RF TEST REPORT

Report No.: SET2021-01849

Product: LTE/WCDMA/GSM(GPRS) Mutil-Mode Digital Mobile Phone

FCC ID: SRQ- ZTEA31LITE

Model No.: ZTE Blade A31 Lite

Marketing name : ZTE Blade A31 Lite

Applicant: ZTE Corporation.

Address: ZTE Plaza, Keji Road South, Shenzhen, China.

Dates of Testing: 01/12/2021 — 02/03/2021

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 .....: LTE/WCDMA/GSM(GPRS) Mutil-Mode Digital Mobile Phone

Brand Name.....: ZTE

Trade Name .....: ZTE

Applicant .....: ZTE Corporation.

Applicant Address .....: ZTE Plaza, Keji Road South, Shenzhen, China.

Manufacturer .....: ZTE Corporation.

Manufacturer Address.....: ZTE Plaza, Keji Road South, Shenzhen, China.

Test Standards .....: FCC Part2/22/27

Test Result……: PASS

Tested by ……: Vincent 2021.02.03

Vincent, Test Engineer

Reviewed by……: Chris You 2021.02.03.

Chris You, Senior Engineer

Approved by……: Shuangwen Zhang 2021.02.03

Shuangwen Zhang，Manager

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Change History		
Issue	Date	Reason for change
1.0	2021.02.03	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type	LTE/WCDMA/GSM(GPRS) Mutil-Mode Digital Mobile Phone
EUT supports Radios application	LTE Band 2/4/5/7/12/17
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 17: 706.5MHz~713.5MHz
Maximum Output Power to Antenna	LTE Band 2: 23.83dBm LTE Band 4: 23.40dBm LTE Band 5: 24.42dBm LTE Band 7: 23.83dBm LTE Band 12: 24.20dBm LTE Band 17:24.24 dBm
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 17: 5MHz/10MHz
Modulation Type	QPSK/16QAM/64QAM(downlink only)
Antenna Type	Internal Antenna
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	—	0.248
LTE Band 2	16QAM	1.4	1M08W7D	—	0.175
LTE Band 2	QPSK	3	2M68G7D	—	0.246
LTE Band 2	16QAM	3	2M68W7D	—	0.181
LTE Band 2	QPSK	5	4M48G7D	—	0.245
LTE Band 2	16QAM	5	4M48W7D	—	0.177
LTE Band 2	QPSK	10	8M93G7D	0.029	0.220
LTE Band 2	16QAM	10	8M92W7D	—	0.196
LTE Band 2	QPSK	15	13M4G7D	—	0.218
LTE Band 2	16QAM	15	13M4W7D	—	0.134
LTE Band 2	QPSK	20	17M9G7D	—	0.203
LTE Band 2	16QAM	20	17M9W7D	—	0.169
LTE Band 4	QPSK	1.4	1M09G7D	—	0.236
LTE Band 4	16QAM	1.4	1M09W7D	—	0.155
LTE Band 4	QPSK	3	2M68G7D	—	0.231
LTE Band 4	16QAM	3	2M68W7D	—	0.155
LTE Band 4	QPSK	5	4M49G7D	—	0.234
LTE Band 4	16QAM	5	4M48W7D	—	0.184
LTE Band 4	QPSK	10	8M92G7D	0.027	0.247
LTE Band 4	16QAM	10	8M92W7D	—	0.144
LTE Band 4	QPSK	15	13M5G7D	—	0.179
LTE Band 4	16QAM	15	13M5W7D	—	0.116
LTE Band 4	QPSK	20	17M9G7D	—	0.198
LTE Band 4	16QAM	20	17M9W7D	—	0.114

LTE Band 5	QPSK	1.4	1M09G7D	__	0.250
LTE Band 5	16QAM	1.4	1M09W7D	__	0.170
LTE Band 5	QPSK	3	2M68G7D	__	0.245
LTE Band 5	16QAM	3	2M68W7D	__	0.168
LTE Band 5	QPSK	5	4M48G7D	—	0.250
LTE Band 5	16QAM	5	4M48W7D	__	0.165
LTE Band 5	QPSK	10	8M93G7D	0.057	0.230
LTE Band 5	16QAM	10	8M92W7D	—	0.195
LTE Band 7	QPSK	5	4M48G7D	—	0.209
LTE Band 7	16QAM	5	4M48W7D	—	0.169
LTE Band 7	QPSK	10	8M93G7D	0.021	0.208
LTE Band 7	16QAM	10	8M92W7D	—	0.177
LTE Band 7	QPSK	15	13M4G7D	—	0.218
LTE Band 7	16QAM	15	13M4W7D	—	0.177
LTE Band 7	QPSK	20	17M9G7D	—	0.211
LTE Band 7	16QAM	20	17M9W7D	—	0.172
LTE Band 12	QPSK	1.4	1M09G7D	—	0.228
LTE Band 12	16QAM	1.4	1M09W7D	—	0.176
LTE Band 12	QPSK	3	2M68G7D	—	0.223
LTE Band 12	16QAM	3	2M68W7D	—	0.199
LTE Band 12	QPSK	5	4M48G7D	—	0.225
LTE Band 12	16QAM	5	4M48W7D	—	0.177
LTE Band 12	QPSK	10	8M92G7D	0.071	0.208
LTE Band 12	16QAM	10	8M92W7D	—	0.160
LTE Band 17	QPSK	5	4M48G7D	—	0.251
LTE Band 17	16QAM	5	4M48W7D	—	0.199
LTE Band 17	QPSK	10	8M92G7D	0.068	0.249
LTE Band 17	16QAM	10	8M92W7D	—	0.173

1.3 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part24, Part27 ， Part90，for the EUT FCC ID Certification:

1.47 CFR Part 2, 24(E), 27(F), 27(L), 27(H), 27(M)

2. ANSI/TIA/EIA-603-D-2010

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	27.50(b)(10) 27.50(c)(10)	Effective Radiated Power(Band 12/17)	EIRP＜3Watt	PASS
	27.50(h)(2) 24.232(c)	Effective Radiated Power(Band 2/7)	EIRP＜2Watt	PASS PASS
	27.50(d)(4)	Effective Radiated Power(Band 4)	EIRP＜1Watt	PASS
	22.913(a)(2)	Effective Radiated Power(Band 5)	ERP＜7Watt	PASS
4	2.1049	Occupied Bandwidth	Reporting Only	PASS
5	2.1051 22.917(a) 24.238(b) 24.53(c) (2)(4) 27.53(g) 27.53(h)	Conducted Band Edge (Band 2/4/5/12/17)	＜43+10log10(P[watt])	PASS
	2.1051 27.53(i)(4)	Conducted Band Edge(Band 7)	Refer to 27.53m(4)	PASS
6	2.1051 22.917(a) 24.238(a) 27.53(g) 27.53(h)	Conducted Spurious Emission (Band 2/4/5/12/17)	＜43+10log10(P[watt])	PASS
	2.1051	Conducted Spurious Emission	＜55+10log10(P[watt])	PASS

	27.53(i)(4)	(Band 7)		
7	2.1053 22.917(a) 24.238(a) 27.53(g) 27.53(h)	Radiated Spurious Emission (Band 2/4/5/12/17)	＜43+10log10(P[watt])	PASS
	2.1053 27.53(i)(4)	Radiated Spurious Emission (Band 7)	＜55+10log10(P[watt])	PASS
8	2.1055, 22.355 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	√	√	√	√			√	√	√	√	√	√	√	√
	17			√	√			√	√	√	√	√	√	√	√
Peak-to-Average Ratio	2				√				√	√		√	√	√	√
	4				√				√	√		√	√	√	√
	5														
	7														
	12														
	17														
26dB and 99% Bandwidth	2	√	√	√	√	√	√	√	√			√		√	
	4	√	√	√	√	√	√	√	√			√		√	
	5	√	√	√	√			√	√			√		√	
	7			√	√	√	√	√	√			√		√	
	12	√	√	√	√			√	√			√		√	
	17			√	√			√	√			√		√	
Conducted Band Edge	2	√	√	√	√	√	√	√	√	√		√	√		√
	4	√	√	√	√	√	√	√	√	√		√	√		√
	5	√	√	√	√			√	√	√		√	√		√
	7			√	√	√	√	√	√	√		√	√		√
	12	√	√	√	√			√	√	√		√	√		√
	17			√	√			√	√	√		√	√		√
Conducted Spurious Emission	2	√						√		√			√	√	√
	4	√						√		√			√	√	√
	5	√						√		√			√	√	√
	7			√				√		√			√	√	√
	12	√						√		√			√	√	√
	17			√				√		√			√	√	√

Frequency Stability	**2**				√			√				√		√	
	4				√			√				√		√	
	5				√			√				√		√	
	7				√			√				√		√	
	12				√			√				√		√	
	17				√			√				√		√	
ERP/EIRP	**2**	√	√	√	√	√	√	√	√	√			√	√	√
	4	√	√	√	√	√	√	√	√	√			√	√	√
	5	√	√	√	√			√	√	√			√	√	√
	7			√	√	√	√	√	√	√			√	√	√
	12	√	√	√	√			√	√	√			√	√	√
	17			√	√			√	√	√			√	√	√
Radiated Spurious Emission	**2**	**Worst case**													
	4	**Worst case**													
	5	**Worst case**													
	7	**Worst case**													
	12	**Worst case**													
	17	**Worst case**													
Note	**1. The mark " √ " means that this configuration is chosen for testing.** **2. 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.** **3. 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

FCC-Registration No.: CN1283

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: CN1283, valid time is until June 30th,2021

ISED Registration: 11185A-1

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 June 30th, 2021

A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

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

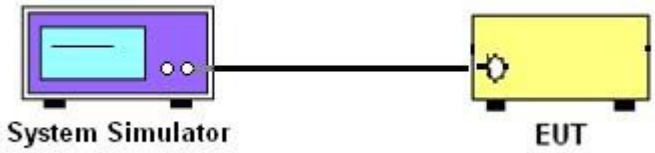
2.1.1 Requirement

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

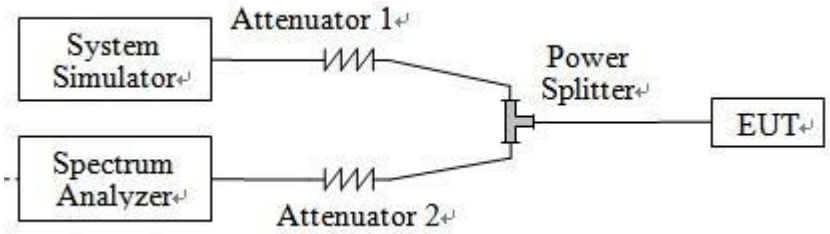
2.2.1 Definition

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

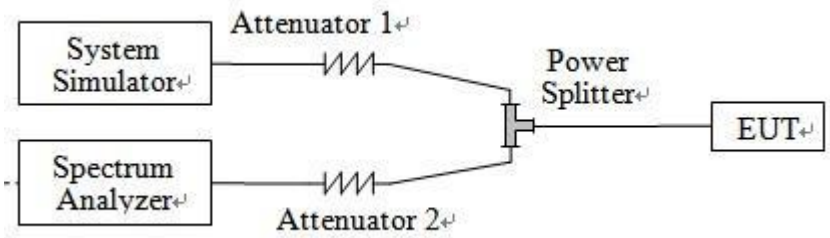
According to FCC section 2.1049, the occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

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:

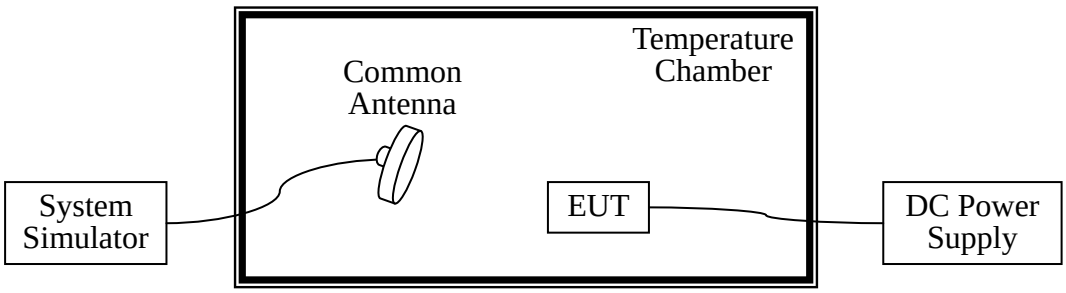
(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.

(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

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:

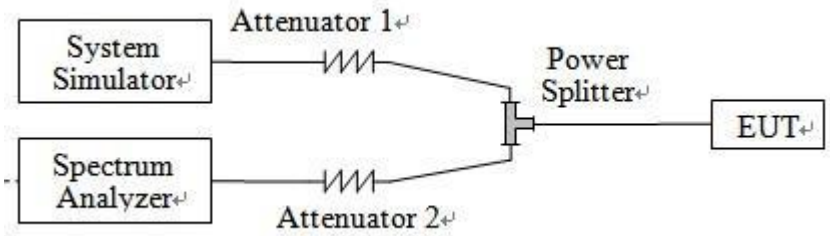
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

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. 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.

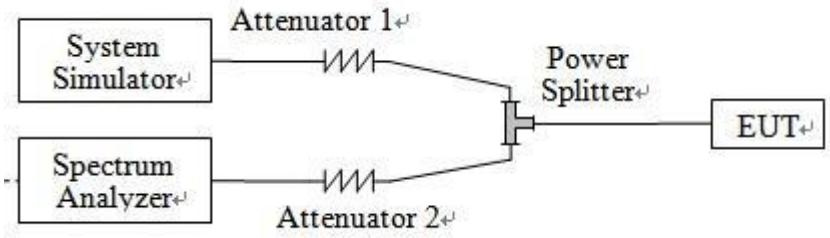
27.53m(4)

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

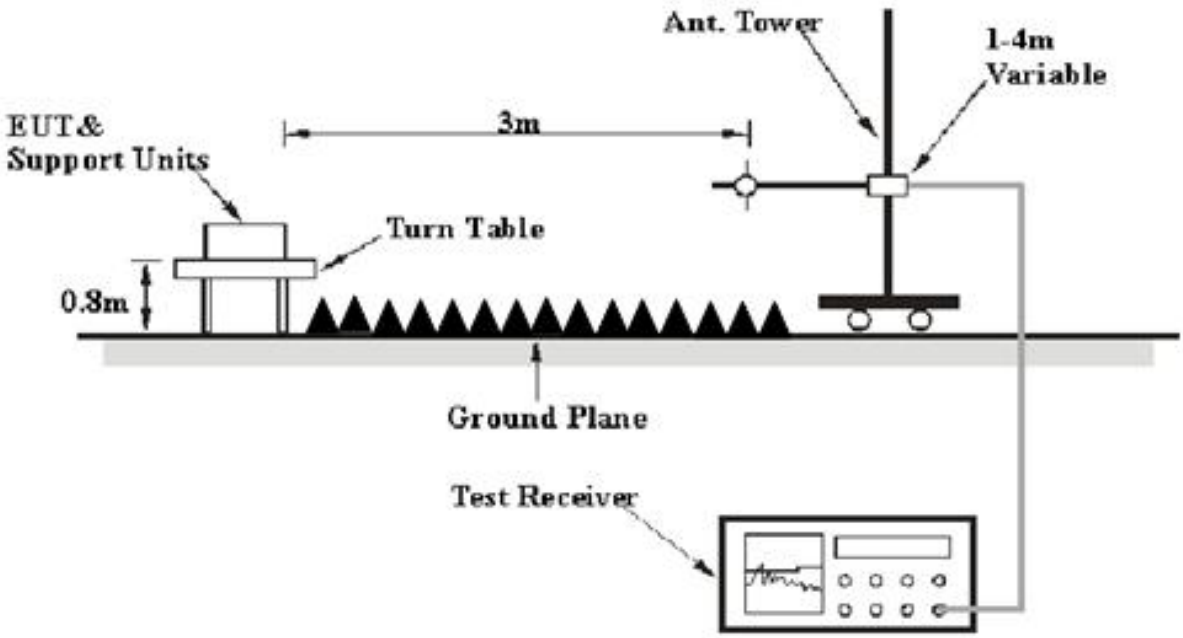
Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-D-2010, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v03r01. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts with LTE band 5

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-D-2010, 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 with LTE band 2/7 and 1 watt with 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	2	1850.7	23.94	PASS
2	1.4	QPSK	1	5	1880	23.92	PASS
2	1.4	QPSK	3	2	1909.3	23.95	PASS
2	1.4	16QAM	1	0	1850.7	22.35	PASS
2	1.4	16QAM	1	2	1880	22.36	PASS
2	1.4	16QAM	3	2	1909.3	22.44	PASS
2	3	QPSK	1	7	1851.5	23.90	PASS
2	3	QPSK	1	14	1880	23.88	PASS
2	3	QPSK	1	0	1908.5	23.91	PASS
2	3	16QAM	1	14	1851.5	22.50	PASS
2	3	16QAM	1	0	1880	22.54	PASS
2	3	16QAM	1	0	1908.5	22.57	PASS
2	5	QPSK	1	0	1852.5	23.89	PASS
2	5	QPSK	1	0	1880	23.83	PASS
2	5	QPSK	1	24	1907.5	23.90	PASS
2	5	16QAM	1	12	1852.5	22.48	PASS
2	5	16QAM	1	0	1880	22.41	PASS
2	5	16QAM	1	12	1907.5	22.49	PASS
2	10	QPSK	1	0	1855	23.42	PASS
2	10	QPSK	1	0	1880	23.31	PASS
2	10	QPSK	1	49	1905	23.4	PASS
2	10	16QAM	1	0	1855	22.91	PASS
2	10	16QAM	1	0	1880	22.89	PASS
2	10	16QAM	1	24	1905	22.92	PASS
2	15	QPSK	1	0	1857.5	23.28	PASS
2	15	QPSK	1	0	1880	23.38	PASS
2	15	QPSK	1	74	1902.5	23.32	PASS
2	15	16QAM	1	0	1857.5	21.16	PASS
2	15	16QAM	1	0	1880	21.19	PASS
2	15	16QAM	1	74	1902.5	21.27	PASS
2	20	QPSK	1	0	1860	23.07	PASS
2	20	QPSK	1	0	1880	23.01	PASS
2	20	QPSK	1	0	1900	23.06	PASS
2	20	16QAM	1	0	1860	22.25	PASS
2	20	16QAM	1	0	1880	22.2	PASS
2	20	16QAM	1	49	1900	22.27	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	23.64	PASS
4	1.4	QPSK	1	0	1732.5	23.72	PASS
4	1.4	QPSK	1	0	1754.3	23.65	PASS
4	1.4	16QAM	1	0	1710.7	21.85	PASS
4	1.4	16QAM	1	0	1732.5	21.76	PASS
4	1.4	16QAM	1	0	1754.3	21.9	PASS
4	3	QPSK	1	0	1711.5	23.63	PASS
4	3	QPSK	1	0	1732.5	23.52	PASS
4	3	QPSK	1	0	1753.5	23.64	PASS
4	3	16QAM	1	14	1711.5	21.85	PASS
4	3	16QAM	1	14	1732.5	21.9	PASS
4	3	16QAM	1	14	1753.5	21.83	PASS
4	5	QPSK	1	24	1712.5	23.69	PASS
4	5	QPSK	1	24	1732.5	23.58	PASS
4	5	QPSK	1	24	1752.5	23.64	PASS
4	5	16QAM	1	24	1712.5	22.63	PASS
4	5	16QAM	1	0	1732.5	22.56	PASS
4	5	16QAM	1	0	1752.5	22.64	PASS
4	10	QPSK	1	0	1715	23.89	PASS
4	10	QPSK	1	0	1732.5	23.87	PASS
4	10	QPSK	1	0	1750	23.92	PASS
4	10	16QAM	1	24	1715	21.56	PASS
4	10	16QAM	1	0	1732.5	21.49	PASS
4	10	16QAM	1	24	1750	21.57	PASS
4	15	QPSK	1	74	1717.5	22.47	PASS
4	15	QPSK	1	74	1732.5	22.39	PASS
4	15	QPSK	1	0	1747.5	22.53	PASS
4	15	16QAM	1	74	1717.5	20.6	PASS
4	15	16QAM	1	0	1732.5	20.65	PASS
4	15	16QAM	1	0	1747.5	20.53	PASS
4	20	QPSK	1	0	1720	22.87	PASS
4	20	QPSK	1	0	1732.5	22.94	PASS
4	20	QPSK	1	0	1745	22.96	PASS
4	20	16QAM	1	0	1720	20.57	PASS
4	20	16QAM	1	0	1732.5	20.5	PASS
4	20	16QAM	1	0	1745	20.58	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	5	824.7	23.98	PASS
5	1.4	QPSK	1	2	836.5	23.02	PASS
5	1.4	QPSK	1	5	848.3	23.01	PASS
5	1.4	16QAM	1	5	824.7	22.24	PASS
5	1.4	16QAM	1	2	836.5	22.17	PASS
5	1.4	16QAM	1	0	848.3	22.31	PASS
5	3	QPSK	1	5	825.5	23.89	PASS
5	3	QPSK	1	5	836.5	23.80	PASS
5	3	QPSK	1	5	848.3	23.85	PASS
5	3	16QAM	1	5	825.5	22.24	PASS
5	3	16QAM	1	14	836.5	22.17	PASS
5	3	16QAM	1	5	848.3	22.25	PASS
5	5	QPSK	1	14	826.5	23.98	PASS
5	5	QPSK	1	14	836.5	23.02	PASS
5	5	QPSK	1	14	846.5	23.97	PASS
5	5	16QAM	1	12	826.5	22.04	PASS
5	5	16QAM	1	24	836.5	22.17	PASS
5	5	16QAM	1	0	846.5	22.11	PASS
5	10	QPSK	1	24	829	23.61	PASS
5	10	QPSK	1	24	836.5	23.56	PASS
5	10	QPSK	1	24	844	23.47	PASS
5	10	16QAM	1	24	829	22.76	PASS
5	10	16QAM	1	49	836.5	22.89	PASS
5	10	16QAM	1	24	844	22.87	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	23.11	PASS
7	5	QPSK	1	0	2535	23.15	PASS
7	5	QPSK	1	24	2567.5	23.21	PASS
7	5	16QAM	1	24	2502.5	22.27	PASS
7	5	16QAM	1	24	2535	22.20	PASS
7	5	16QAM	1	0	2567.5	22.25	PASS
7	10	QPSK	1	24	2505	23.18	PASS
7	10	QPSK	1	49	2535	23.13	PASS
7	10	QPSK	1	24	2565	23.08	PASS
7	10	16QAM	1	24	2505	22.49	PASS
7	10	16QAM	1	49	2535	22.42	PASS
7	10	16QAM	1	24	2565	22.40	PASS
7	15	QPSK	1	37	2507.5	23.38	PASS
7	15	QPSK	1	74	2535	23.32	PASS
7	15	QPSK	1	0	2562.5	23.26	PASS
7	15	16QAM	1	37	2507.5	22.43	PASS
7	15	16QAM	1	18	2535	22.48	PASS
7	15	16QAM	1	0	2562.5	22.46	PASS
7	20	QPSK	1	0	2510	23.15	PASS
7	20	QPSK	1	0	2535	23.24	PASS
7	20	QPSK	1	0	2560	23.09	PASS
7	20	16QAM	1	0	2510	22.21	PASS
7	20	16QAM	1	0	2535	22.27	PASS
7	20	16QAM	1	0	2560	22.36	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	3	0	699.7	23.5	PASS
12	1.4	QPSK	3	2	707.5	23.58	PASS
12	1.4	QPSK	1	2	715.3	23.51	PASS
12	1.4	16QAM	3	2	699.7	22.41	PASS
12	1.4	16QAM	3	2	707.5	22.45	PASS
12	1.4	16QAM	3	2	715.3	22.46	PASS
12	3	QPSK	1	0	700.5	23.44	PASS
12	3	QPSK	1	0	707.5	23.48	PASS
12	3	QPSK	1	7	714.5	23.45	PASS
12	3	16QAM	1	14	700.5	22.96	PASS
12	3	16QAM	1	14	707.5	22.88	PASS
12	3	16QAM	1	14	714.5	22.99	PASS
12	5	QPSK	1	12	701.5	23.5	PASS
12	5	QPSK	1	24	707.5	23.44	PASS
12	5	QPSK	1	24	713.5	23.52	PASS
12	5	16QAM	1	24	701.5	22.36	PASS
12	5	16QAM	1	0	707.5	22.49	PASS
12	5	16QAM	1	0	713.5	22.42	PASS
12	10	QPSK	1	24	704	23.11	PASS
12	10	QPSK	1	0	707.5	23.19	PASS
12	10	QPSK	1	24	711	23.08	PASS
12	10	16QAM	1	24	704	22.02	PASS
12	10	16QAM	1	0	707.5	22.05	PASS
12	10	16QAM	1	24	711	22.01	PASS

