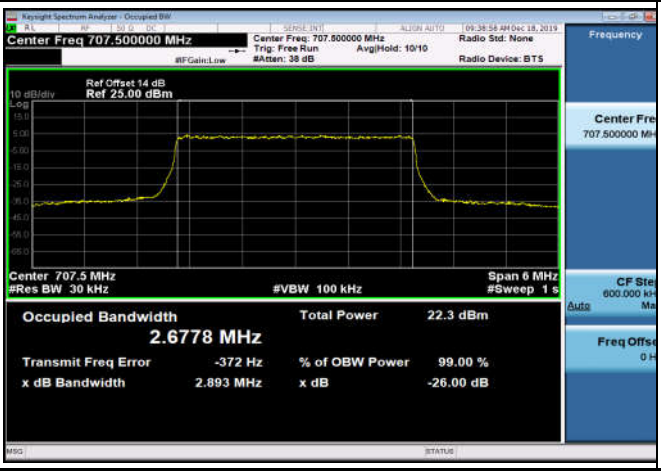


FDD12_MidRange_3_707.5_QPSK



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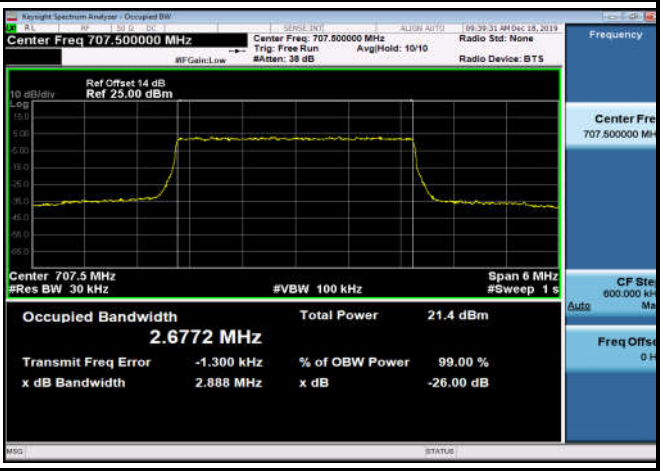

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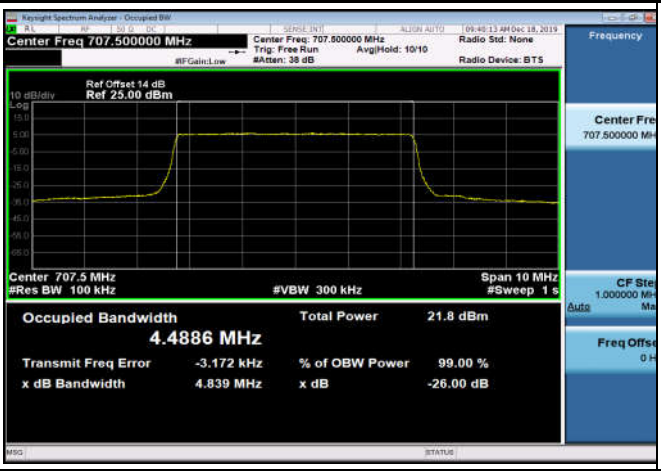
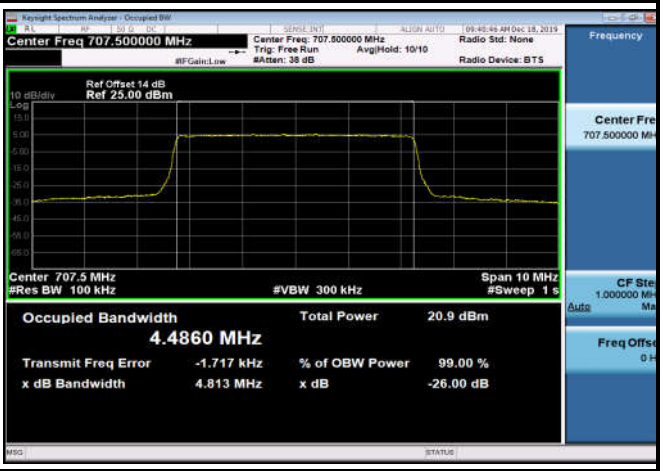
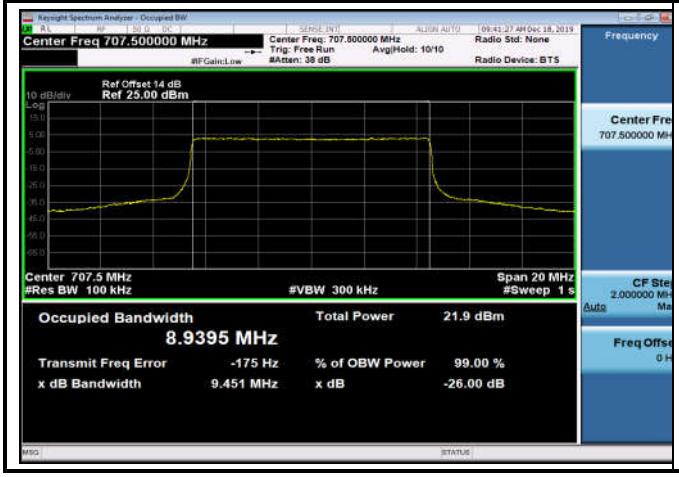


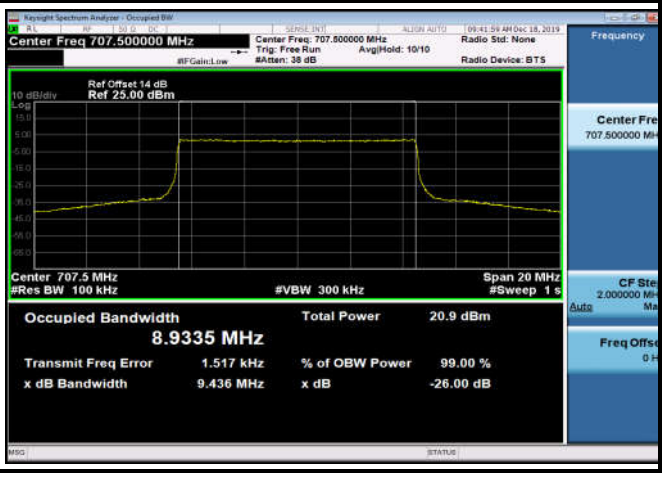
FDD12_MidRange_5_707.5_Q16



FDD12_MidRange_10_707.5_QPSK



FDD12_MidRange_10_707.5_Q16



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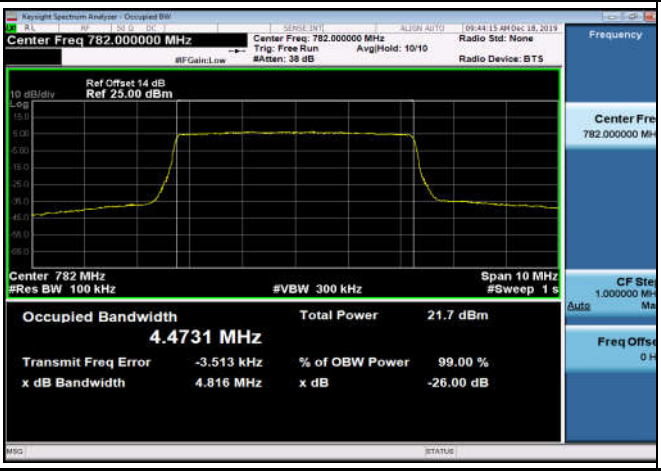
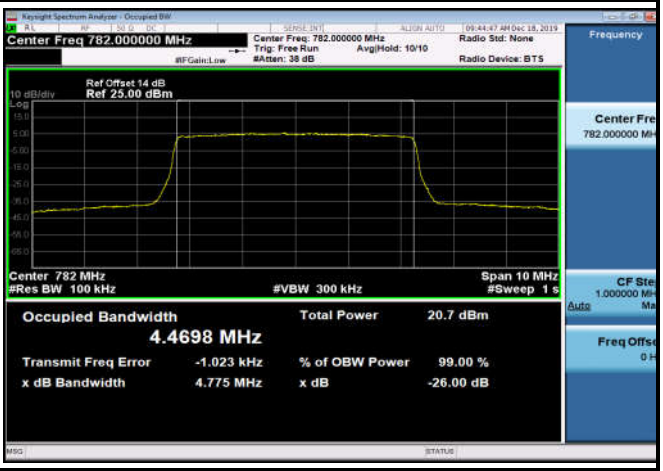
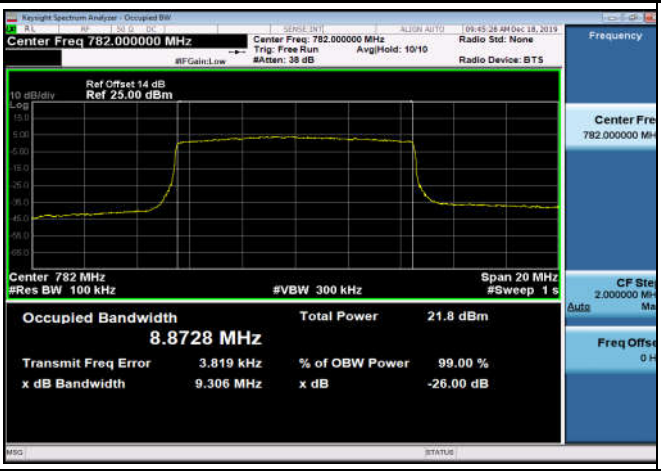


