RF TEST REPORT

Report No.: SET2021-06770

Product: Electrocardiograph

FCC ID: 2A3AMSMARTECGS

Model No.: NeoECG S120, LeECG OS12

Applicant: Shenzhen Carewell Electronics Co., Ltd.

Address: Floor 4, BLD 9, Baiwangxin High-Tech Industrial Park, Songbai Road, Xili Street,Nanshan District 518108, Shenzhen, P.R. China

Dates of Testing: 04/11/2021 —08/05/2021

Issued by: CCIC Southern Testing Co., Ltd.

Lab Location: Electronic Testing Building, No.43 Shahe Road Xili Street, Nanshan District, Shenzhen, Guangdong, 518055 China.

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Test Report

Product ..... :	Electrocardiograph
Brand Name..... :	N/A
Trade Name ..... :	N/A
Applicant ..... :	Shenzhen Carewell Electronics Co., Ltd.
Applicant Address ..... :	Floor 4, BLD 9, Baiwangxin High-Tech Industrial Park, Songbai Road, Xili Street,Nanshan District 518108, Shenzhen, P.R. China.
Manufacturer ..... :	Shenzhen Carewell Electronics Co., Ltd.
Manufacturer Address ..... :	Floor 4, BLD 9, Baiwangxin High-Tech Industrial Park, Songbai Road, Xili Street,Nanshan District 518108, Shenzhen, P.R. China.
Test Standards ..... :	47 CFR Part 2/22/27
Test Result.....:	PASS

Tested by .....: Vincent 2021.08.05

Vincent, Test Engineer

Reviewed by.....: Chris You 2021.08.05.

Chris You, Senior Engineer

Approved by.....: Shuangwen Zhang 2021.08.05

Shuangwen Zhang，Manager

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Change History		
Issue	Date	Reason for change
1.0	2021.08.05	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type	Electrocardiograph
EUT supports Radios application	LTE Band5/7/41
Hardware Version	V1.0
Software Version	V1.0.0.0
Frequency Range	LTE Band 5: 824.7MHz~848.3MHz LTE Band 7: 2502.5MHz~2567.5MHz LTE Band 41:2557.5 MHz~2652.5MHz
Maximum Output Power to Antenna	LTE Band 5: 24.53dBm LTE Band 7: 20.53dBm LTE Band41:21.45 dBm
Bandwidth	LTE Band 5: 1.4MHz/3MHz/5MHz/10MHz LTE Band 7: 5MHz/10MHz/15MHz/20MHz LTE Band 41: 5MHz/10MHz/15MHz/20MHz
Modulation Type	QPSK/16QAM/64QAM(downlink only)
Antenna Type	Internal Antenna
Power supply	DC 7.4V from rechargeable lithium battery

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 5	QPSK	1.4	1M09G7D	__	0.303
LTE Band 5	16QAM	1.4	1M08W7D	__	0.249
LTE Band 5	QPSK	3	2M68G7D	__	0.294
LTE Band 5	16QAM	3	2M68W7D	__	0.249
LTE Band 5	QPSK	5	4M48G7D	—	0.303
LTE Band 5	16QAM	5	4M48W7D	__	0.249
LTE Band 5	QPSK	10	8M93G7D	-0.021	0.276
LTE Band 5	16QAM	10	8M92W7D	—	0.234
LTE Band 7	QPSK	5	4M48G7D	—	0.200
LTE Band 7	16QAM	5	4M48W7D	—	0.128
LTE Band 7	QPSK	10	8M93G7D	-0.012	0.199
LTE Band 7	16QAM	10	8M92W7D	—	0.135
LTE Band 7	QPSK	15	13M5G7D	—	0.206
LTE Band 7	16QAM	15	13M5W7D	—	0.134
LTE Band 7	QPSK	20	17M9G7D	—	0.190
LTE Band 7	16QAM	20	17M9W7D	—	0.153
LTE Band 41	QPSK	5	4M49G7D	—	0.146
LTE Band 41	16QAM	5	4M49W7D	—	0.126
LTE Band 41	QPSK	10	8M93G7D	-0.011	0.148
LTE Band 41	16QAM	10	8M94W7D	—	0.128
LTE Band 41	QPSK	15	13M5G7D	—	0.119
LTE Band 41	16QAM	15	13M5W7D	—	0.131
LTE Band 41	QPSK	20	17M9G7D	—	0.153
LTE Band 41	16QAM	20	17M9W7D	—	0.123

1.3 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part22, Part27，for the EUT FCC ID Certification:

1.47 CFR Part 2, 22(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	27.50(h)(2)	Effective Radiated Power(Band 7/41)	EIRP＜2Watt	PASS
				PASS
	22.913(a)(2)	Effective Radiated Power(Band 5)	ERP＜7Watt	PASS
3	2.1049	Occupied Bandwidth	Reporting Only	PASS
4	2.1051 22.917(a)	Conducted Band Edge(Band 5)	＜43+10log10(P[watt])	PASS
	2.1051 27.53(i)(4)	Conducted Band Edge(Band 7/41)	Refer to 27.53(m)(4)	PASS
5	2.1051 22.917(a)	Conducted Spurious Emission (Band 5)	＜43+10log10(P[watt])	PASS
	2.1051 27.53(i)(4)	Conducted Spurious Emission (Band 7/41)	＜55+10log10(P[watt])	PASS
6	2.1053 22.917(a)	Radiated Spurious Emission (Band 5)	＜43+10log10(P[watt])	PASS
	2.1053 27.53(i)(4)	Radiated Spurious Emission (Band 7/41)	＜55+10log10(P[watt])	PASS
7	2.1055, 22.355 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	/														
	/														
	5	√	√	√	√			√	√	√	√	√	√	√	√
	7			√	√	√	√	√	√	√	√	√	√	√	√
	41			√	√	√	√	√	√	√	√	√	√	√	√
	/														
Peak-to-Average Ratio	/														
	/														
	5				√				√	√		√	√	√	√
	7				√				√	√		√	√	√	√
	41				√				√	√		√	√	√	√
	/														
26dB and 99% Bandwidth	/														
	/														
	5	√	√	√	√			√	√			√		√	
	7			√	√	√	√	√	√			√		√	
	41			√	√	√	√	√	√			√		√	
	/														
Conducted Band Edge	/														
	/														
	5	√	√	√	√			√	√	√		√	√		√
	7			√	√	√	√	√	√	√		√	√		√
	41			√	√	√	√	√	√			√		√	
	/														
Conducted Spurious Emission	/														
	/														
	5	√						√		√			√	√	√
	7			√				√		√			√	√	√
	41			√				√		√			√	√	√
	/														

Frequency Stability	/														
	/														
	5				√			√				√		√	
	7				√			√				√		√	
	41				√			√				√		√	
	/														
ERP/EIRP	/														
	/														
	5	√	√	√	√			√	√	√			√	√	√
	7			√	√	√	√	√	√	√			√	√	√
	41			√	√	√	√	√	√	√			√	√	√
	/														
Radiated Spurious Emission	/														
	/														
	5	**Worst case**												√	
	7	**Worst case**												√	
	41	**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.**														

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)
Note:RF adapter/cable insert loss provided by manufacture.

1.6 Facilities and Accreditations

1.6.1 Test Facilities

CNAS-Lab Code: L1659

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

FCC-Registration No.: CN1283

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a re port filed with the FCC (Federal Communications Commission). The acceptance letter from the F CC is maintained in our files. Designation Number: CN1283, valid time is until April 19th, 2023.

ISED Registration: 11185A-1

CAB identifier: CN0064

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engin eering Bureau of Industry Canada for the performance of radiated measurements with Registratio n No. 11185A-1 on Aug. 04, 2016, valid time is until April 19th, 2023.

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 99% Occupied Bandwidth and 26dB Bandwidth

2.2.1 Definition

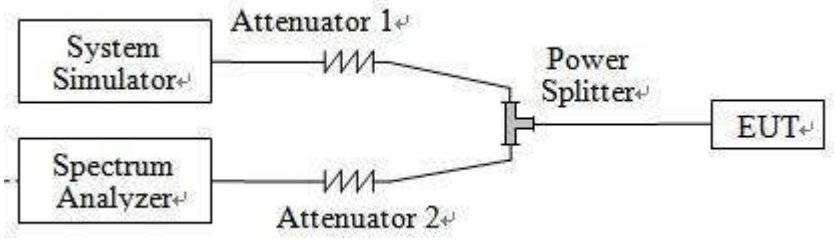
According to FCC section 2.1049, the occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

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.

2.2.2 Measuring Instruments

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

2.2.3 Test Setup



2.2.4 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.

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

Please refer to Appendix A for detail

2.3 Frequency Stability

2.3.1 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:

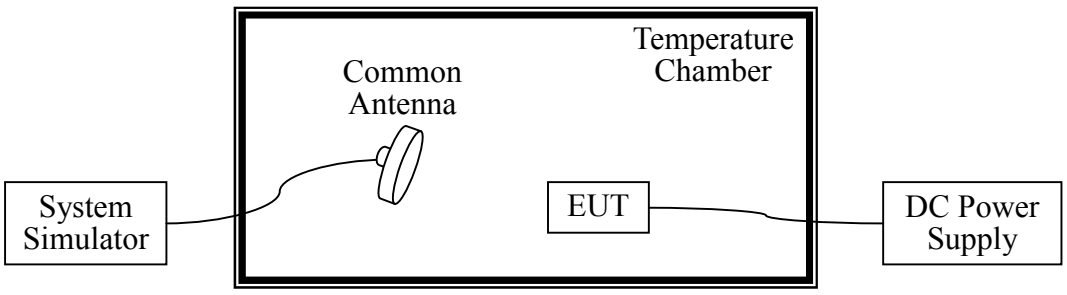
(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.

(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.

2.3.2 Measuring Instruments

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

2.3.3 Test Setup



2.3.4 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.

2.3.5 Test Result of Frequency Stability

Please refer to Appendix A for detail

2.4 Conducted Out of Band Emissions

2.4.1 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:

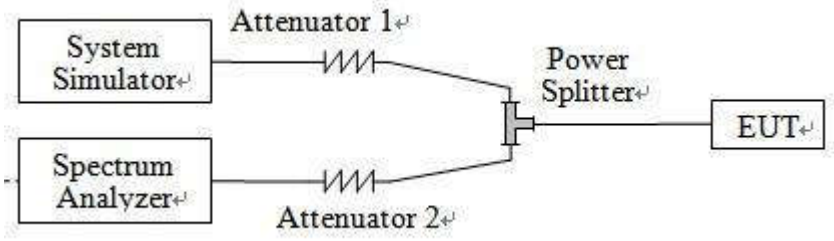
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

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

2.4.2 Measuring Instruments

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

2.4.3 Test Setup



2.4.4 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.

2.4.5 Test Result of Conducted Spurious Emission

Please refer to Appendix A for detail

2.5 Conducted Band Edge

2.5.1 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.

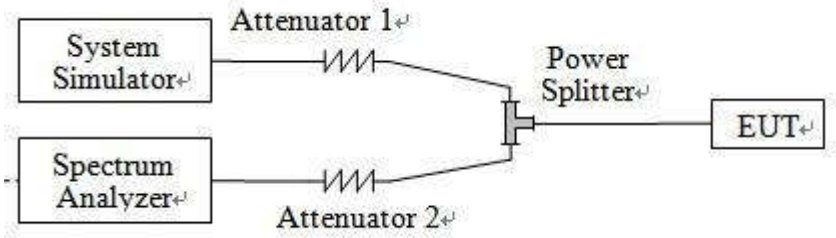
27.53m(4)

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.

2.5.2 Measuring Instruments

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

2.5.3 Test Setup



2.5.4 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.

2.5.5 Test Result of Conducted Band Edge

Please refer to Appendix A for detail

2.6 Transmitter Radiated Power (EIRP/ERP)

2.6.1 Requirement

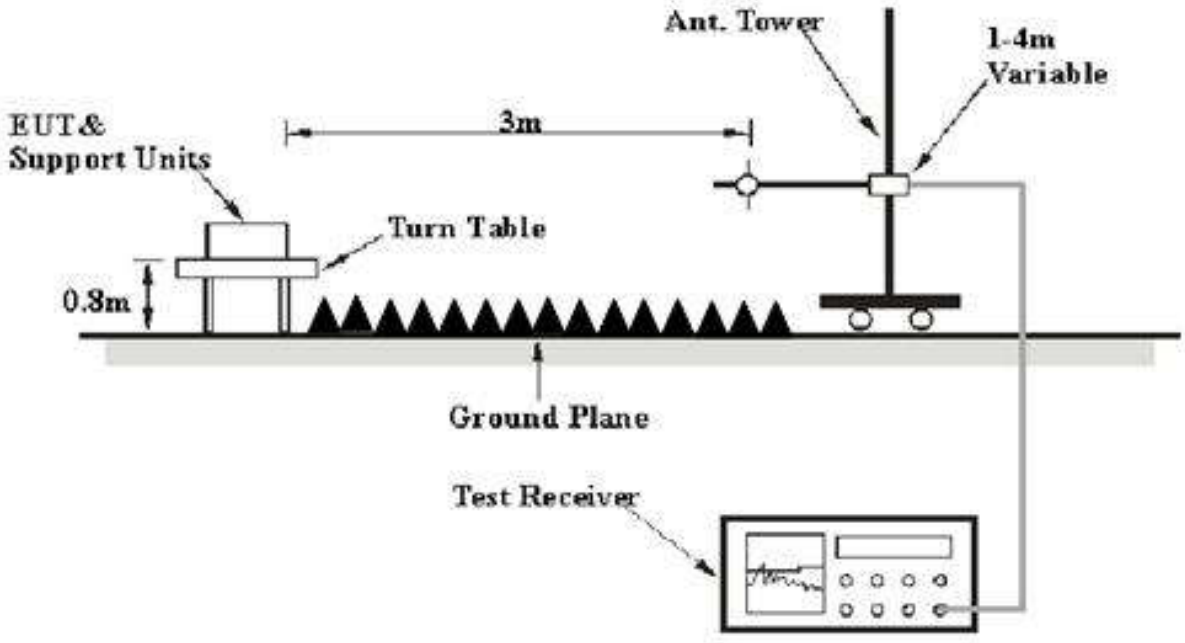
Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-D-2010, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v03r01. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts 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 7/41

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 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.