6. LTE Band 17 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	Verdict
			RB Size	RB Offset			
17	5	QPSK	1	24	706.5	23.99	PASS
17	5	QPSK	1	24	710	23.03	PASS
17	5	QPSK	1	12	713.5	23.79	PASS
17	5	16QAM	1	24	706.5	22.48	PASS
17	5	16QAM	1	24	710	22.84	PASS
17	5	16QAM	1	12	713.5	22.98	PASS
17	10	QPSK	1	49	709	23.06	PASS
17	10	QPSK	1	49	710	23.01	PASS
17	10	QPSK	1	49	711	23.96	PASS
17	10	16QAM	1	24	709	22.37	PASS
17	10	16QAM	1	49	710	22.30	PASS
17	10	16QAM	1	24	711	22.28	PASS

2.8 Radiated Out of Band Emissions

2.8.1 Requirement

The radiated spurious emission was measured by substitution method according to ANSI / TIA /EIA-603-C-2004. 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 7

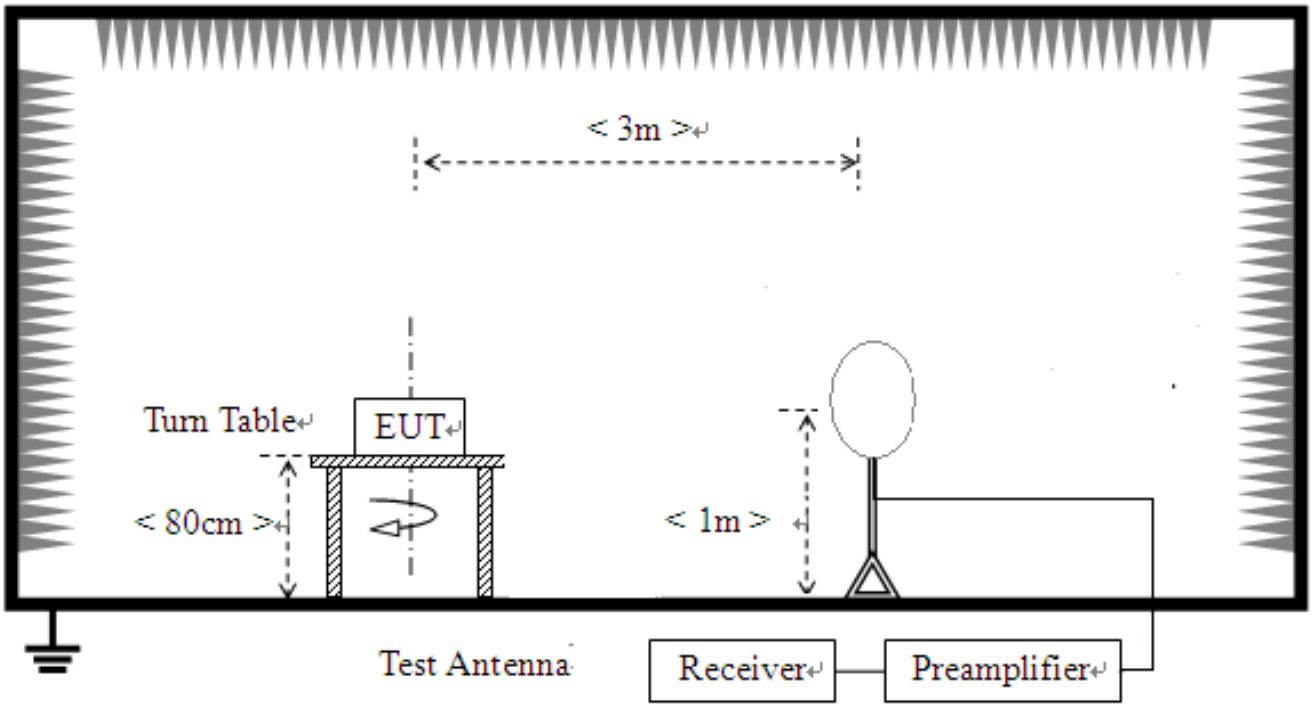
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

2.8.2 Measuring Instruments

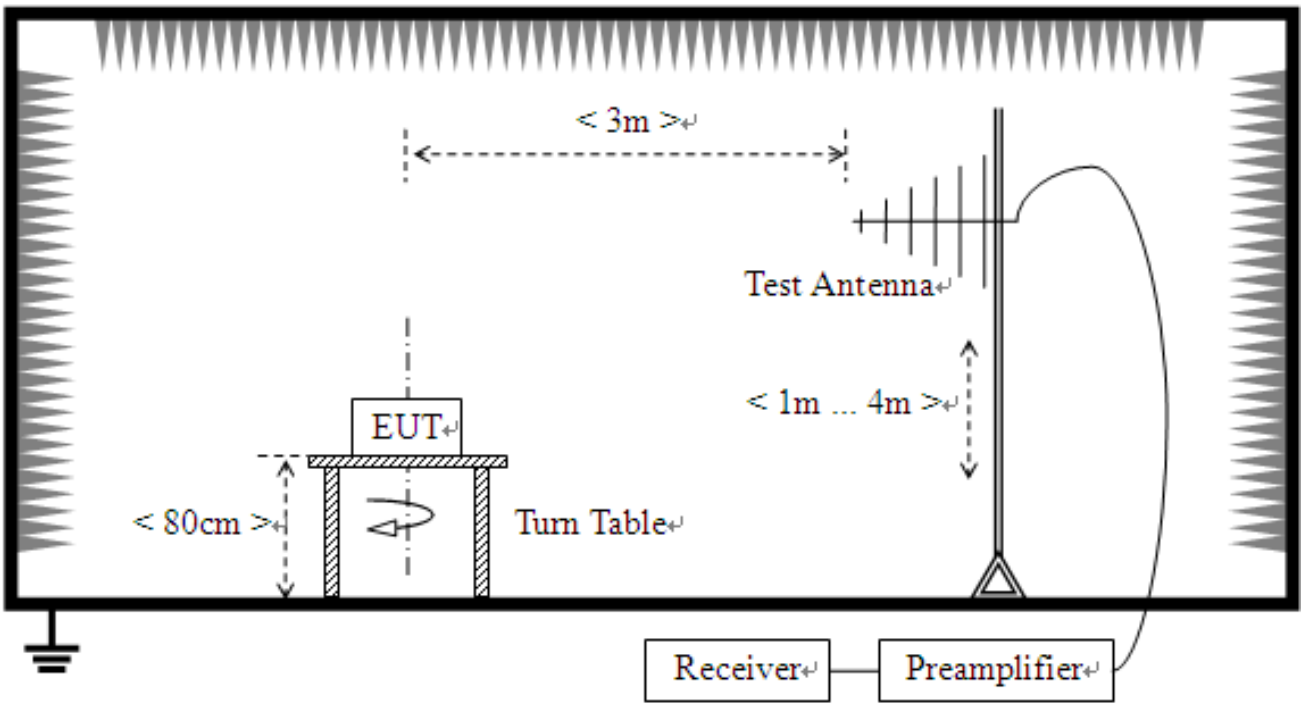
The measuring equipment is listed in the section 3 of this test report.

2.8.3 Test Setup

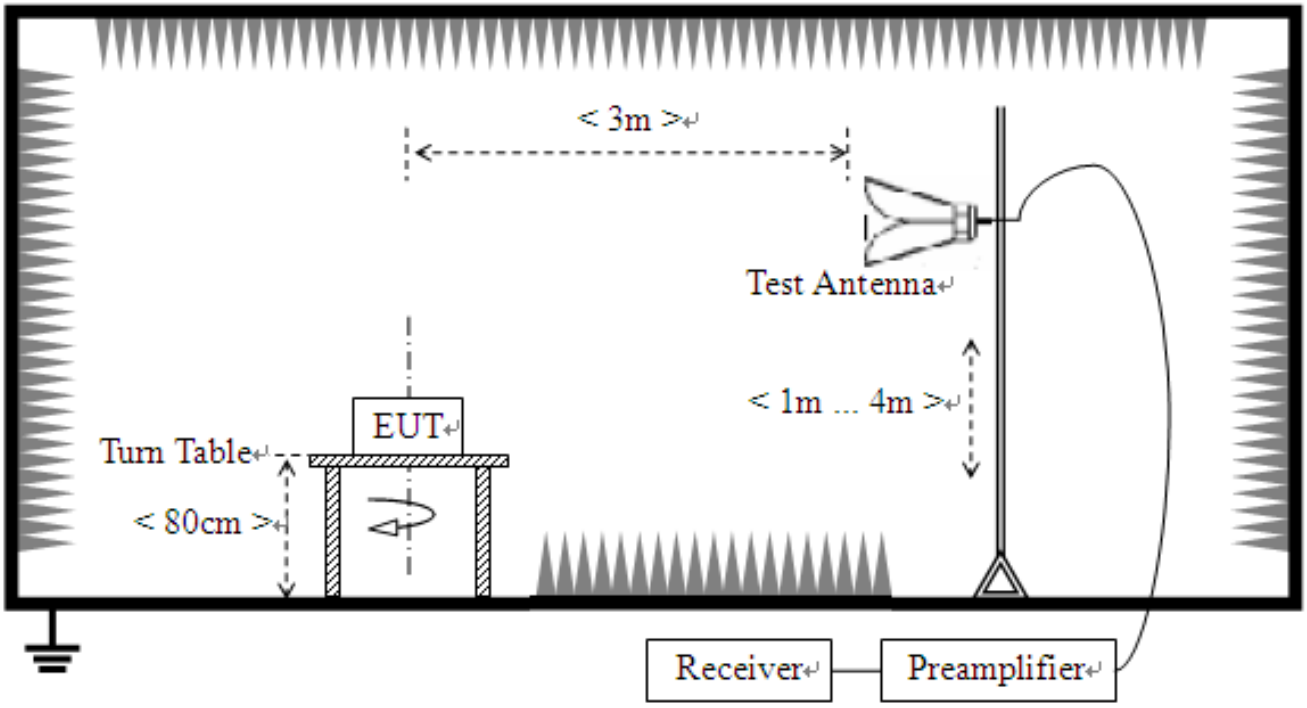
For radiated emissions from 9kHz to 30MHz



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 meter 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. 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: Absolute Level=Reading Level + Factor

LTE Band 2 QPSK 20MHz BW Middle Channel

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	104.727	-94.51	-75.14	-13.00	62.14	19.37	Horizontal
2	214.392	-98.85	-75.92	-13.00	62.92	22.93	Horizontal
3	501.170	-104.81	-72.17	-13.00	59.17	32.64	Horizontal
4	3772.88	-59.61	-49.12	-13.00	36.12	10.49	Horizontal
5	6339.16	-60.88	-42.76	-13.00	29.76	18.12	Horizontal
6	10563.7	-63.94	-35.50	-13.00	22.50	28.44	Horizontal
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	98.9045	-93.25	-68.93	-13.00	55.93	24.32	Vertical
2	219.729	-97.52	-75.77	-13.00	62.77	21.75	Vertical
3	598.219	-104.69	-71.75	-13.00	58.75	32.94	Vertical
4	3772.88	-60.11	-49.76	-13.00	36.76	10.35	Vertical
5	6376.68	-60.14	-41.58	-13.00	28.58	18.56	Vertical
6	9708.35	-64.19	-33.50	-13.00	20.50	30.69	Vertical

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

LTE Band 4 QPSK 20MHz BW Middle Channel

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	97.4487	-94.59	-75.38	-13.00	62.38	19.21	Horizontal
2	218.274	-97.11	-74.37	-13.00	61.37	22.74	Horizontal
3	1062.03	-59.18	-62.97	-13.00	49.97	-3.79	Horizontal
4	3765.38	-60.30	-49.82	-13.00	36.82	10.48	Horizontal
5	6189.09	-59.83	-42.43	-13.00	29.43	17.40	Horizontal
6	9693.34	-63.11	-31.63	-13.00	18.63	31.48	Horizontal
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	101.815	-95.03	-70.76	-13.00	57.76	24.27	Vertical
2	220.215	-98.01	-76.22	-13.00	63.22	21.79	Vertical
3	566.678	-104.61	-72.58	-13.00	59.58	32.03	Vertical
4	3757.87	-59.67	-49.32	-13.00	36.32	10.35	Vertical
5	5416.20	-60.70	-45.81	-13.00	32.81	14.89	Vertical
6	9715.85	-63.45	-32.94	-13.00	19.94	30.51	Vertical

LTE Band 5 QPSK 10MHz BW Middle Channel

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	104.242	-93.71	-74.10	-13.00	61.10	19.61	Horizontal
2	221.670	-98.85	-75.81	-13.00	62.81	23.04	Horizontal
3	500.200	-105.08	-71.80	-13.00	58.80	33.28	Horizontal
4	3727.86	-60.32	-49.92	-13.00	36.92	10.40	Horizontal
5	6414.20	-60.40	-42.05	-13.00	29.05	18.35	Horizontal
6	9738.36	-63.41	-32.98	-13.00	19.98	30.43	Horizontal
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	104.727	-93.09	-68.83	-13.00	55.83	24.26	Vertical
2	223.126	-97.82	-75.33	-13.00	62.33	22.49	Vertical
3	420.135	-94.89	-65.76	-13.00	52.76	29.13	Vertical
4	3660.33	-60.33	-50.46	-13.00	37.46	9.87	Vertical
5	6271.63	-58.09	-40.07	-13.00	27.07	18.02	Vertical
6	9715.85	-63.19	-32.68	-13.00	19.68	30.51	Vertical

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

LTE Band 7 QPSK 20MHz BW Middle Channel

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	104.727	-87.55	-63.55	-25.00	38.55	24.00	Vertical
2	553.091	-87.07	-55.56	-25.00	30.56	31.51	Vertical
3	822.886	-88.53	-52.80	-25.00	27.80	35.73	Vertical
4	3675.33	-60.11	-50.05	-25.00	25.05	10.06	Vertical
5	7247.12	-60.16	-39.93	-25.00	14.93	20.23	Vertical
6	9940.97	-62.57	-35.57	-25.00	10.57	27.00	Vertical
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	359.965	-89.57	-60.92	-25.00	35.92	28.65	Horizontal
2	547.753	-86.72	-55.11	-25.00	30.11	31.61	Horizontal
3	839.384	-88.11	-50.99	-25.00	25.99	37.12	Horizontal
4	3780.39	-60.92	-50.41	-25.00	25.41	10.51	Horizontal
5	6391.69	-59.17	-40.59	-25.00	15.59	18.58	Horizontal
6	9678.33	-63.38	-32.27	-25.00	7.27	31.11	Horizontal

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

LTE Band 12 QPSK 10MHz BW Middle Channel

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	105.697	-91.84	-72.04	-13.00	59.04	19.80	Horizontal
2	218.759	-96.84	-73.63	-13.00	60.63	23.21	Horizontal
3	1660.33	-56.86	-58.15	-13.00	45.15	-1.29	Horizontal
4	3720.36	-60.59	-50.21	-13.00	37.21	10.38	Horizontal
5	7907.45	-60.25	-37.83	-13.00	24.83	22.42	Horizontal
6	9738.36	-62.95	-32.52	-13.00	19.52	30.43	Horizontal
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	95.5078	-91.50	-71.92	-13.00	58.92	19.58	Vertical
2	219.729	-97.36	-74.19	-13.00	61.19	23.17	Vertical
3	835.502	-103.93	-65.55	-13.00	52.55	38.38	Vertical
4	3000.00	-62.85	-53.38	-13.00	40.38	9.47	Vertical
5	6181.59	-60.51	-43.13	-13.00	30.13	17.38	Vertical
6	9708.35	-63.76	-32.38	-13.00	19.38	31.38	Vertical

LTE Band 17 QPSK 10MHz BW Middle Channel

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	99.8749	-92.29	-73.08	-13.00	60.08	19.21	Horizontal
2	159.074	-95.85	-74.43	-13.00	61.43	21.42	Horizontal
3	213.907	-95.64	-72.69	-13.00	59.69	22.95	Horizontal
4	3780.39	-60.04	-49.53	-13.00	36.53	10.51	Horizontal
5	5903.95	-60.98	-44.64	-13.00	31.64	16.34	Horizontal
6	9708.35	-63.33	-31.95	-13.00	18.95	31.38	Horizontal
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	103.271	-93.13	-68.99	-13.00	55.99	24.14	Vertical
2	116.858	-97.50	-74.59	-13.00	61.59	22.91	Vertical
3	219.244	-96.08	-74.37	-13.00	61.37	21.71	Vertical
4	3802.90	-59.04	-48.71	-13.00	35.71	10.33	Vertical
5	6339.16	-60.51	-42.11	-13.00	29.11	18.40	Vertical
6	9685.84	-64.32	-33.66	-13.00	20.66	30.66	Vertical

3. LIST OF MEASURING EQUIPMENT

Description	Manufacturer	Model	Serial No.	Cal. Date	Due Date	Remark
EMI Test Receiver	R&S	ESU8	A0805559	2020.04.03	2021.04.02	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2019.04.26	2022.04.25	Radiation
Broadband antenna (30MHz~1GHz)	Schwarbeck	BBHA 9120 J	A190503537	2019.01.07	2022.01.06	Radiation
Broadband antenna (30MHz~1GHz)	R&S	VULB9160	A0805560	2019.05.24	2022.05.23	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	AT4510	A0804450	2020.06.19	2023.06.18	Radiation
Horn antenna (18GHz~26.5GHz)	AR	AT4003A	0329293	2020.09.17	2021.09.16	Radiation
Amplifier 30M~1GHz	MILMEGA	80RF1000-10004	A140101634	2020.03.24	2021.03.23	Radiation
Amplifier 1G~18GHz	MILMEGA	AS0104R-800/400	A160302517	2020.03.24	2021.03.23	Radiation
Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2020.05.18	2021.05.17	Conducted
Test Receiver	R&S	ESIB26	A0304218	2020.04.29	2021.04.28	Conducted
Temperature chamber	XSM	DNF810C	A0501375	2020.05.26	2021.05.25	Conducted
Wideband Radio Communication tester	R&S	CMW500	A130101034	2019.07.30	2021.07.29	Conducted
Power Supply	R&S	WYJ-60100	A141102031	2020.01.16	2023.01.15	Conducted

APPENDIX A

Conducted RF (Average) Output Power

Test Result and Data

LTE Band 2 Conducted Power Test Verdict:

LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18607/1850.7	18900/1880	19193/1909.3	
1.4MHz	QPSK	1	0	23.76	23.44	23.5	23.0±1.0
		1	3	23.73	23.65	23.69	
		1	5	23.61	23.51	23.6	
		3	0	23.05	23.08	22.99	22.5±1.0
		3	2	23.09	23.26	22.92	
		3	3	23.22	23.06	22.9	
		6	0	22.64	22.64	22.69	22.0±1.0
	16QAM	1	0	22.32	22.2	22.43	21.5±1.0
		1	3	22.47	22.46	22.33	
		1	5	22.48	22.13	22.1	
		3	0	21.88	21.63	21.62	21.0±1.0
		3	2	21.61	21.66	21.93	
		3	3	21.95	21.66	21.67	
		6	0	21.47	21.39	21.35	20.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18615/1851.5	18900/1880	19185/1908.5	
3MHz	QPSK	1	0	23.66	23.77	23.43	23.0±1.0
		1	7	23.66	23.64	23.6	
		1	14	23.48	23.64	23.4	
		8	0	22.97	23.27	23.2	22.5±1.0
		8	4	23.01	22.97	23.05	
		8	7	22.91	23.3	23.05	
		15	0	22.66	22.75	22.77	22.0±1.0
	16QAM	1	0	22.47	22.21	22.37	21.5±1.0
		1	7	22.28	22.1	22.44	
		1	14	22.25	22.5	22.19	
		8	0	21.6	21.79	21.85	21.0±1.0
		8	4	21.63	21.91	21.79	
		8	7	21.85	21.74	21.8	
		15	0	21.31	21.36	21.33	20.5±1.0

LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18625/1852.5	18900/1880	19175/1907.5	
5MHz	QPSK	1	0	23.4	23.62	23.49	23.0±1.0
		1	13	23.66	23.46	23.7	
		1	24	23.75	23.56	23.42	
		12	0	23.18	23.25	23.14	22.5±1.0
		12	6	22.96	23.01	23	
		12	13	23.1	23.11	23.24	
		25	0	22.72	22.66	22.69	22.0±1.0
	16QAM	1	0	22.33	22.37	22.5	21.5±1.0
		1	13	22.18	22.1	22.42	
		1	24	22.39	22.34	22.45	
		12	0	21.9	21.91	21.77	21.0±1.0
		12	6	21.83	21.62	21.71	
		12	13	21.69	21.68	21.99	
		25	0	21.45	21.5	21.43	20.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18650/1855	18900/1880	19150/1905	
10MHz	QPSK	1	0	23.62	23.55	23.8	23.0±1.0
		1	25	23.54	23.41	23.79	
		1	49	23.79	23.66	23.77	
		25	0	22.94	23.27	23.14	22.5±1.0
		25	13	23.23	23.13	23.09	
		25	25	23.3	22.93	23.21	
		50	0	22.78	22.8	22.69	22.0±1.0
	16QAM	1	0	22.48	22.49	22.36	21.5±1.0
		1	25	22.17	22.33	22.12	
		1	49	22.34	22.22	22.25	
		25	0	21.99	21.95	21.72	21.0±1.0
		25	13	22	21.97	21.93	
		25	25	21.77	21.87	21.75	
		50	0	21.44	21.39	21.38	20.5±1.0

LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18675/1857.5	18900/1880	19125/1902.5	
15MHz	QPSK	1	0	23.5	23.73	23.55	23.0±1.0
		1	38	23.59	23.65	23.42	
		1	74	23.73	23.54	23.54	
		36	0	22.95	23.03	22.97	22.5±1.0
		36	18	23.29	23.23	23.28	
		36	39	22.9	23.28	23.23	
		75	0	22.63	22.61	22.64	22.0±1.0
	16QAM	1	0	22.46	22.19	22.37	21.5±1.0
		1	38	22.44	22.33	22.48	
		1	74	22.22	22.25	22.39	
		36	0	21.89	21.68	21.92	21.0±1.0
		36	18	21.69	21.98	21.77	
		36	39	21.66	21.72	21.91	
		75	0	21.33	21.33	21.38	20.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18700/1860	18900/1880	19100/1900	
20MHz	QPSK	1	0	23.83	23.73	23.62	23.0±1.0
		1	50	23.46	23.73	23.46	
		1	99	23.56	23.72	23.72	
		50	0	23.26	23.07	22.94	22.5±1.0
		50	25	23.01	23.17	22.96	
		50	50	23.19	23.23	23.2	
		100	0	22.65	22.66	22.63	22.0±1.0
	16QAM	1	0	22.19	22.5	22.29	21.5±1.0
		1	50	22.16	22.21	22.29	
		1	99	22.19	22.2	22.27	
		50	0	21.82	21.91	21.87	21.0±1.0
		50	25	21.7	21.76	21.8	
		50	50	21.92	21.92	21.63	
		100	0	21.37	21.32	21.33	20.5±1.0