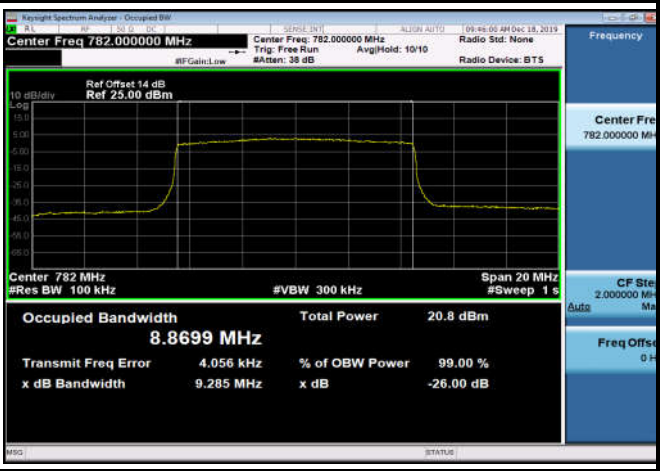
FDD13_MidRange_5_782_Q16



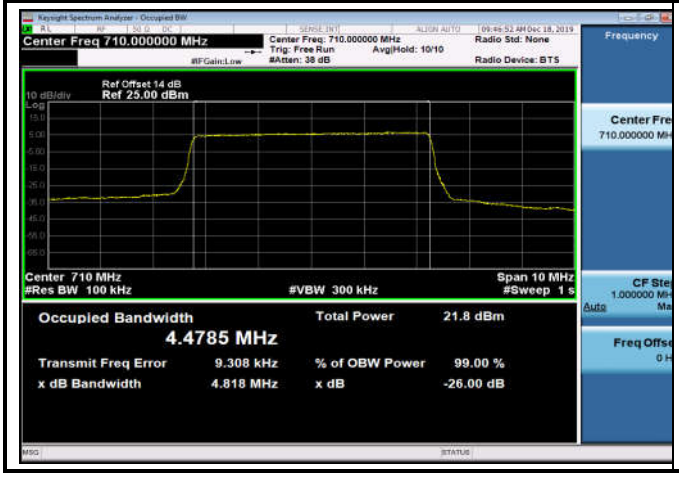
FDD13_MidRange_10_782_QPSK



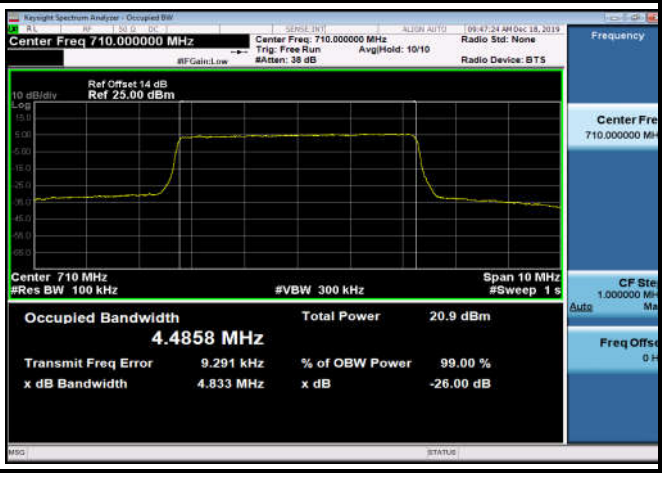
FDD13_MidRange_10_782_Q16

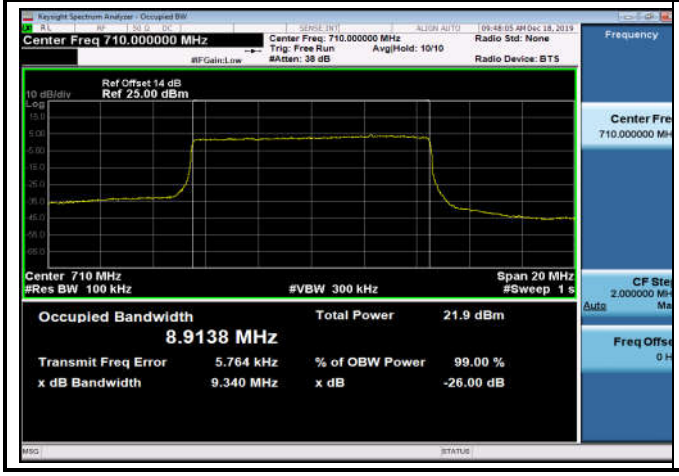
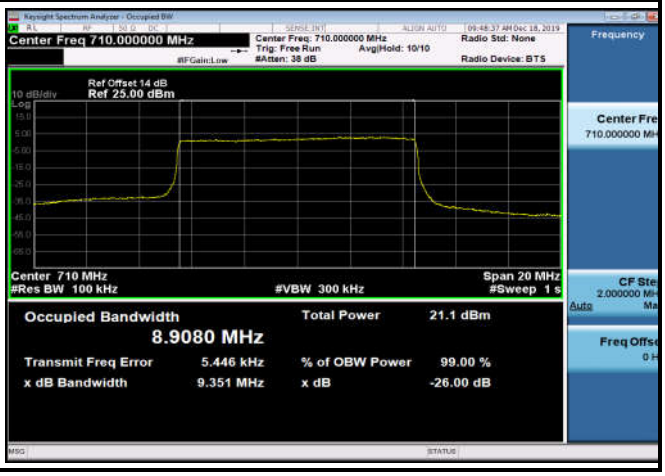


FDD17_MidRange_5_710_QPSK



FDD17_MidRange_5_710_Q16



FDD17_MidRange_10_710_QPSK	FDD17_MidRange_10_710_Q16
	

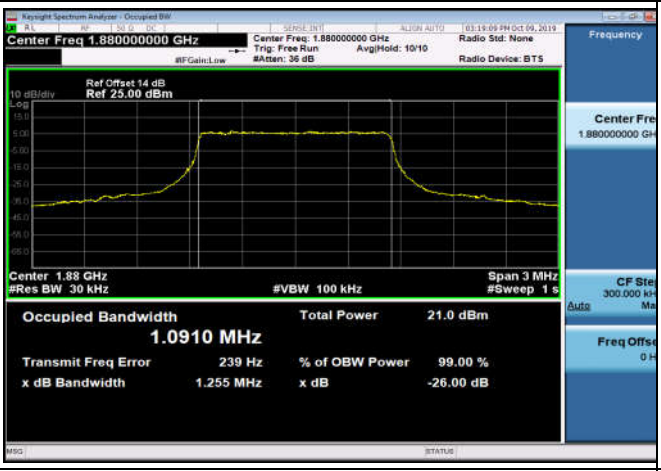
26dB Bandwidth

Test Result and Data

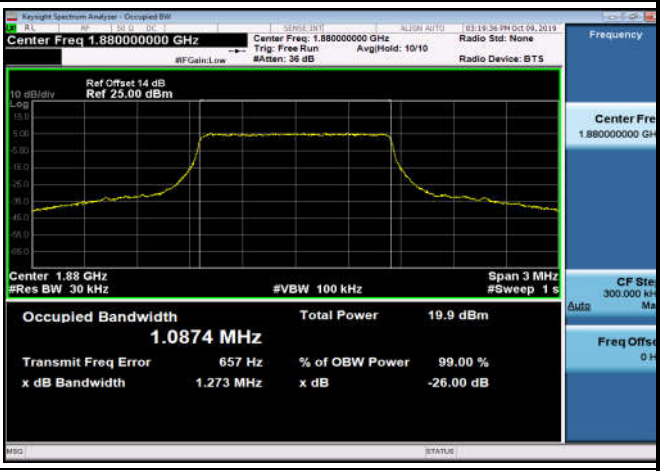
Emission Bandwidth NormalTC_NormalVol					
Band	Range	BandWidth	Frequency (MHz)	Modulation	EmissionBandwidth (MHz)
FDD02	MidRange	1.4	1880	QPSK	1.25
FDD02	MidRange	1.4	1880	Q16	1.27
FDD02	MidRange	3	1880	QPSK	2.97
FDD02	MidRange	3	1880	Q16	2.97
FDD02	MidRange	5	1880	QPSK	4.85
FDD02	MidRange	5	1880	Q16	4.8
FDD02	MidRange	10	1880	QPSK	9.4
FDD02	MidRange	10	1880	Q16	9.37
FDD02	MidRange	15	1880	QPSK	14.23
FDD02	MidRange	15	1880	Q16	14.21
FDD02	MidRange	20	1880	QPSK	18.72
FDD02	MidRange	20	1880	Q16	18.71
FDD04	MidRange	1.4	1732.5	QPSK	1.25
FDD04	MidRange	1.4	1732.5	Q16	1.26
FDD04	MidRange	3	1732.5	QPSK	2.97
FDD04	MidRange	3	1732.5	Q16	2.96
FDD04	MidRange	5	1732.5	QPSK	4.83
FDD04	MidRange	5	1732.5	Q16	4.8
FDD04	MidRange	10	1732.5	QPSK	9.4
FDD04	MidRange	10	1732.5	Q16	9.34
FDD04	MidRange	15	1732.5	QPSK	14.2
FDD04	MidRange	15	1732.5	Q16	14.2
FDD04	MidRange	20	1732.5	QPSK	18.68
FDD04	MidRange	20	1732.5	Q16	18.69
FDD05	MidRange	1.4	836.5	QPSK	1.25
FDD05	MidRange	1.4	836.5	Q16	1.26
FDD05	MidRange	3	836.5	QPSK	2.97

FDD05	MidRange	3	836.5	Q16	2.96
FDD05	MidRange	5	836.5	QPSK	4.83
FDD05	MidRange	5	836.5	Q16	4.8
FDD05	MidRange	10	836.5	QPSK	9.36
FDD05	MidRange	10	836.5	Q16	9.33
FDD07	MidRange	5	2535	QPSK	4.81
FDD07	MidRange	5	2535	Q16	4.83
FDD07	MidRange	10	2535	QPSK	9.39
FDD07	MidRange	10	2535	Q16	9.36
FDD07	MidRange	15	2535	QPSK	14.22
FDD07	MidRange	15	2535	Q16	14.23
FDD07	MidRange	20	2535	QPSK	18.73
FDD07	MidRange	20	2535	Q16	18.73
FDD12	MidRange	1.4	707.5	QPSK	1.26
FDD12	MidRange	1.4	707.5	Q16	1.27
FDD12	MidRange	3	707.5	QPSK	2.97
FDD12	MidRange	3	707.5	Q16	2.97
FDD12	MidRange	5	707.5	QPSK	4.83
FDD12	MidRange	5	707.5	Q16	4.82
FDD12	MidRange	10	707.5	QPSK	9.44
FDD12	MidRange	10	707.5	Q16	9.44
FDD13	MidRange	5	782	QPSK	4.79
FDD13	MidRange	5	782	Q16	4.8
FDD13	MidRange	10	782	QPSK	9.31
FDD13	MidRange	10	782	Q16	9.29
FDD17	MidRange	5	710	QPSK	4.82
FDD17	MidRange	5	710	Q16	4.84
FDD17	MidRange	10	710	QPSK	9.35
FDD17	MidRange	10	710	Q16	9.34