2.6.5 Test Result of ERP/EIRP

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	24.78	PASS
5	1.4	QPSK	1	2	836.5	24.82	PASS
5	1.4	QPSK	1	5	848.3	24.81	PASS
5	1.4	16QAM	1	5	824.7	23.04	PASS
5	1.4	16QAM	1	2	836.5	23.97	PASS
5	1.4	16QAM	1	0	848.3	23.11	PASS
5	3	QPSK	1	5	825.5	24.69	PASS
5	3	QPSK	1	5	836.5	24.60	PASS
5	3	QPSK	1	5	848.3	24.65	PASS
5	3	16QAM	1	5	825.5	23.04	PASS
5	3	16QAM	1	14	836.5	23.97	PASS
5	3	16QAM	1	5	848.3	23.05	PASS
5	5	QPSK	1	14	826.5	24.78	PASS
5	5	QPSK	1	14	836.5	24.82	PASS
5	5	QPSK	1	14	846.5	24.77	PASS
5	5	16QAM	1	12	826.5	23.84	PASS
5	5	16QAM	1	24	836.5	23.97	PASS
5	5	16QAM	1	0	846.5	23.91	PASS
5	10	QPSK	1	24	829	24.41	PASS
5	10	QPSK	1	24	836.5	24.36	PASS
5	10	QPSK	1	24	844	24.27	PASS
5	10	16QAM	1	24	829	23.56	PASS
5	10	16QAM	1	49	836.5	23.69	PASS
5	10	16QAM	1	24	844	23.67	PASS

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	22.91	PASS
7	5	QPSK	1	0	2535	22.95	PASS
7	5	QPSK	1	24	2567.5	23.01	PASS
7	5	16QAM	1	24	2502.5	21.07	PASS
7	5	16QAM	1	24	2535	21.06	PASS
7	5	16QAM	1	0	2567.5	21.05	PASS
7	10	QPSK	1	24	2505	22.98	PASS
7	10	QPSK	1	49	2535	22.93	PASS
7	10	QPSK	1	24	2565	22.88	PASS
7	10	16QAM	1	24	2505	21.29	PASS
7	10	16QAM	1	49	2535	21.22	PASS
7	10	16QAM	1	24	2565	21.22	PASS
7	15	QPSK	1	37	2507.5	23.13	PASS
7	15	QPSK	1	74	2535	23.12	PASS
7	15	QPSK	1	0	2562.5	23.06	PASS
7	15	16QAM	1	37	2507.5	21.23	PASS
7	15	16QAM	1	18	2535	21.28	PASS
7	15	16QAM	1	0	2562.5	21.26	PASS
7	20	QPSK	1	0	2510	22.70	PASS
7	20	QPSK	1	0	2535	22.78	PASS
7	20	QPSK	1	0	2560	22.76	PASS
7	20	16QAM	1	0	2510	21.81	PASS
7	20	16QAM	1	0	2535	21.75	PASS
7	20	16QAM	1	0	2560	21.84	PASS

LTE Band 41 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	Verdict
			RB Size	RB Offset			
41	5	QPSK	1	0	2557.5	21.63	PASS
41	5	QPSK	1	0	2605	21.65	PASS
41	5	QPSK	1	0	2652.5	21.62	PASS
41	5	16QAM	1	0	2557.5	21.00	PASS
41	5	16QAM	1	0	2605	20.99	PASS
41	5	16QAM	1	0	2652.5	20.97	PASS
41	10	QPSK	1	49	2560	21.70	PASS
41	10	QPSK	1	49	2605	21.67	PASS
41	10	QPSK	1	49	2650	21.69	PASS
41	10	16QAM	1	0	2560	21.07	PASS
41	10	16QAM	1	0	2605	21.05	PASS
41	10	16QAM	1	0	2650	21.08	PASS
41	15	QPSK	1	0	2562.5	20.74	PASS
41	15	QPSK	1	0	2605	20.72	PASS
41	15	QPSK	1	0	2647.5	20.73	PASS
41	15	16QAM	1	74	2562.5	21.15	PASS
41	15	16QAM	1	74	2605	21.13	PASS
41	15	16QAM	1	74	2647.5	21.16	PASS
41	20	QPSK	1	0	2565	21.86	PASS
41	20	QPSK	1	0	2605	21.47	PASS
41	20	QPSK	1	0	2645	21.46	PASS
41	20	16QAM	1	49	2565	20.91	PASS
41	20	16QAM	1	49	2605	20.88	PASS
41	20	16QAM	1	49	2645	20.89	PASS

2.7 Radiated Out of Band Emissions

2.7.1 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

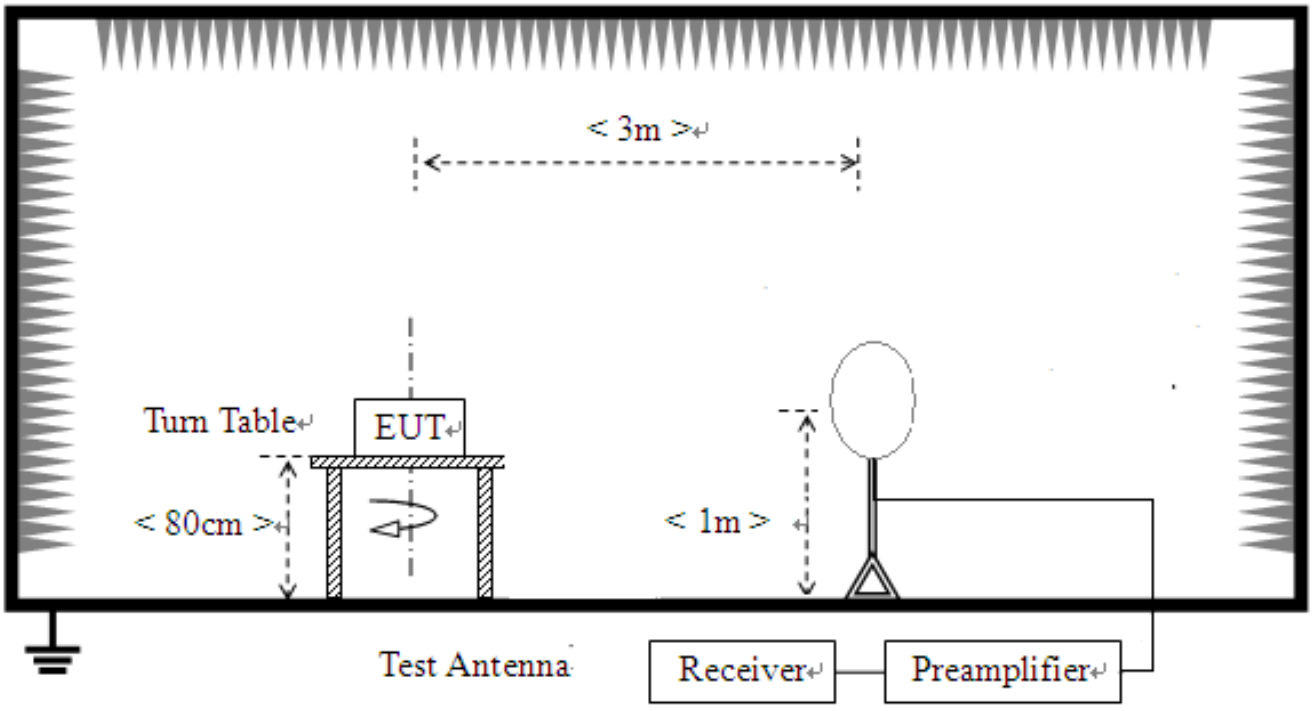
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

2.7.2 Measuring Instruments

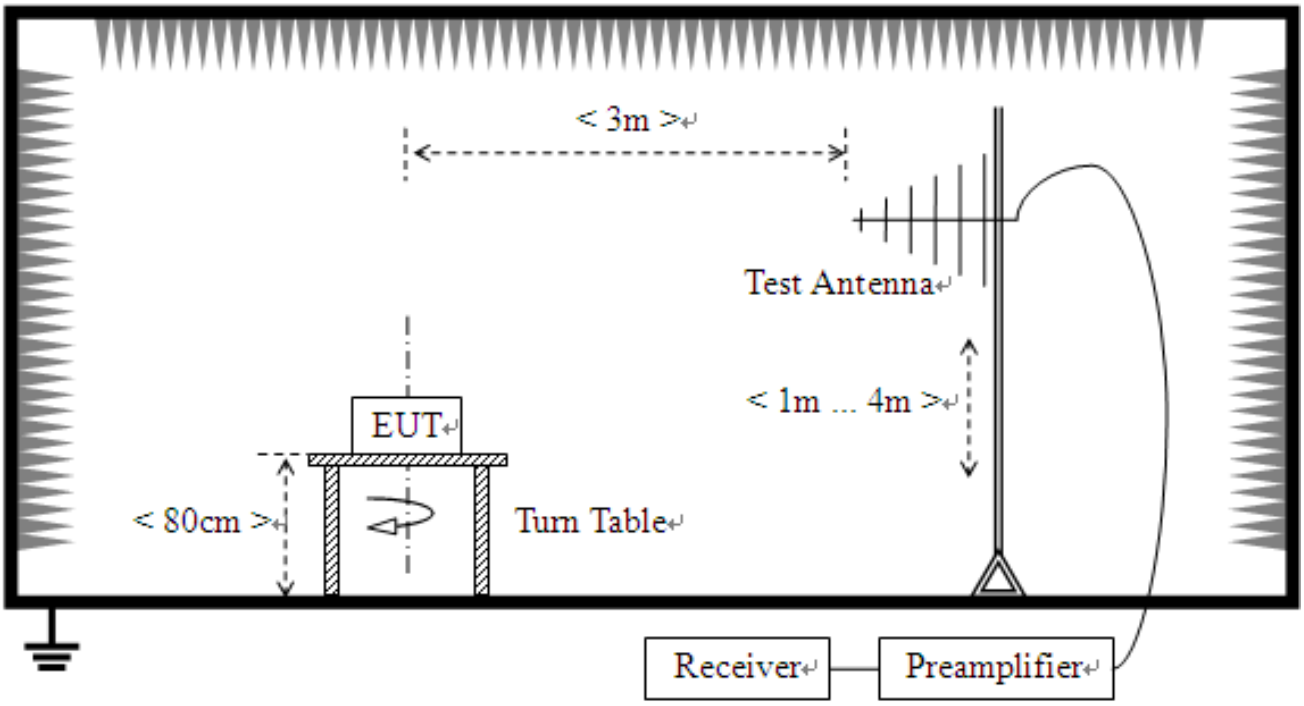
The measuring equipment is listed in the section 3 of this test report.

2.7.3 Test Setup

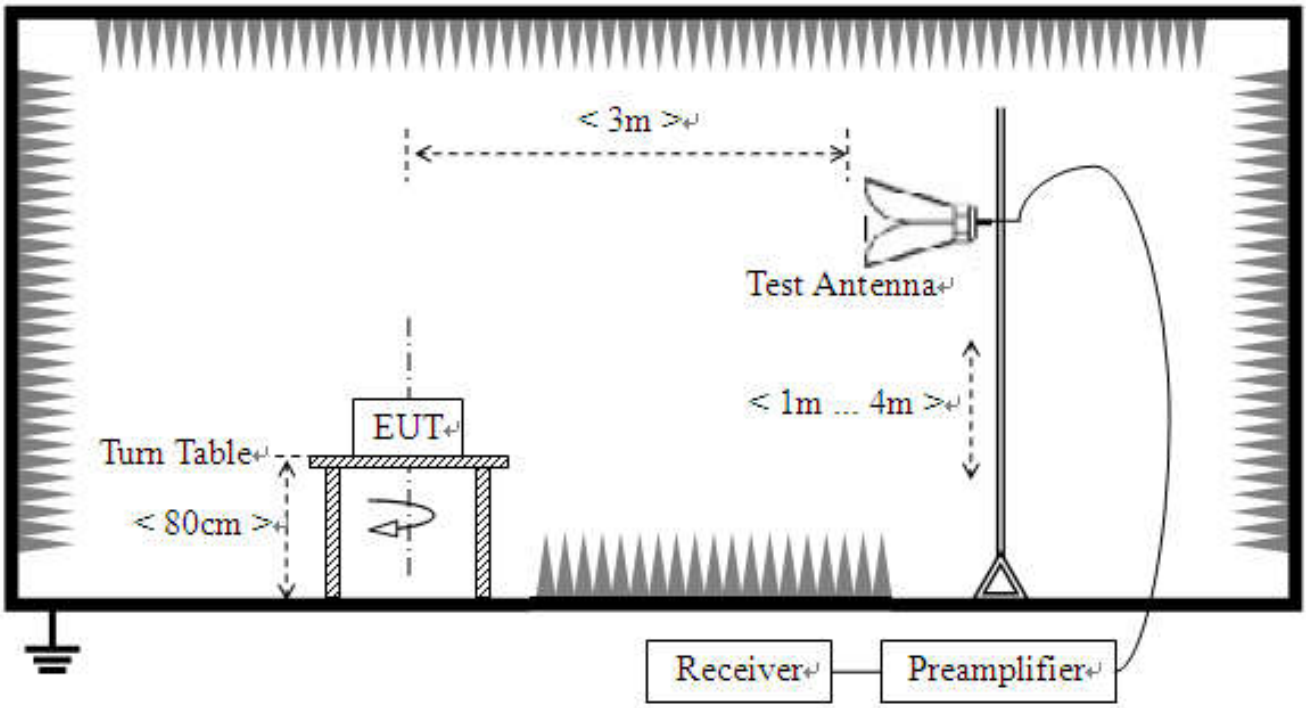
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.7.4 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 10^{th} 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

2.7.5 Test Result (Plots) of Radiated Spurious Emission

Note:. Absolute Level=Reading Level + Factor

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	40.6807	-97.11	-75.51	-13.00	62.51	21.60	Horizontal
2	364.985	-97.67	-68.75	-13.00	55.75	28.92	Horizontal
3	661.131	-104.51	-68.93	-13.00	55.93	35.58	Horizontal
4	2099.17	-58.82	-55.37	-13.00	42.37	3.45	Horizontal
5	2951.47	-57.56	-50.18	-13.00	37.18	7.38	Horizontal
6	3744.99	-59.27	-50.21	-13.00	37.21	9.06	Horizontal

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	48.4484	-91.62	-72.33	-13.00	59.33	19.29	Vertical
2	65.9259	-93.65	-72.73	-13.00	59.73	20.92	Vertical
3	703.853	-103.33	-68.76	-13.00	55.76	34.57	Vertical
4	2075.66	-56.97	-54.60	-13.00	41.60	2.37	Vertical
5	3245.37	-58.82	-50.93	-13.00	37.93	7.89	Vertical
6	4938.21	-58.69	-47.68	-13.00	34.68	11.01	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	365.493	-98.97	-70.55	-25.00	45.55	28.42	Horizontal
2	660.820	-103.82	-69.01	-25.00	44.01	34.81	Horizontal
3	866.501	-103.71	-66.71	-25.00	41.71	37.00	Horizontal
4	3226.24	-58.91	-49.60	-25.00	24.60	9.31	Horizontal
5	3830.86	-59.26	-49.05	-25.00	24.05	10.21	Horizontal
6	5771.50	-58.47	-42.48	-25.00	17.48	15.99	Horizontal

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	66.4793	-91.74	-70.93	-25.00	45.93	20.81	Vertical
2	619.295	-104.46	-71.45	-25.00	46.45	33.01	Vertical
3	888.427	-103.43	-66.52	-25.00	41.52	36.91	Vertical
4	3721.64	-58.12	-47.76	-25.00	28.76	10.36	Vertical
5	5030.35	-59.43	-45.25	-25.00	26.25	14.18	Vertical
6	5619.37	-59.82	-43.80	-25.00	24.80	16.02	Vertical