2. LTE Band 4 Conducted Power Test Verdict:

LTE FDD Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				19957/1710.7	20175/1732.5	20393/1754.3	
1.4MHz	QPSK	1	0	23.09	22.94	23.21	22.5±1.0
		1	3	23.1	23.28	23	
		1	5	23.01	23.23	23.02	
		3	0	22.74	22.43	22.76	22.0±1.0
		3	2	22.51	22.4	22.52	
		3	3	22.61	22.6	22.5	
		6	0	22.23	22.2	22.1	21.5±1.0
	16QAM	1	0	21.75	21.68	21.64	21.0±1.0
		1	3	21.87	21.86	21.84	
		1	5	21.92	21.76	21.81	
		3	0	21.3	21.44	21.28	20.5±1.0
		3	2	21.25	21.2	21.32	
		3	3	21.45	21.38	21.19	
		6	0	21	20.89	20.8	20.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				19965/1711.5	20175/1732.5	20385/1753.5	
3MHz	QPSK	1	0	23.19	23.21	22.98	22.5±1.0
		1	7	23.19	23.27	23.3	
		1	14	22.98	23.13	23.05	
		8	0	22.72	22.48	22.68	22.0±1.0
		8	4	22.6	22.77	22.52	
		8	7	22.55	22.67	22.56	
		15	0	22.25	22.17	22.23	21.5±1.0
	16QAM	1	0	21.76	21.96	21.78	21.0±1.0
		1	7	21.72	21.7	21.61	
		1	14	21.86	21.64	22	
		8	0	21.42	21.47	21.37	20.5±1.0
		8	4	21.1	21.47	21.32	
		8	7	21.29	21.21	21.23	
		15	0	20.87	20.86	20.85	20.0±1.0

LTE FDD Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				19975/1712.5	20175/1732.5	20375/1752.5	
5MHz	QPSK	1	0	23.18	23.19	22.98	22.5±1.0
		1	13	22.9	22.93	23.23	
		1	24	22.95	22.98	22.95	
		12	0	22.73	22.79	22.4	22.0±1.0
		12	6	22.56	22.64	22.62	
		12	13	22.71	22.69	22.44	
		25	0	22.25	22.26	22.18	21.5±1.0
	16QAM	1	0	21.8	21.91	21.74	21.0±1.0
		1	13	21.82	21.68	22	
		1	24	21.82	21.84	21.73	
		12	0	21.5	21.37	21.42	20.5±1.0
		12	6	21.13	21.2	21.15	
		12	13	21.47	21.11	21.46	
		25	0	20.83	20.81	20.84	20.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20000/1715	20175/1732.5	20350/1750	
10MHz	QPSK	1	0	22.99	23	23.15	22.5±1.0
		1	25	22.95	23.17	23.04	
		1	49	22.99	22.93	23.01	
		25	0	22.64	22.8	22.71	22.0±1.0
		25	13	22.54	22.45	22.65	
		25	25	22.48	22.47	22.49	
		50	0	22.19	22.2	22.18	21.5±1.0
	16QAM	1	0	21.7	21.78	21.62	21.0±1.0
		1	25	21.9	21.69	21.61	
		1	49	21.95	21.86	21.95	
		25	0	21.29	21.24	21.15	20.5±1.0
		25	13	21.32	21.24	21.12	
		25	25	21.24	21.32	21.17	
		50	0	20.9	20.83	20.81	20.0±1.0

LTE FDD Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20025/1717.5	20175/1732.5	20325/1747.5	
15MHz	QPSK	1	0	23.08	23.16	23.25	22.5±1.0
		1	38	23.26	23.14	23.23	
		1	74	23.15	22.91	22.93	
		36	0	22.53	22.54	22.5	22.0±1.0
		36	18	22.41	22.74	22.52	
		36	39	22.52	22.53	22.78	
		75	0	22.17	22.21	22.24	21.5±1.0
	16QAM	1	0	22	21.94	21.97	21.0±1.0
		1	38	21.72	21.94	21.98	
		1	74	21.66	21.85	21.79	
		36	0	21.39	21.14	21.12	20.5±1.0
		36	18	21.22	21.16	21.27	
		36	39	21.18	21.37	21.1	
		75	0	21	20.86	20.89	20.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20050/1720	20175/1732.5	20300/1745	
20MHz	QPSK	1	0	22.88	23.09	23.4	22.5±1.0
		1	50	23.13	23.05	23.13	
		1	99	22.91	23.26	23.16	
		50	0	22.46	22.58	22.79	22.0±1.0
		50	25	22.67	22.62	22.76	
		50	50	22.43	22.66	22.72	
		100	0	22.27	22.2	22.13	21.5±1.0
	16QAM	1	0	21.74	21.67	21.6	21.0±1.0
		1	50	21.82	21.95	21.61	
		1	99	21.64	21.66	21.86	
		50	0	21.45	21.29	21.4	20.5±1.0
		50	25	21.34	21.34	21.47	
		50	50	21.16	21.24	21.37	
		100	0	21	20.84	21	20.0±1.0

3. LTE Band 5 Conducted Power Test Verdict:

LTE FDD Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	24.25	24.31	24.05	23.5±1.0
		1	3	24.4	24.22	24.13	
		1	5	24.21	24.32	24.35	
		3	0	23.79	23.88	23.71	23.0±1.0
		3	2	23.68	23.9	23.57	
		3	3	23.67	23.88	23.6	
		6	0	23.32	23.32	23.3	22.5±1.0
	16QAM	1	0	22.92	22.95	22.72	22.0±1.0
		1	3	22.87	22.83	22.69	
		1	5	22.96	22.76	22.87	
		3	0	22.25	22.25	22.28	21.5±1.0
		3	2	22.33	22.1	22.35	
		3	3	22.15	22.47	22.26	
		6	0	21.89	21.85	21.87	21.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20415/825.5	20525/836.5	20635/847.5	
3MHz	QPSK	1	0	24.28	24.02	24.09	23.5±1.0
		1	7	24.35	24.15	24.02	
		1	14	24.23	24.21	24.3	
		8	0	23.71	23.83	23.89	23.0±1.0
		8	4	23.72	23.73	23.71	
		8	7	23.68	23.69	23.67	
		15	0	23.32	23.26	23.37	22.5±1.0
	16QAM	1	0	22.62	22.92	22.86	22.0±1.0
		1	7	22.77	22.75	22.94	
		1	14	22.68	22.76	22.65	
		8	0	22.37	22.1	22.42	21.5±1.0
		8	4	22.21	22.37	22.43	
		8	7	22.41	22.33	22.45	
		15	0	21.96	21.8	21.8	21.0±1.0

LTE FDD Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20425/826.5	20525/836.5	20625/846.5	
5MHz	QPSK	1	0	24.27	24.38	24.13	23.5±1.0
		1	13	24.23	24.13	24.01	
		1	24	24.2	24.22	24.38	
		12	0	23.77	23.75	23.88	23.0±1.0
		12	6	23.5	23.7	23.8	
		12	13	23.84	23.82	23.62	
		25	0	23.33	23.36	23.34	22.5±1.0
	16QAM	1	0	22.7	22.83	22.82	22.0±1.0
		1	13	22.7	22.71	22.76	
		1	24	22.71	22.92	22.99	
		12	0	22.31	22.26	22.25	21.5±1.0
		12	6	22.21	22.3	22.2	
		12	13	22.33	22.41	22.43	
		25	0	21.87	21.81	21.8	21.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20450/829	20525/836.5	20600/844	
10MHz	QPSK	1	0	24.3	24.23	24.42	23.5±1.0
		1	25	24.02	24.15	24.33	
		1	49	24.02	24.33	24.18	
		25	0	23.58	23.86	23.7	23.0±1.0
		25	13	23.8	23.54	23.56	
		25	25	23.65	23.84	23.83	
		50	0	23.37	23.25	23.34	22.5±1.0
	16QAM	1	0	22.71	22.71	22.63	22.0±1.0
		1	25	22.73	22.98	22.83	
		1	49	22.79	22.67	22.88	
		25	0	22.34	22.13	22.29	21.5±1.0
		25	13	22.31	22.36	22.26	
		25	25	22.24	22.23	22.4	
		50	0	21.9	22	21.94	21.0±1.0

4. LTE Band 7 Conducted Power Test Verdict:

LTE FDD Band 7				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	23.51	23.72	23.46	22.9±1.0
		1	13	23.63	23.58	23.78	
		1	24	23.41	23.53	23.56	
		12	0	23.14	23.1	22.96	22.5±1.0
		12	6	23.04	22.95	23.16	
		12	13	23.01	23.11	22.91	
		25	0	22.63	22.77	22.6	22.0±1.0
	16QAM	1	0	22.27	22.19	22.34	21.5±1.0
		1	13	22.1	22.16	22.36	
		1	24	22.4	22.5	22.29	
		12	0	21.87	21.73	21.97	21.0±1.0
		12	6	22	21.9	21.95	
		12	13	21.9	21.62	22	
		25	0	21.33	21.32	21.43	20.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	23.68	23.47	23.71	22.9±1.0
		1	25	23.67	23.67	23.54	
		1	49	23.55	23.6	23.42	
		25	0	22.98	23.14	23.21	22.5±1.0
		25	13	23.26	23.19	23.08	
		25	25	23.12	22.96	22.93	
		50	0	22.67	22.75	22.78	22.0±1.0
	16QAM	1	0	22.44	22.4	22.17	21.5±1.0
		1	25	22.5	22.25	22.1	
		1	49	22.19	22.4	22.41	
		25	0	21.67	21.86	21.9	21.0±1.0
		25	13	21.96	21.78	21.92	
		25	25	21.72	21.74	21.82	
		50	0	21.31	21.49	21.3	20.5±1.0

LTE FDD Band 7				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	23.52	23.49	23.76	22.9±1.0
		1	38	23.68	23.71	23.76	
		1	74	23.62	23.66	23.48	
		36	0	22.9	23.02	23.14	22.5±1.0
		36	18	23	23.24	23	
		36	39	23.06	23.08	23.2	
		75	0	22.6	22.62	22.62	22.0±1.0
	16QAM	1	0	22.4	22.24	22.23	21.5±1.0
		1	38	22.35	22.42	22.15	
		1	74	22.34	22.14	22.34	
		36	0	21.88	21.6	21.63	21.0±1.0
		36	18	21.71	21.91	21.7	
		36	39	21.99	21.6	21.6	
		75	0	21.48	21.44	21.34	20.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	23.83	23.79	23.1	22.9±1.0
		1	50	23.53	23.58	23.52	
		1	99	23.5	23.7	23.46	
		50	0	23.07	23.28	23.04	22.5±1.0
		50	25	23.2	23.03	23.12	
		50	50	22.9	23.11	23.16	
		100	0	22.69	22.67	22.79	22.0±1.0
	16QAM	1	0	22.36	22.44	22.12	21.5±1.0
		1	50	22.4	22.24	22.48	
		1	99	22.14	22.5	22.1	
		50	0	21.84	21.96	21.64	21.0±1.0
		50	25	21.64	21.62	21.91	
		50	50	21.9	21.75	22	
		100	0	21.3	21.49	21.46	20.5±1.0

5. LTE Band 12 Conducted Power Test Verdict:

LTE FDD Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23017/699.7	23095/707.5	23173/715.3	
1.4MHz	QPSK	1	0	23.78	23.98	23.93	23.0±1.0
		1	3	23.93	23.79	23.75	
		1	5	23.91	23.7	23.64	
		3	0	23.18	23.15	23.3	22.5±1.0
		3	2	23.38	23.48	23.39	
		3	3	23.28	23.5	23.48	
		6	0	22.87	22.98	22.96	22.0±1.0
	16QAM	1	0	22.42	22.65	22.7	22.0±1.0
		1	3	22.56	22.55	22.61	
		1	5	22.64	22.51	22.58	
		3	0	21.94	22.17	21.95	21.5±1.0
		3	2	21.94	22.14	21.94	
		3	3	21.88	21.98	21.91	
		6	0	21.53	21.68	21.65	21.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23025/700.5	23095/707.5	23165/714.5	
3MHz	QPSK	1	0	23.9	23.81	23.84	23.0±1.0
		1	7	23.65	23.6	23.67	
		1	14	23.65	23.85	23.72	
		8	0	23.25	23.11	23.16	22.5±1.0
		8	4	23.35	23.23	23.37	
		8	7	23.15	23.11	23.2	
		15	0	22.88	22.95	22.99	22.0±1.0
	16QAM	1	0	22.51	22.56	22.43	22.0±1.0
		1	7	22.54	22.66	22.36	
		1	14	22.45	22.44	22.63	
		8	0	21.83	21.93	21.96	21.5±1.0
		8	4	21.89	22.13	21.93	
		8	7	21.92	22.17	22.11	
		15	0	21.61	21.55	21.51	21.0±1.0

LTE FDD Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23035/701.5	23095/707.5	23155/713.5	
5MHz	QPSK	1	0	23.98	23.65	23.68	23.0±1.0
		1	13	23.67	23.65	23.88	
		1	24	23.9	23.86	23.72	
		12	0	23.49	23.46	23.45	22.5±1.0
		12	6	23.44	23.31	23.26	
		12	13	23.45	23.16	23.5	
		25	0	22.96	22.83	22.85	22.0±1.0
	16QAM	1	0	22.55	22.58	22.36	22.0±1.0
		1	13	22.35	22.62	22.42	
		1	24	22.53	22.61	22.44	
		12	0	21.95	22.19	22.02	21.5±1.0
		12	6	21.82	21.93	21.83	
		12	13	22.06	21.95	21.95	
		25	0	21.58	21.61	21.6	21.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23060/704	23095/707.5	23130/711	
10MHz	QPSK	1	0	24.2	23.7	23.82	23.5±1.0
		1	25	23.74	23.96	23.67	
		1	49	23.9	23.69	23.66	
		25	0	23.24	23.43	23.19	22.5±1.0
		25	13	23.16	23.36	23.27	
		25	25	23.41	23.42	23.27	
		50	0	22.98	22.95	22.87	22.0±1.0
	16QAM	1	0	22.48	22.42	22.54	22.0±1.0
		1	25	22.61	22.68	22.63	
		1	49	22.53	22.65	22.46	
		25	0	21.9	22.16	21.86	21.5±1.0
		25	13	21.86	21.82	21.82	
		25	25	21.99	22.16	22.09	
		50	0	21.53	21.65	21.54	21.0±1.0

6. LTE Band 17 Conducted Power Test Verdict:

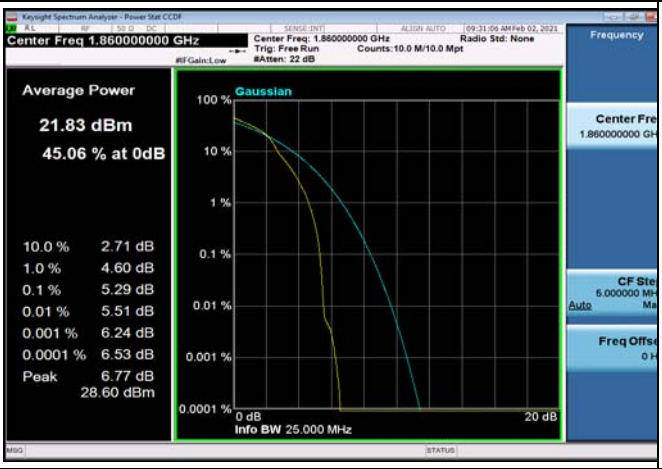
LTE FDD Band 17				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23755/706.5	23790/710	23825/713.5	
5MHz	QPSK	1	0	23.91	23.82	24.19	23.5±1.0
		1	13	23.84	24.09	24.18	
		1	24	24.1	24.06	24.12	
		12	0	23.3	23.39	23.45	23.0±1.0
		12	6	23.31	23.55	23.51	
		12	13	23.41	23.31	23.31	
		25	0	23.03	23	23.01	22.5±1.0
	16QAM	1	0	22.68	22.79	22.69	22.0±1.0
		1	13	22.82	22.53	22.54	
		1	24	22.59	22.54	22.75	
		12	0	22.34	22.4	22.18	21.5±1.0
		12	6	22.16	22.22	22.16	
		12	13	22.31	22.02	22.2	
		25	0	21.81	21.82	21.81	21.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23780/709	23790/710	23800/711	
10MHz	QPSK	1	0	24.1	24.09	24.24	23.5±1.0
		1	25	23.86	23.91	24.07	
		1	49	24.09	24.02	23.94	
		25	0	23.57	23.61	23.43	23.0±1.0
		25	13	23.4	23.5	23.3	
		25	25	23.42	23.38	23.3	
		50	0	23.03	23.17	23	22.5±1.0
	16QAM	1	0	22.56	22.83	22.61	22.0±1.0
		1	25	22.76	22.53	22.68	
		1	49	22.61	22.82	22.65	
		25	0	22.01	22.38	22.2	21.5±1.0
		25	13	22.31	22.07	22.16	
		25	25	22.12	22.38	22.31	
		50	0	21.79	21.77	21.87	21.0±1.0

Peak To Average Ratio

Test Result and Data

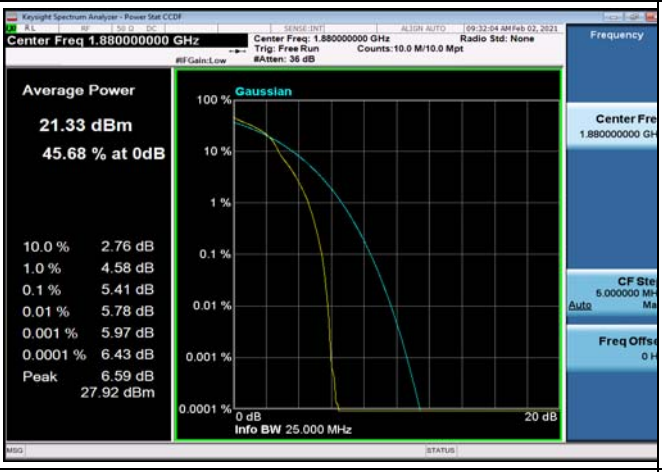
PeakToAveragePowerRatio NormalTC_NormalVol							
Band	Range	BandWidth	RbMode	Modulation	PAPR (dBm)	Limit (dBm)	Result
FDD02	LowRange	20	OneRB_high	Q16	5.29	13.00	Pass
FDD02	LowRange	20	fullRB	Q16	6.06	13.00	Pass
FDD02	MidRange	20	OneRB_high	Q16	5.41	13.00	Pass
FDD02	MidRange	20	fullRB	Q16	6.11	13.00	Pass
FDD02	HighRange	20	OneRB_high	Q16	4.60	13.00	Pass
FDD02	HighRange	20	fullRB	Q16	5.99	13.00	Pass
FDD04	LowRange	20	OneRB_high	Q16	5.42	13.00	Pass
FDD04	LowRange	20	fullRB	Q16	5.87	13.00	Pass
FDD04	MidRange	20	OneRB_high	Q16	5.74	13.00	Pass
FDD04	MidRange	20	fullRB	Q16	5.63	13.00	Pass
FDD04	HighRange	20	OneRB_high	Q16	4.50	13.00	Pass
FDD04	HighRange	20	fullRB	Q16	5.92	13.00	Pass

FDD02_LowRange_20MHz_1860_OneRB_high_Q16

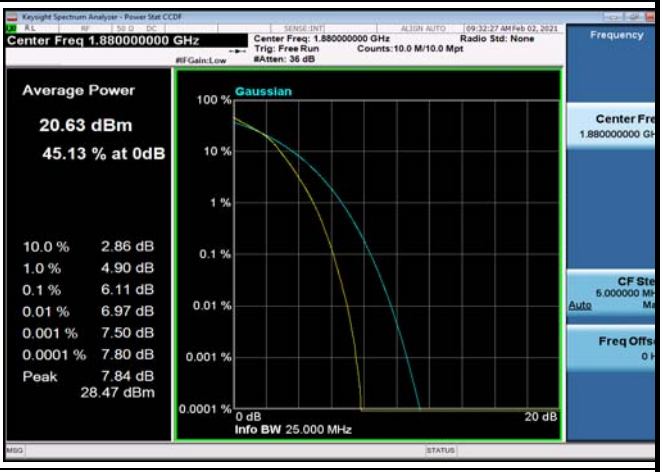


FDD02_LowRange_20MHz_1860_fullRB_Q16

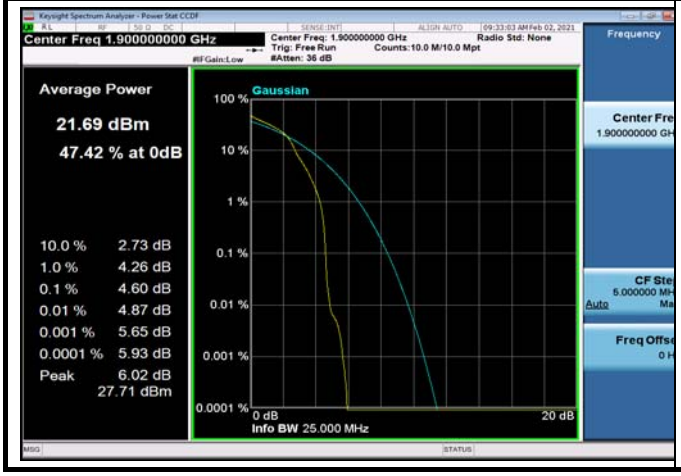
FDD02_MidRange_20MHz_1880_OneRB_high_Q16