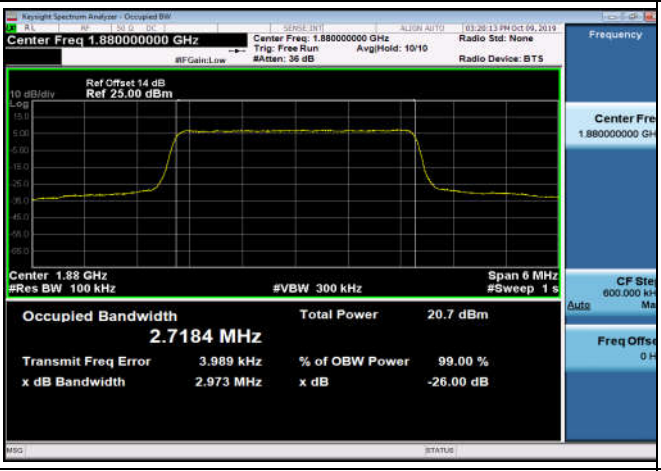
FDD02_MidRange_1.4MHz_1880MHz_QPSK



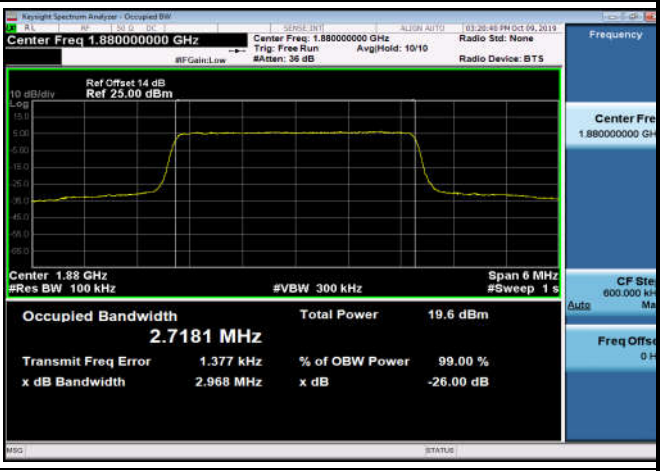
FDD02_MidRange_1.4MHz_1880MHz_Q16



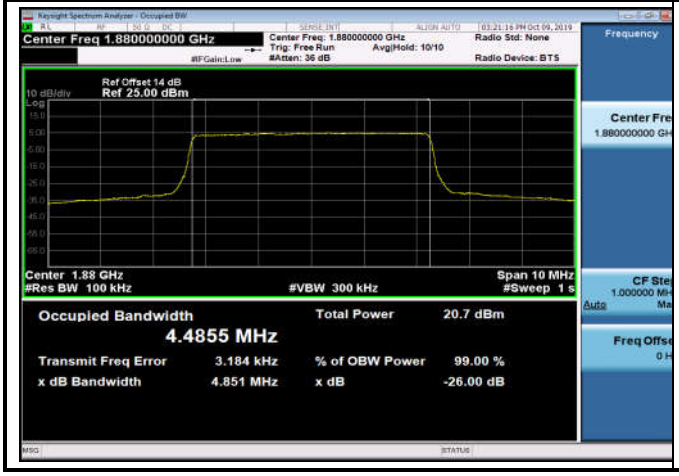
FDD02_MidRange_3MHz_1880MHz_QPSK



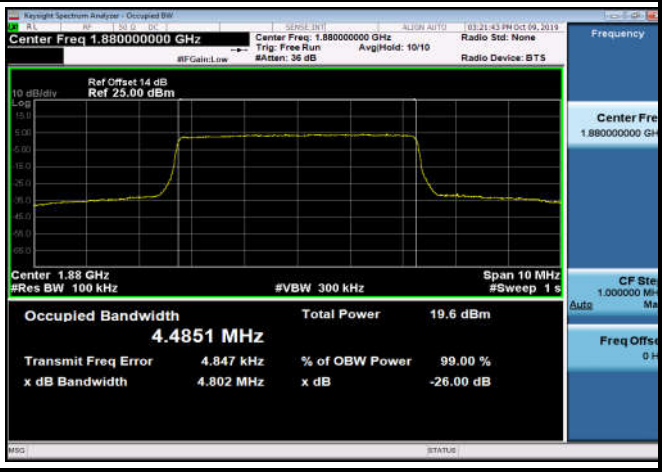
FDD02_MidRange_3MHz_1880MHz_Q16



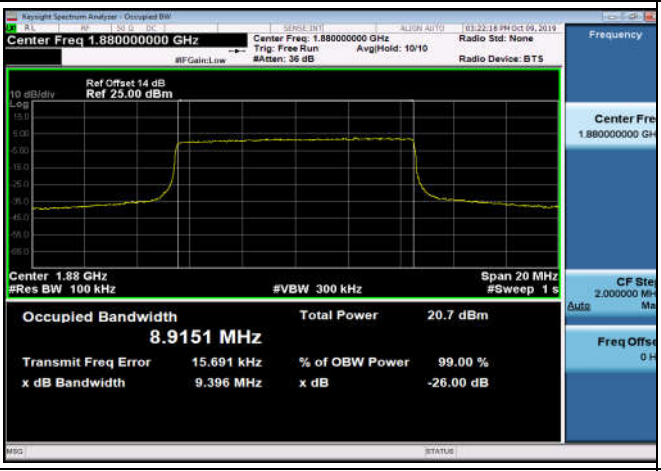
FDD02_MidRange_5MHz_1880MHz_QPSK



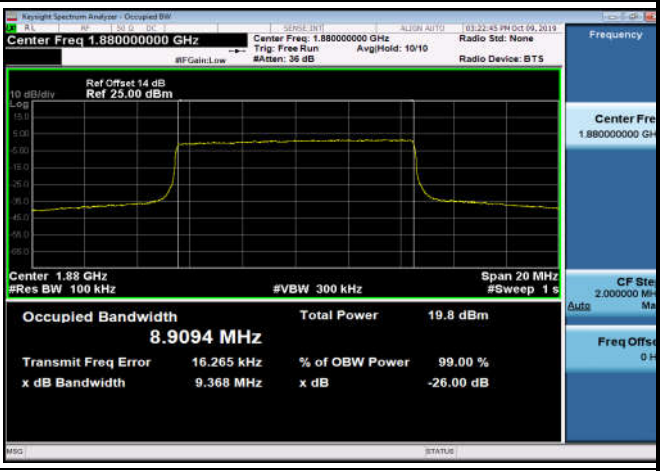
FDD02_MidRange_5MHz_1880MHz_Q16



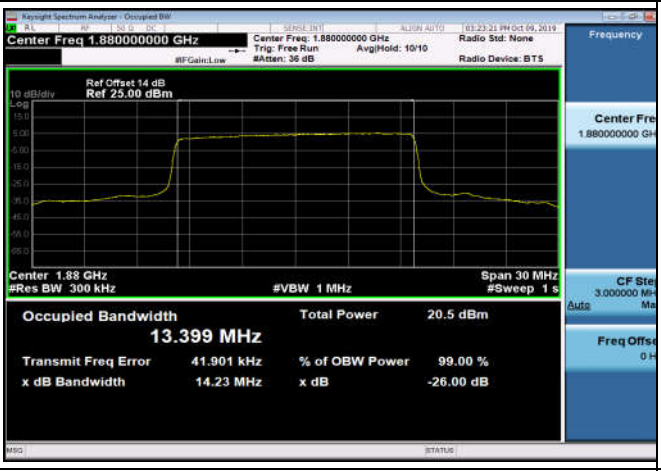
FDD02_MidRange_10MHz_1880MHz_QPSK



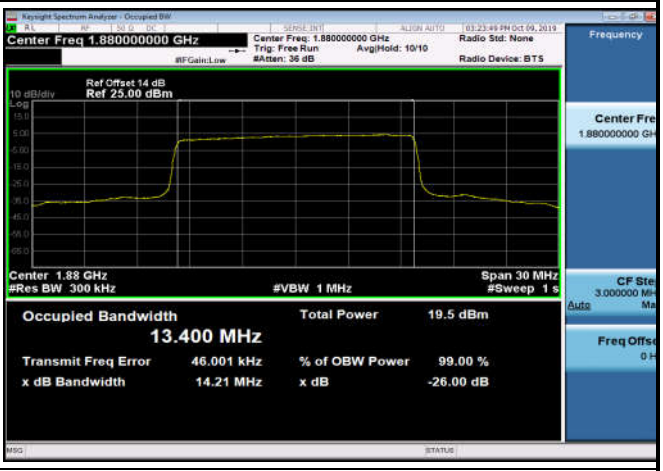
FDD02_MidRange_10MHz_1880MHz_Q16



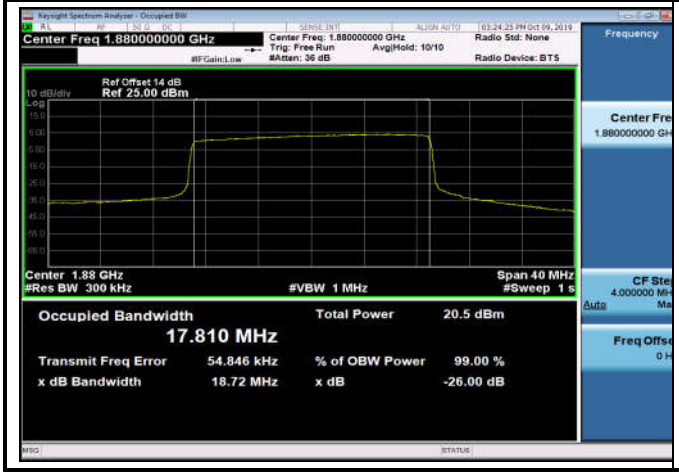
FDD02_MidRange_15MHz_1880MHz_QPSK



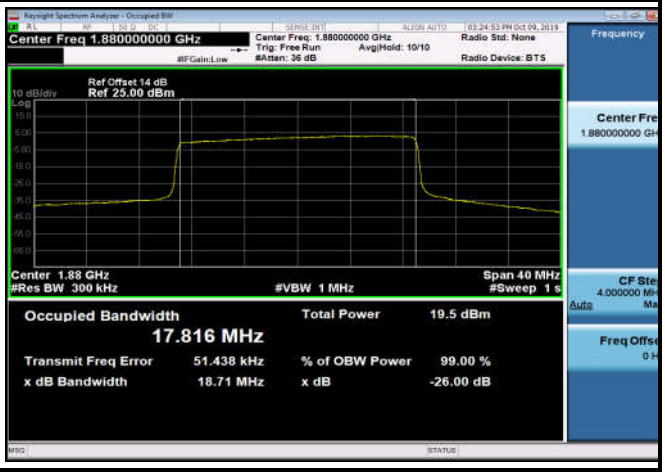
FDD02_MidRange_15MHz_1880MHz_Q16



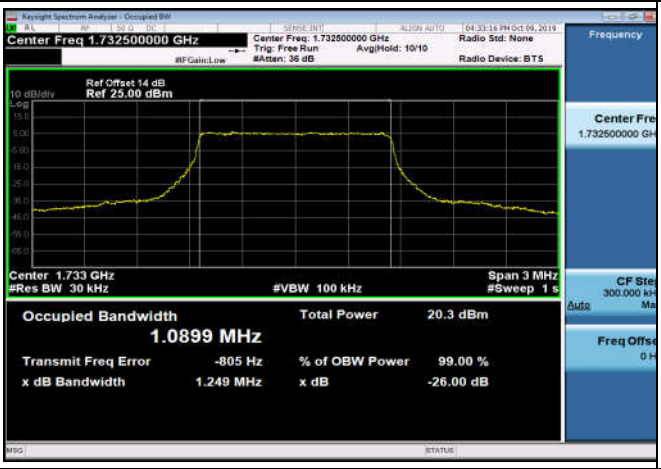
FDD02_MidRange_20MHz_1880MHz_QPSK



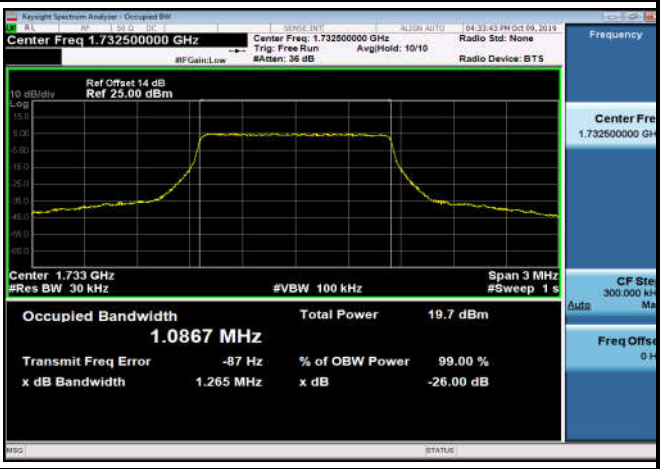
FDD02_MidRange_20MHz_1880MHz_Q16



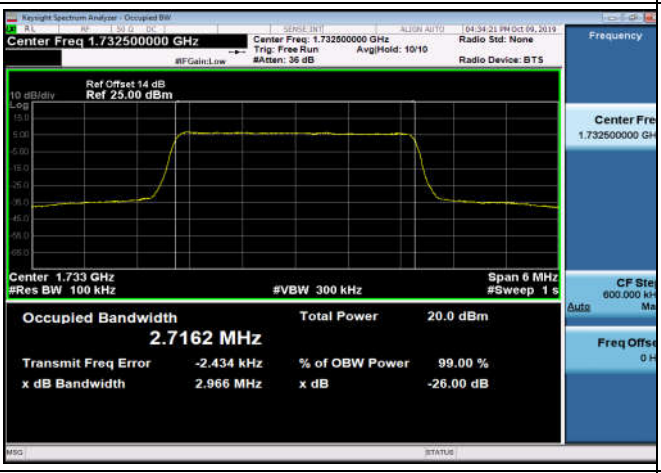
FDD04_MidRange_1.4MHz_1732.5MHz _QPSK



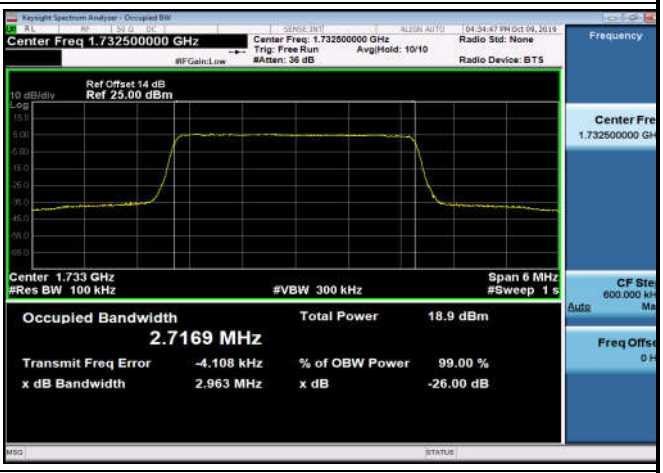
FDD04_MidRange_1.4MHz_1732.5MHz _Q16



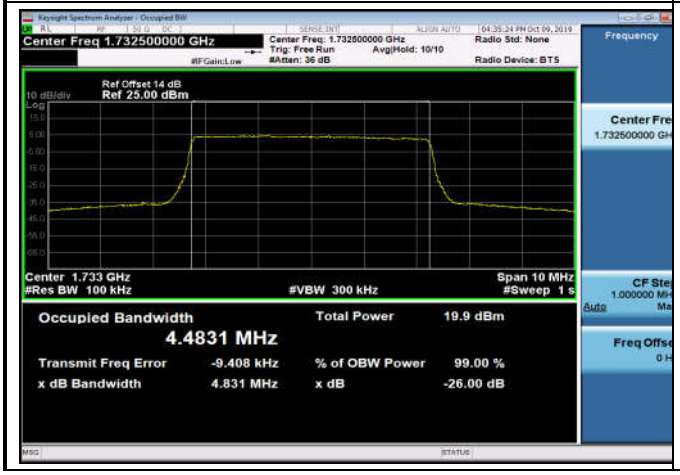
FDD04_MidRange_3MHz_1732.5MHz_QPSK



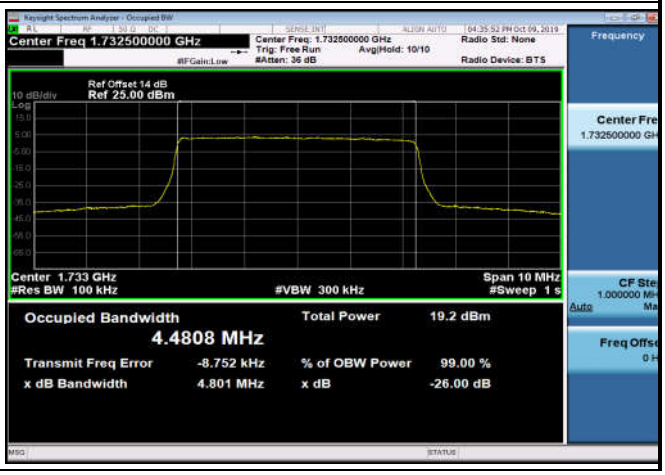