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

LTE Band 41 QPSK 20MHz BW Middle Channel

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	36.7934	-84.79	-63.14	-25.00	38.14	21.65	Horizontal
2	48.9245	-92.74	-73.85	-25.00	48.85	18.89	Horizontal
3	505.537	-104.29	-74.27	-25.00	49.27	30.02	Horizontal
4	3735.36	-58.52	-49.75	-25.00	24.75	8.77	Horizontal
5	5311.15	-59.63	-47.38	-25.00	22.38	12.25	Horizontal
6	9198.09	-60.38	-38.60	-25.00	13.60	21.78	Horizontal
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	36.7934	-84.26	-64.37	-25.00	39.37	19.89	Vertical
2	48.4392	-90.35	-71.91	-25.00	46.91	18.44	Vertical
3	111.035	-101.60	-79.23	-25.00	54.23	22.37	Vertical
4	5101.05	-59.24	-44.99	-25.00	19.99	14.25	Vertical
5	7307.15	-60.13	-43.50	-25.00	18.50	16.63	Vertical
6	10541.2	-62.29	-38.97	-25.00	13.97	23.32	Vertical

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

3. LIST OF MEASURING EQUIPMENT

Description	Manufacturer	Model	Serial No.	Cal. Date	Due Date	Remark
EMI Test Receiver	R&S	ESW26	A180502935	2020.08.13	2021.08.12	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	2020.09.22	2023.09.21	Radiation
Amplifier 1G~18GHz	MILMEGA	AS0104R-800/400	A160302517	2021.01.26	2022.01.25	Radiation
Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2021.04.26	2022.04.25	Conducted
Test Receiver	R&S	ESIB7	A0501375	2020.06.24	2021.06.23	Conducted
Temperature chamber	TABAI	PS-232	A8708054	2020.10.30	2021.10.29	Conducted
Wideband Radio Communication tester	R&S	CMW500	A130101034	2021.01.26	2023.01.25	Conducted
Power Supply	R&S	WYJ-60100	A141102031	2020.01.16	2023.01.15	Conducted
Test software	ECIT	Eagle	V2.0	N/A	N/A	Conducted

APPENDIX A

Conducted RF (Average) Output Power

Test Result and Data

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	24.36	24.45	24.41	23.6±1.0
		1	3	24.46	24.37	24.17	
		1	5	24.49	24.16	24.18	
		3	0	23.88	23.83	23.93	23.0±1.0
		3	2	23.88	24	23.68	
		3	3	23.98	23.98	23.84	
		6	0	23.41	23.47	23.47	22.5±1.0
	16QAM	1	0	22.84	23.01	23.04	22.5±1.0
		1	3	23.11	22.83	22.94	
		1	5	22.84	22.99	22.9	
		3	0	22.62	22.5	22.38	22.0±1.0
		3	2	22.54	22.66	22.44	
		3	3	22.62	22.58	22.63	
		6	0	22.18	22.01	22.17	21.5±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	24.37	24.2	24.34	23.6±1.0
		1	7	24.38	24.27	24.11	
		1	14	24.12	24.32	24.11	
		8	0	23.82	23.76	23.65	23.0±1.0
		8	4	23.76	23.77	23.96	
		8	7	23.87	23.83	23.72	
		15	0	23.39	23.33	23.31	22.5±1.0
	16QAM	1	0	22.83	23.17	22.91	22.5±1.0
		1	7	22.92	23.07	22.82	
		1	14	22.88	23.1	22.82	
		8	0	22.32	22.32	22.57	22.0±1.0
		8	4	22.62	22.4	22.67	
		8	7	22.36	22.46	22.41	
		15	0	22.02	22.07	22.17	21.5±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	24.11	24.25	24.32	23.6±1.0
		1	13	24.4	24.33	24.33	
		1	24	24.46	24.22	24.33	
		12	0	23.64	23.94	23.95	23.0±1.0
		12	6	23.86	23.93	23.69	
		12	13	23.87	23.82	23.87	
		25	0	23.47	23.35	23.37	22.5±1.0
	16QAM	1	0	23.19	23.07	22.99	22.5±1.0
		1	13	22.89	22.92	22.83	
		1	24	23.04	23	22.93	
		12	0	22.57	22.51	22.61	22.0±1.0
		12	6	22.43	22.54	22.39	
		12	13	22.47	22.56	22.64	
		25	0	22.04	22.09	22.18	21.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20450/829	20525/836.5	20600/844	
10MHz	QPSK	1	0	24.53	24.05	24.16	23.6±1.0
		1	25	24.43	24.17	24.49	
		1	49	24.18	24.46	24.3	
		25	0	23.95	23.61	23.91	23.0±1.0
		25	13	23.74	23.85	23.82	
		25	25	23.6	23.74	23.7	
		50	0	23.32	23.38	23.49	22.5±1.0
	16QAM	1	0	23.17	23.03	22.92	22.5±1.0
		1	25	23.02	22.85	23.19	
		1	49	22.99	22.83	22.87	
		25	0	22.61	22.33	22.38	22.0±1.0
		25	13	22.53	22.52	22.63	
		25	25	22.56	22.3	22.6	
		50	0	22.06	22.09	22.15	21.5±1.0

2. 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	20.22	20.34	20.37	19.6±1.0
		1	13	20.45	20.2	20.13	
		1	24	20.42	20.24	20.47	
		12	0	19.78	19.85	19.7	19.0±1.0
		12	6	19.8	19.73	19.79	
		12	13	19.71	19.81	19.79	
		25	0	19.31	19.39	19.45	18.5±1.0
	16QAM	1	0	19.08	18.99	19.09	18.5±1.0
		1	13	19.15	19.15	19.02	
		1	24	19.01	19.05	19.05	
		12	0	18.38	18.3	18.7	18.0±1.0
		12	6	18.46	18.68	18.54	
		12	13	18.68	18.32	18.57	
		25	0	18.01	18.11	18.19	17.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	20.33	20.43	20.1	19.6±1.0
		1	25	20.2	20.17	20.49	
		1	49	20.27	20.37	20.38	
		25	0	19.73	19.81	19.86	19.0±1.0
		25	13	19.86	19.65	19.7	
		25	25	19.85	19.74	19.88	
		50	0	19.33	19.48	19.49	18.5±1.0
	16QAM	1	0	18.89	18.81	19.06	18.5±1.0
		1	25	18.89	19.15	18.83	
		1	49	19.08	18.96	19.15	
		25	0	18.7	18.38	18.42	18.0±1.0
		25	13	18.5	18.64	18.59	
		25	25	18.44	18.63	18.53	
		50	0	18.2	18.19	18.1	17.5±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	20.47	20.42	20.24	19.6±1.0
		1	38	20.48	20.41	20.48	
		1	74	20.38	20.25	20.18	
		36	0	19.77	19.67	19.66	19.0±1.0
		36	18	19.6	19.99	19.91	
		36	39	19.92	19.61	19.76	
		75	0	19.43	19.38	19.32	18.5±1.0
	16QAM	1	0	18.95	18.95	18.99	18.5±1.0
		1	38	19.02	18.92	19.08	
		1	74	18.91	19.01	19.09	
		36	0	18.61	18.36	18.41	18.0±1.0
		36	18	18.38	18.7	18.68	
		36	39	18.65	18.55	18.63	
		75	0	18.17	18	18	17.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	20.53	20.22	20.42	19.6±1.0
		1	50	20.15	20.38	20.41	
		1	99	20.38	20.5	20.36	
		50	0	19.96	19.83	19.72	19.0±1.0
		50	25	19.73	19.74	19.68	
		50	50	19.78	19.91	19.95	
		100	0	19.48	19.32	19.43	18.5±1.0
	16QAM	1	0	19.13	18.97	19.19	18.5±1.0
		1	50	18.92	18.95	19.03	
		1	99	19.06	18.96	19.18	
		50	0	18.65	18.61	18.52	18.0±1.0
		50	25	18.68	18.64	18.35	
		50	50	18.62	18.4	18.54	
		100	0	18.14	18.1	18	17.5±1.0

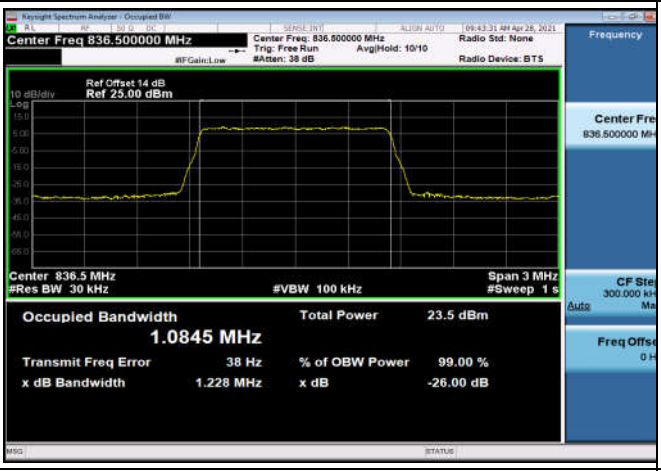
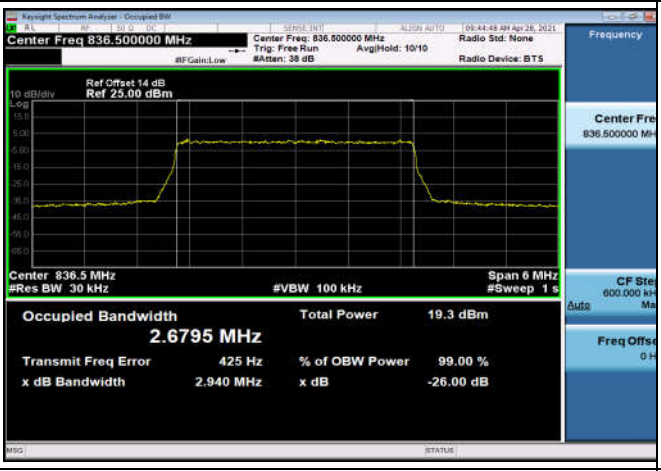
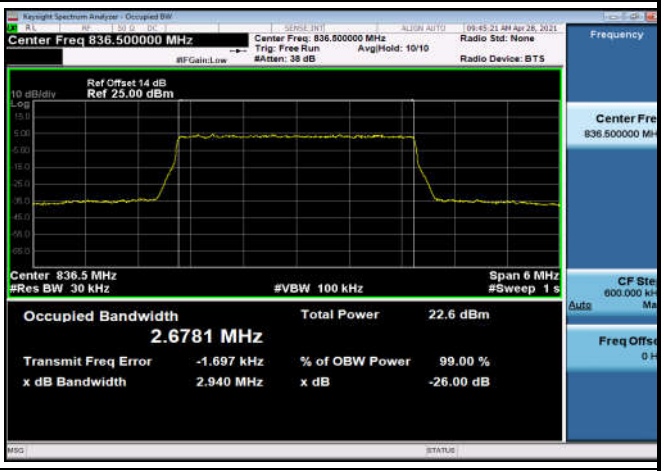
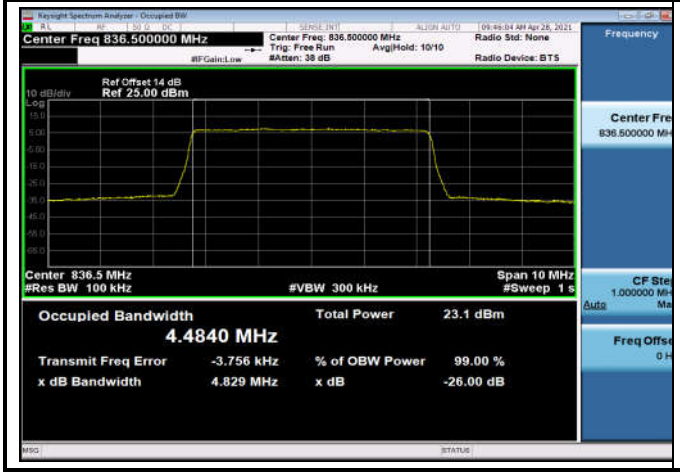
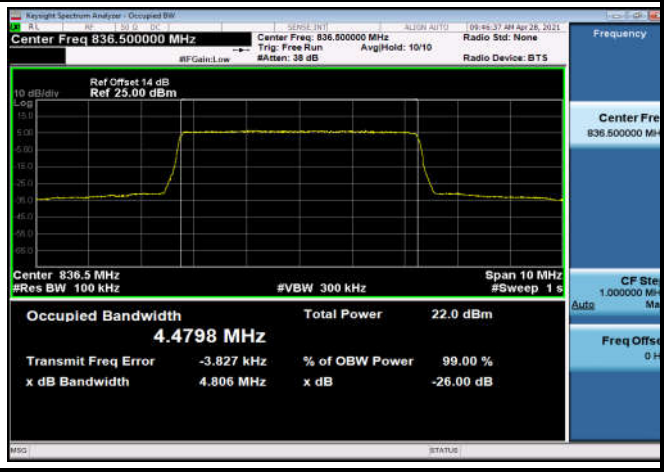
LTE FDD Band 41				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				40265/2557.5	40740/2605	41215/2652.5	
5MHz	QPSK	1	0	21.14	21.3	21.18	20.5±1.0
		1	13	21.13	21.17	21.12	
		1	24	20.93	21.22	20.97	
		12	0	20.97	21.13	21.08	20.5±1.0
		12	6	20.89	21.05	20.91	
		12	13	20.86	20.97	20.77	
		25	0	20.49	20.65	20.55	20.0±1.0
	16QAM	1	0	19.86	20.05	19.91	19.5±1.0
		1	13	19.85	19.92	19.85	
		1	24	19.65	19.97	19.7	
		12	0	19.69	19.88	19.81	19.5±1.0
		12	6	19.61	19.8	19.64	
		12	13	19.58	19.72	19.5	
		25	0	19.21	19.4	19.28	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				40290/2560	40740/2605	41190/2650	
10MHz	QPSK	1	0	21.23	21.35	21.26	20.5±1.0
		1	25	21.22	21.22	21.2	
		1	49	21.02	21.27	21.05	
		25	0	21.06	21.18	21.16	20.5±1.0
		25	13	20.98	21.1	20.99	
		25	25	20.95	21.02	20.85	
		50	0	20.58	20.7	20.63	20.0±1.0
	16QAM	1	0	19.95	20.1	19.99	19.5±1.0
		1	25	19.94	19.97	19.93	
		1	49	19.74	20.02	19.78	
		25	0	19.78	19.93	19.89	19.5±1.0
		25	13	19.7	19.85	19.72	
		25	25	19.67	19.77	19.58	
		50	0	19.3	19.45	19.36	19.0±1.0