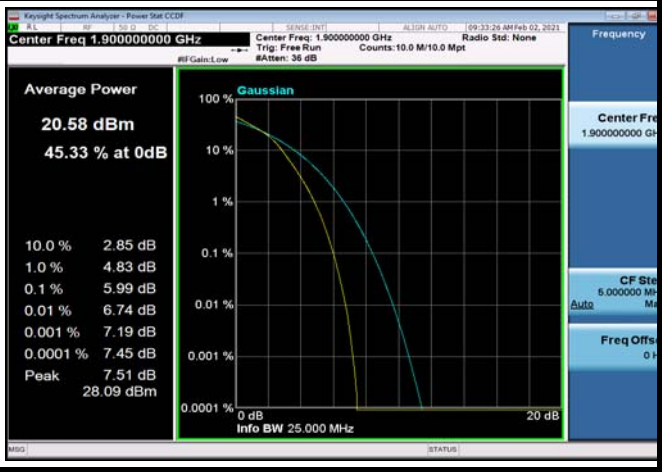
FDD02_MidRange_20MHz_1880_fullRB_Q16

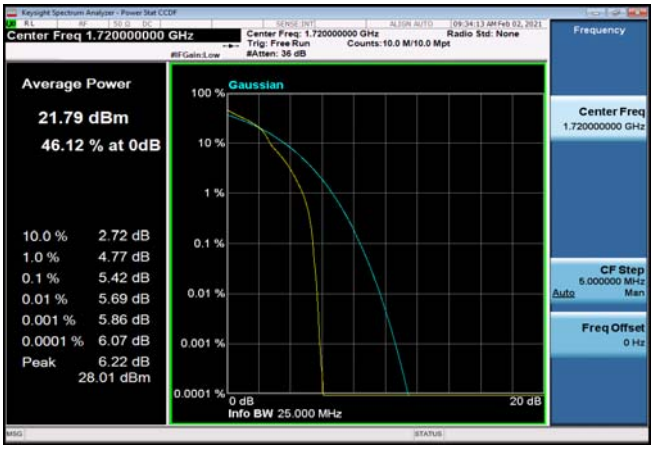
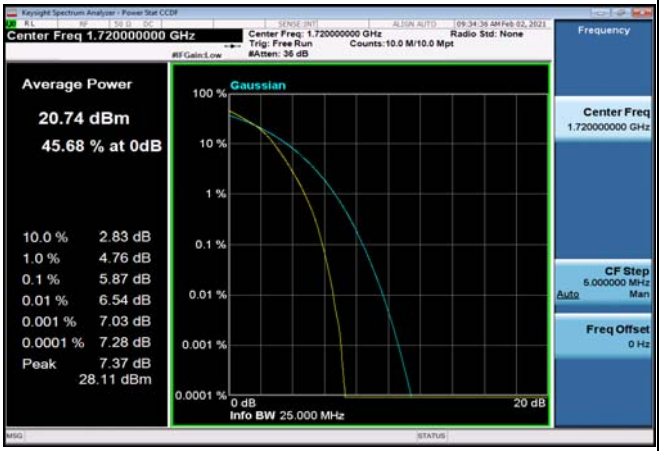
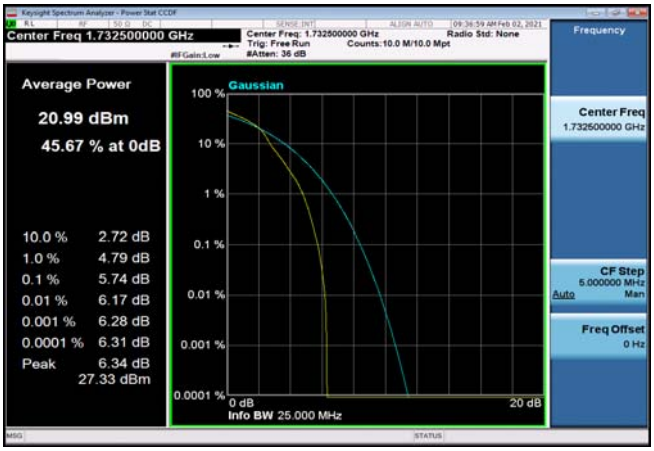
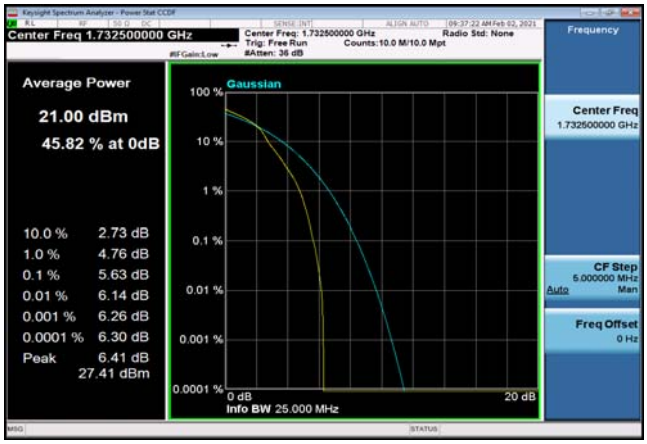
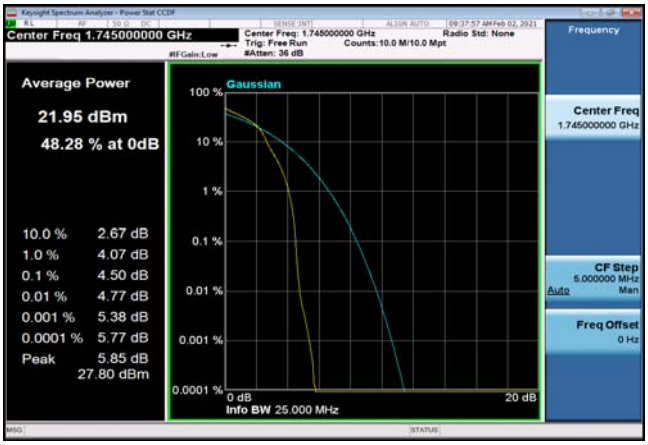
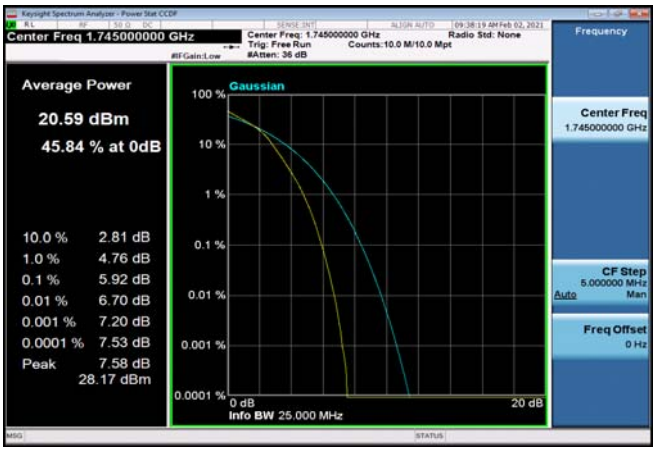


FDD02_HighRange_20MHz_1900_OneRB_high_Q16



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
	

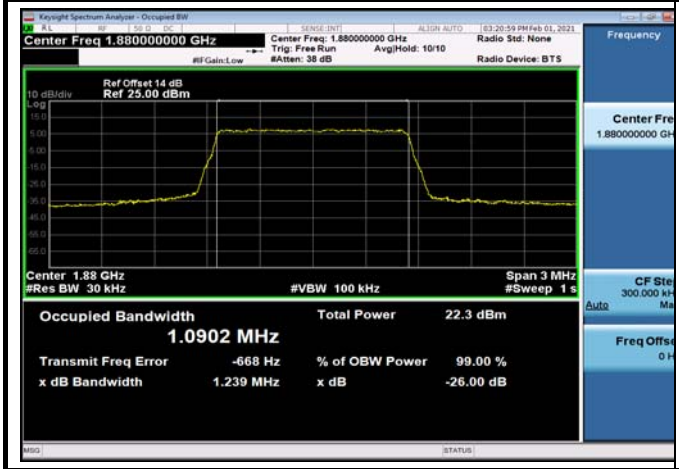
99% Occupied Bandwidth

Test Result and Data

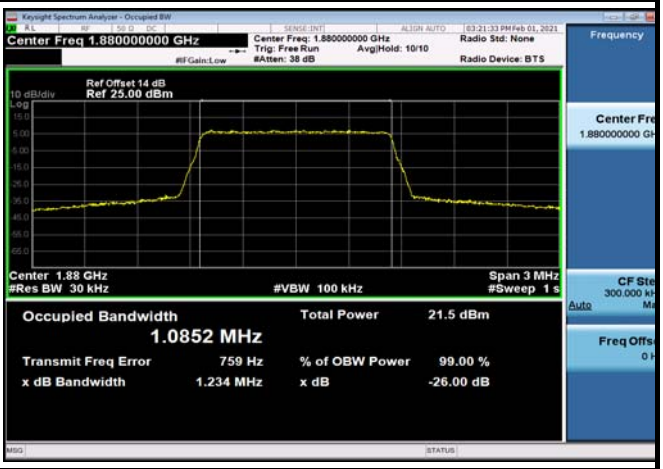
Occupied Bandwidth NormalTC_NormalVol					
Band	Range	BandWidth	Frequency (MHz)	Modulation	Occupied Bandwidth(99%) (MHz)
FDD02	MidRange	1.4	1880	QPSK	1.09
FDD02	MidRange	1.4	1880	Q16	1.085
FDD02	MidRange	3	1880	QPSK	2.679
FDD02	MidRange	3	1880	Q16	2.678
FDD02	MidRange	5	1880	QPSK	4.484
FDD02	MidRange	5	1880	Q16	4.48
FDD02	MidRange	10	1880	QPSK	8.926
FDD02	MidRange	10	1880	Q16	8.917
FDD02	MidRange	15	1880	QPSK	13.442
FDD02	MidRange	15	1880	Q16	13.442
FDD02	MidRange	20	1880	QPSK	17.901
FDD02	MidRange	20	1880	Q16	17.896
FDD04	MidRange	1.4	1732.5	QPSK	1.086
FDD04	MidRange	1.4	1732.5	Q16	1.087
FDD04	MidRange	3	1732.5	QPSK	2.681
FDD04	MidRange	3	1732.5	Q16	2.678
FDD04	MidRange	5	1732.5	QPSK	4.485
FDD04	MidRange	5	1732.5	Q16	4.485
FDD04	MidRange	10	1732.5	QPSK	8.924
FDD04	MidRange	10	1732.5	Q16	8.919
FDD04	MidRange	15	1732.5	QPSK	13.451
FDD04	MidRange	15	1732.5	Q16	13.453
FDD04	MidRange	20	1732.5	QPSK	17.903
FDD04	MidRange	20	1732.5	Q16	17.902
FDD05	MidRange	1.4	836.5	QPSK	1.086
FDD05	MidRange	1.4	836.5	Q16	1.086

FDD05	MidRange	3	836.5	QPSK	2.679
FDD05	MidRange	3	836.5	Q16	2.679
FDD05	MidRange	5	836.5	QPSK	4.484
FDD05	MidRange	5	836.5	Q16	4.483
FDD05	MidRange	10	836.5	QPSK	8.928
FDD05	MidRange	10	836.5	Q16	8.92
FDD07	MidRange	5	2535	QPSK	4.483
FDD07	MidRange	5	2535	Q16	4.482
FDD07	MidRange	10	2535	QPSK	8.925
FDD07	MidRange	10	2535	Q16	8.92
FDD07	MidRange	15	2535	QPSK	13.446
FDD07	MidRange	15	2535	Q16	13.448
FDD07	MidRange	20	2535	QPSK	17.902
FDD07	MidRange	20	2535	Q16	17.903
FDD12	MidRange	1.4	707.5	QPSK	1.086
FDD12	MidRange	1.4	707.5	Q16	1.087
FDD12	MidRange	3	707.5	QPSK	2.678
FDD12	MidRange	3	707.5	Q16	2.679
FDD12	MidRange	5	707.5	QPSK	4.482
FDD12	MidRange	5	707.5	Q16	4.481
FDD12	MidRange	10	707.5	QPSK	8.919
FDD12	MidRange	10	707.5	Q16	8.917
FDD17	MidRange	5	710	QPSK	4.484
FDD17	MidRange	5	710	Q16	4.483
FDD17	MidRange	10	710	QPSK	8.922
FDD17	MidRange	10	710	Q16	8.917

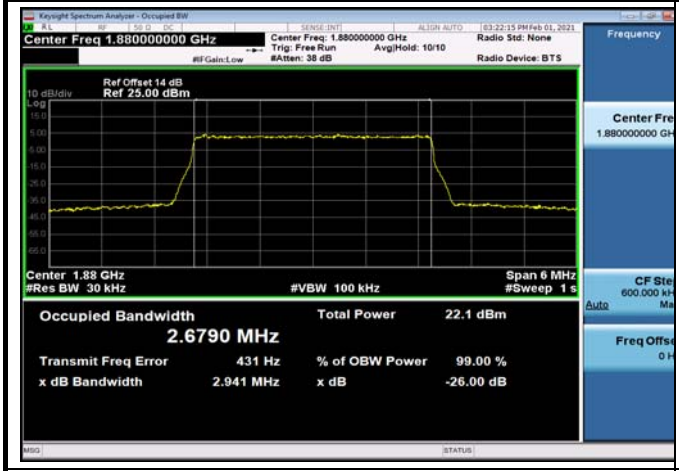
FDD02_MidRange_1.4_1880_QPSK



FDD02_MidRange_1.4_1880_Q16



FDD02_MidRange_3_1880_QPSK



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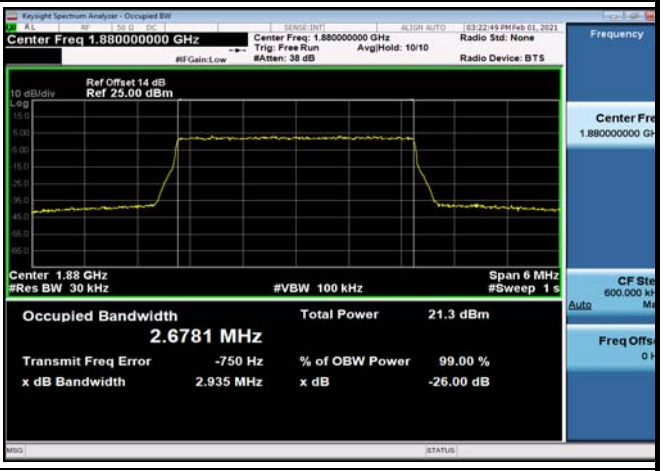
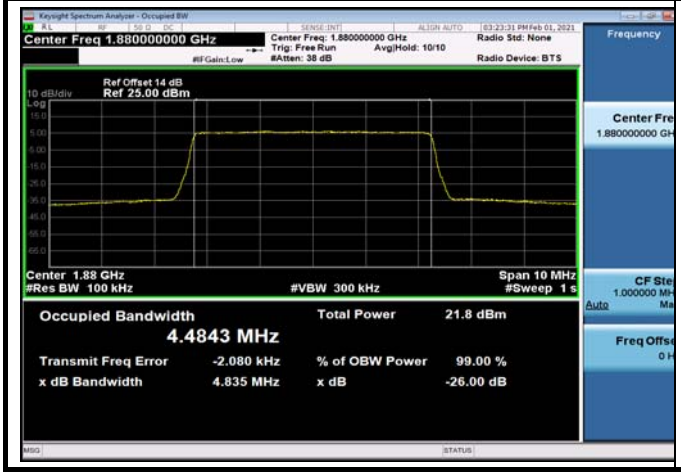
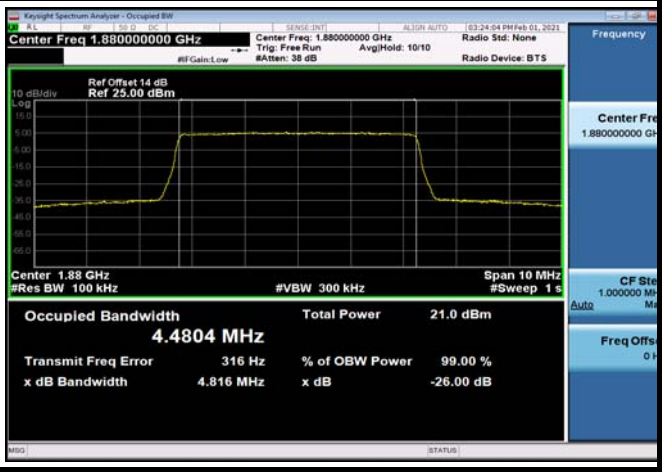


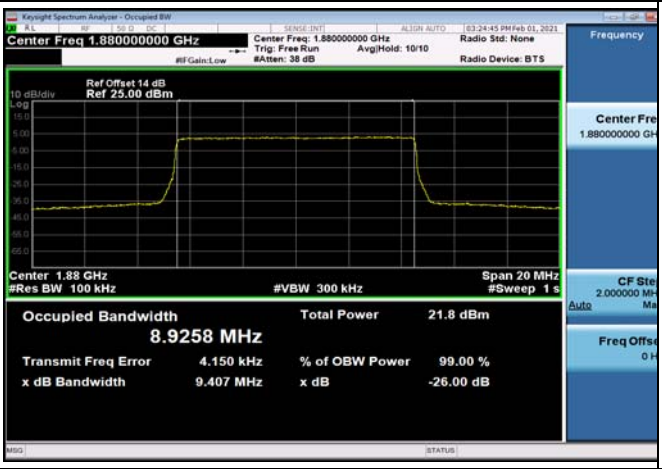
FDD02_MidRange_5_1880_QPSK



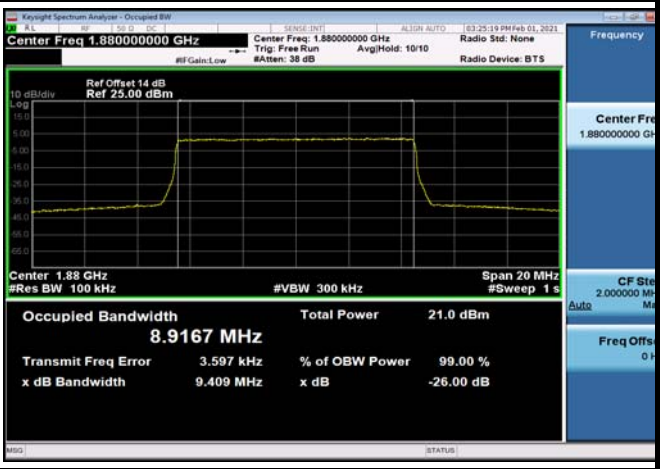
FDD02_MidRange_5_1880_Q16



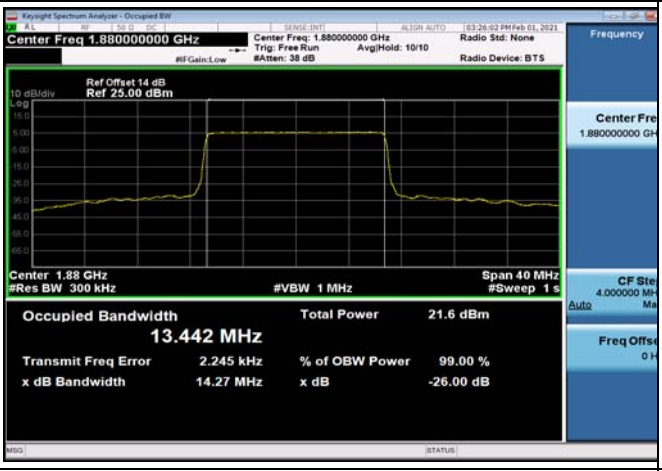
FDD02_MidRange_10_1880_QPSK



FDD02_MidRange_10_1880_Q16



FDD02_MidRange_15_1880_QPSK



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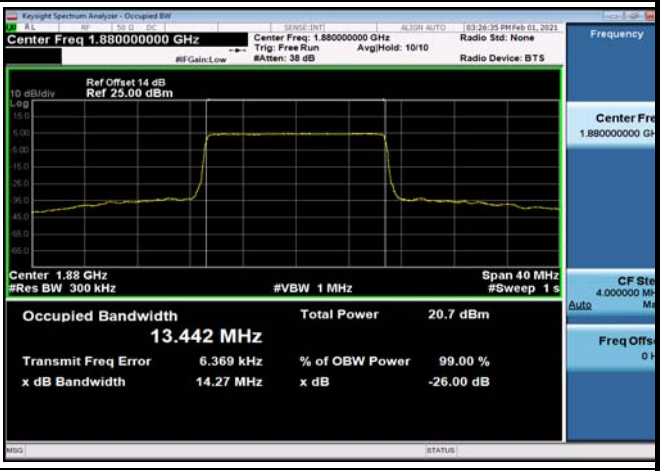
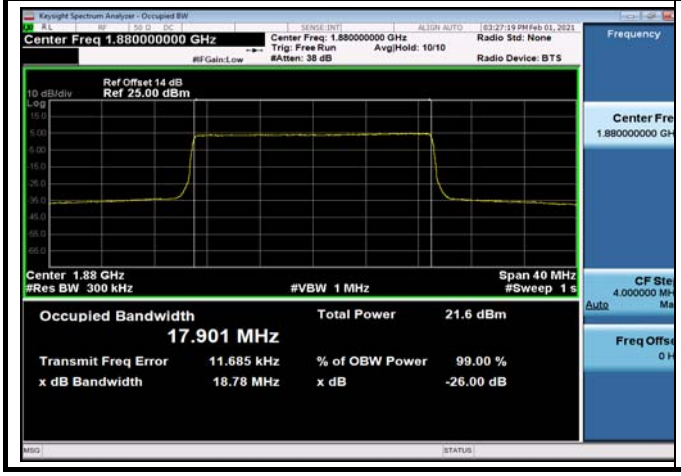


FDD02_MidRange_20_1880_QPSK



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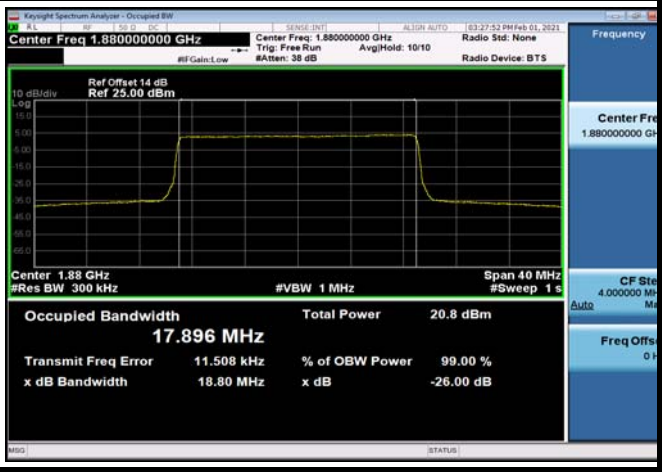
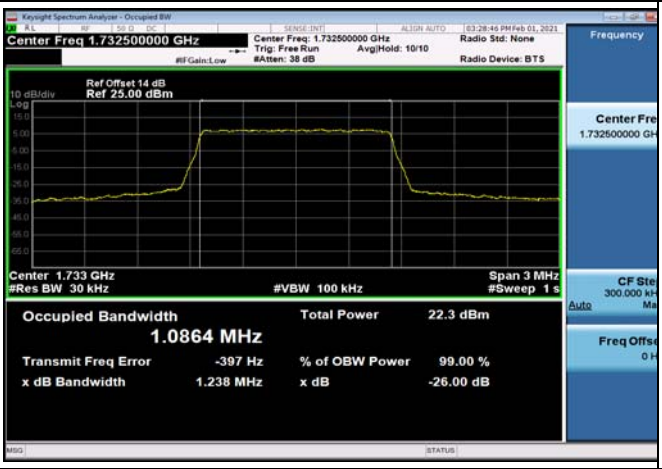
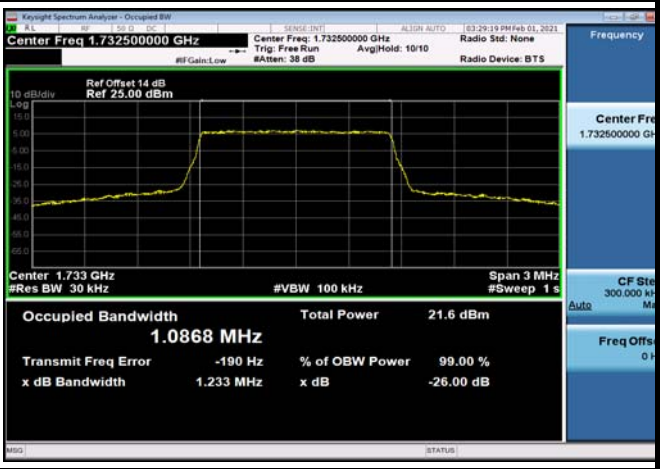