FDD04_MidRange_3MHz_1732.5MHz_Q16



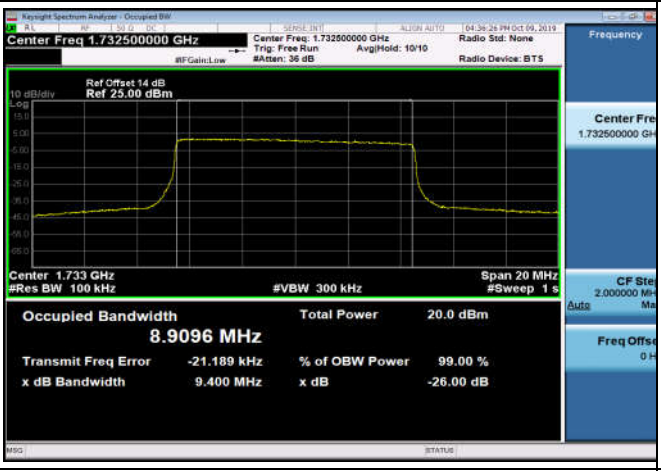
FDD04_MidRange_5MHz_1732.5MHz_QPSK



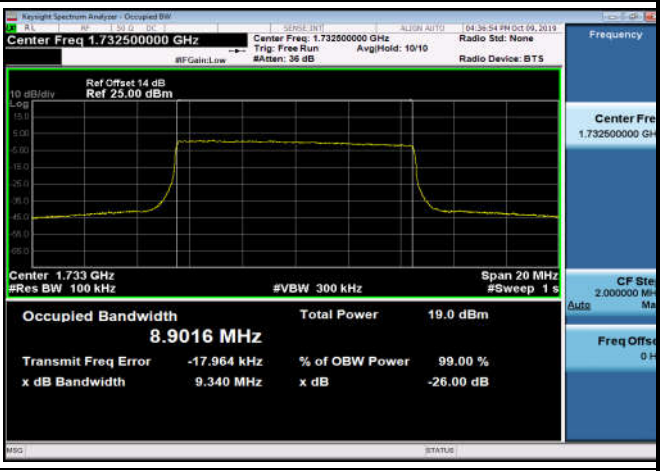
FDD04_MidRange_5MHz_1732.5MHz_Q16



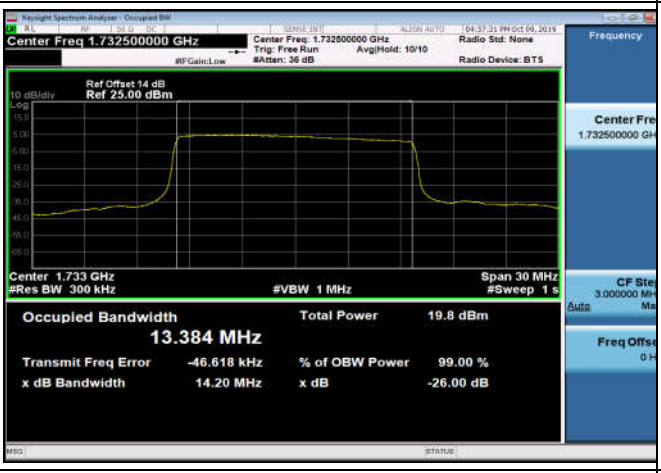
FDD04_MidRange_10MHz_1732.5MHz _QPSK



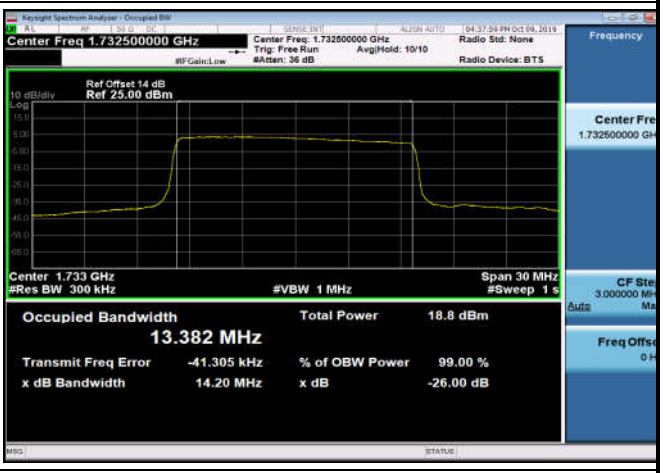
FDD04_MidRange_10MHz_1732.5MHz _Q16



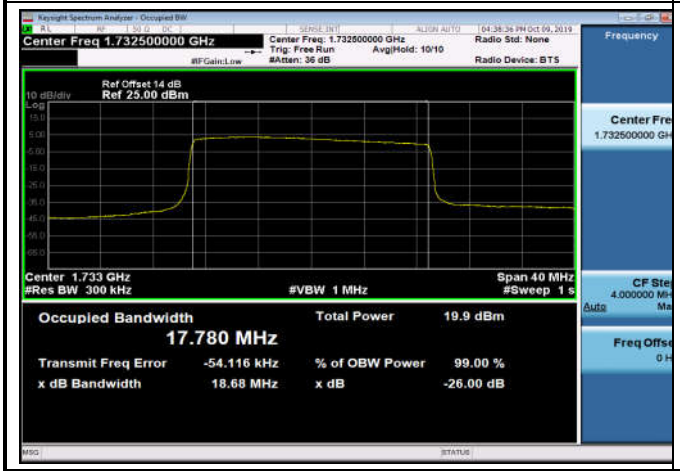
FDD04_MidRange_15MHz_1732.5MHz _QPSK



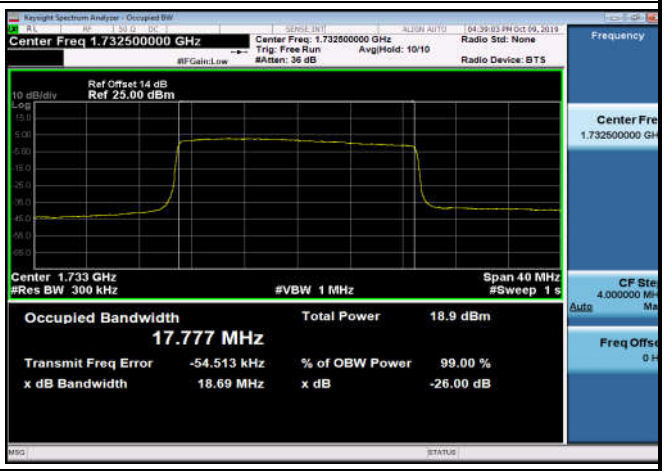
FDD04_MidRange_15MHz_1732.5MHz _Q16



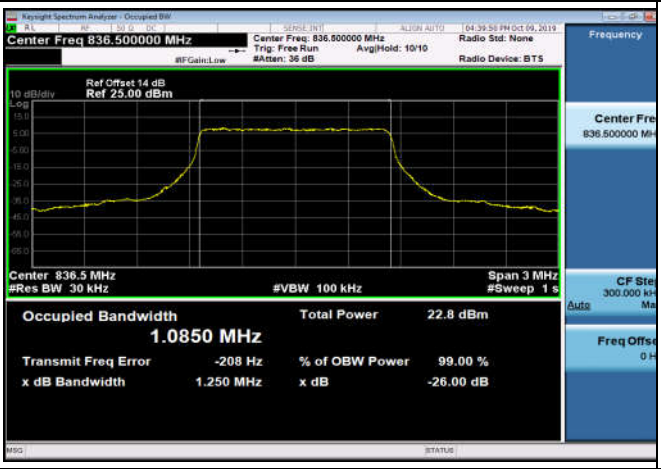
FDD04_MidRange_20MHz_1732.5MHz _QPSK



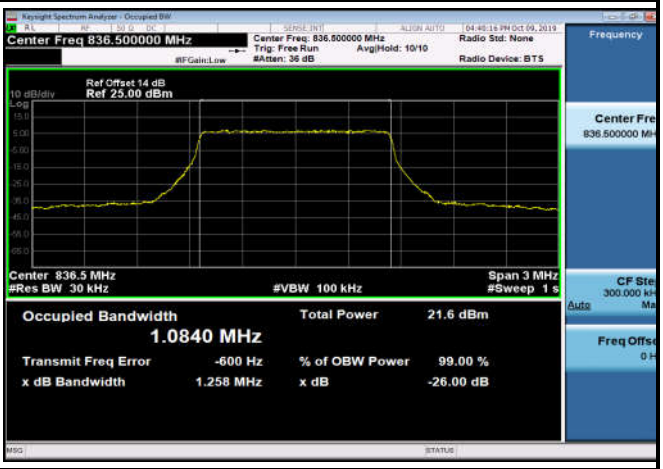
FDD04_MidRange_20MHz_1732.5MHz _Q16



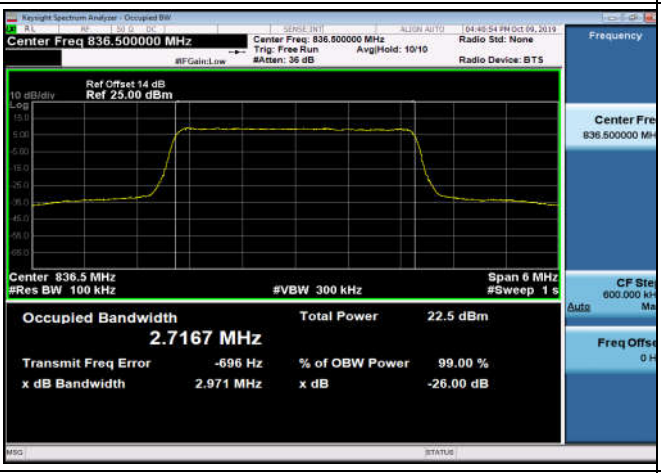
FDD05_MidRange_1.4MHz_836.5MHz _QPSK



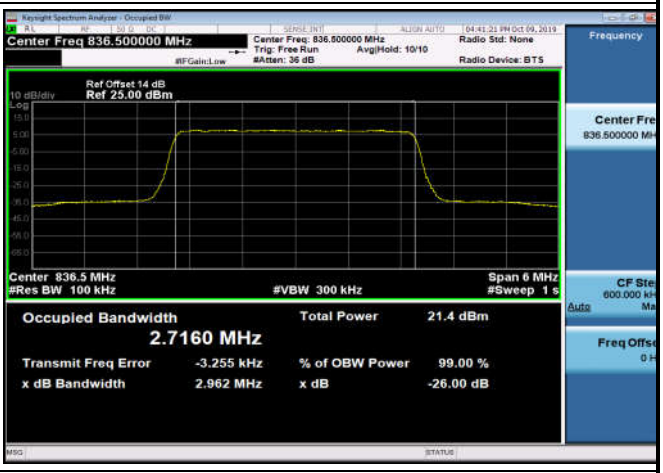
FDD05_MidRange_1.4MHz_836.5MHz _Q16



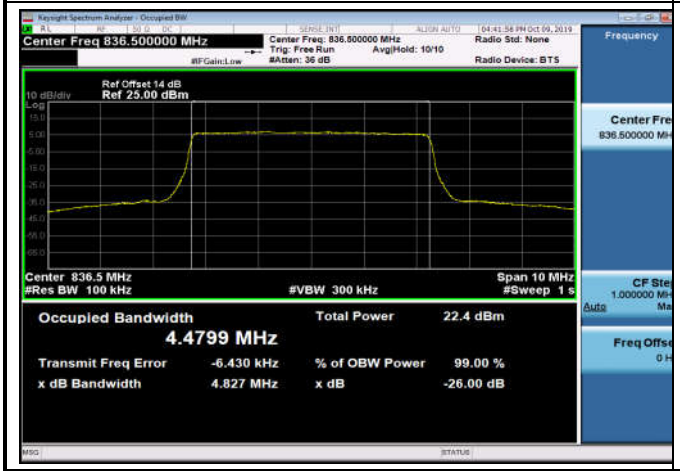
FDD05_MidRange_3MHz_836.5MHz_QPSK



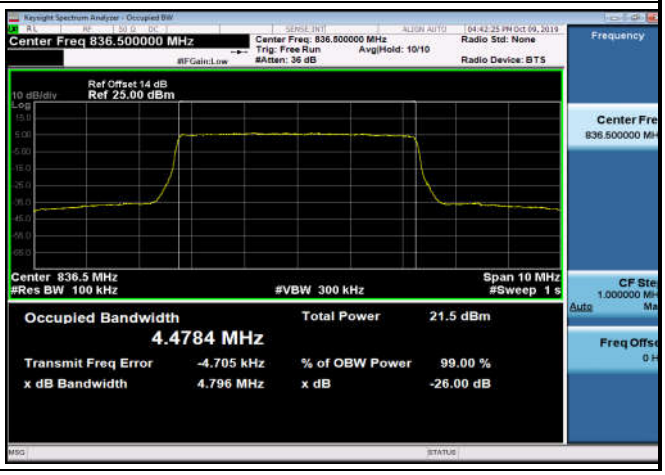
FDD05_MidRange_3MHz_836.5MHz_Q16



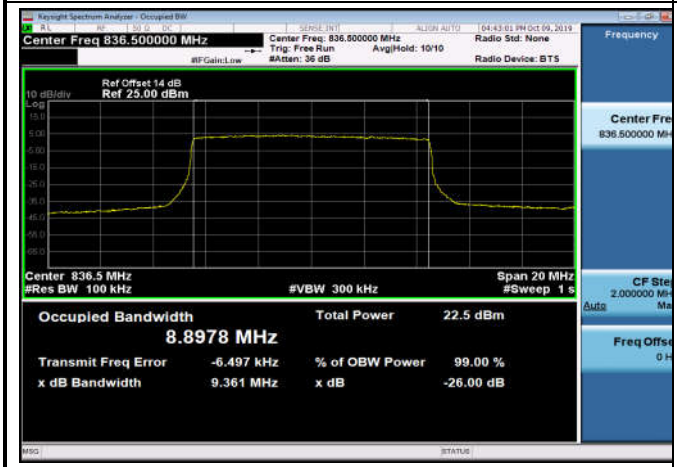
FDD05_MidRange_5MHz_836.5MHz_QPSK



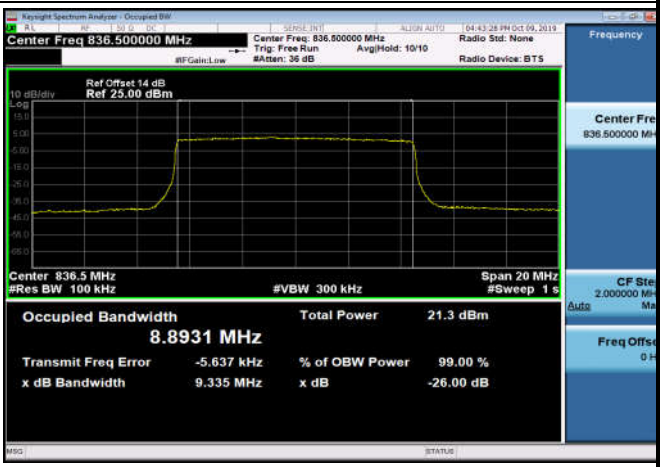
FDD05_MidRange_5MHz_836.5MHz_Q16



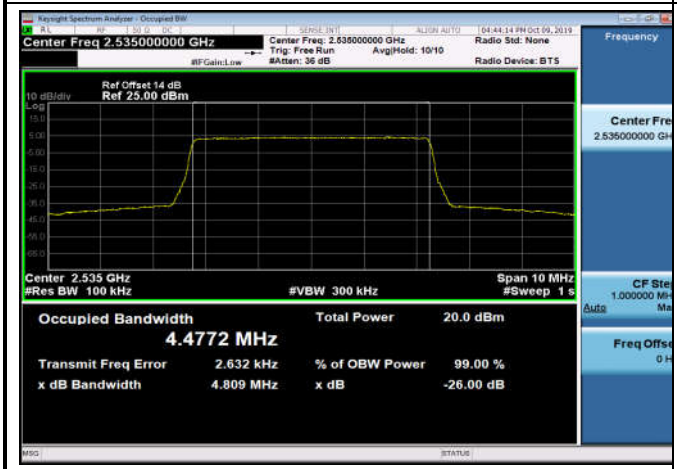