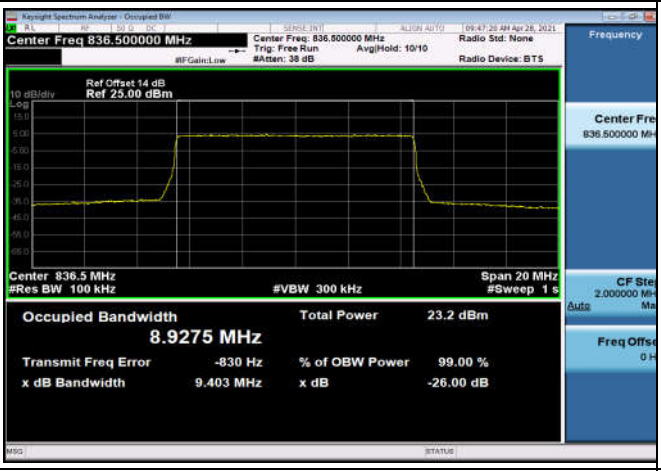
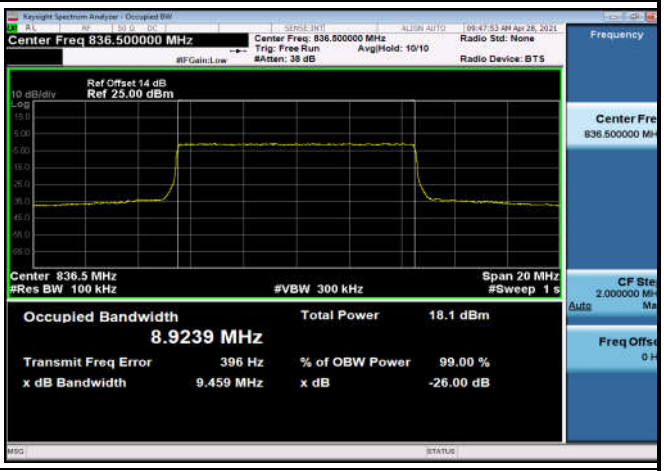
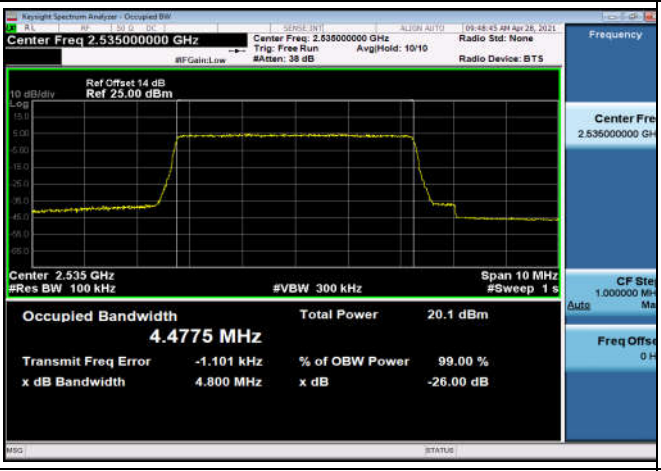
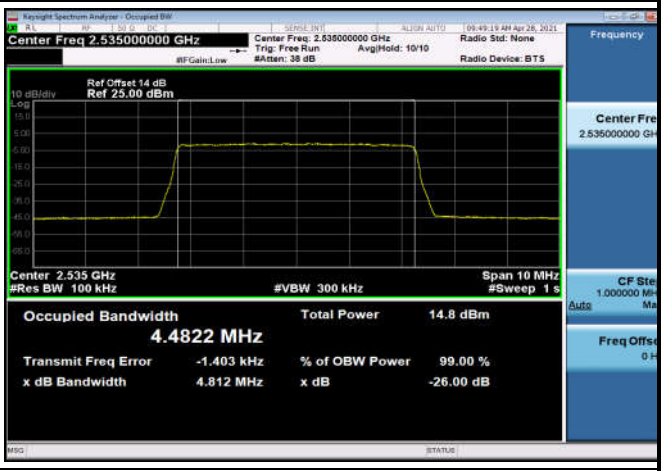
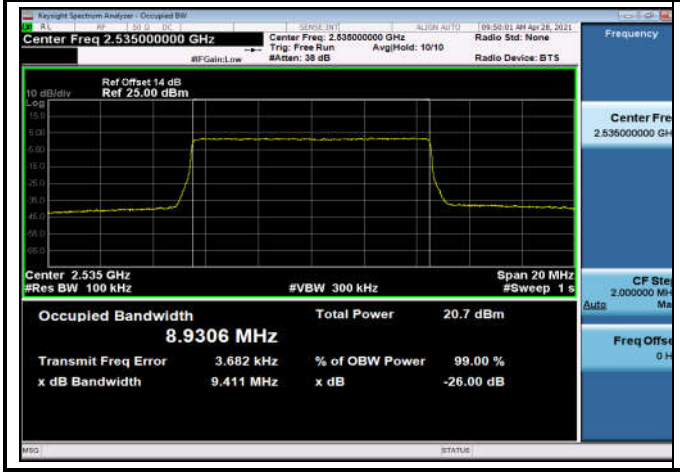
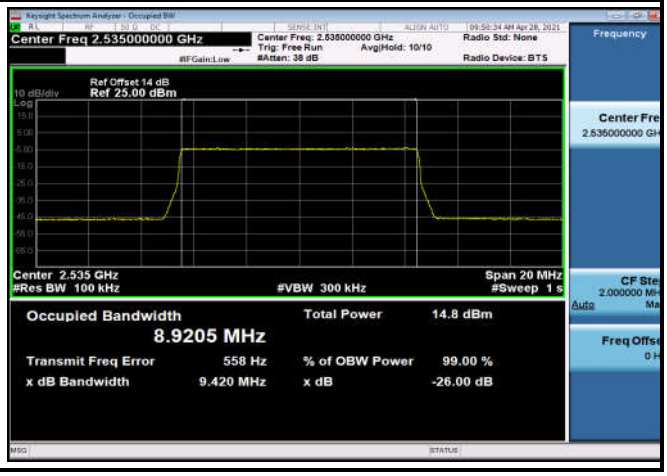
LTE FDD Band 41				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				40315/2562.5	40740/2605	41165/2647.5	
15MHz	QPSK	1	0	21.32	21.4	21.34	20.5±1.0
		1	38	21.31	21.27	21.28	
		1	74	21.11	21.32	21.13	
		36	0	21.15	21.23	21.24	20.5±1.0
		36	18	21.07	21.15	21.07	
		36	39	21.04	21.07	20.93	
		75	0	20.67	20.75	20.71	20.0±1.0
	16QAM	1	0	20.04	20.15	20.07	19.5±1.0
		1	38	20.03	20.02	20.01	
		1	74	19.83	20.07	19.86	
		36	0	19.87	19.98	19.97	19.5±1.0
		36	18	19.79	19.9	19.8	
		36	39	19.76	19.82	19.66	
		75	0	19.39	19.5	19.44	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				40340/2565	40740/2605	41140/2645	
20MHz	QPSK	1	0	21.41	21.45	21.42	20.5±1.0
		1	50	21.4	21.32	21.36	
		1	99	21.2	21.37	21.21	
		50	0	21.24	21.28	21.32	20.5±1.0
		50	25	21.16	21.2	21.15	
		50	50	21.13	21.12	21.01	
		100	0	20.76	20.8	20.79	20.0±1.0
	16QAM	1	0	20.13	20.2	20.15	19.5±1.0
		1	50	20.12	20.07	20.09	
		1	99	19.92	20.12	19.94	
		50	0	19.96	20.03	20.05	19.5±1.0
		50	25	19.88	19.95	19.88	
		50	50	19.85	19.87	19.74	
		100	0	19.48	19.55	19.52	19.0±1.0

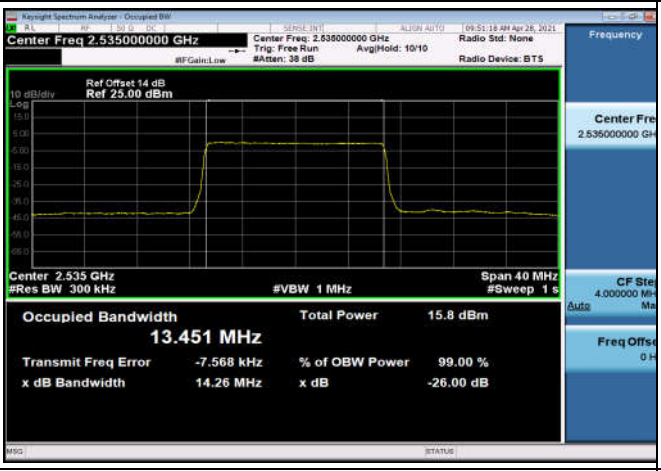
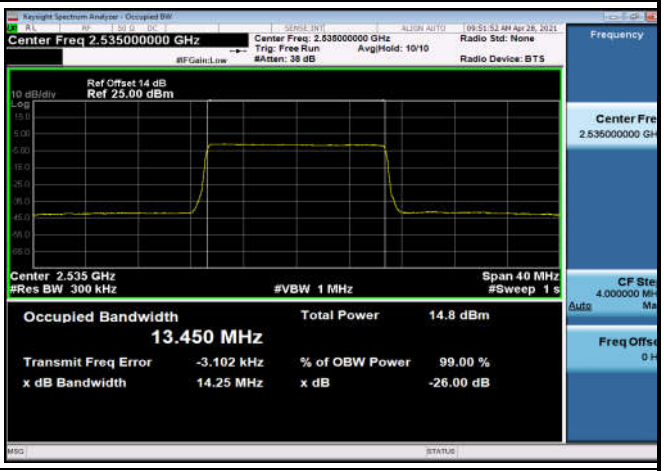
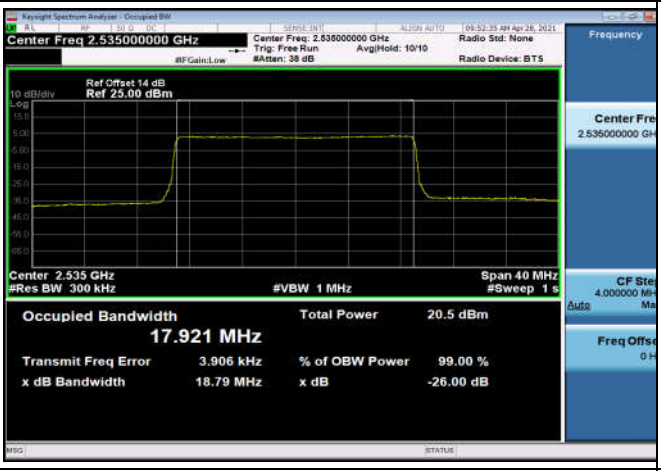
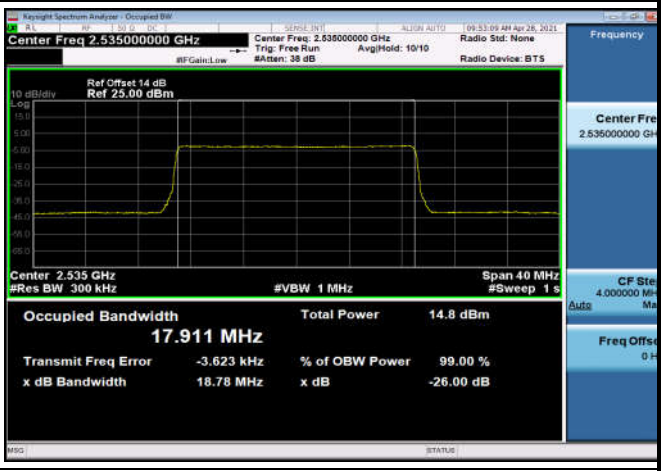
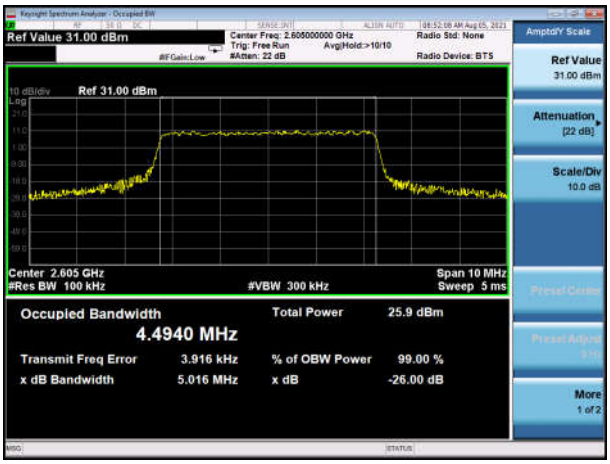
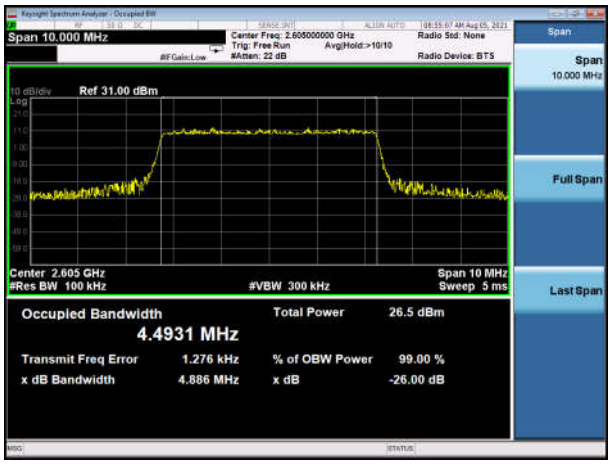
99% Occupied Bandwidth

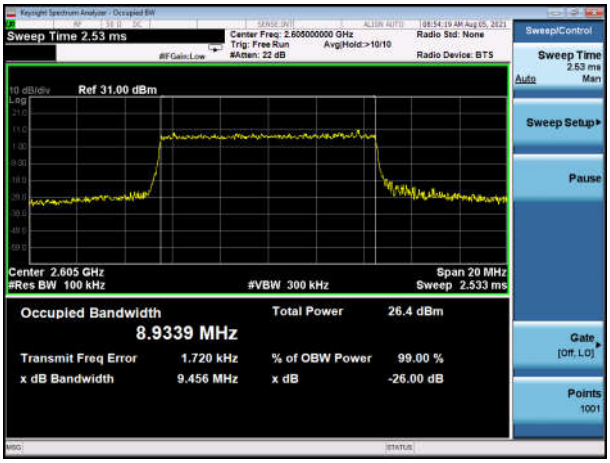
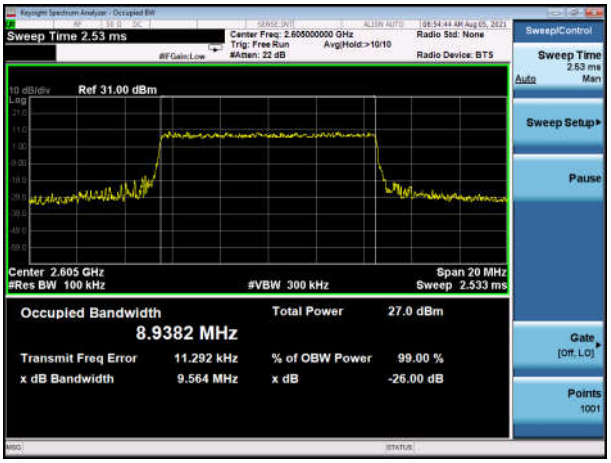
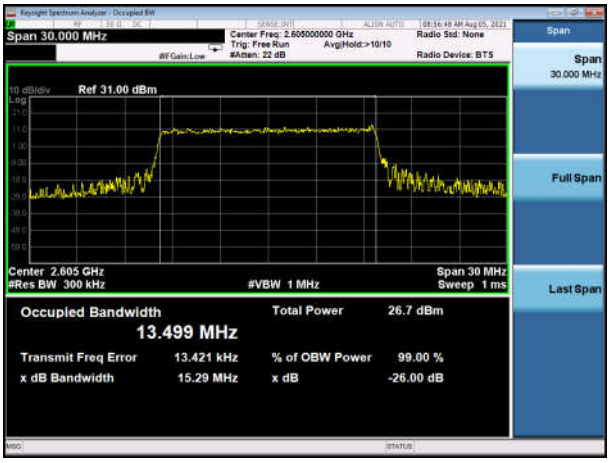
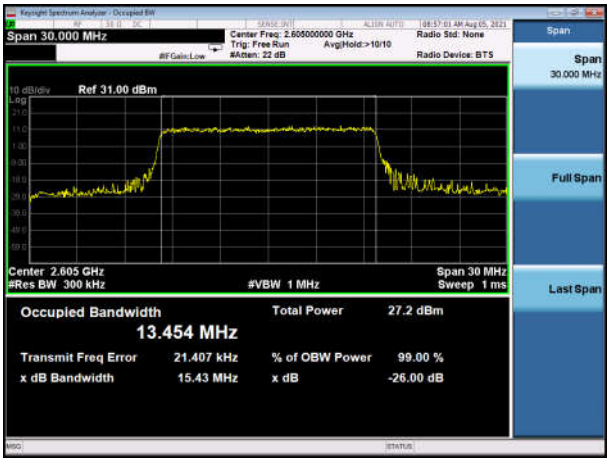
Test Result and Data