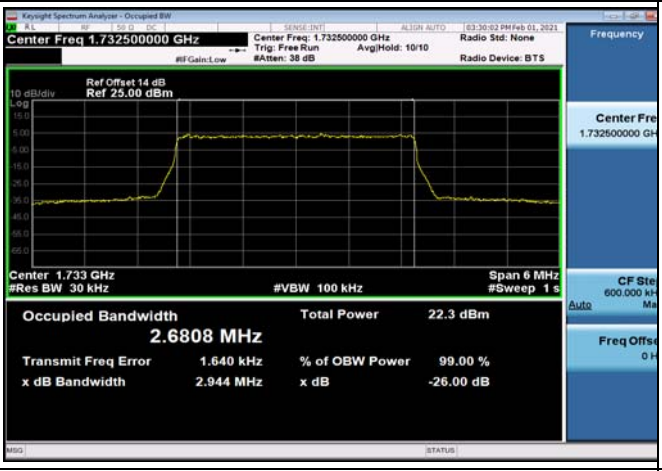
FDD04_MidRange_1.4_1732.5_QPSK



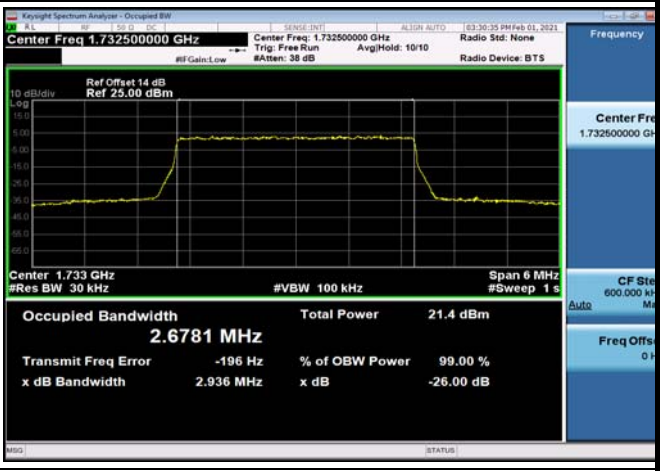
FDD04_MidRange_1.4_1732.5_Q16



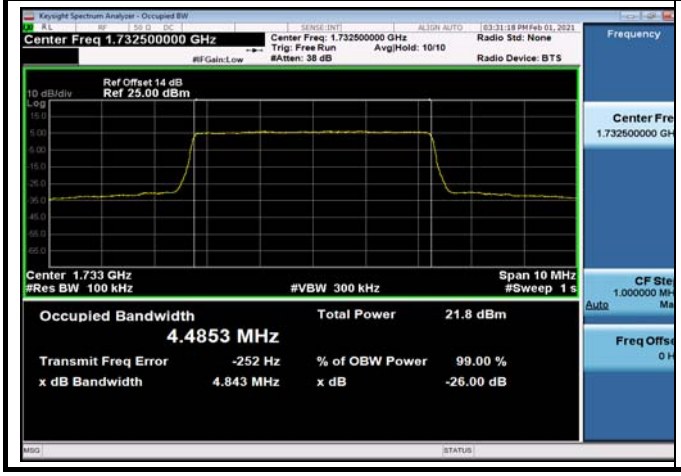
FDD04_MidRange_3_1732.5_QPSK



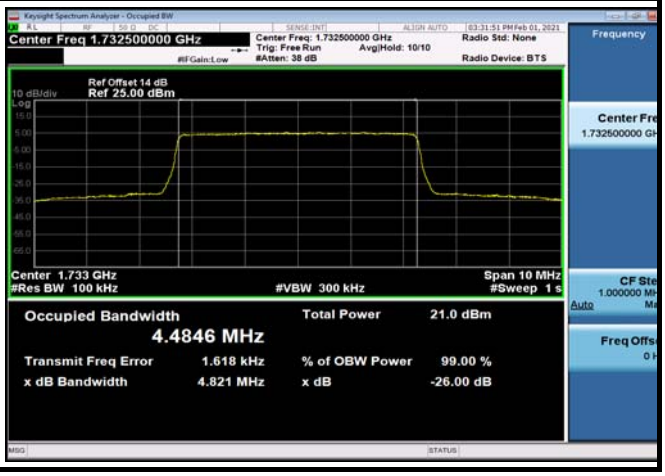
FDD04_MidRange_3_1732.5_Q16



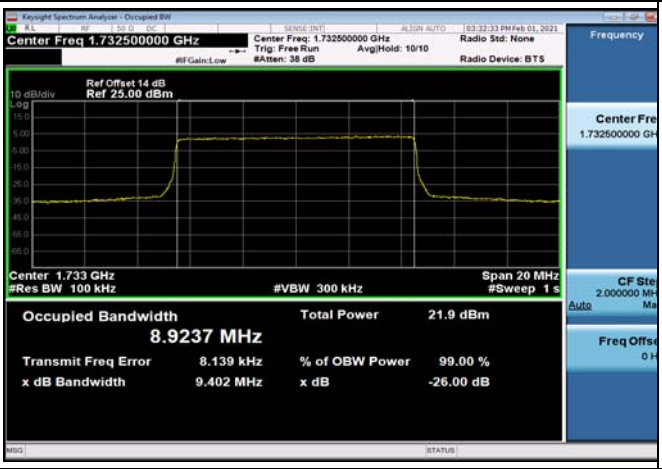
FDD04_MidRange_5_1732.5_QPSK



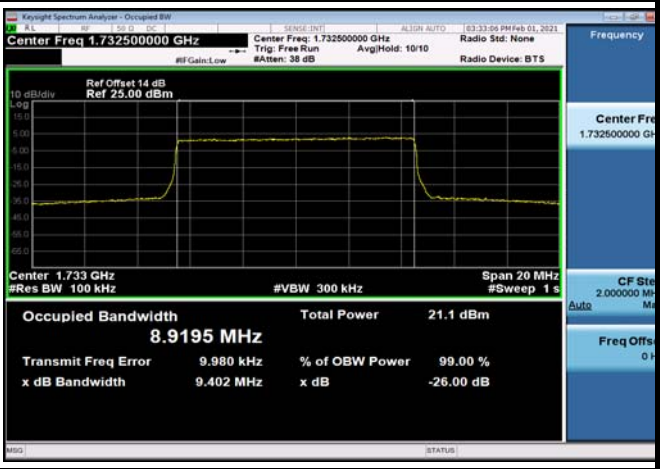
FDD04_MidRange_5_1732.5_Q16



FDD04_MidRange_10_1732.5_QPSK



FDD04_MidRange_10_1732.5_Q16



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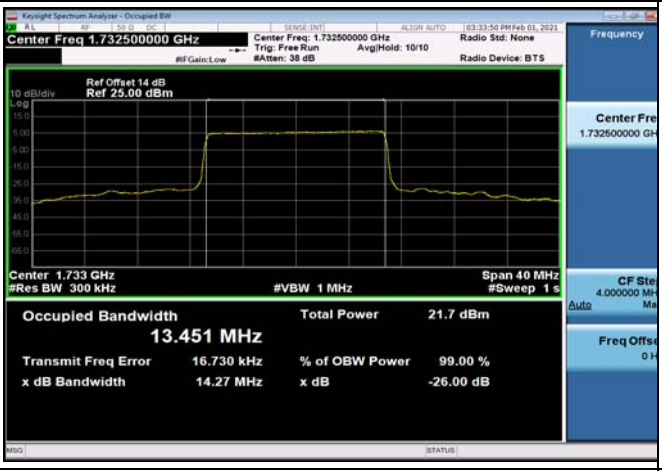

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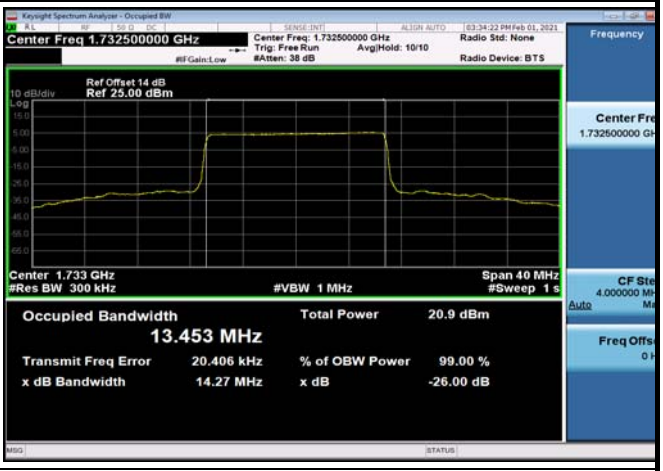

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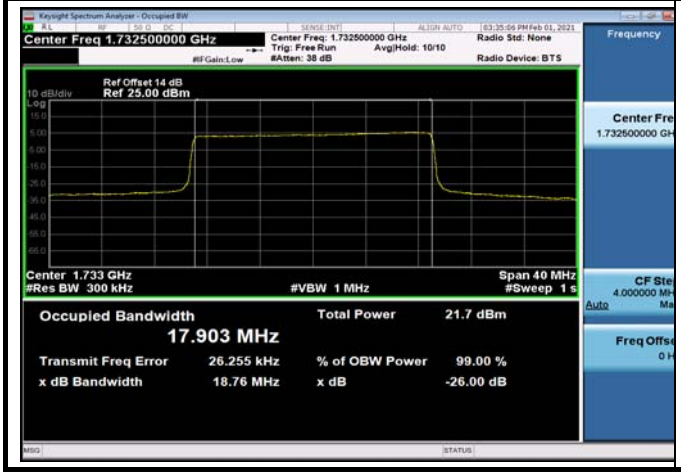

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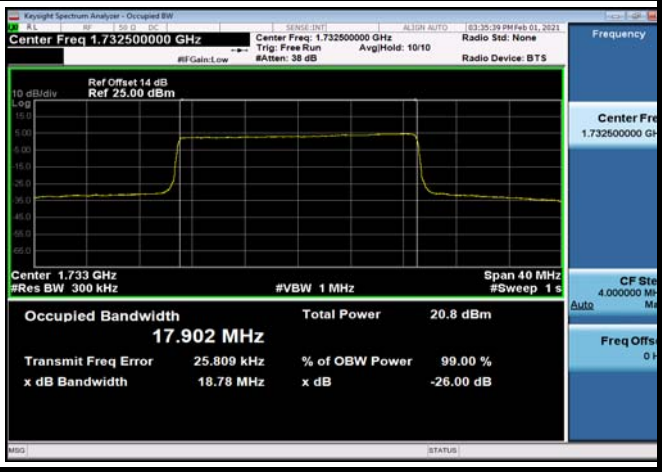
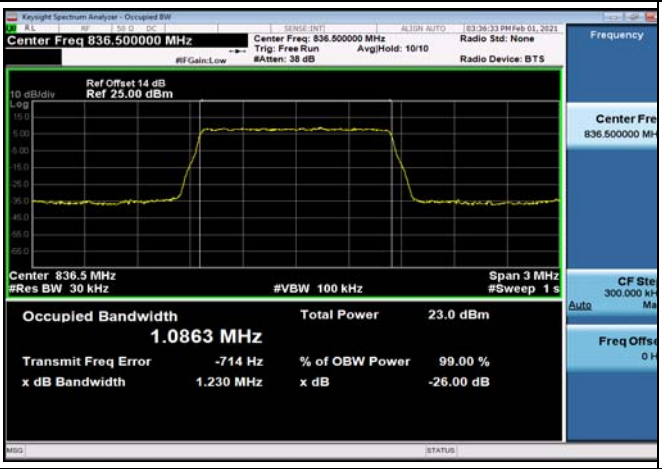
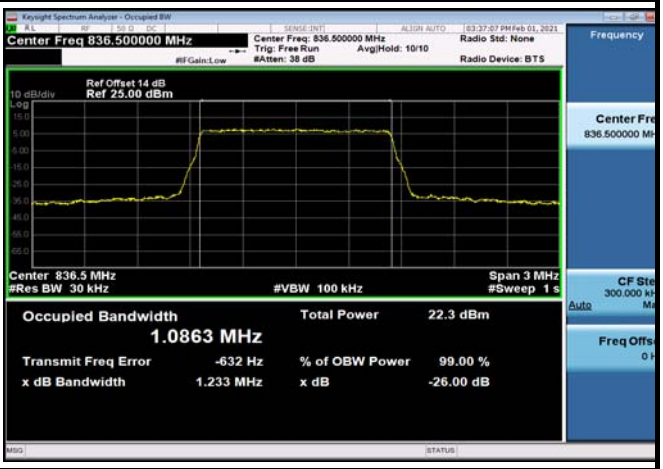


FDD05_MidRange_1.4_836.5_QPSK



FDD05_MidRange_1.4_836.5_Q16



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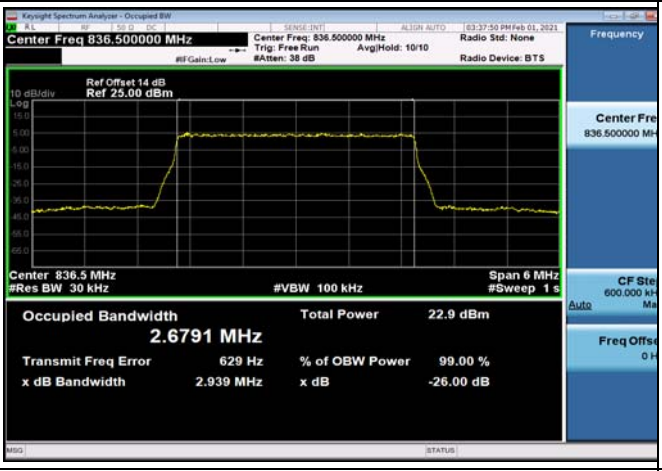
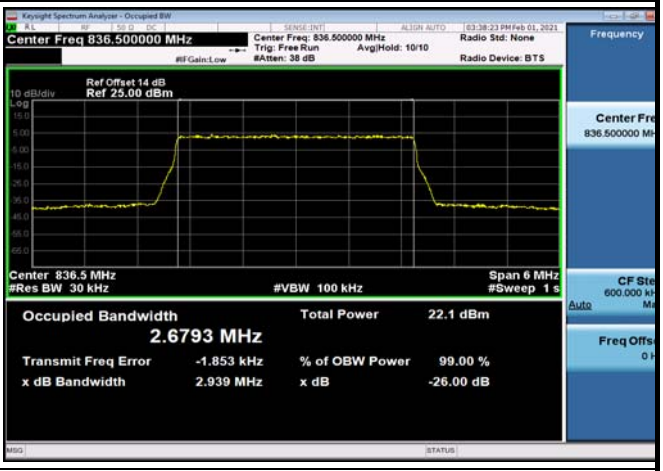


FDD05_MidRange_3_836.5_Q16



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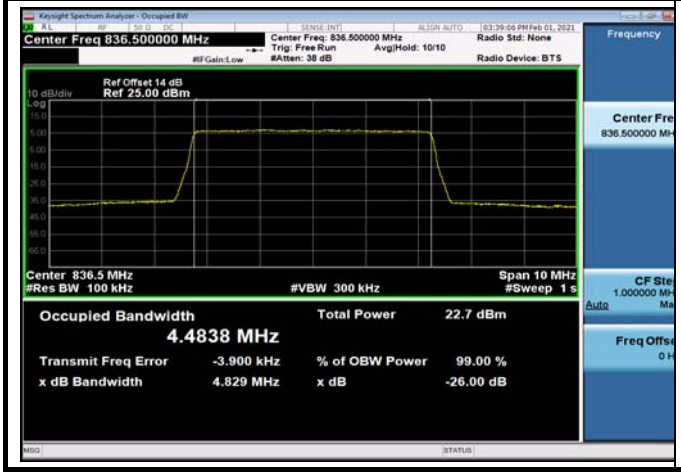

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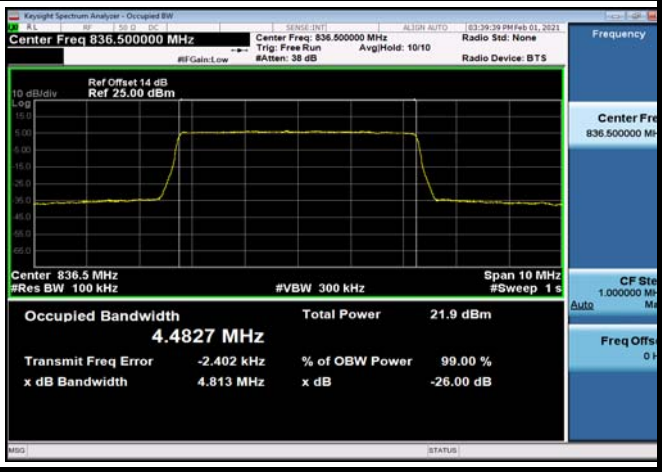
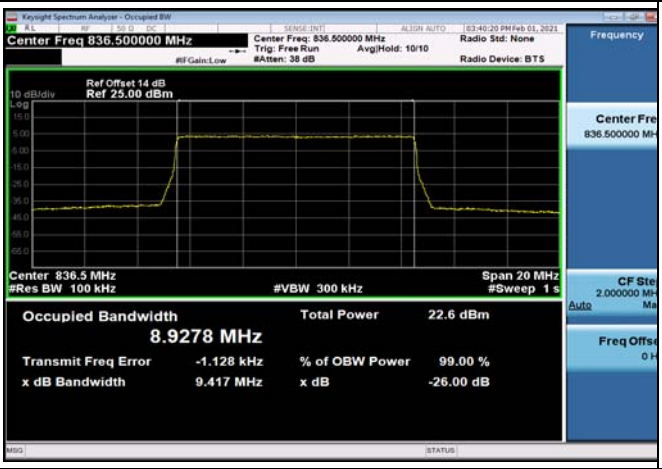


FDD05_MidRange_10_836.5_QPSK



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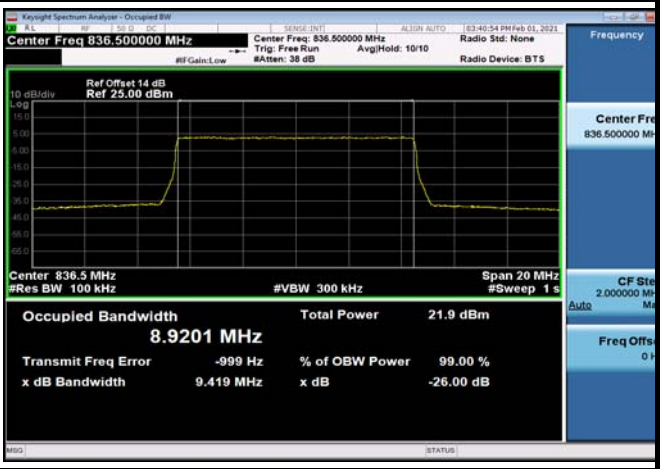
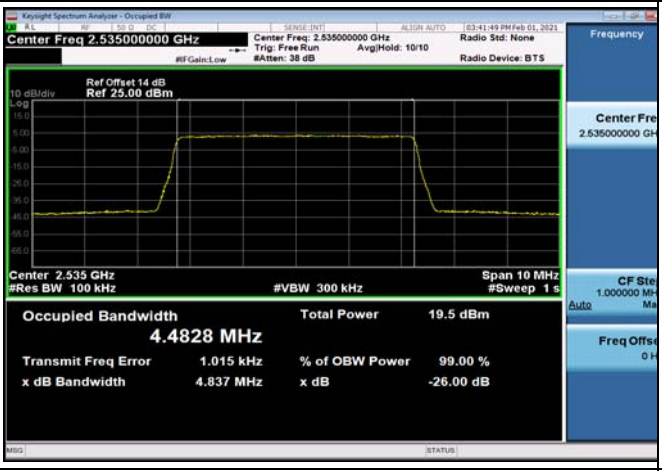
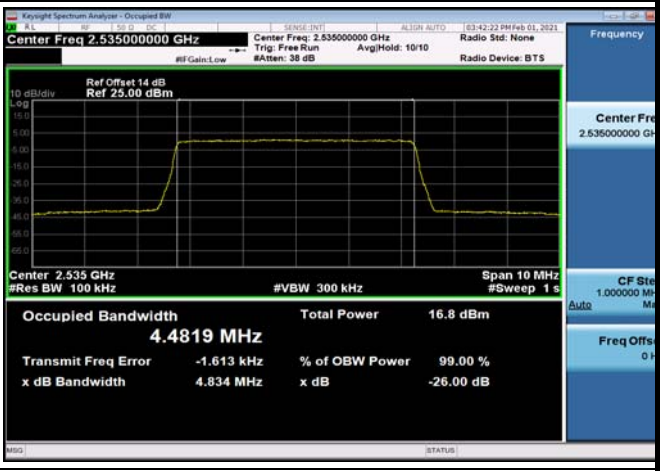


FDD07_MidRange_5_2535_QPSK



FDD07_MidRange_5_2535_Q16



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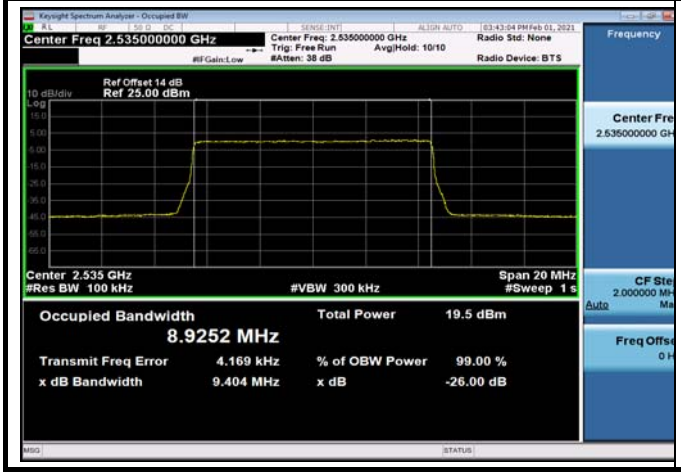

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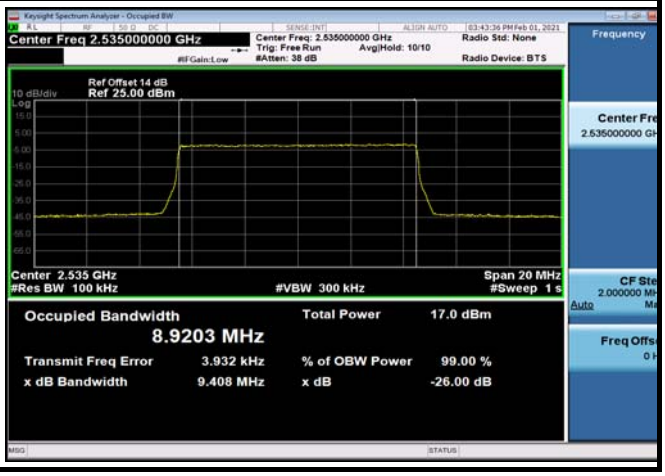
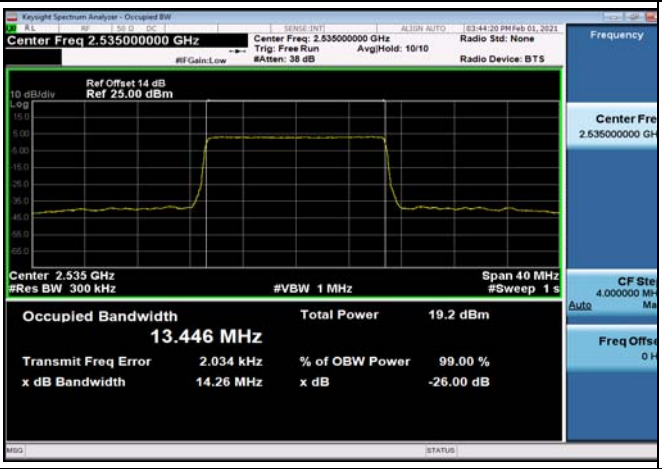