FDD05_MidRange_10MHz_836.5MHz_QPSK



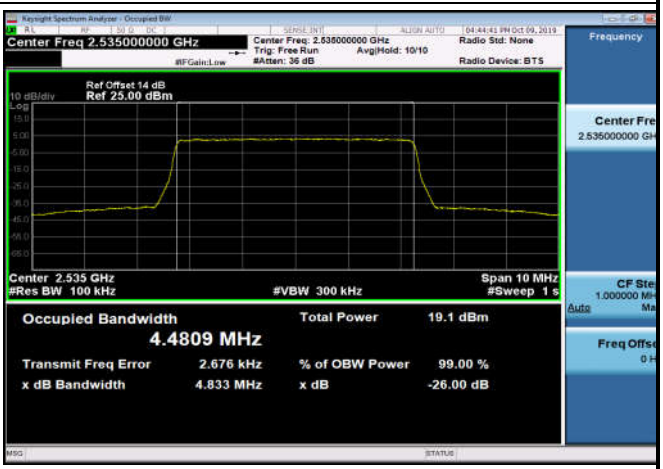
FDD05_MidRange_10MHz_836.5MHz_Q16



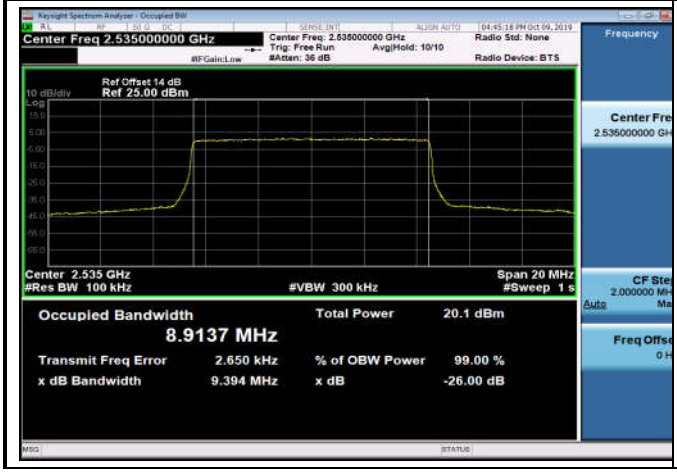
FDD07_MidRange_5MHz_2535MHz_QPSK



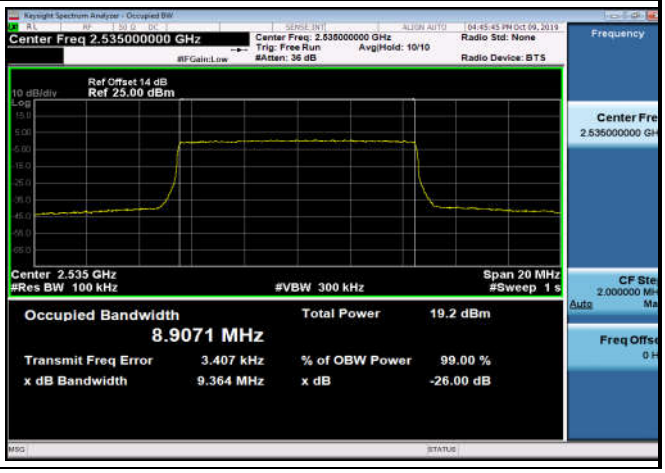
FDD07_MidRange_5MHz_2535MHz_Q16



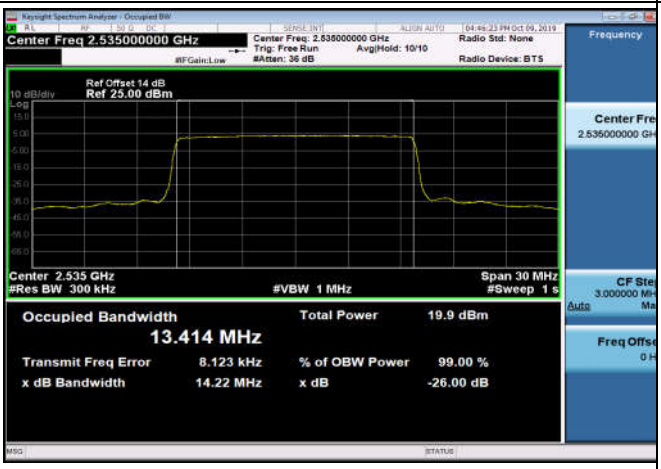
FDD07_MidRange_10MHz_2535MHz_QPSK



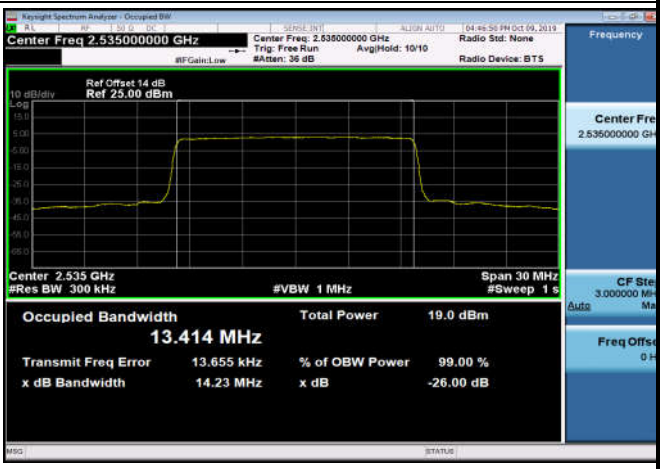
FDD07_MidRange_10MHz_2535MHz_Q16



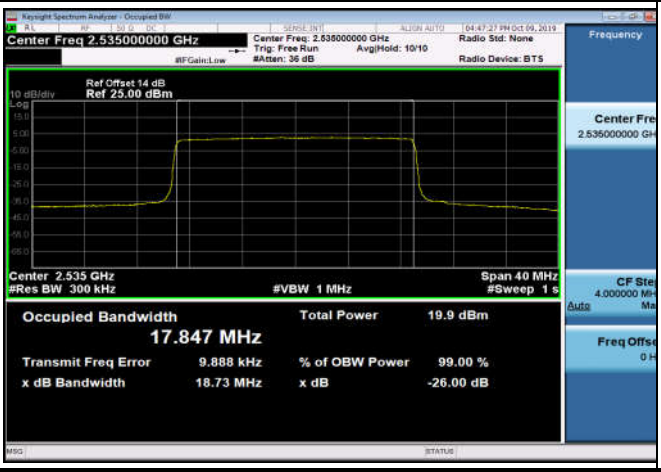
FDD07_MidRange_15MHz_2535MHz_QPSK



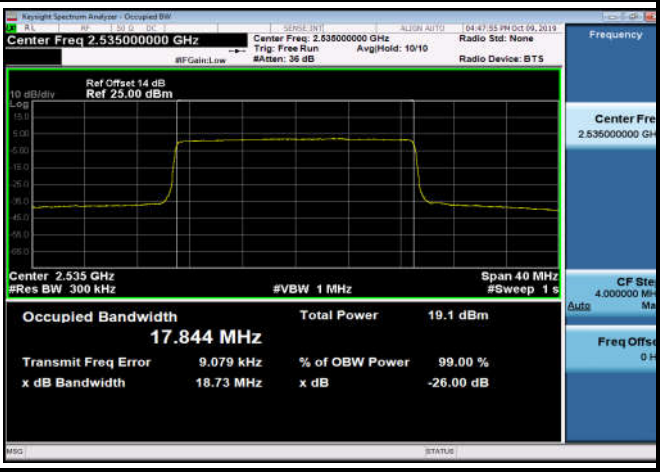
FDD07_MidRange_15MHz_2535MHz_Q16



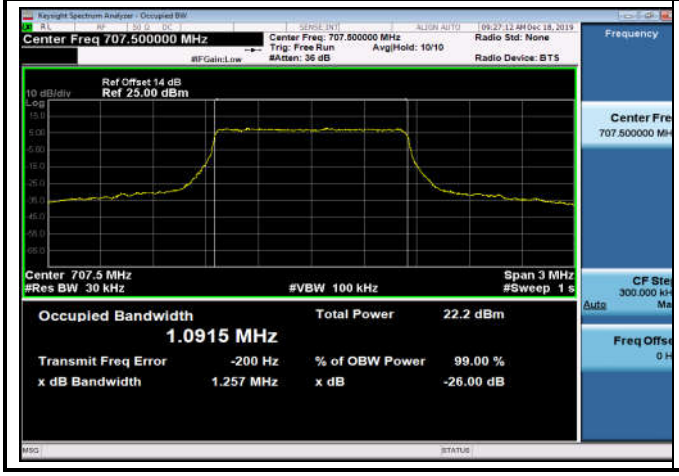
FDD07_MidRange_20MHz_2535MHz_QPSK



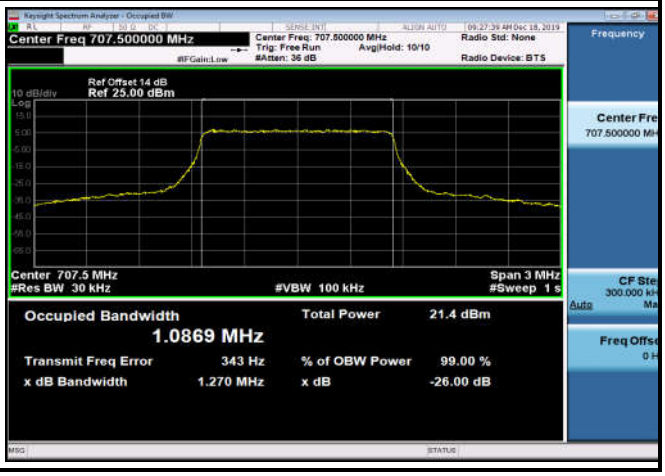
FDD07_MidRange_20MHz_2535MHz_Q16



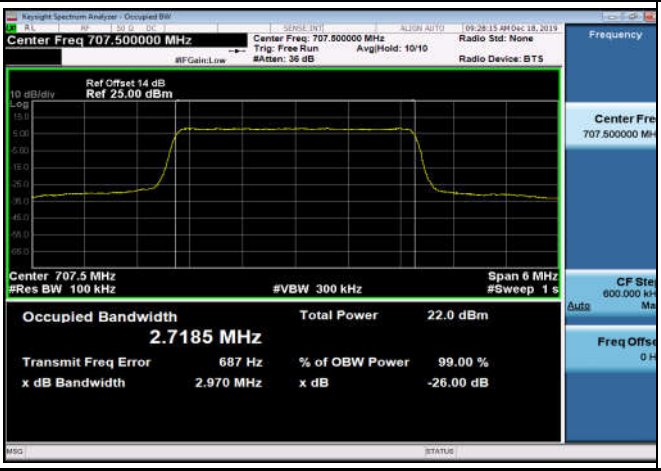
FDD12_MidRange_1.4MHz_707.5MHz _QPSK



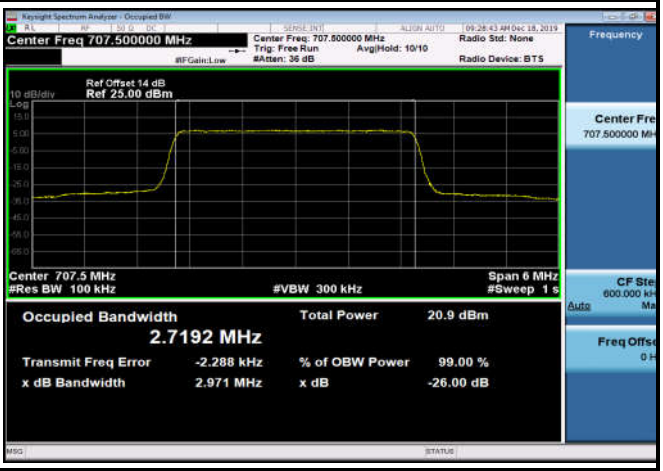
FDD12_MidRange_1.4MHz_707.5MHz _Q16



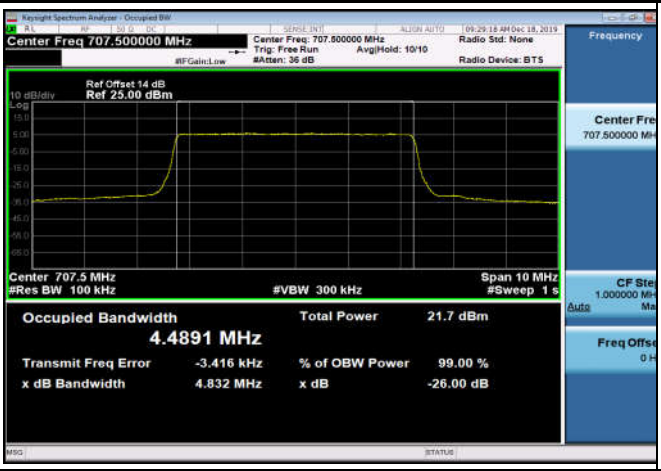
FDD12_MidRange_3MHz_707.5MHz_QPSK



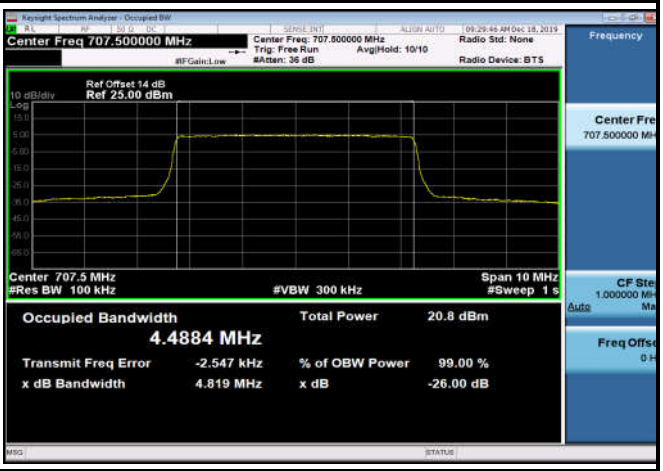
FDD12_MidRange_3MHz_707.5MHz_Q16



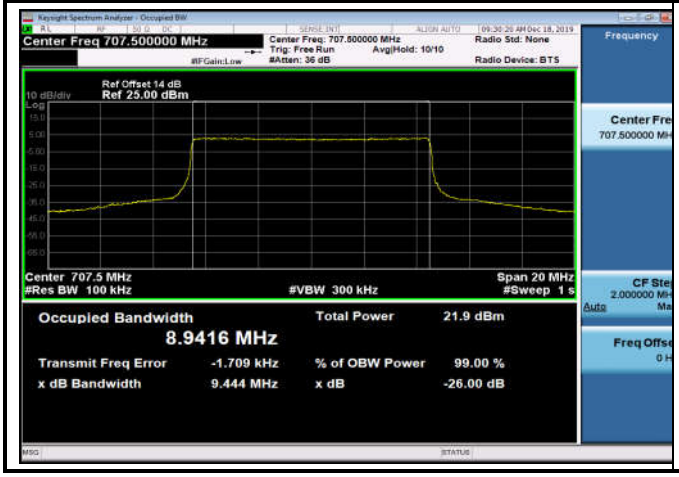
FDD12_MidRange_5MHz_707.5MHz_QPSK



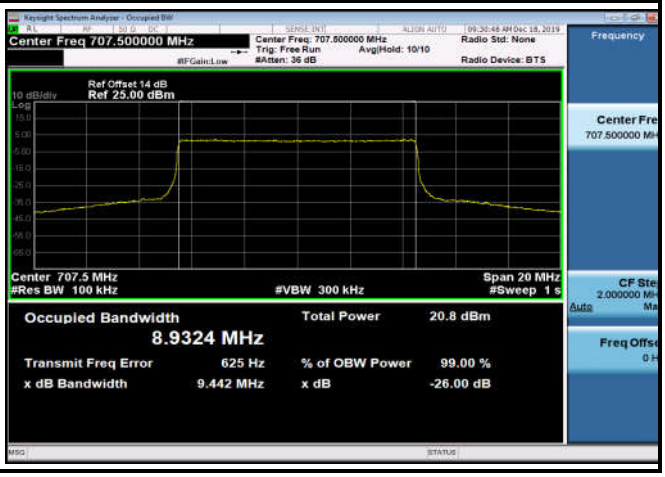