Occupied Bandwidth NormalTC_NormalVol					
Band	Range	BandWidth	Frequency (MHz)	Modulation	Occupied Bandwidth(99%) (MHz)
FDD05	MidRange	1.4	836.5	QPSK	1.085
FDD05	MidRange	1.4	836.5	Q16	1.086
FDD05	MidRange	3	836.5	QPSK	2.68
FDD05	MidRange	3	836.5	Q16	2.678
FDD05	MidRange	5	836.5	QPSK	4.484
FDD05	MidRange	5	836.5	Q16	4.48
FDD05	MidRange	10	836.5	QPSK	8.928
FDD05	MidRange	10	836.5	Q16	8.924
FDD07	MidRange	5	2535	QPSK	4.478
FDD07	MidRange	5	2535	Q16	4.482
FDD07	MidRange	10	2535	QPSK	8.931
FDD07	MidRange	10	2535	Q16	8.921
FDD07	MidRange	15	2535	QPSK	13.451
FDD07	MidRange	15	2535	Q16	13.45
FDD07	MidRange	20	2535	QPSK	17.921
FDD07	MidRange	20	2535	Q16	17.911
TDD41	MidRange	5	2605	QPSK	4.494
TDD41	MidRange	5	2605	Q16	4.493
TDD41	MidRange	10	2605	QPSK	8.934
TDD41	MidRange	10	2605	Q16	8.938
TDD41	MidRange	15	2605	QPSK	13.499
TDD41	MidRange	15	2605	Q16	13.454
TDD41	MidRange	20	2605	QPSK	17.863
TDD41	MidRange	20	2605	Q16	17.883

FDD05_MidRange_1.4_836.5_QPSK	FDD05_MidRange_1.4_836.5_Q16
	
FDD05_MidRange_3_836.5_QPSK	FDD05_MidRange_3_836.5_Q16
	
FDD05_MidRange_5_836.5_QPSK	FDD05_MidRange_5_836.5_Q16
	

FDD05_MidRange_10_836.5_QPSK	FDD05_MidRange_10_836.5_Q16
	
FDD07_MidRange_5_2535_QPSK	FDD07_MidRange_5_2535_Q16
	
FDD07_MidRange_10_2535_QPSK	FDD07_MidRange_10_2535_Q16
	

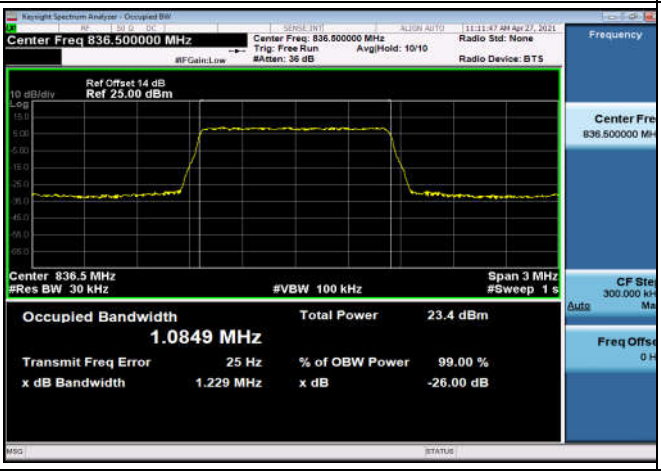
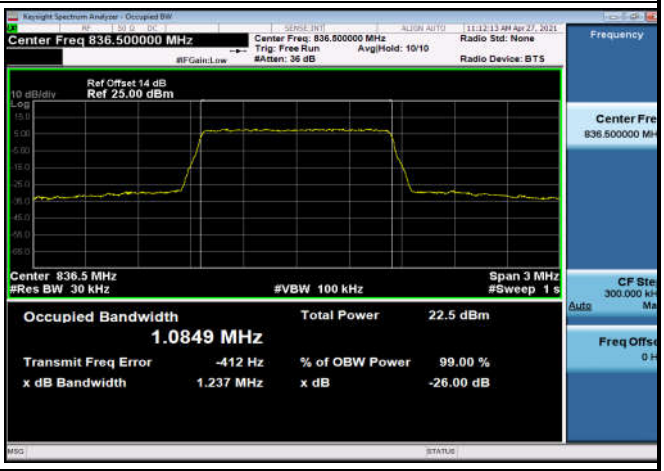
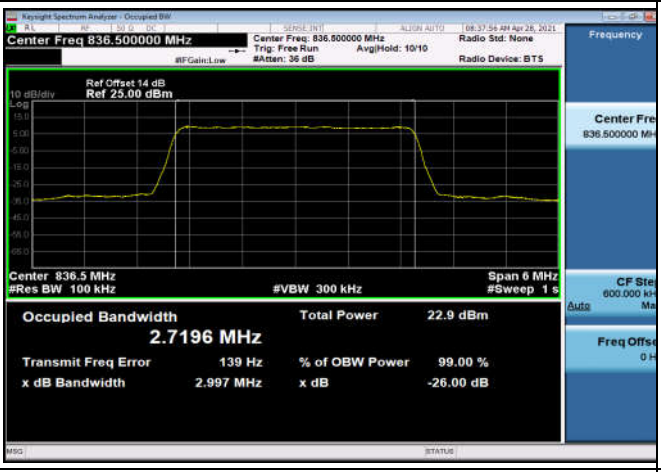
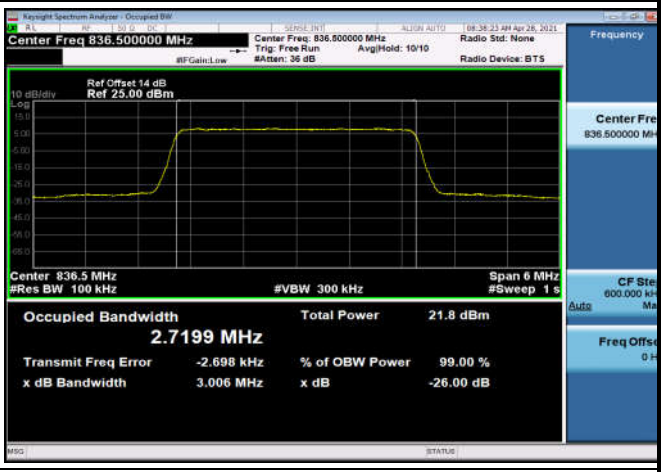
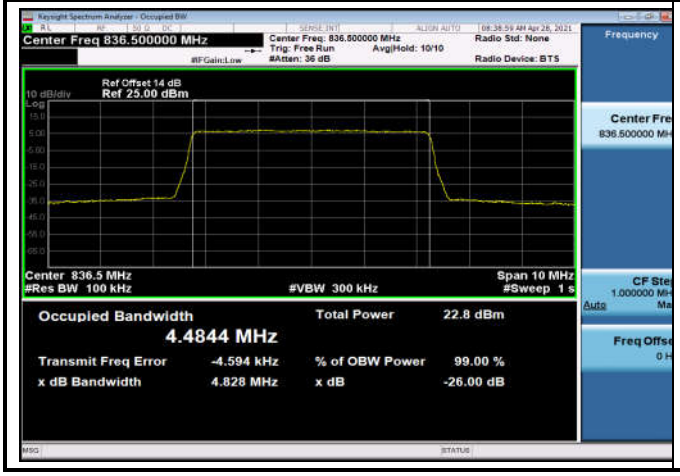
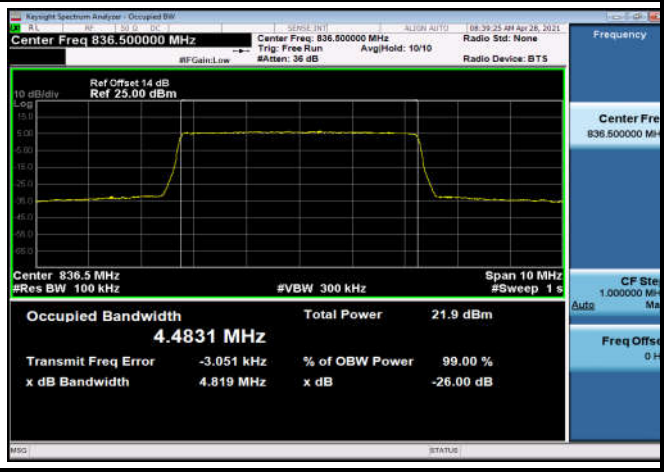
FDD07_MidRange_15_2535_QPSK	FDD07_MidRange_15_2535_Q16
	
FDD07_MidRange_20_2535_QPSK	FDD07_MidRange_20_2535_Q16
	
TDD41_MidRange_5_2605_QPSK	TDD41_MidRange_5_2605_Q16
	

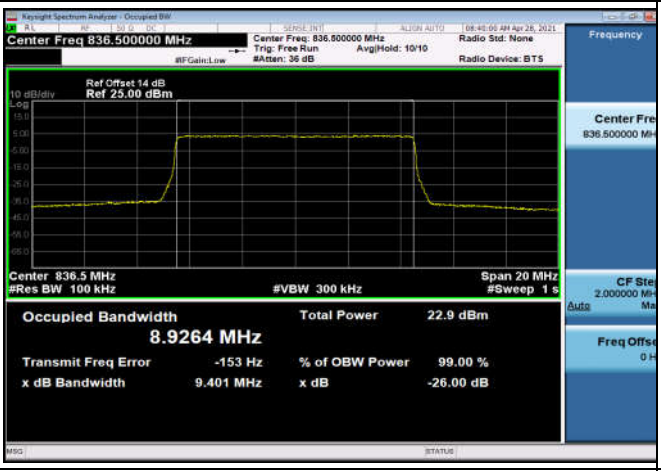
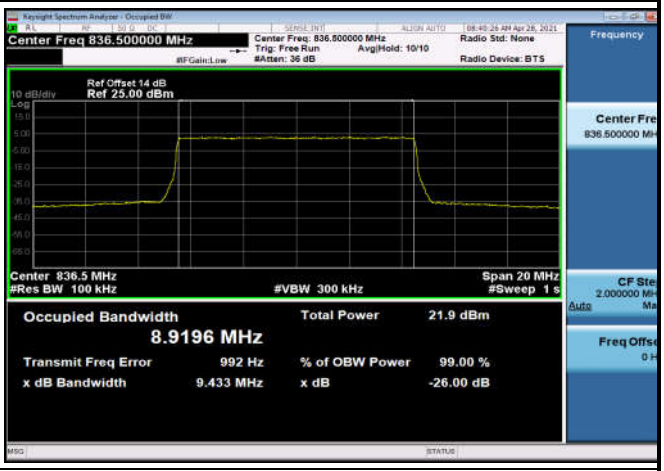
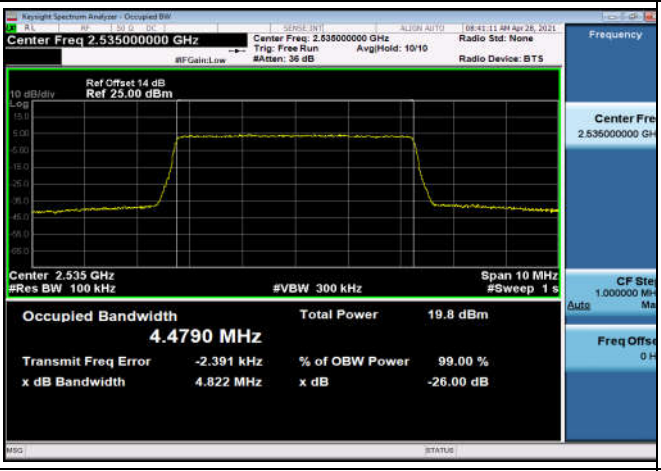
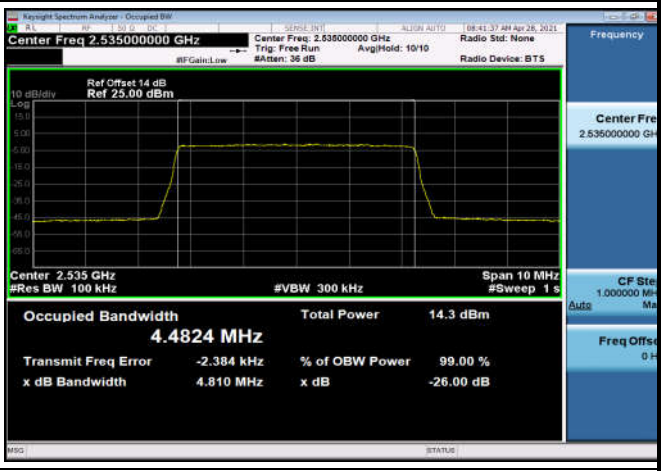
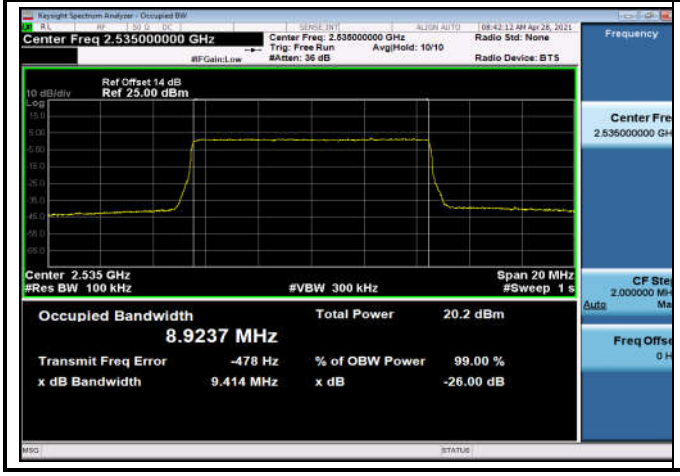
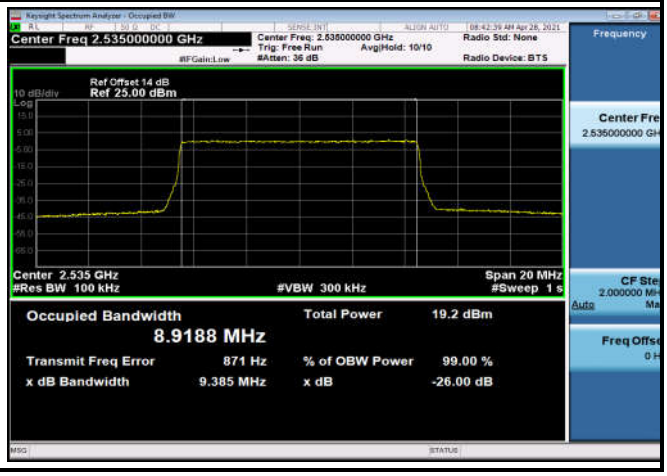
TDD41_MidRange_10_2605_QPSK	TDD41_MidRange_10_2605_Q16
	