FDD07_MidRange_15_2535_QPSK



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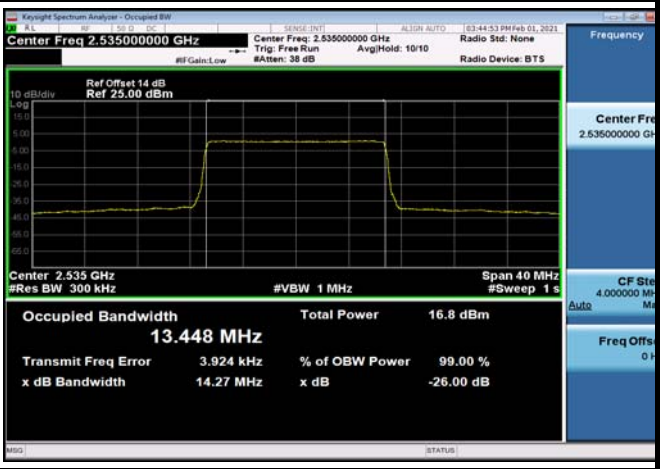
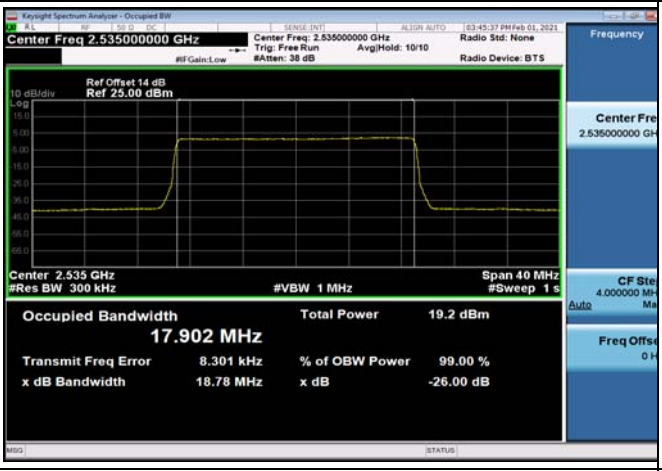
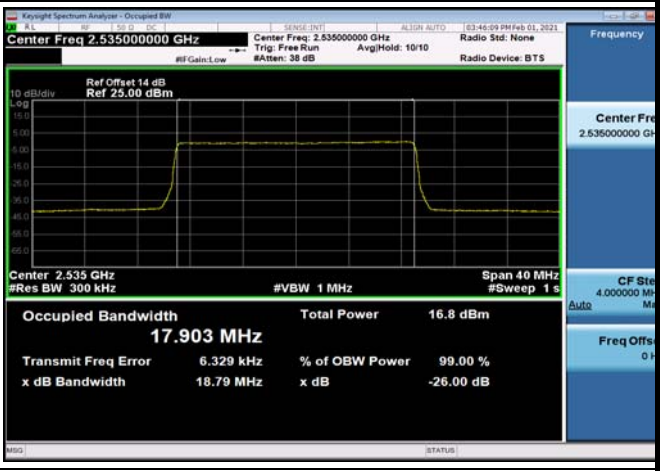


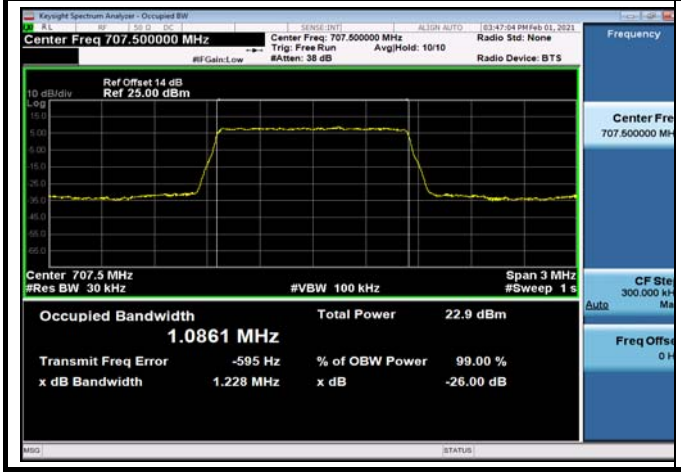
FDD07_MidRange_20_2535_QPSK



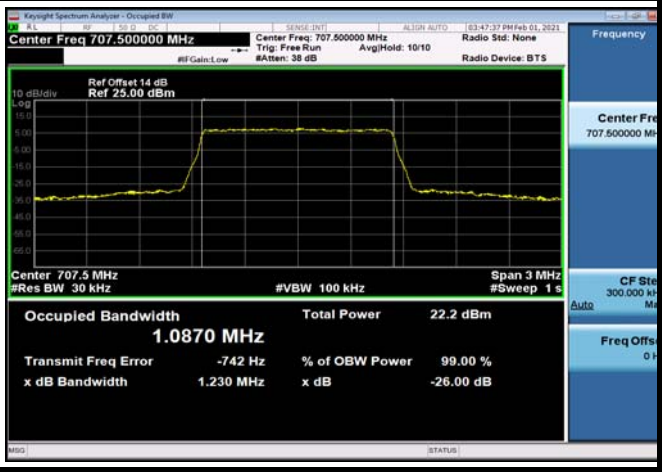
FDD07_MidRange_20_2535_Q16



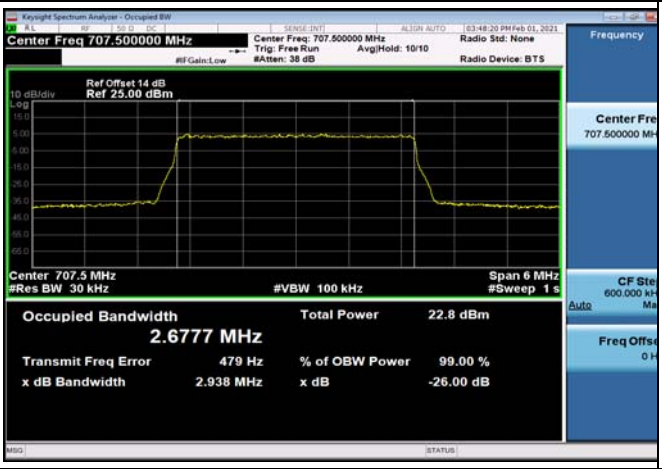
FDD12_MidRange_1.4_707.5_QPSK



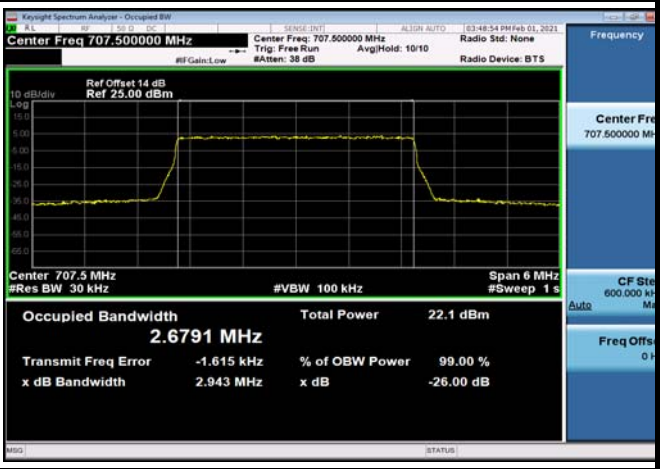
FDD12_MidRange_1.4_707.5_Q16



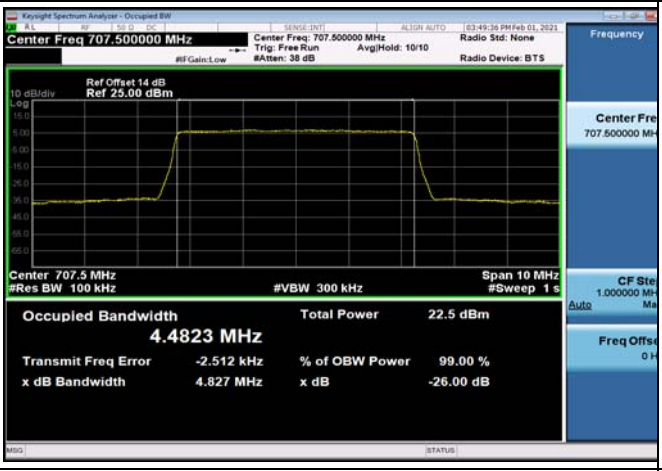
FDD12_MidRange_3_707.5_QPSK



FDD12_MidRange_3_707.5_Q16



FDD12_MidRange_5_707.5_QPSK



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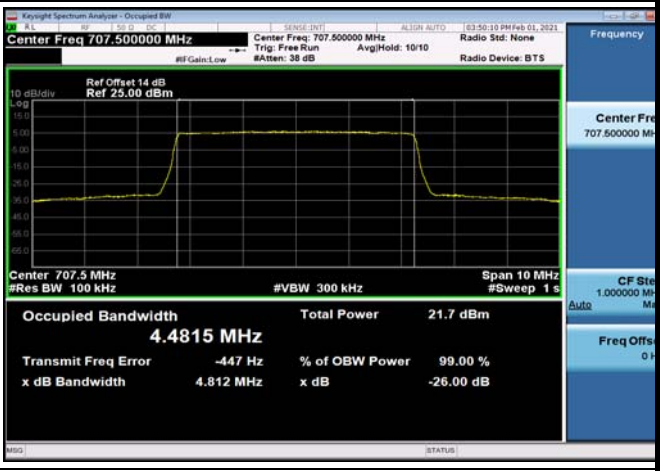

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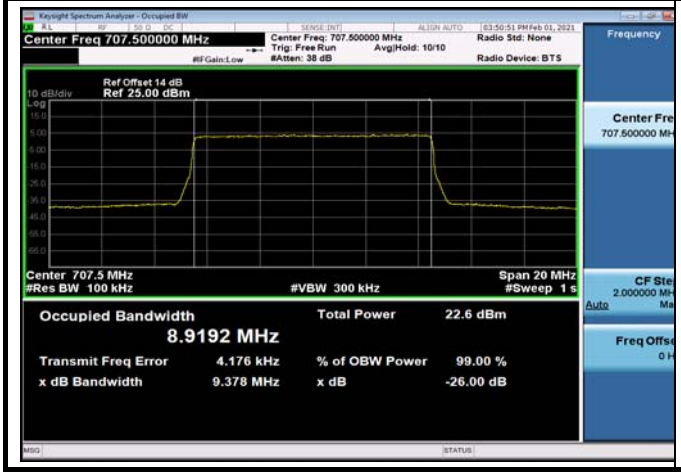
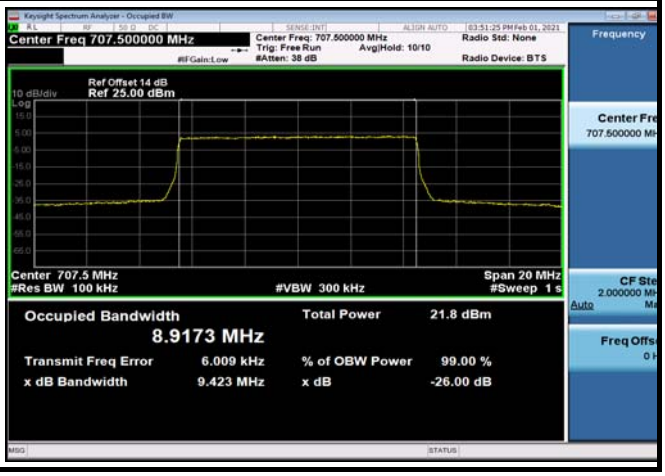
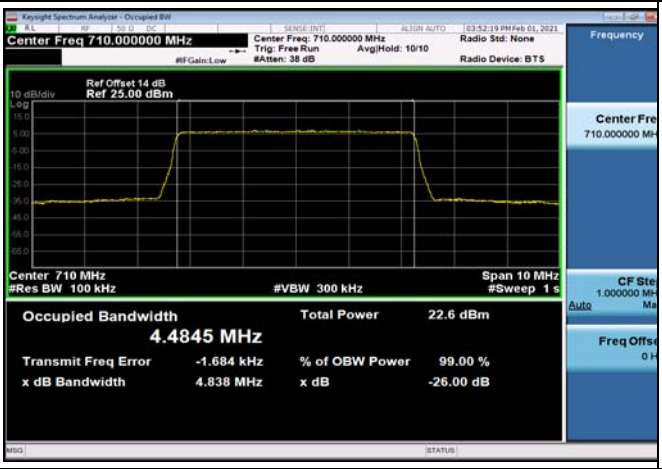
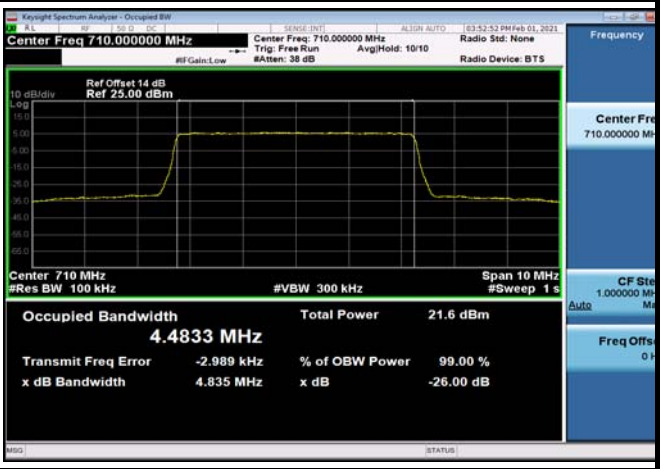
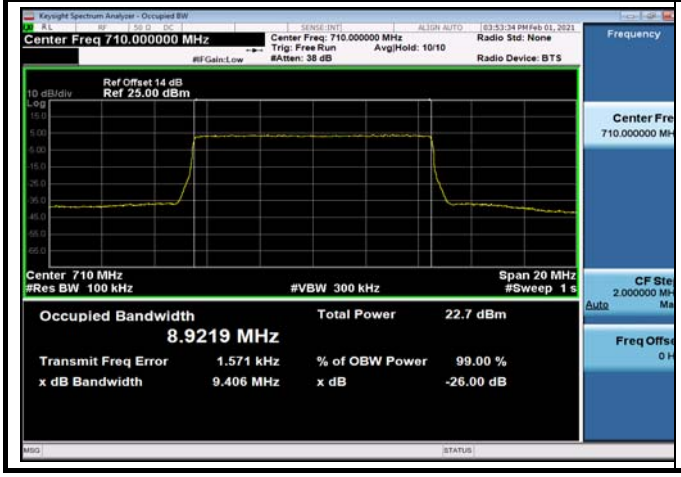
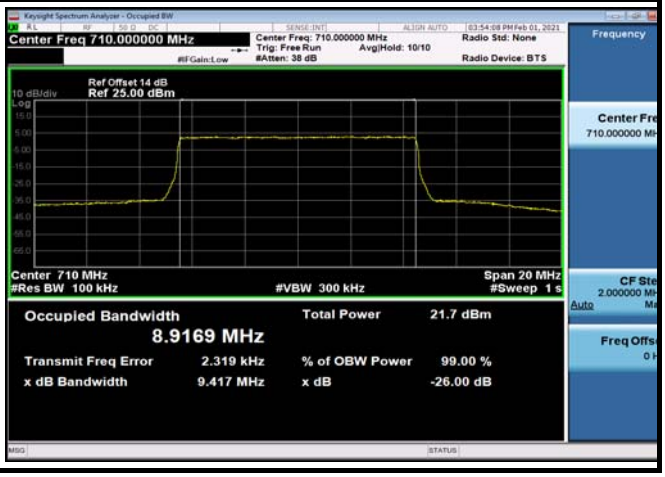


FDD12_MidRange_10_707.5_Q16



FDD17_MidRange_5_710_QPSK	FDD17_MidRange_5_710_Q16
	
FDD17_MidRange_10_710_QPSK	FDD17_MidRange_10_710_Q16
	

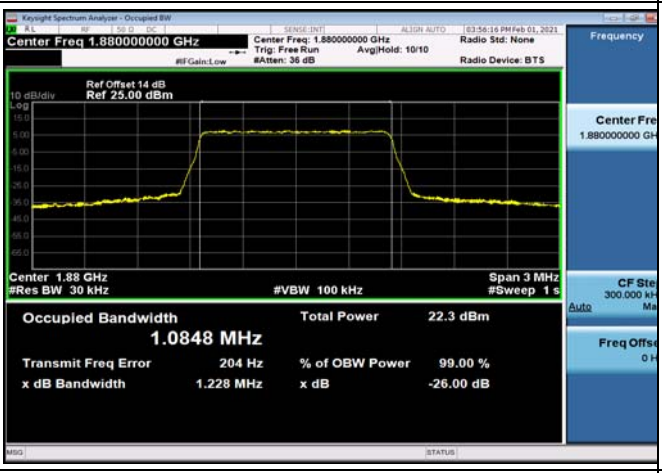
26dB Bandwidth

Test Result and Data

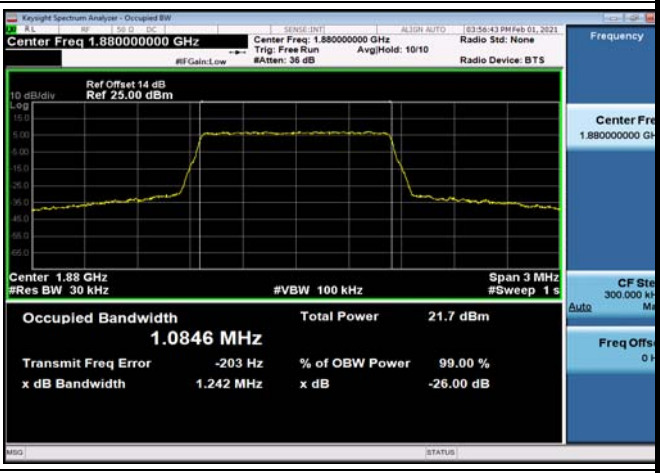
Emission Bandwidth NormalTC_NormalVol					
Band	Range	BandWidth	Frequency (MHz)	Modulation	EmissionBandwidth (MHz)
FDD02	MidRange	1.4	1880	QPSK	1.23
FDD02	MidRange	1.4	1880	Q16	1.24
FDD02	MidRange	3	1880	QPSK	3
FDD02	MidRange	3	1880	Q16	3
FDD02	MidRange	5	1880	QPSK	4.83
FDD02	MidRange	5	1880	Q16	4.81
FDD02	MidRange	10	1880	QPSK	9.4
FDD02	MidRange	10	1880	Q16	9.42
FDD02	MidRange	15	1880	QPSK	14.26
FDD02	MidRange	15	1880	Q16	14.27
FDD02	MidRange	20	1880	QPSK	18.77
FDD02	MidRange	20	1880	Q16	18.79
FDD04	MidRange	1.4	1732.5	QPSK	1.23
FDD04	MidRange	1.4	1732.5	Q16	1.24
FDD04	MidRange	3	1732.5	QPSK	3
FDD04	MidRange	3	1732.5	Q16	3
FDD04	MidRange	5	1732.5	QPSK	4.84
FDD04	MidRange	5	1732.5	Q16	4.83
FDD04	MidRange	10	1732.5	QPSK	9.41
FDD04	MidRange	10	1732.5	Q16	9.4
FDD04	MidRange	15	1732.5	QPSK	14.27
FDD04	MidRange	15	1732.5	Q16	14.27
FDD04	MidRange	20	1732.5	QPSK	18.76
FDD04	MidRange	20	1732.5	Q16	18.78
FDD05	MidRange	1.4	836.5	QPSK	1.23
FDD05	MidRange	1.4	836.5	Q16	1.2
FDD05	MidRange	3	836.5	QPSK	3

FDD05	MidRange	3	836.5	Q16	3
FDD05	MidRange	5	836.5	QPSK	4.82
FDD05	MidRange	5	836.5	Q16	4.81
FDD05	MidRange	10	836.5	QPSK	9.39
FDD05	MidRange	10	836.5	Q16	9.44
FDD07	MidRange	5	2535	QPSK	4.83
FDD07	MidRange	5	2535	Q16	4.83
FDD07	MidRange	10	2535	QPSK	9.4
FDD07	MidRange	10	2535	Q16	9.42
FDD07	MidRange	15	2535	QPSK	14.26
FDD07	MidRange	15	2535	Q16	14.27
FDD07	MidRange	20	2535	QPSK	18.78
FDD07	MidRange	20	2535	Q16	18.79
FDD12	MidRange	1.4	707.5	QPSK	1.23
FDD12	MidRange	1.4	707.5	Q16	1.23
FDD12	MidRange	3	707.5	QPSK	3
FDD12	MidRange	3	707.5	Q16	3
FDD12	MidRange	5	707.5	QPSK	4.83
FDD12	MidRange	5	707.5	Q16	4.81
FDD12	MidRange	10	707.5	QPSK	9.39
FDD12	MidRange	10	707.5	Q16	9.41
FDD17	MidRange	10	710	QPSK	4.83
FDD17	MidRange	10	710	Q16	4.85