FDD12_MidRange_5MHz_707.5MHz_Q16



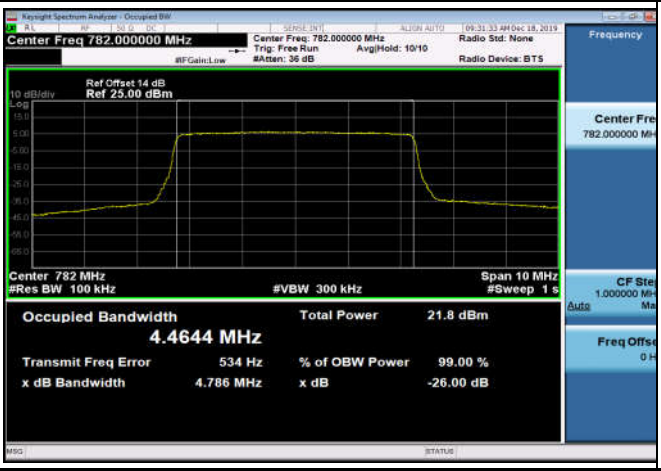
FDD12_MidRange_10MHz_707.5MHz_QPSK



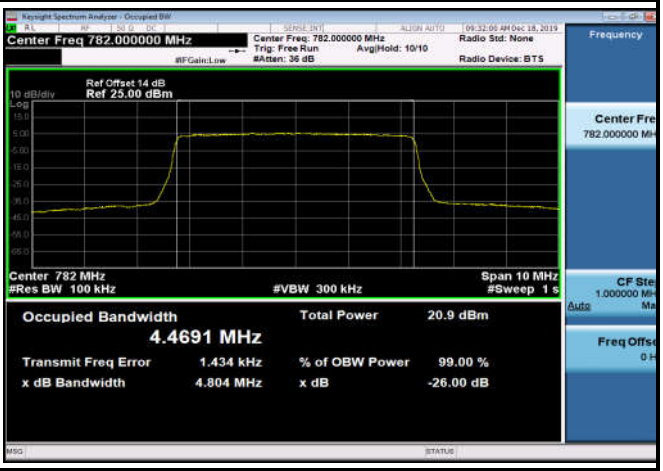
FDD12_MidRange_10MHz_707.5MHz_Q16



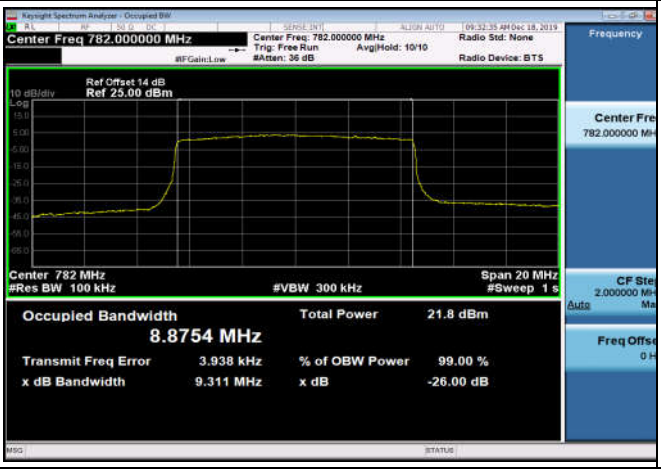
FDD13_MidRange_5MHz_782MHz_QPSK



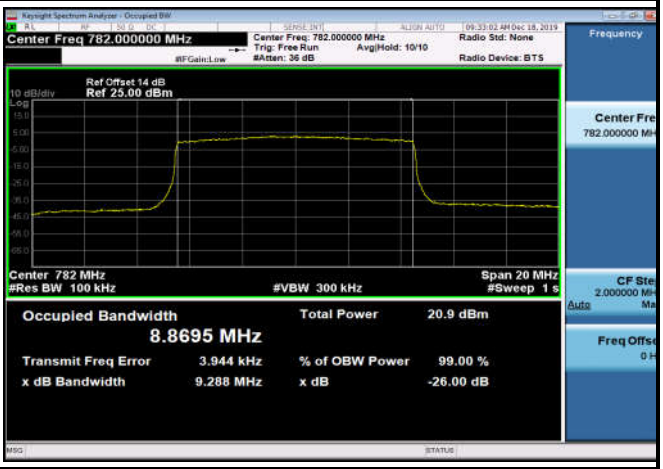
FDD13_MidRange_5MHz_782MHz_Q16



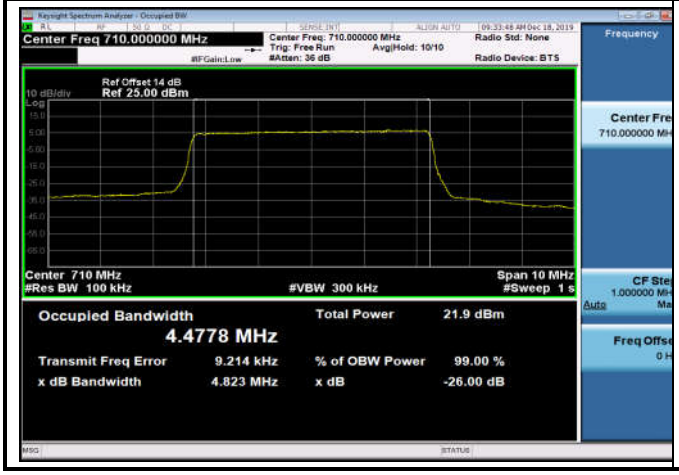
FDD13_MidRange_10MHz_782MHz_QPSK



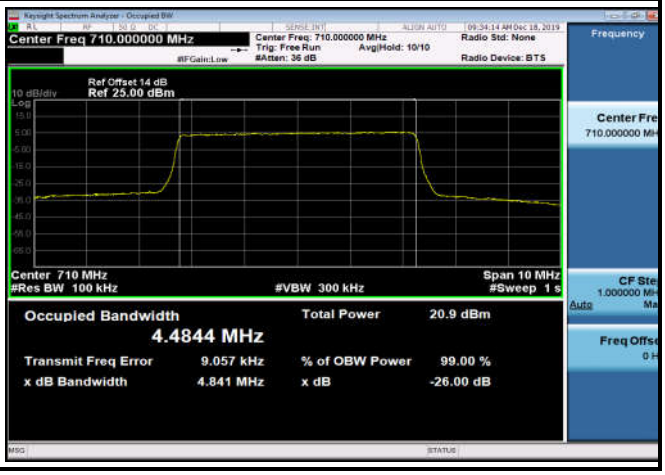
FDD13_MidRange_10MHz_782MHz_Q16

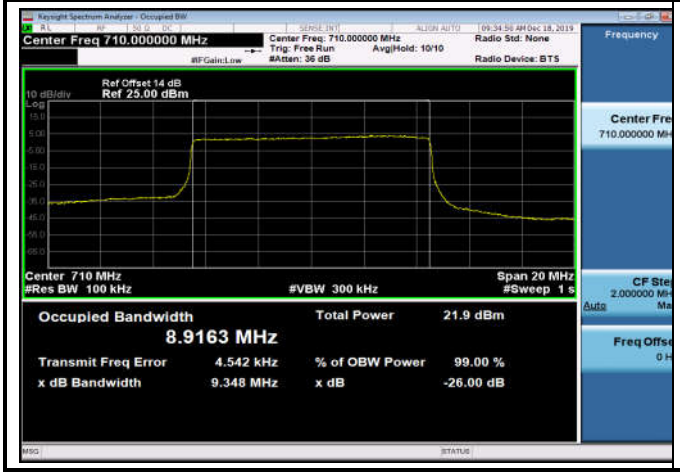
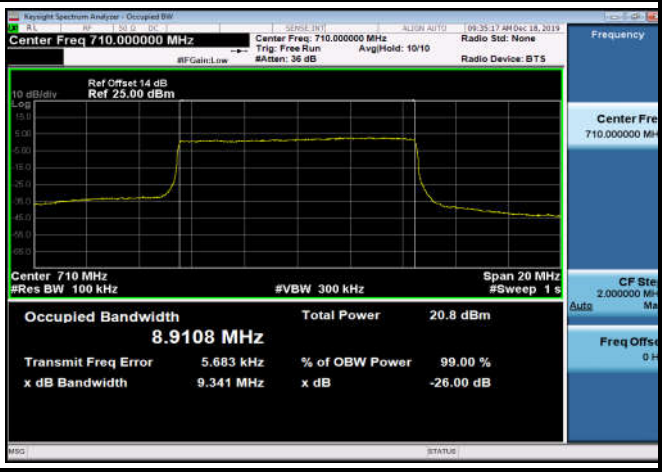


FDD17_MidRange_5MHz_710MHz_QPSK



FDD17_MidRange_5MHz_710MHz_Q16



FDD17_MidRange_10MHz_710MHz_QPSK	FDD17_MidRange_10MHz_710MHz_Q16
	

Frequency Stability

Test Result and Data

Frequency Stability NormalTC_NormalVol									
Temperature	Voltage	Band	BandWidth (MHz)	RbMode	Modulation	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
Normal	Low	FDD02	10	fullRB	QPSK	-6.266	-0.003	2.5	Pass
Normal	Normal	FDD02	10	fullRB	QPSK	-5.622	-0.003	2.5	Pass
Normal	High	FDD02	10	fullRB	QPSK	-7.696	-0.004	2.5	Pass
50	Normal	FDD02	10	fullRB	QPSK	-8.783	-0.005	2.5	Pass
40	Normal	FDD02	10	fullRB	QPSK	-7.210	-0.004	2.5	Pass