TDD41_MidRange_15_2605_QPSK	TDD41_MidRange_15_2605_Q16
	
TDD41_MidRange_20_2605_QPSK	TDD41_MidRange_20_2605_Q16
	

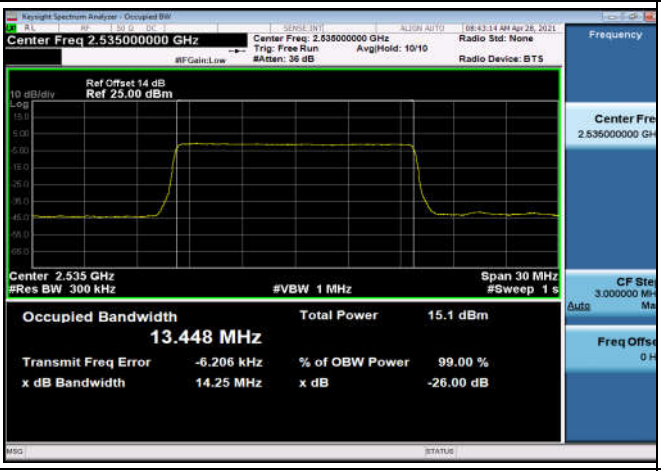
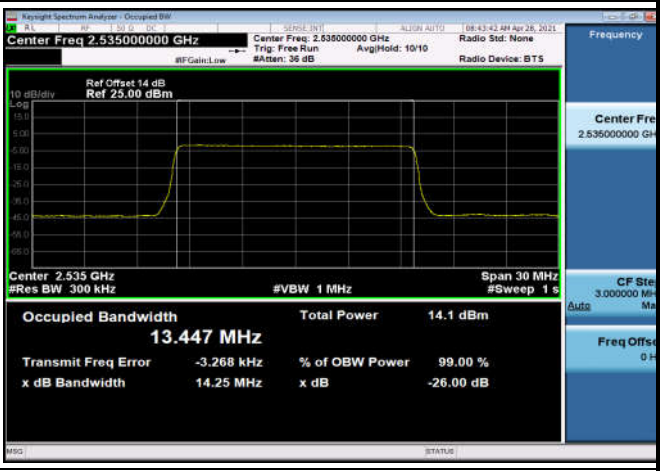
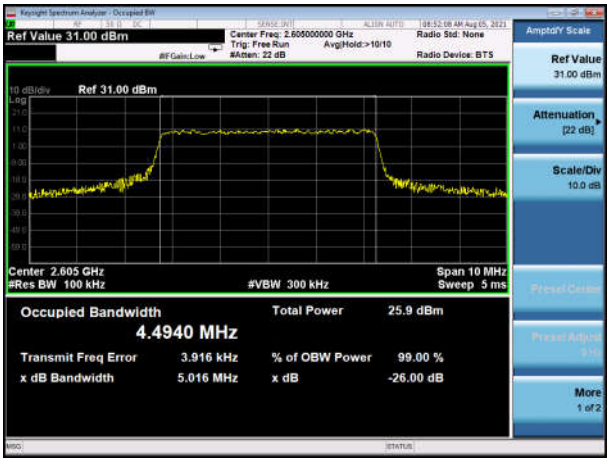
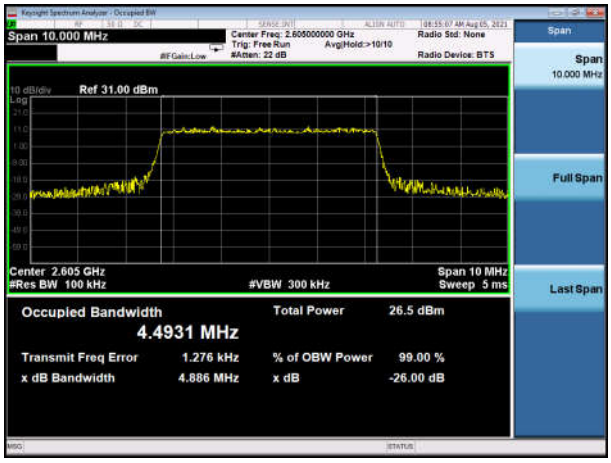
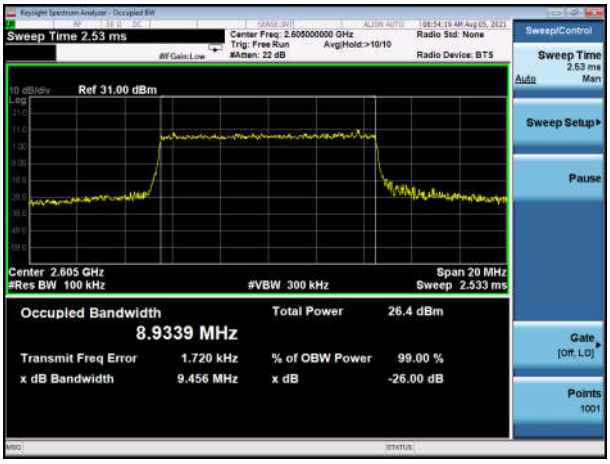
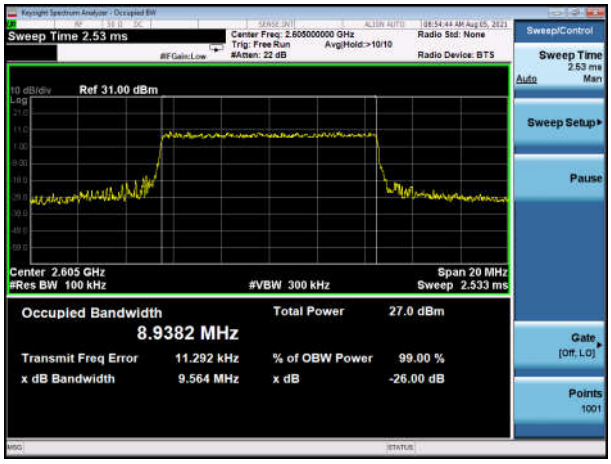
26dB Bandwidth

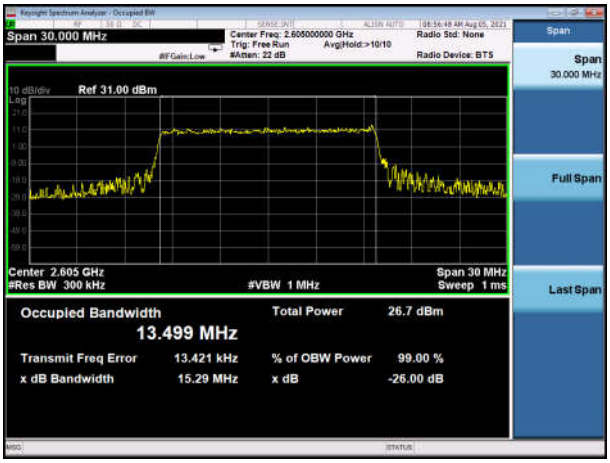
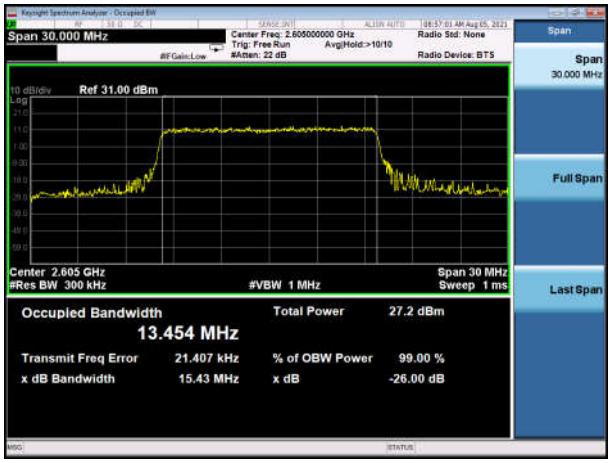
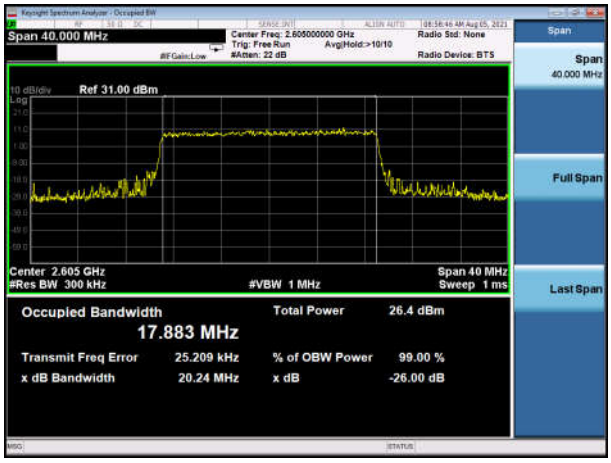
Test Result and Data

Emission Bandwidth NormalTC_NormalVol					
Band	Range	BandWidth	Frequency (MHz)	Modulation	EmissionBandwidth (MHz)
FDD05	MidRange	1.4	836.5	QPSK	1.23
FDD05	MidRange	1.4	836.5	Q16	1.24
FDD05	MidRange	3	836.5	QPSK	3
FDD05	MidRange	3	836.5	Q16	3.01
FDD05	MidRange	5	836.5	QPSK	4.83
FDD05	MidRange	5	836.5	Q16	4.82
FDD05	MidRange	10	836.5	QPSK	9.4
FDD05	MidRange	10	836.5	Q16	9.43
FDD07	MidRange	5	2535	QPSK	4.82
FDD07	MidRange	5	2535	Q16	4.81
FDD07	MidRange	10	2535	QPSK	9.41
FDD07	MidRange	10	2535	Q16	9.39
FDD07	MidRange	15	2535	QPSK	14.25
FDD07	MidRange	15	2535	Q16	14.25
TDD41	MidRange	5	2605	QPSK	5.015
TDD41	MidRange	5	2605	Q16	4.886
TDD41	MidRange	10	2605	QPSK	9.456
TDD41	MidRange	10	2605	Q16	9.564
TDD41	MidRange	15	2605	QPSK	15.29
TDD41	MidRange	15	2605	Q16	15.43
TDD41	MidRange	20	2605	QPSK	19.88
TDD41	MidRange	20	2605	Q16	20.24

FDD05_MidRange_1.4MHz_836.5MHz _QPSK	FDD05_MidRange_1.4MHz_836.5MHz _Q16
	
FDD05_MidRange_3MHz_836.5MHz_QPSK	FDD05_MidRange_3MHz_836.5MHz_Q16
	
FDD05_MidRange_5MHz_836.5MHz_QPSK	FDD05_MidRange_5MHz_836.5MHz_Q16
	

FDD05_MidRange_10MHz_836.5MHz_QPSK	FDD05_MidRange_10MHz_836.5MHz_Q16
	
FDD07_MidRange_5MHz_2535MHz_QPSK	FDD07_MidRange_5MHz_2535MHz_Q16
	
FDD07_MidRange_10MHz_2535MHz_QPSK	FDD07_MidRange_10MHz_2535MHz_Q16
	

FDD07_MidRange_15MHz_2535MHz_QPSK	FDD07_MidRange_15MHz_2535MHz_Q16
	
TDD41_MidRange_5_2605_QPSK	TDD41_MidRange_5_2605_Q16
	
TDD41_MidRange_10_2605_QPSK	TDD41_MidRange_10_2605_Q16
	

TDD41_MidRange_15_2605_QPSK	TDD41_MidRange_15_2605_Q16
	
TDD41_MidRange_20_2605_QPSK	TDD41_MidRange_20_2605_Q16
	

Frequency Stability

Test Result and Data

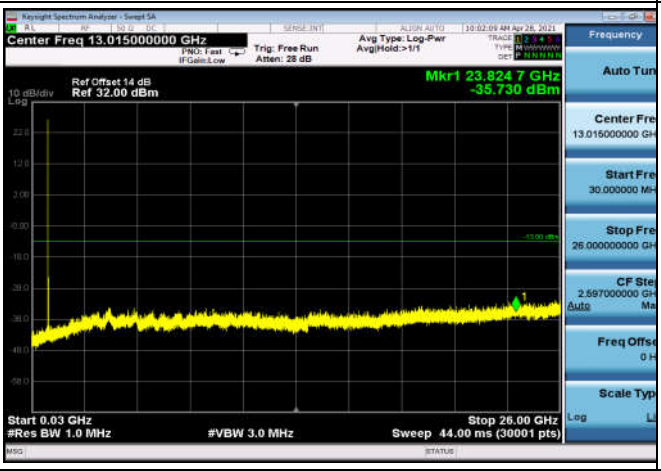
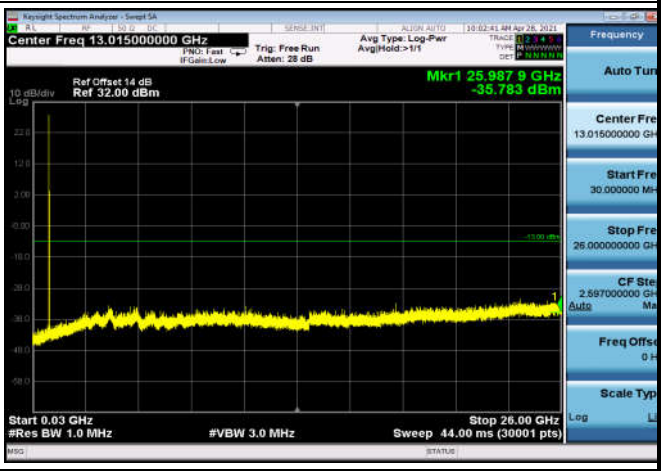
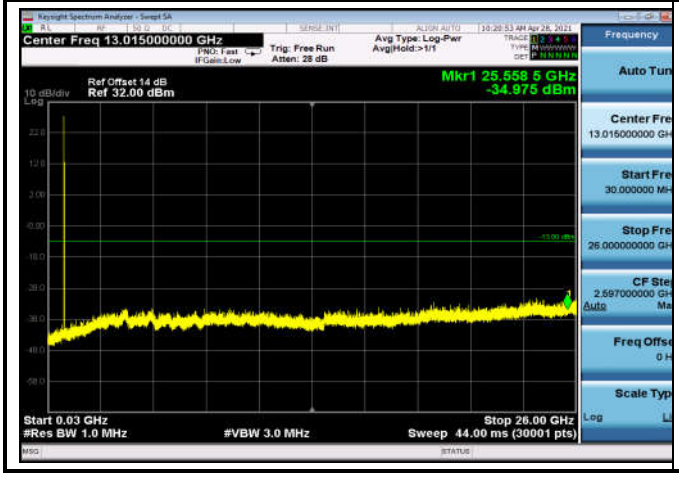
Frequency Stability NormalTC_NormalVol									
Temperature	Voltage	Band	BandWidth (MHz)	RbMode	Modulation	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
Normal	Low	FDD05	10	fullRB	QPSK	-14.720	-0.018	±2.5	Pass
Normal	Normal	FDD05	10	fullRB	QPSK	-13.704	-0.016	±2.5	Pass
Normal	High	FDD05	10	fullRB	QPSK	-15.950	-0.019	±2.5	Pass
50	Normal	FDD05	10	fullRB	QPSK	-15.965	-0.019	±2.5	Pass
40	Normal	FDD05	10	fullRB	QPSK	-15.421	-0.018	±2.5	Pass
30	Normal	FDD05	10	fullRB	QPSK	-15.635	-0.019	±2.5	Pass
20	Normal	FDD05	10	fullRB	QPSK	-14.977	-0.018	±2.5	Pass
10	Normal	FDD05	10	fullRB	QPSK	-14.148	-0.017	±2.5	Pass
0	Normal	FDD05	10	fullRB	QPSK	-15.106	-0.018	±2.5	Pass
-10	Normal	FDD05	10	fullRB	QPSK	-14.434	-0.017	±2.5	Pass
-20	Normal	FDD05	10	fullRB	QPSK	-17.967	-0.021	±2.5	Pass
-30	Normal	FDD05	10	fullRB	QPSK	-14.691	-0.018	±2.5	Pass
Normal	Low	FDD07	10	fullRB	QPSK	-18.682	-0.007	±2.5	Pass
Normal	Normal	FDD07	10	fullRB	QPSK	-25.277	-0.010	±2.5	Pass
Normal	High	FDD07	10	fullRB	QPSK	-19.169	-0.008	±2.5	Pass
50	Normal	FDD07	10	fullRB	QPSK	-23.160	-0.009	±2.5	Pass
40	Normal	FDD07	10	fullRB	QPSK	-28.038	-0.011	±2.5	Pass
30	Normal	FDD07	10	fullRB	QPSK	30.627	0.012	±2.5	Pass
20	Normal	FDD07	10	fullRB	QPSK	21.472	0.008	±2.5	Pass
10	Normal	FDD07	10	fullRB	QPSK	17.195	0.007	±2.5	Pass
0	Normal	FDD07	10	fullRB	QPSK	-30.770	-0.012	±2.5	Pass
-10	Normal	FDD07	10	fullRB	QPSK	20.742	0.008	±2.5	Pass
-20	Normal	FDD07	10	fullRB	QPSK	-27.480	-0.011	±2.5	Pass
-30	Normal	FDD07	10	fullRB	QPSK	-15.035	-0.006	±2.5	Pass
Normal	Low	TDD41	10	fullRB	QPSK	26.464	0.010	±2.5	Pass