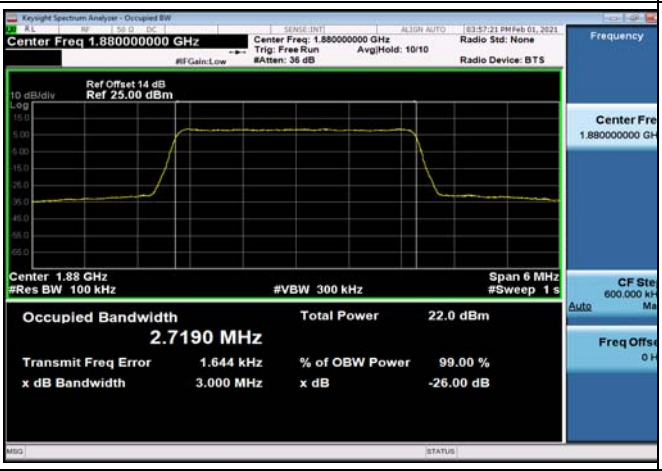
FDD02_MidRange_1.4MHz_1880MHz_QPSK



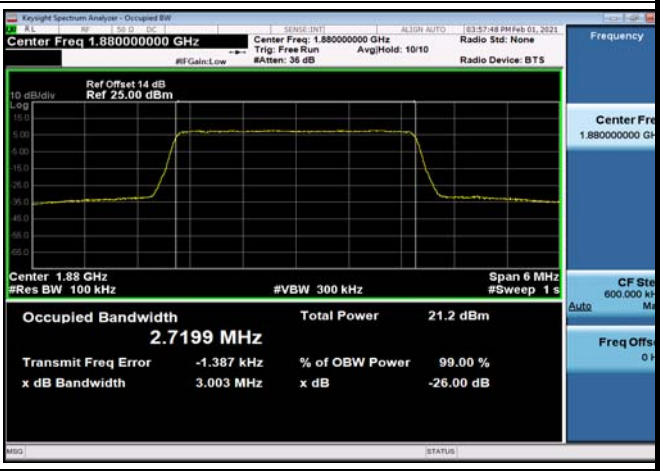
FDD02_MidRange_1.4MHz_1880MHz_Q16



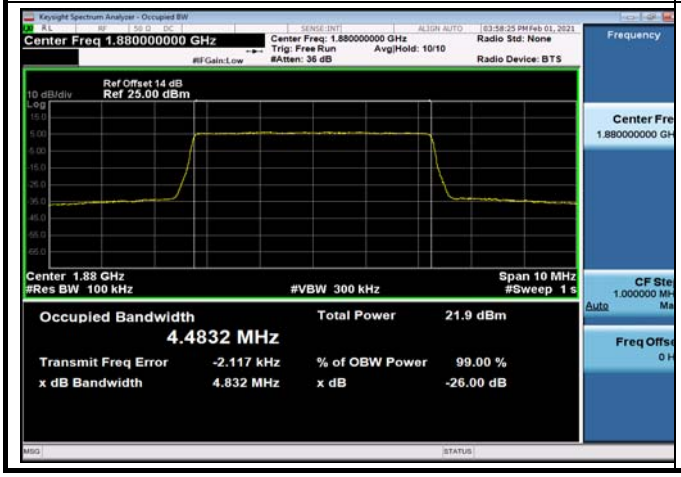
FDD02_MidRange_3MHz_1880MHz_QPSK



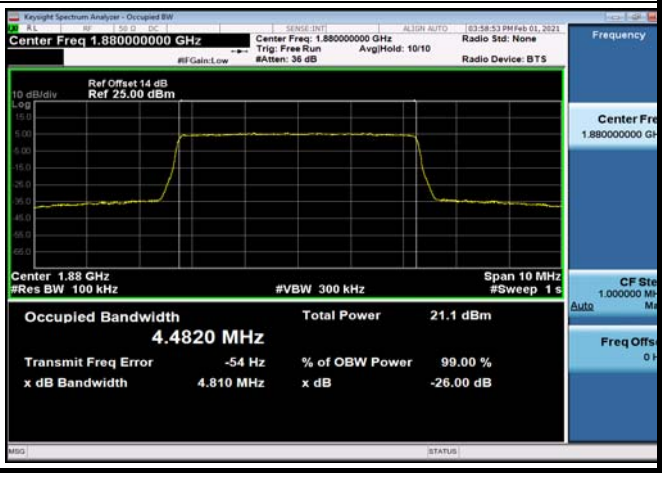
FDD02_MidRange_3MHz_1880MHz_Q16



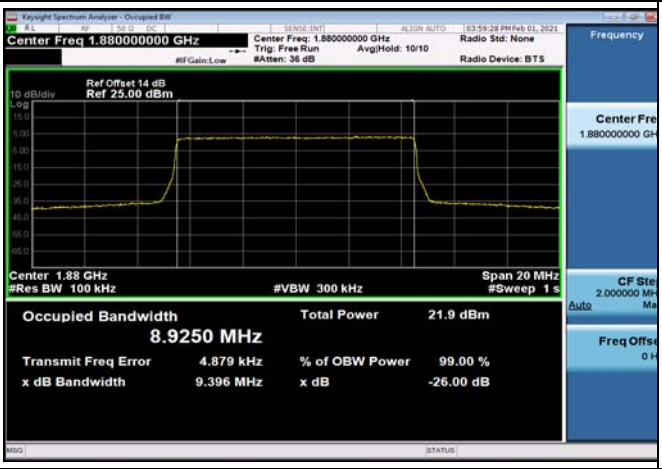
FDD02_MidRange_5MHz_1880MHz_QPSK



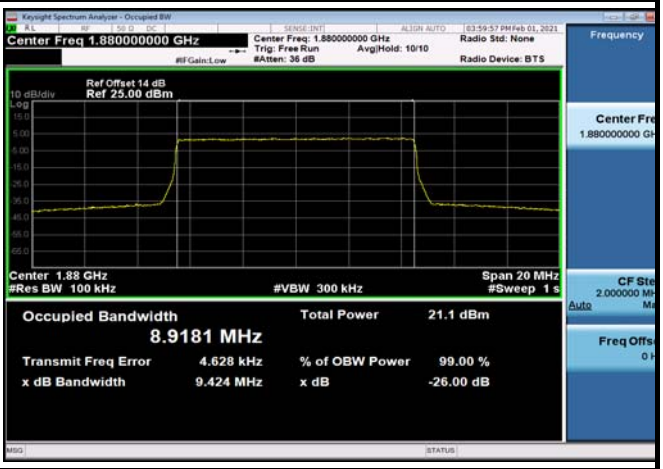
FDD02_MidRange_5MHz_1880MHz_Q16



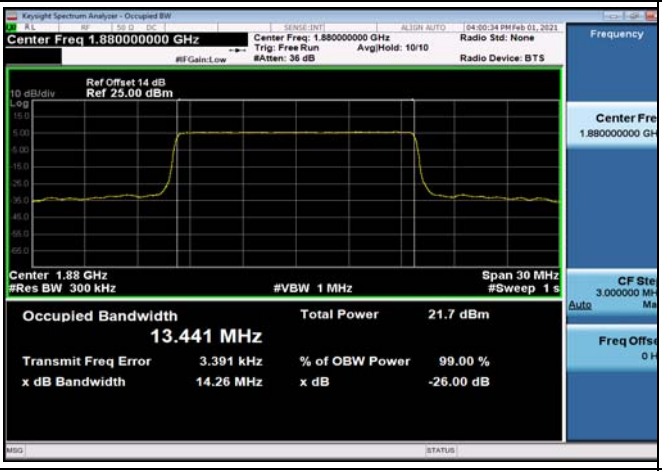
FDD02_MidRange_10MHz_1880MHz_QPSK



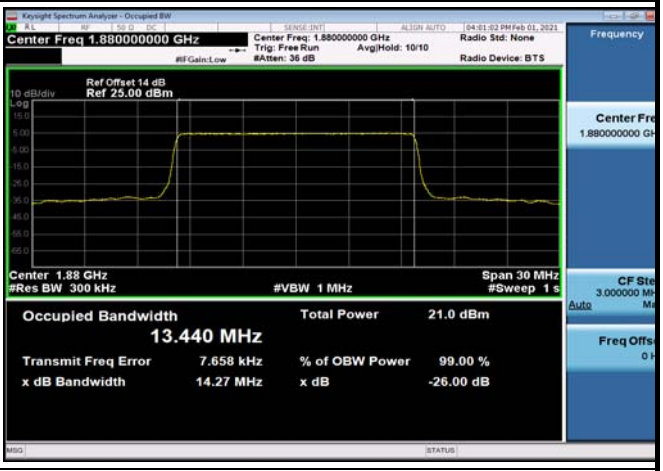
FDD02_MidRange_10MHz_1880MHz_Q16



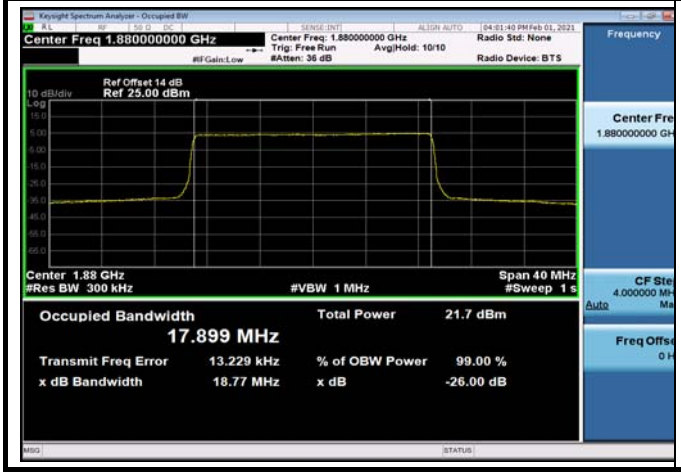
FDD02_MidRange_15MHz_1880MHz_QPSK



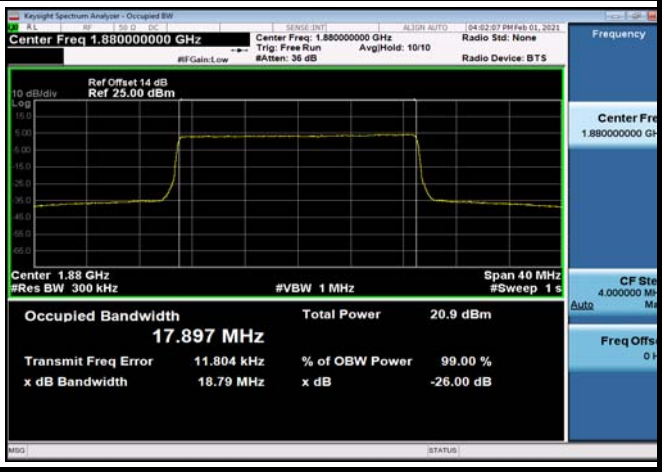
FDD02_MidRange_15MHz_1880MHz_Q16



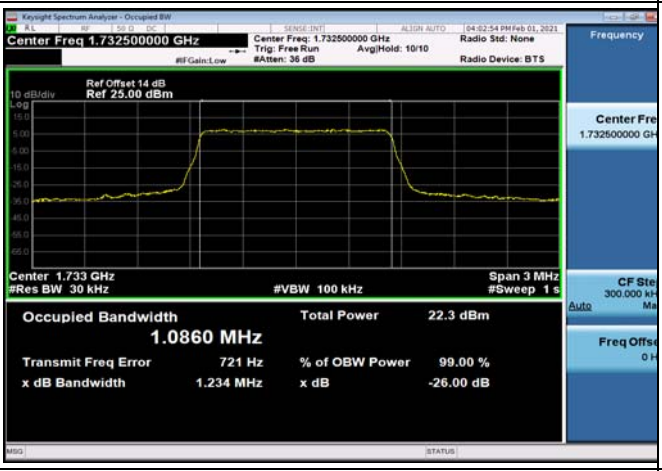
FDD02_MidRange_20MHz_1880MHz_QPSK



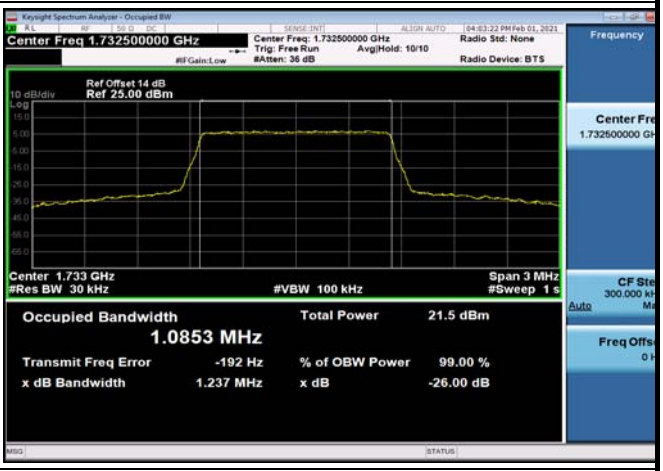
FDD02_MidRange_20MHz_1880MHz_Q16



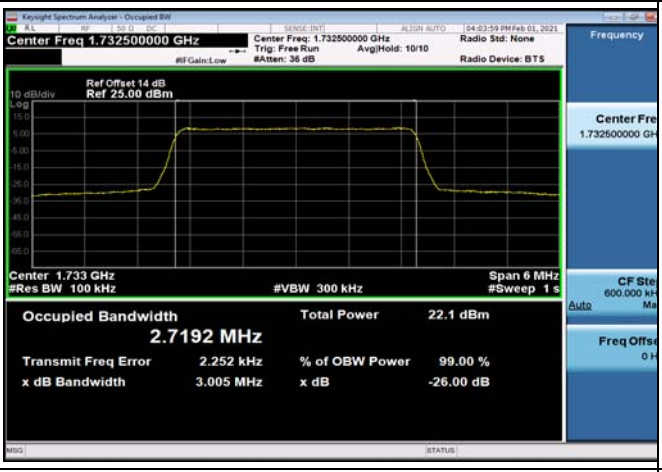
FDD04_MidRange_1.4MHz_1732.5MHz _QPSK



FDD04_MidRange_1.4MHz_1732.5MHz _Q16

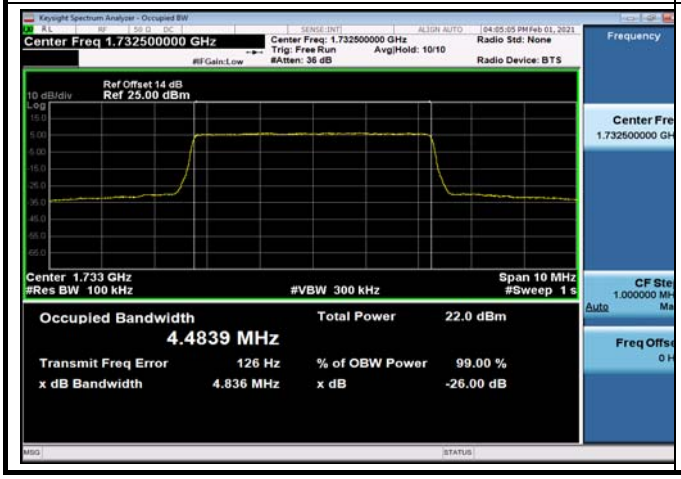


FDD04_MidRange_3MHz_1732.5MHz_QPSK

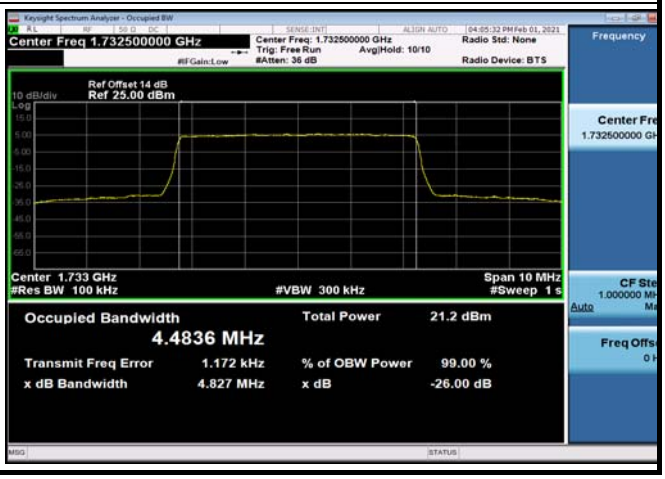


FDD04_MidRange_3MHz_1732.5MHz_Q16

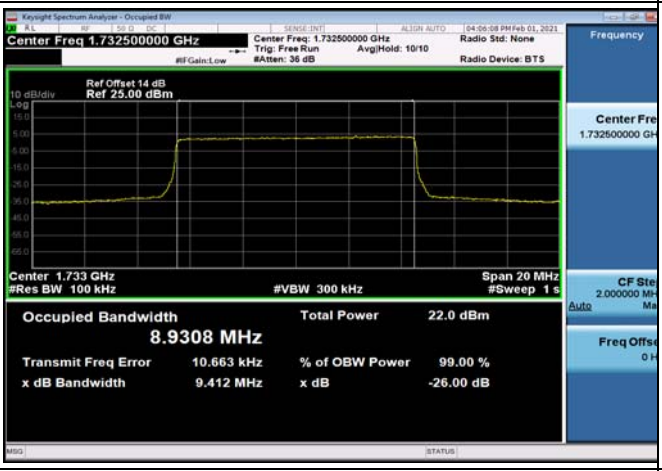
FDD04_MidRange_5MHz_1732.5MHz_QPSK



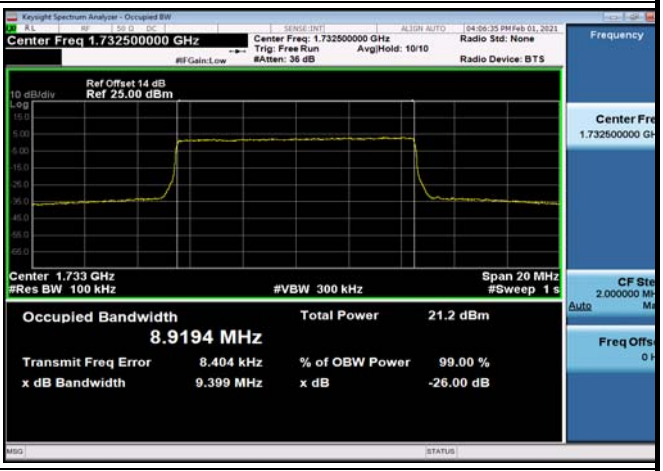
FDD04_MidRange_5MHz_1732.5MHz_Q16



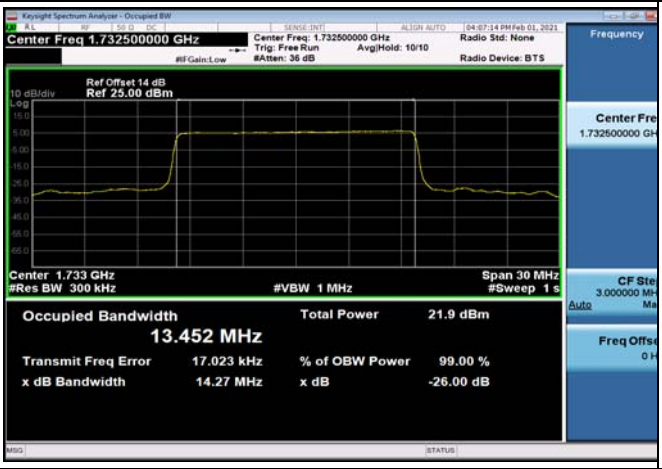
FDD04_MidRange_10MHz_1732.5MHz _QPSK



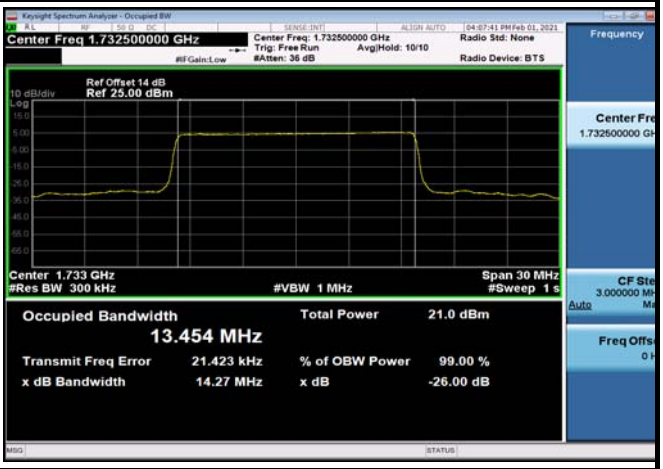
FDD04_MidRange_10MHz_1732.5MHz _Q16



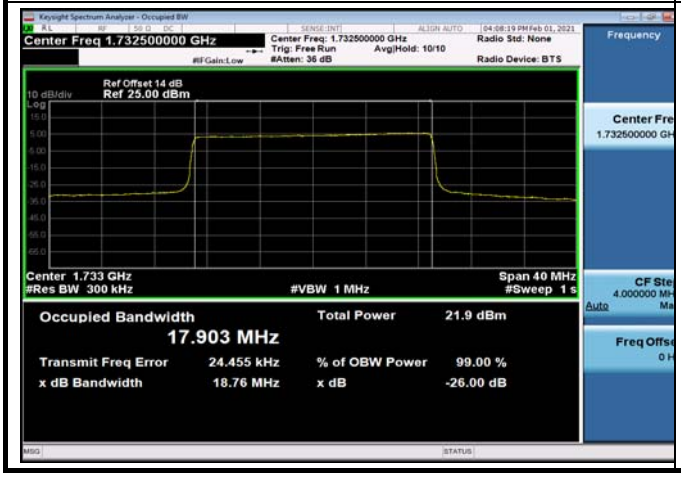
FDD04_MidRange_15MHz_1732.5MHz _QPSK



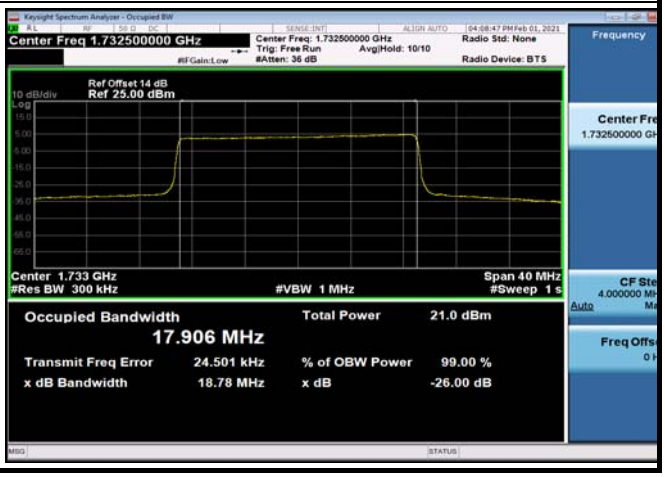
FDD04_MidRange_15MHz_1732.5MHz _Q16



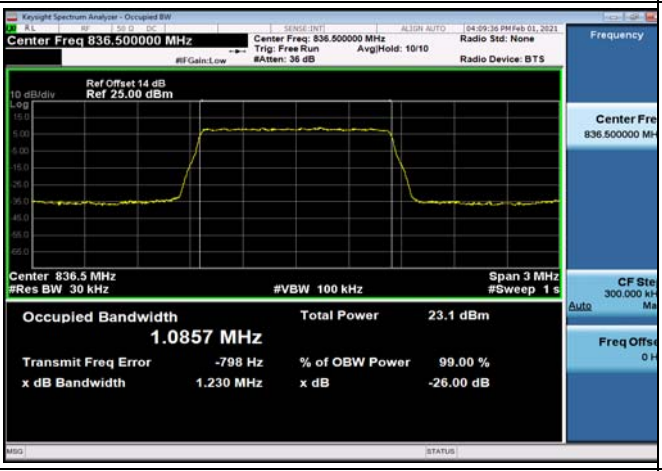
FDD04_MidRange_20MHz_1732.5MHz _QPSK



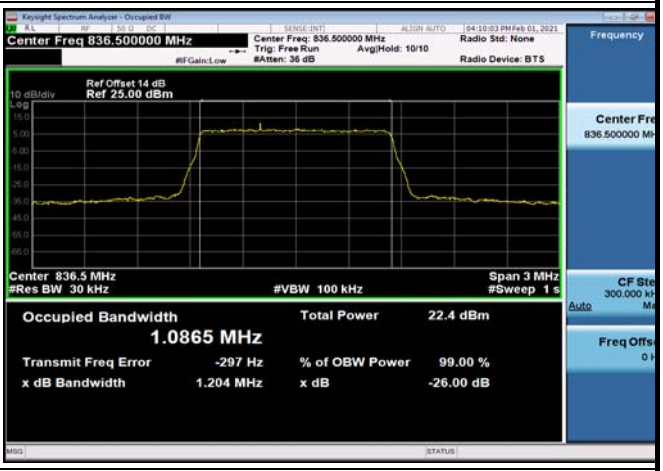
FDD04_MidRange_20MHz_1732.5MHz _Q16



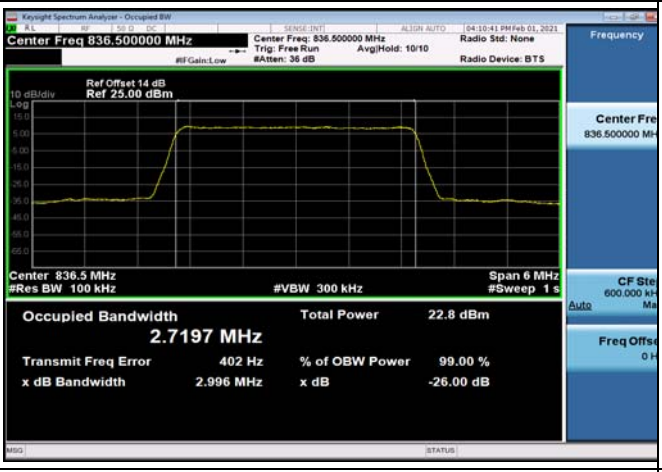
FDD05_MidRange_1.4MHz_836.5MHz_QPSK