30	Normal	FDD02	10	fullRB	QPSK	-8.383	-0.004	2.5	Pass
20	Normal	FDD02	10	fullRB	QPSK	-7.353	-0.004	2.5	Pass
10	Normal	FDD02	10	fullRB	QPSK	-6.566	-0.003	2.5	Pass
0	Normal	FDD02	10	fullRB	QPSK	-8.626	-0.005	2.5	Pass
-10	Normal	FDD02	10	fullRB	QPSK	-8.955	-0.005	2.5	Pass
-20	Normal	FDD02	10	fullRB	QPSK	-6.595	-0.004	2.5	Pass
-30	Normal	FDD02	10	fullRB	QPSK	-9.155	-0.005	2.5	Pass
Normal	Low	FDD04	10	fullRB	QPSK	-4.921	-0.003	2.5	Pass
Normal	Normal	FDD04	10	fullRB	QPSK	-3.977	-0.002	2.5	Pass
Normal	High	FDD04	10	fullRB	QPSK	-3.505	-0.002	2.5	Pass
50	Normal	FDD04	10	fullRB	QPSK	-4.263	-0.002	2.5	Pass
40	Normal	FDD04	10	fullRB	QPSK	-3.147	-0.002	2.5	Pass
30	Normal	FDD04	10	fullRB	QPSK	-4.292	-0.002	2.5	Pass
20	Normal	FDD04	10	fullRB	QPSK	-3.791	-0.002	2.5	Pass
10	Normal	FDD04	10	fullRB	QPSK	-3.376	-0.002	2.5	Pass
0	Normal	FDD04	10	fullRB	QPSK	3.662	-0.002	2.5	Pass
-10	Normal	FDD04	10	fullRB	QPSK	-3.591	-0.002	2.5	Pass
-20	Normal	FDD04	10	fullRB	QPSK	-5.479	-0.003	2.5	Pass
-30	Normal	FDD04	10	fullRB	QPSK	-4.406	-0.003	2.5	Pass
Normal	Low	FDD05	10	fullRB	QPSK	-2.904	-0.003	2.5	Pass
Normal	Normal	FDD05	10	fullRB	QPSK	-4.463	-0.005	2.5	Pass
Normal	High	FDD05	10	fullRB	QPSK	-3.476	-0.004	2.5	Pass