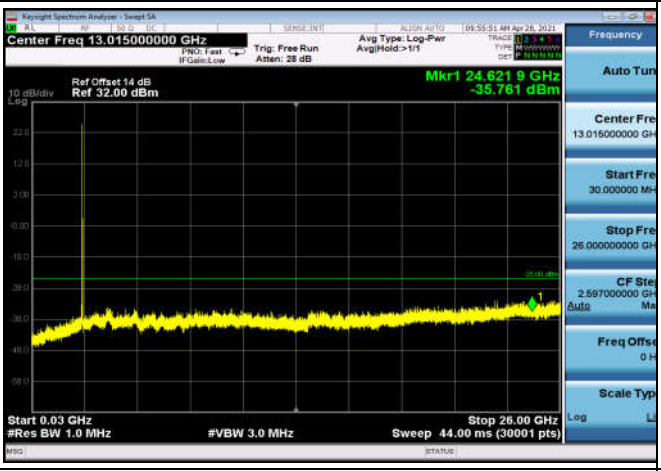
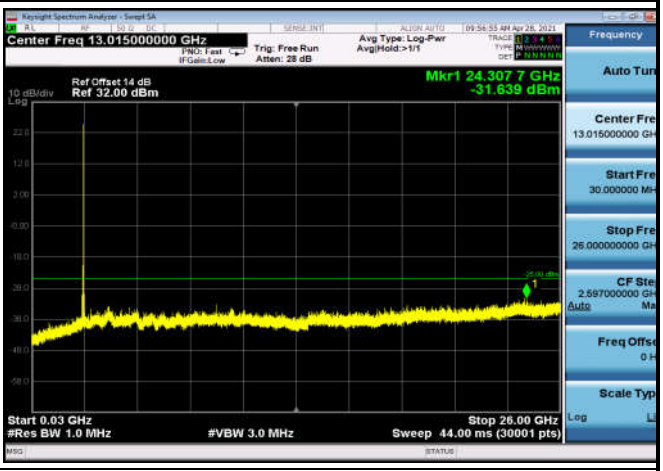
Normal	Normal	TDD41	10	fullRB	QPSK	-25.048	-0.010	±2.5	Pass
Normal	High	TDD41	10	fullRB	QPSK	-27.022	-0.010	±2.5	Pass
50	Normal	TDD41	10	fullRB	QPSK	-27.065	-0.010	±2.5	Pass
40	Normal	TDD41	10	fullRB	QPSK	-23.804	-0.009	±2.5	Pass
30	Normal	TDD41	10	fullRB	QPSK	-24.877	-0.010	±2.5	Pass
20	Normal	TDD41	10	fullRB	QPSK	-25.148	-0.010	±2.5	Pass
10	Normal	TDD41	10	fullRB	QPSK	-16.551	-0.006	±2.5	Pass
0	Normal	TDD41	10	fullRB	QPSK	-22.717	-0.009	±2.5	Pass
-10	Normal	TDD41	10	fullRB	QPSK	-23.975	-0.009	±2.5	Pass
-20	Normal	TDD41	10	fullRB	QPSK	-20.900	-0.008	±2.5	Pass
-30	Normal	TDD41	10	fullRB	QPSK	-27.766	-0.011	±2.5	Pass

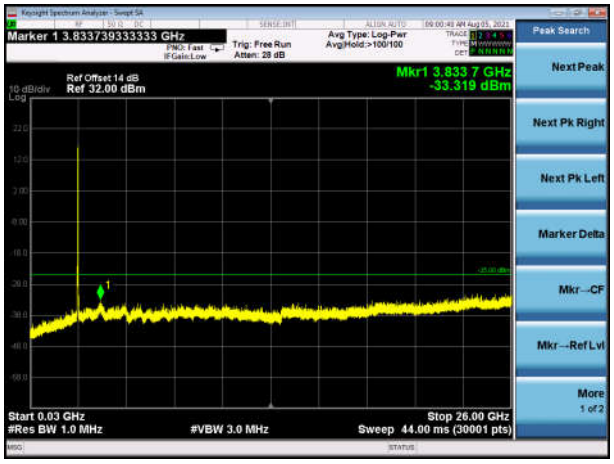
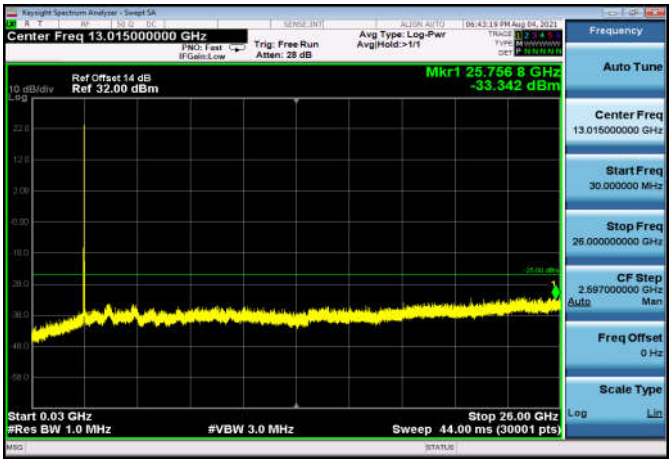
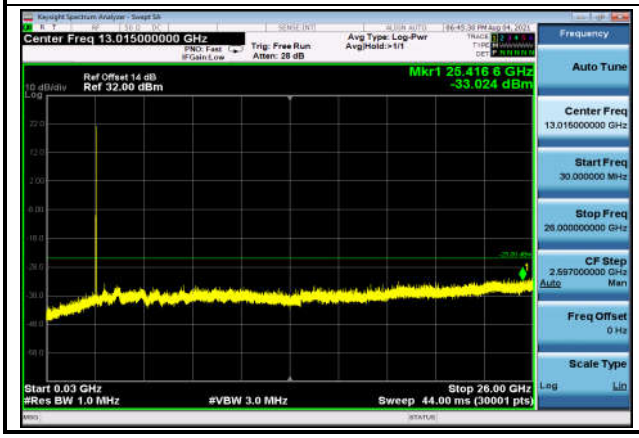
Note：Normal=7.4V, Low=6.7V, High=7.7V

Conducted Out of Band Emissions

Test Result and Data

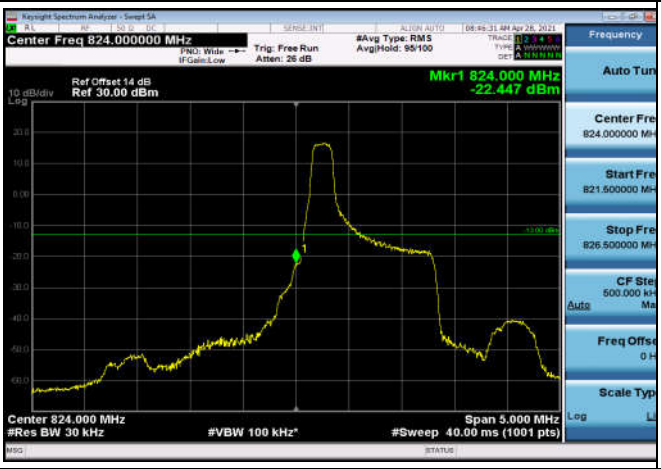
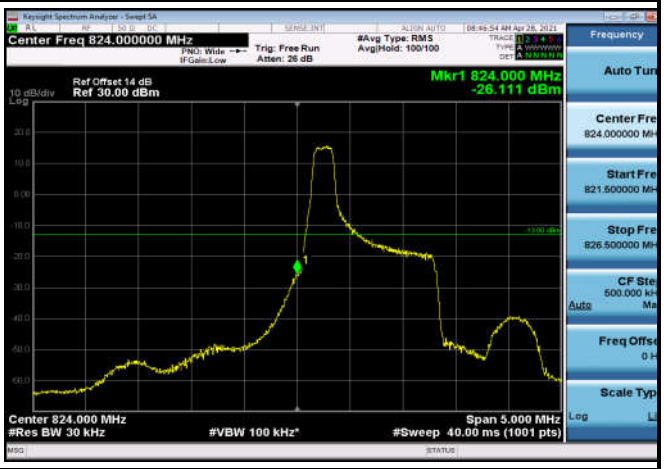
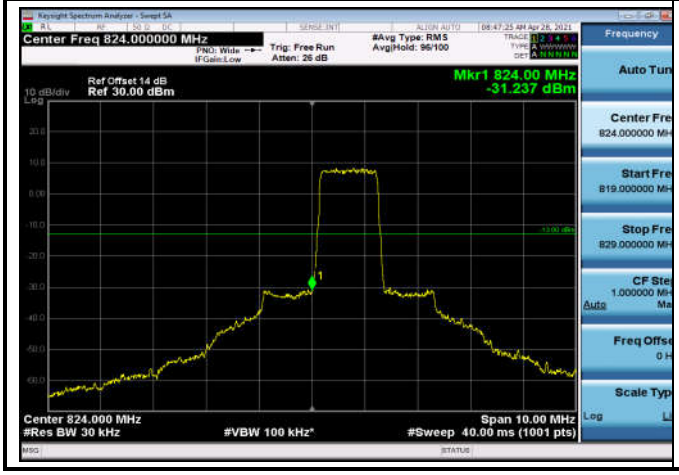
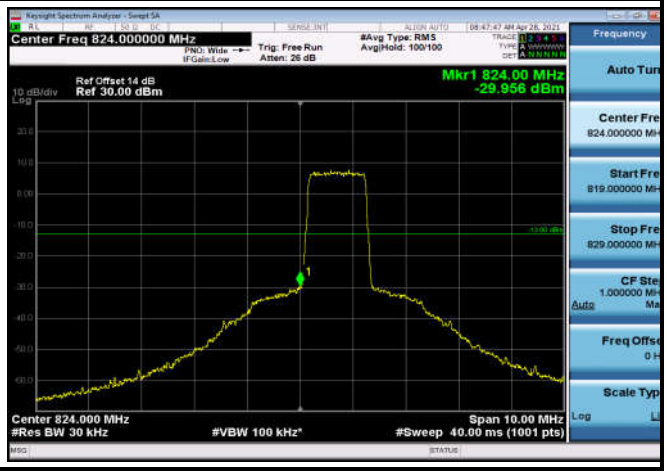
FDD05_LowRange_10MHz_30MHz~26GHz	FDD05_MidRange_10MHz_30MHz~26GHz
	