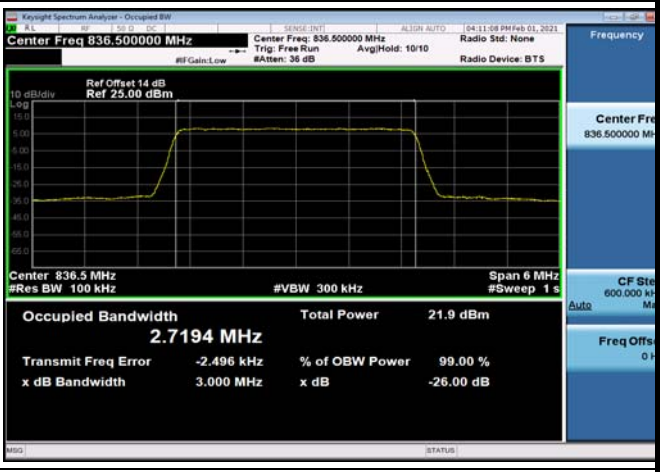
FDD05_MidRange_1.4MHz_836.5MHz_Q16



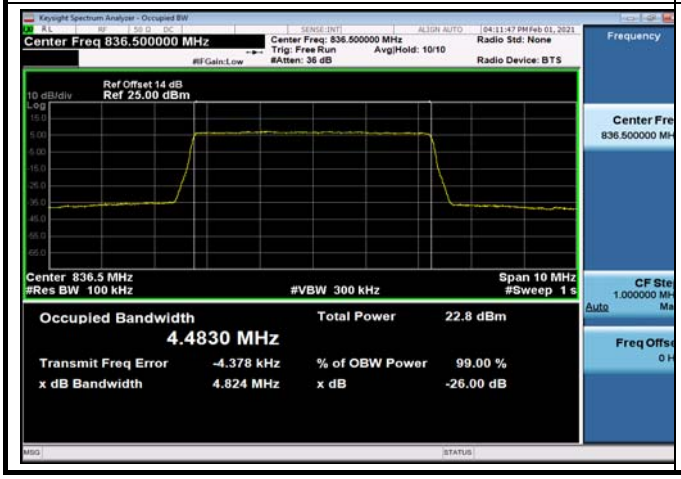
FDD05_MidRange_3MHz_836.5MHz_QPSK



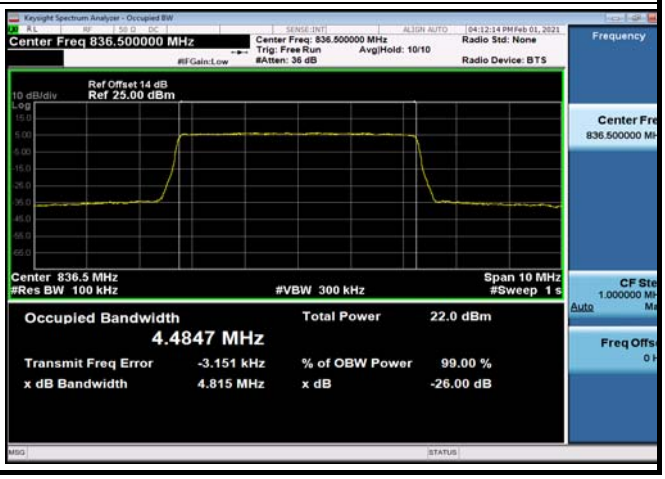
FDD05_MidRange_3MHz_836.5MHz_Q16



FDD05_MidRange_5MHz_836.5MHz_QPSK



FDD05_MidRange_5MHz_836.5MHz_Q16



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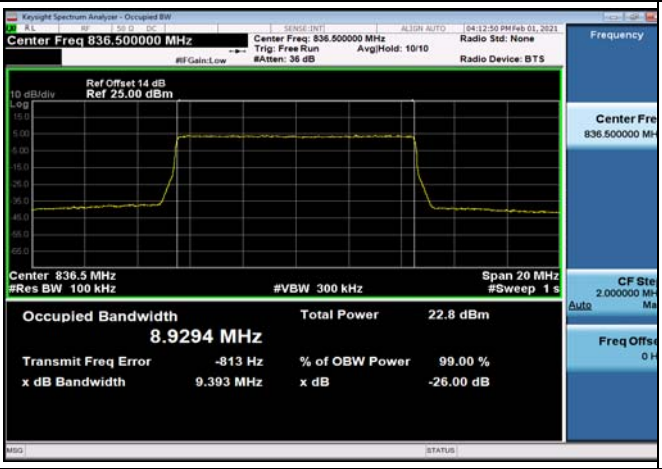
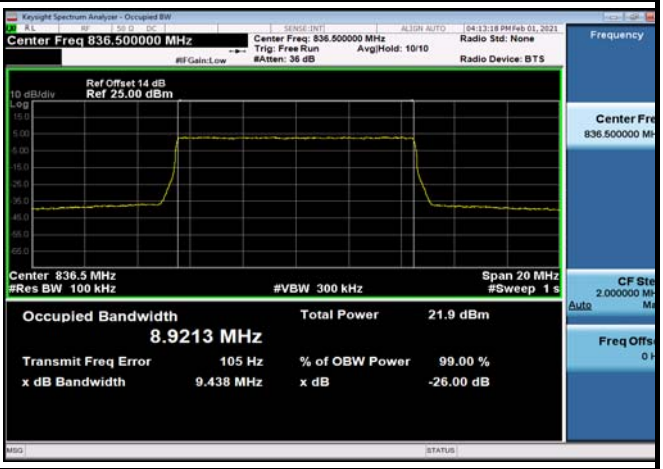
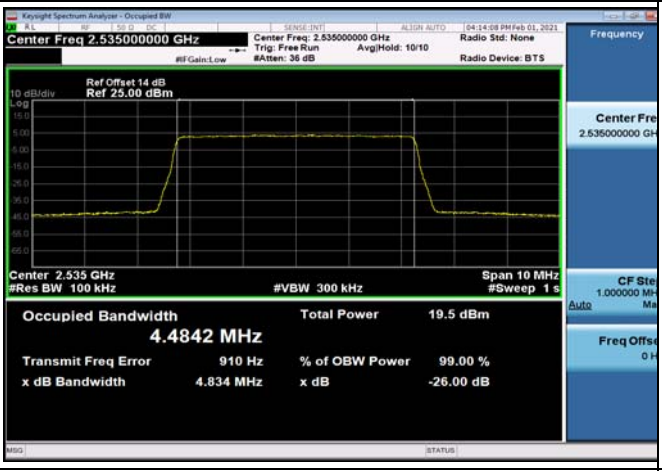


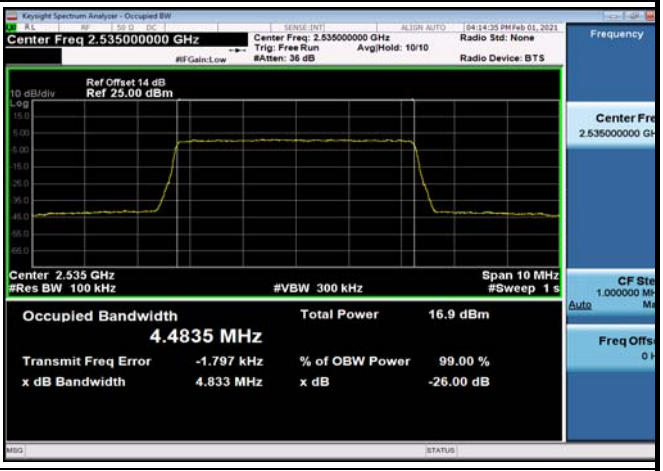
FDD05_MidRange_10MHz_836.5MHz_Q16



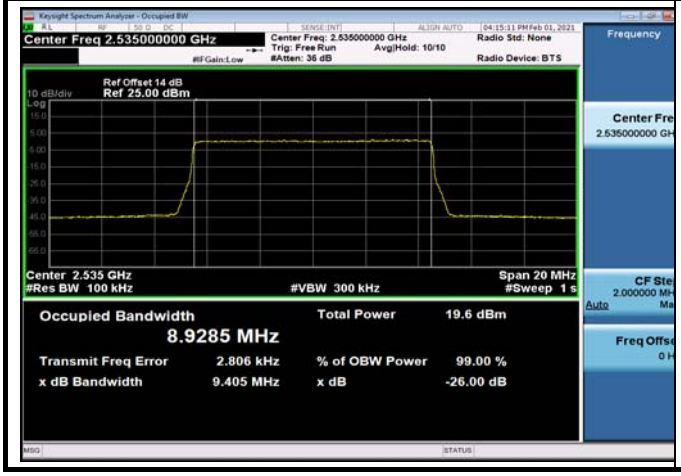
FDD07_MidRange_5MHz_2535MHz_QPSK



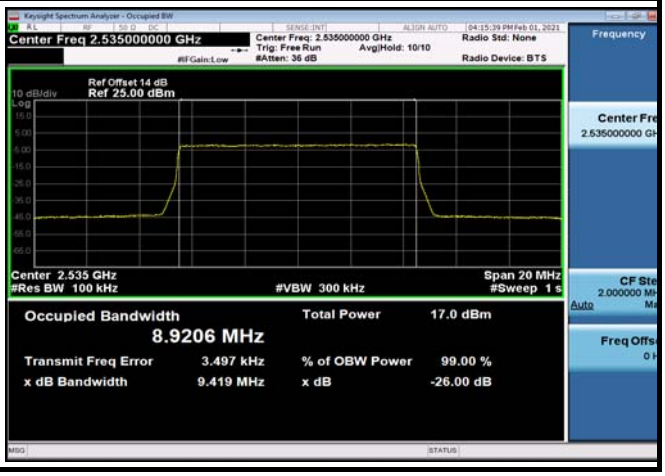
FDD07_MidRange_5MHz_2535MHz_Q16



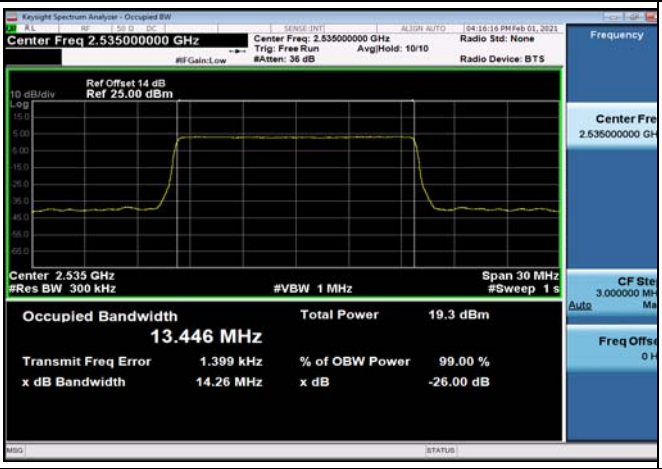
FDD07_MidRange_10MHz_2535MHz_QPSK



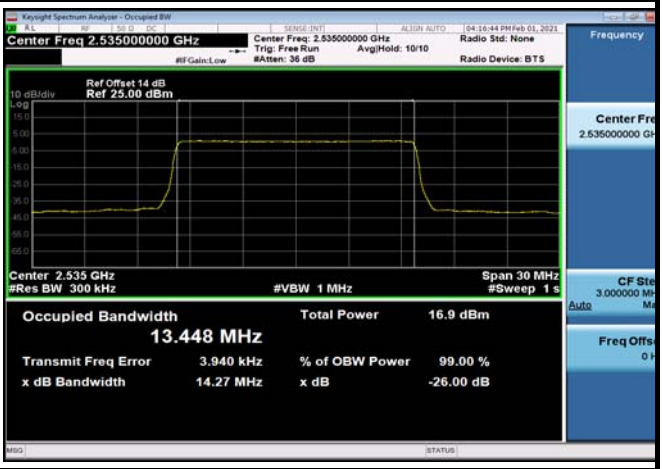
FDD07_MidRange_10MHz_2535MHz_Q16



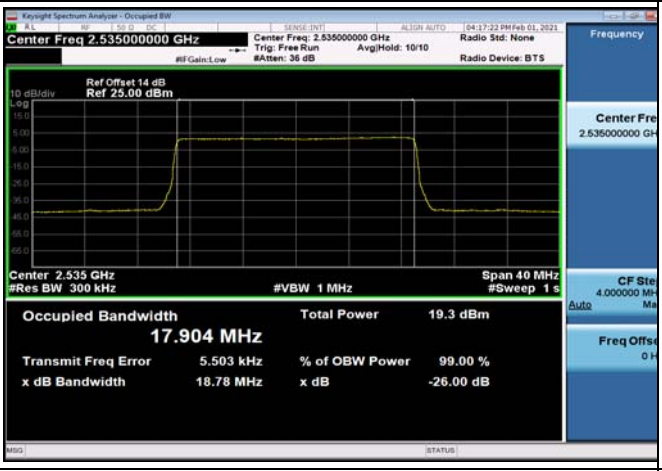
FDD07_MidRange_15MHz_2535MHz_QPSK



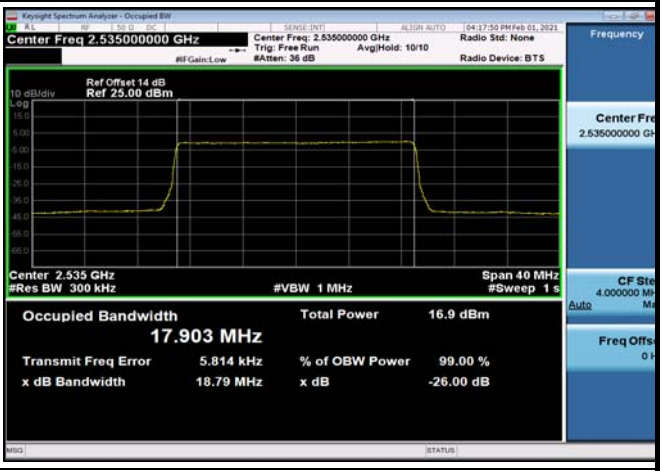
FDD07_MidRange_15MHz_2535MHz_Q16



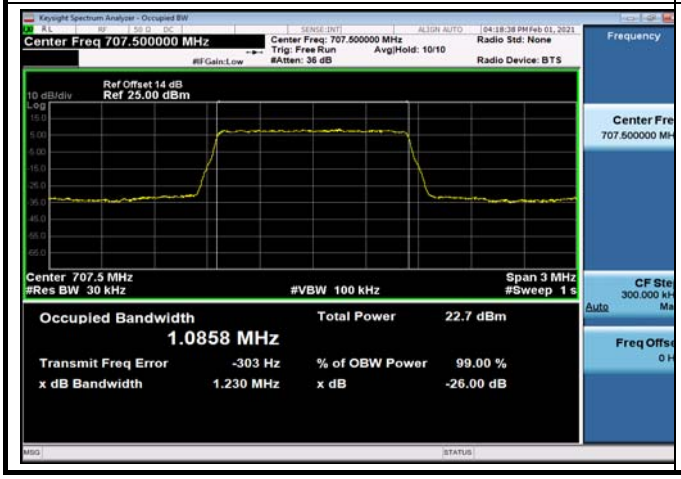
FDD07_MidRange_20MHz_2535MHz_QPSK



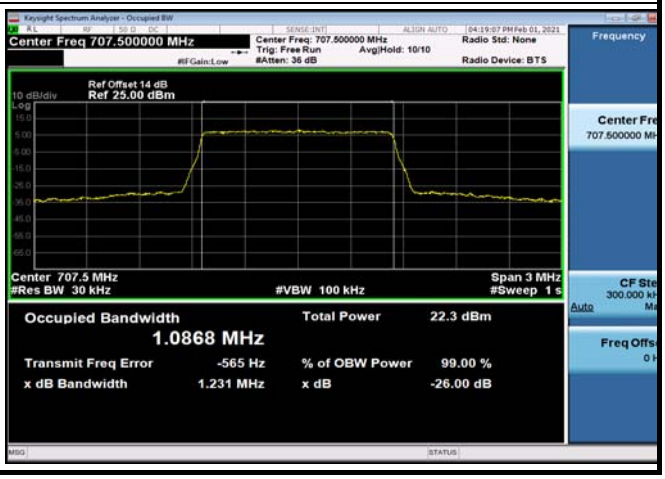
FDD07_MidRange_20MHz_2535MHz_Q16



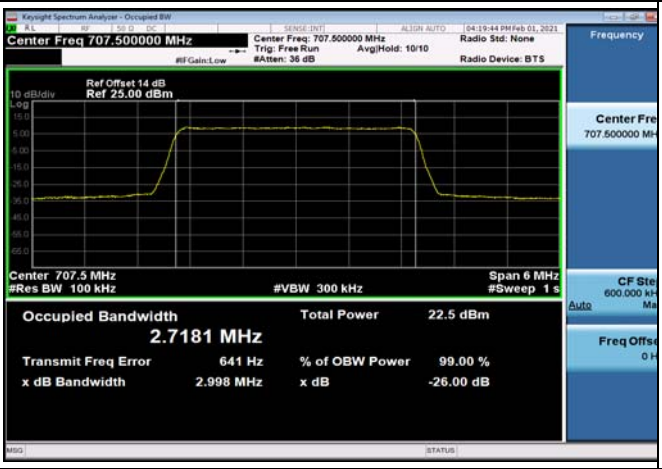
FDD12_MidRange_1.4MHz_707.5MHz _QPSK



FDD12_MidRange_1.4MHz_707.5MHz _Q16

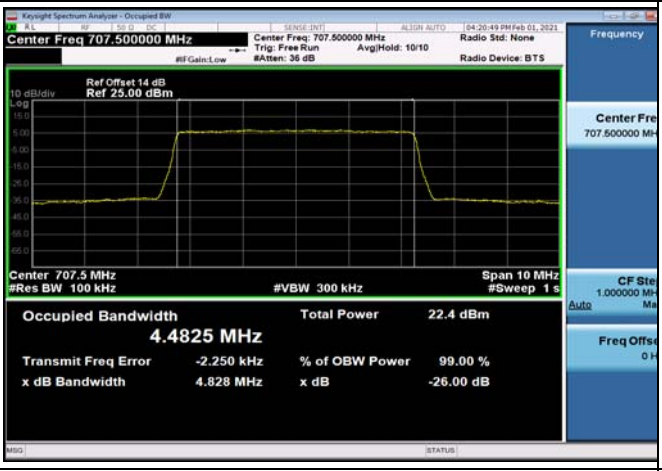


FDD12_MidRange_3MHz_707.5MHz_QPSK

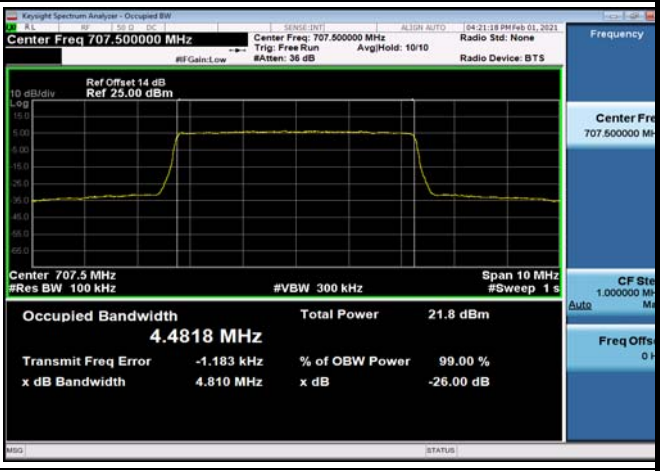


FDD12_MidRange_3MHz_707.5MHz_Q16

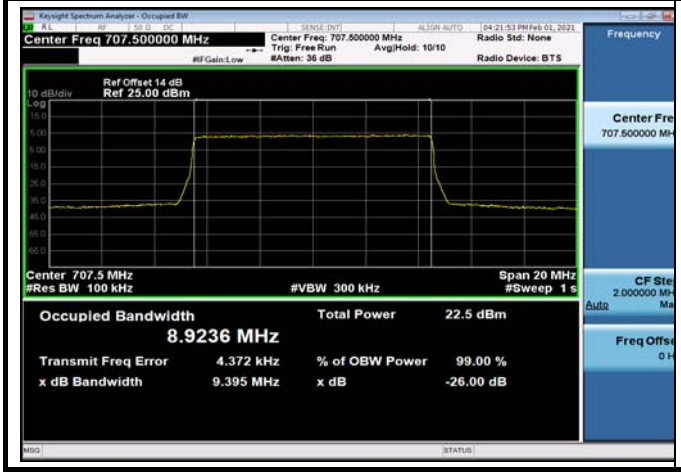
FDD12_MidRange_5MHz_707.5MHz_QPSK



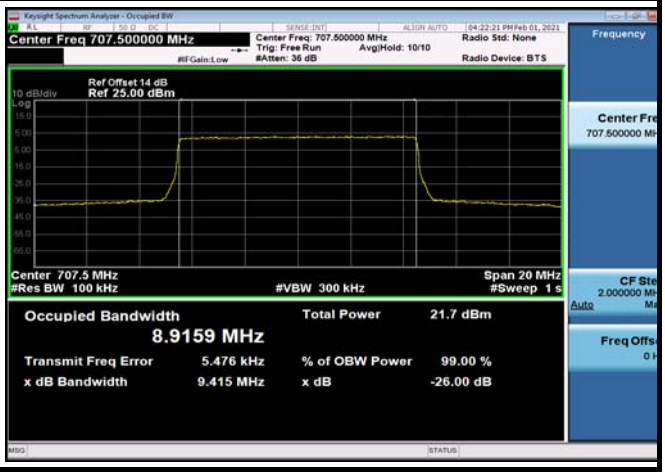
FDD12_MidRange_5MHz_707.5MHz_Q16



FDD12_MidRange_10MHz_707.5MHz_QPSK

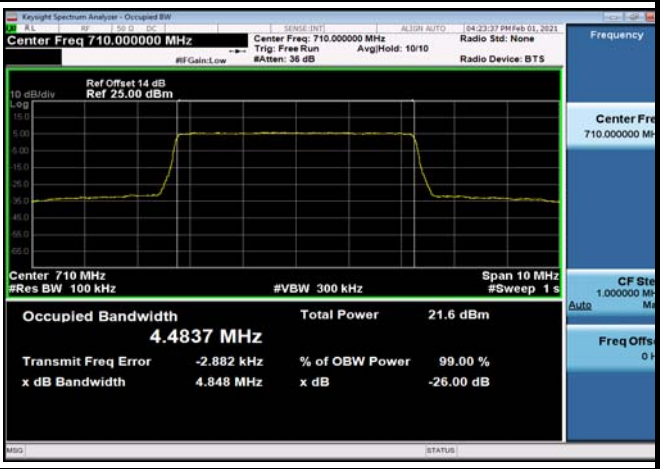


FDD12_MidRange_10MHz_707.5MHz_Q16

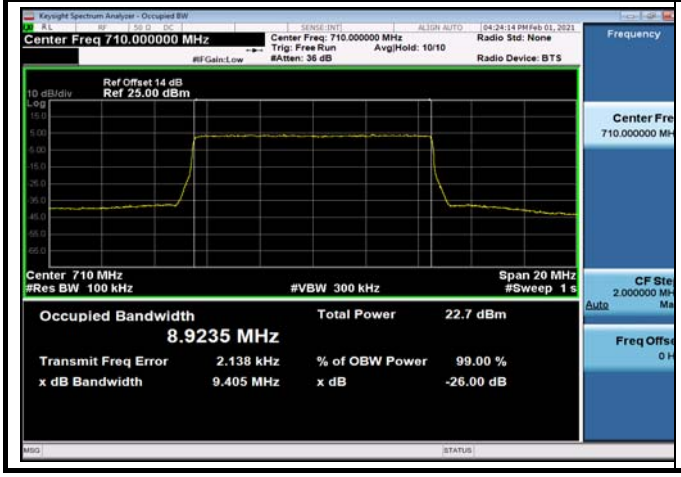
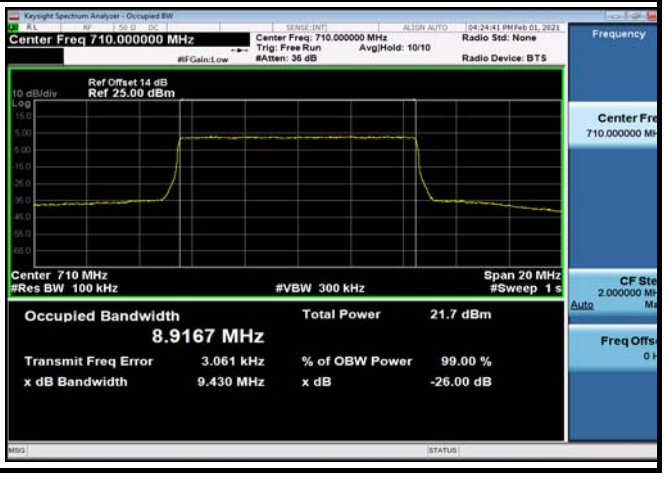


FDD17_MidRange_5MHz_710MHz_QPSK

FDD17_MidRange_5MHz_710MHz_Q16



FDD17_MidRange_10MHz_710MHz_QPSK



FDD17_MidRange_10MHz_710MHz_Q16