50	Normal	FDD05	10	fullRB	QPSK	-3.705	-0.004	2.5	Pass
40	Normal	FDD05	10	fullRB	QPSK	-3.805	-0.005	2.5	Pass
30	Normal	FDD05	10	fullRB	QPSK	-3.433	-0.004	2.5	Pass
20	Normal	FDD05	10	fullRB	QPSK	-5.450	-0.007	2.5	Pass
10	Normal	FDD05	10	fullRB	QPSK	-4.721	-0.006	2.5	Pass
0	Normal	FDD05	10	fullRB	QPSK	-4.478	-0.005	2.5	Pass
-10	Normal	FDD05	10	fullRB	QPSK	-4.392	-0.005	2.5	Pass
-20	Normal	FDD05	10	fullRB	QPSK	-4.563	-0.005	2.5	Pass
-30	Normal	FDD05	10	fullRB	QPSK	-2.604	-0.003	2.5	Pass
Normal	Low	FDD07	10	fullRB	QPSK	-9.828	-0.004	2.5	Pass
Normal	Normal	FDD07	10	fullRB	QPSK	-7.310	-0.003	2.5	Pass
Normal	High	FDD07	10	fullRB	QPSK	-7.567	-0.003	2.5	Pass
50	Normal	FDD07	10	fullRB	QPSK	-6.080	-0.002	2.5	Pass
40	Normal	FDD07	10	fullRB	QPSK	-7.982	-0.003	2.5	Pass
30	Normal	FDD07	10	fullRB	QPSK	-8.554	-0.003	2.5	Pass
20	Normal	FDD07	10	fullRB	QPSK	-7.238	-0.003	2.5	Pass
10	Normal	FDD07	10	fullRB	QPSK	-9.513	-0.004	2.5	Pass
0	Normal	FDD07	10	fullRB	QPSK	-7.281	-0.003	2.5	Pass
-10	Normal	FDD07	10	fullRB	QPSK	-7.896	-0.003	2.5	Pass
-20	Normal	FDD07	10	fullRB	QPSK	-9.313	-0.004	2.5	Pass
-30	Normal	FDD07	10	fullRB	QPSK	-8.125	-0.003	2.5	Pass
Normal	Low	FDD12	10	fullRB	QPSK	-2.446	-0.003	2.5	Pass
Normal	Normal	FDD12	10	fullRB	QPSK	-3.076	-0.004	2.5	Pass
Normal	High	FDD12	10	fullRB	QPSK	-2.818	-0.004	2.5	Pass
50	Normal	FDD12	10	fullRB	QPSK	-3.433	-0.005	2.5	Pass
40	Normal	FDD12	10	fullRB	QPSK	-3.033	-0.004	2.5	Pass
30	Normal	FDD12	10	fullRB	QPSK	-2.775	-0.004	2.5	Pass
20	Normal	FDD12	10	fullRB	QPSK	-3.691	-0.005	2.5	Pass
10	Normal	FDD12	10	fullRB	QPSK	-3.505	-0.005	2.5	Pass
0	Normal	FDD12	10	fullRB	QPSK	-3.819	-0.005	2.5	Pass
-10	Normal	FDD12	10	fullRB	QPSK	-2.561	-0.004	2.5	Pass
-20	Normal	FDD12	10	fullRB	QPSK	-3.119	-0.004	2.5	Pass

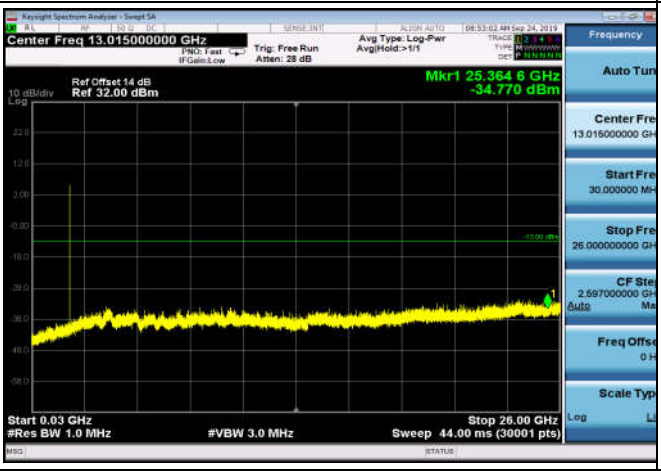
-30	Normal	FDD12	10	fullRB	QPSK	-2.732	-0.004	2.5	Pass
Normal	Low	FDD13	10	fullRB	QPSK	-4.492	-0.006	2.5	Pass
Normal	Normal	FDD13	10	fullRB	QPSK	-3.576	-0.005	2.5	Pass
Normal	High	FDD13	10	fullRB	QPSK	-2.174	-0.003	2.5	Pass
50	Normal	FDD13	10	fullRB	QPSK	-4.334	-0.006	2.5	Pass
40	Normal	FDD13	10	fullRB	QPSK	-3.319	-0.004	2.5	Pass
30	Normal	FDD13	10	fullRB	QPSK	-3.247	-0.004	2.5	Pass
20	Normal	FDD13	10	fullRB	QPSK	-3.490	-0.004	2.5	Pass
10	Normal	FDD13	10	fullRB	QPSK	-1.945	-0.002	2.5	Pass
0	Normal	FDD13	10	fullRB	QPSK	-2.890	-0.004	2.5	Pass
-10	Normal	FDD13	10	fullRB	QPSK	-2.561	-0.003	2.5	Pass
-20	Normal	FDD13	10	fullRB	QPSK	-4.706	-0.006	2.5	Pass
-30	Normal	FDD13	10	fullRB	QPSK	-3.347	-0.004	2.5	Pass
Normal	Low	FDD17	10	fullRB	QPSK	1.845	-0.003	2.5	Pass
Normal	Normal	FDD17	10	fullRB	QPSK	-2.804	-0.004	2.5	Pass
Normal	High	FDD17	10	fullRB	QPSK	-2.432	-0.003	2.5	Pass
50	Normal	FDD17	10	fullRB	QPSK	2.074	-0.003	2.5	Pass
40	Normal	FDD17	10	fullRB	QPSK	-2.317	-0.003	2.5	Pass
30	Normal	FDD17	10	fullRB	QPSK	-2.432	-0.003	2.5	Pass
20	Normal	FDD17	10	fullRB	QPSK	-2.289	-0.003	2.5	Pass
10	Normal	FDD17	10	fullRB	QPSK	-2.704	-0.004	2.5	Pass
0	Normal	FDD17	10	fullRB	QPSK	-3.476	-0.005	2.5	Pass
-10	Normal	FDD17	10	fullRB	QPSK	-1.688	-0.002	2.5	Pass
-20	Normal	FDD17	10	fullRB	QPSK	-2.446	-0.003	2.5	Pass
-30	Normal	FDD17	10	fullRB	QPSK	-1.688	-0.002	2.5	Pass

Note：Normal=3.8V, Low=3.5V, High=4.2V

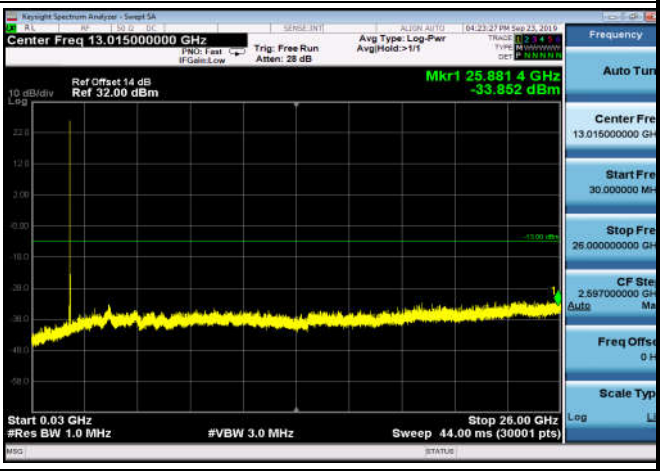
Conducted Out of Band Emissions

Test Result and Data

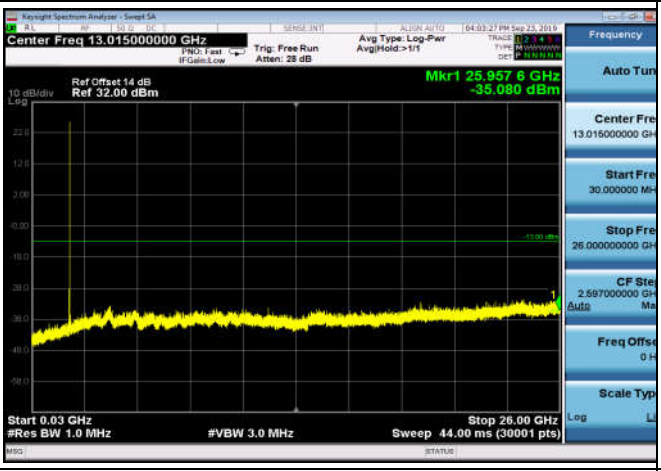
FDD02_HighRange_1.4MHz_30MHz~26GHz



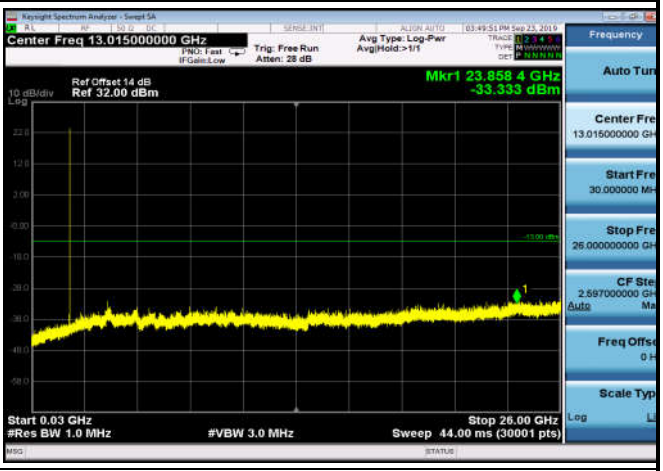
FDD02_HighRange_10MHz_30MHz~26GHz



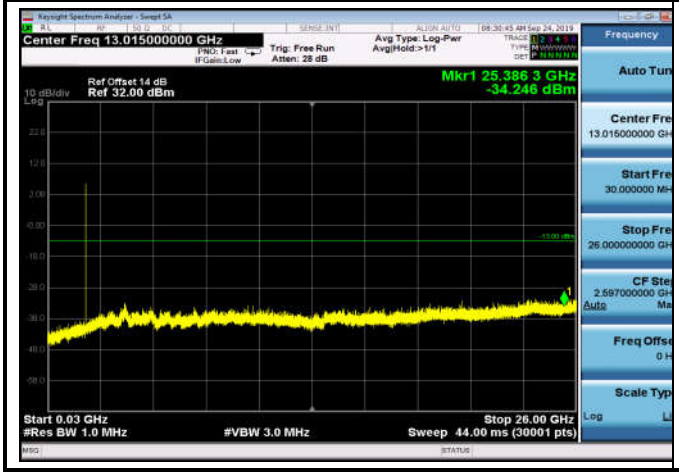
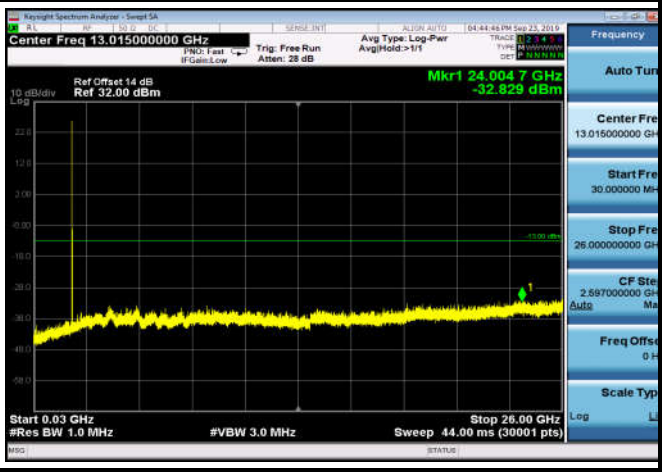
FDD02_HighRange_15MHz_30MHz~26GHz



FDD02_HighRange_20MHz_30MHz~26GHz



FDD02_HighRange_3MHz_30MHz~26GHz



FDD02_HighRange_5MHz_30MHz~26GHz