FDD05_HighRange_10MHz_30MHz~26GHz	
	

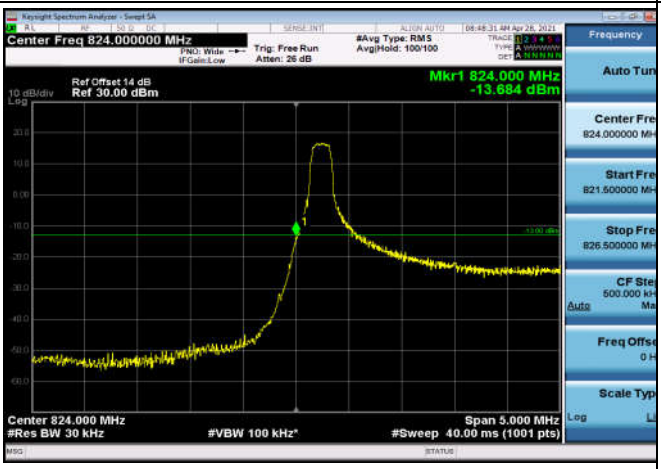
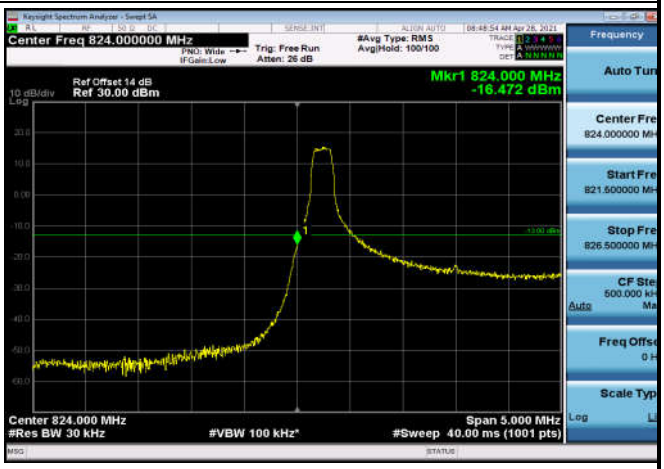
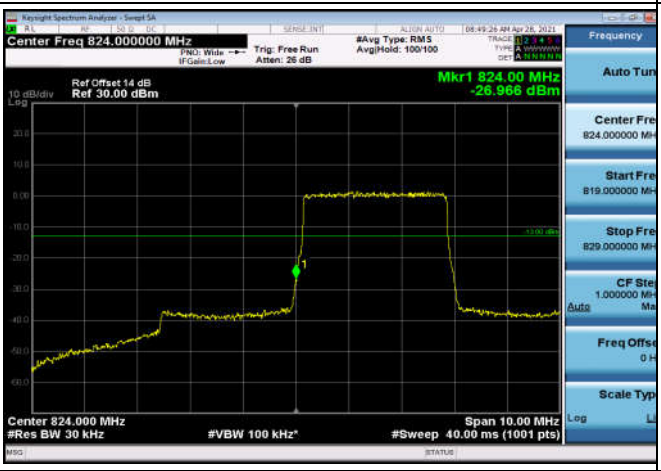
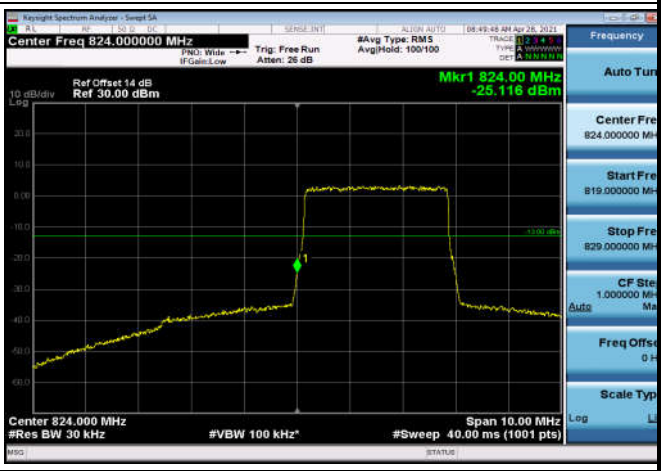
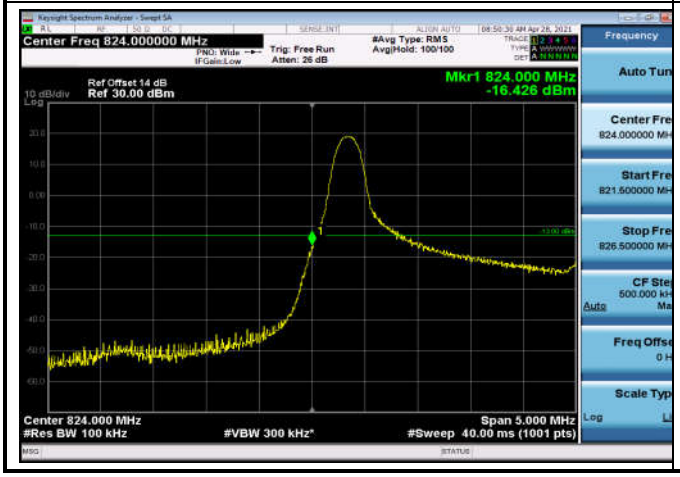
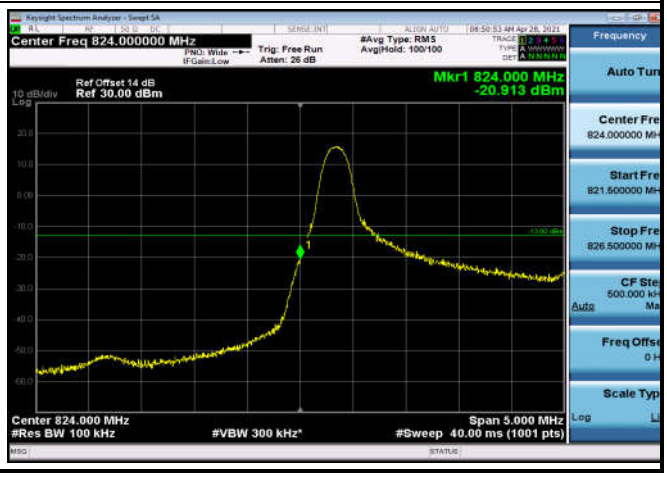
FDD07_LowRange_20MHz_30MHz~26GHz	FDD07_HighRange_20MHz_30MHz~26GHz
	
FDD07_MidRange_20MHz_30MHz~26GHz	
	

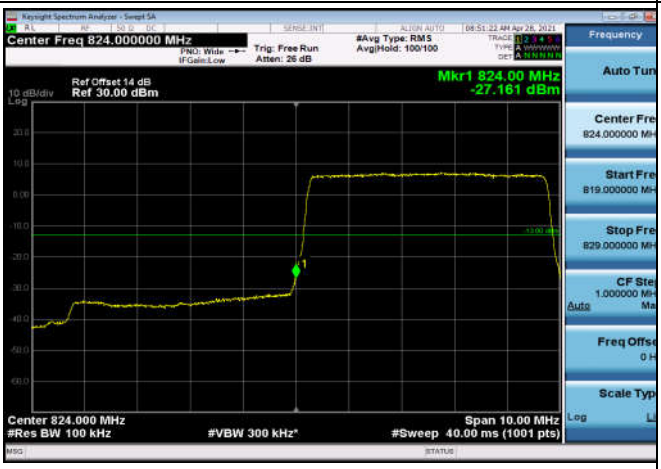
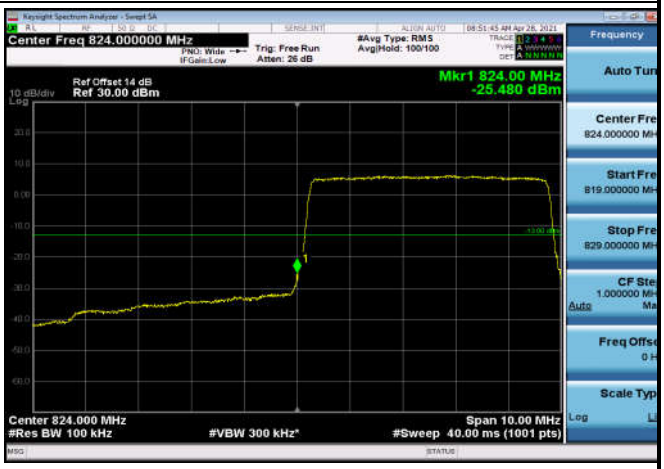
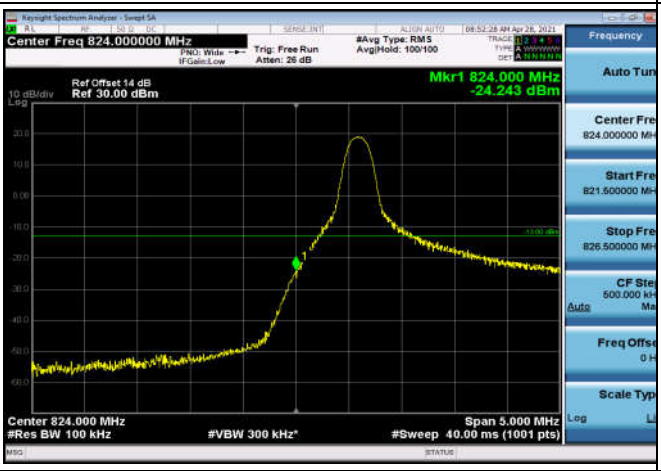
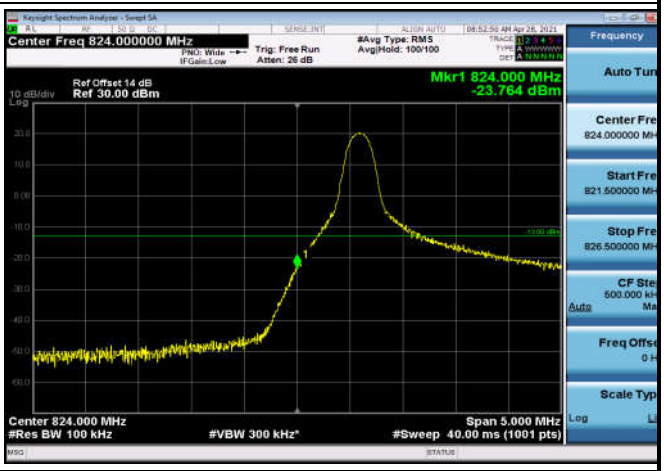
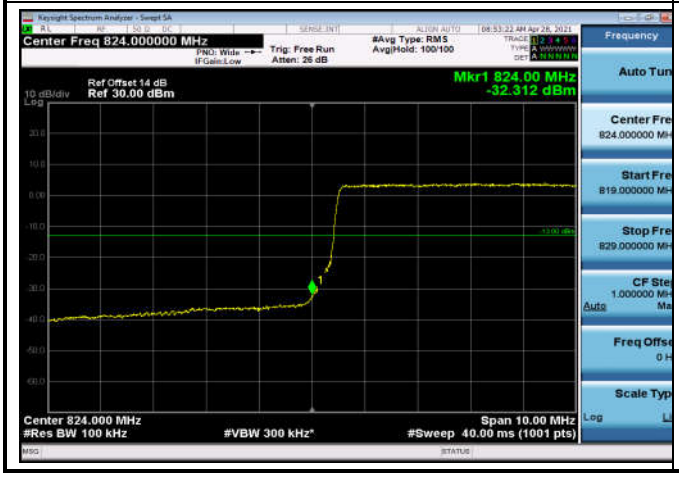
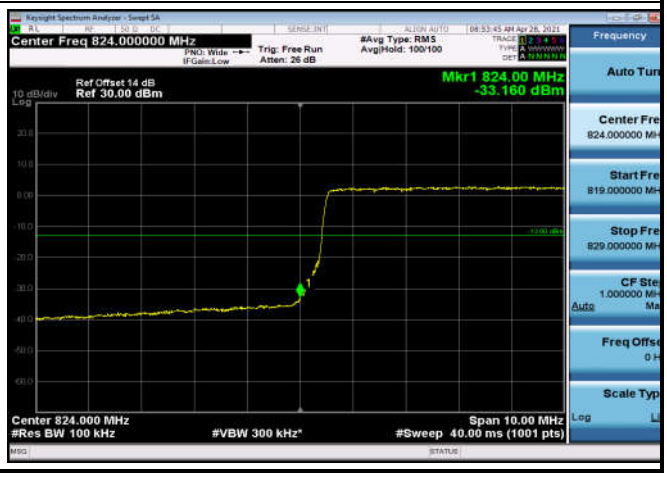
TDD41_LowRange_20MHz_30MHz~26GHz	TDD41_MidRange_20MHz_30MHz~26GHz
	
TDD41_HighRange_20MHz_30MHz~26GHz	
	

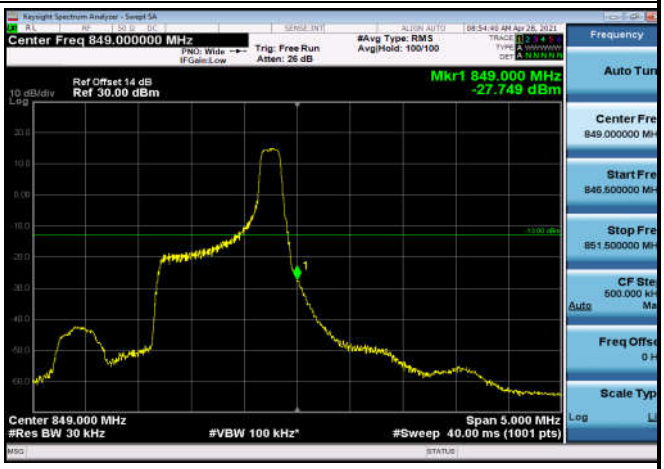
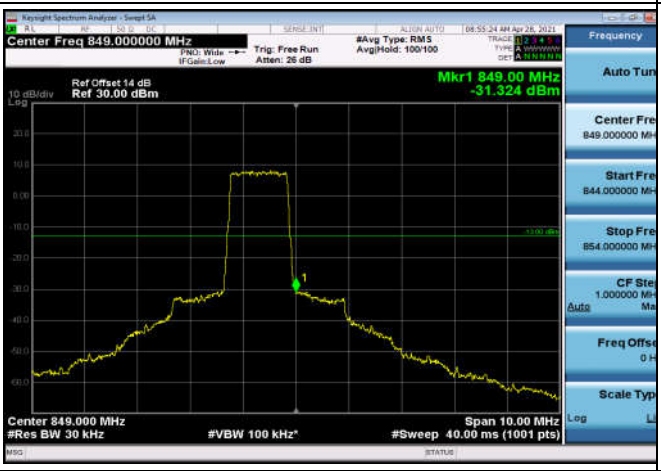
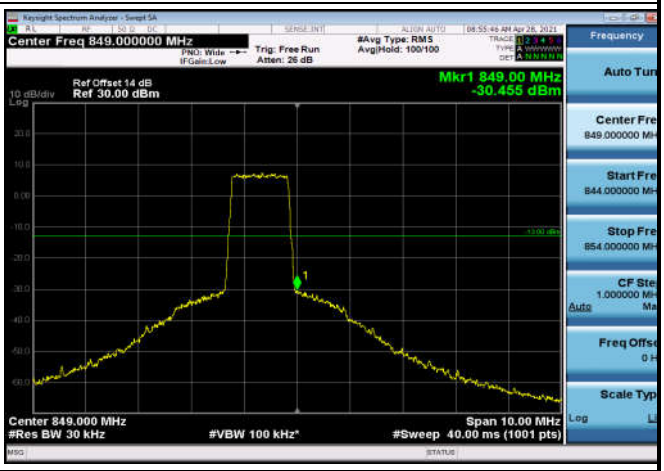
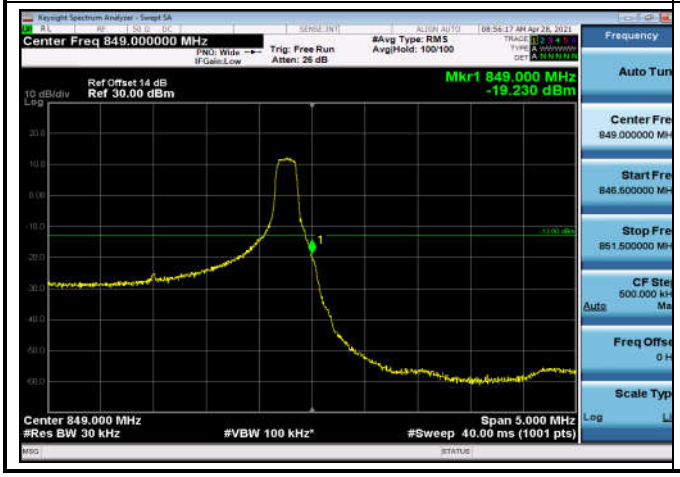
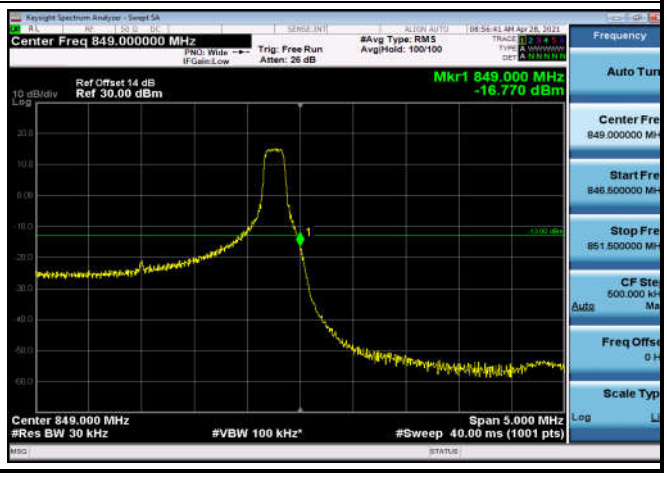
Conducted Band Edge

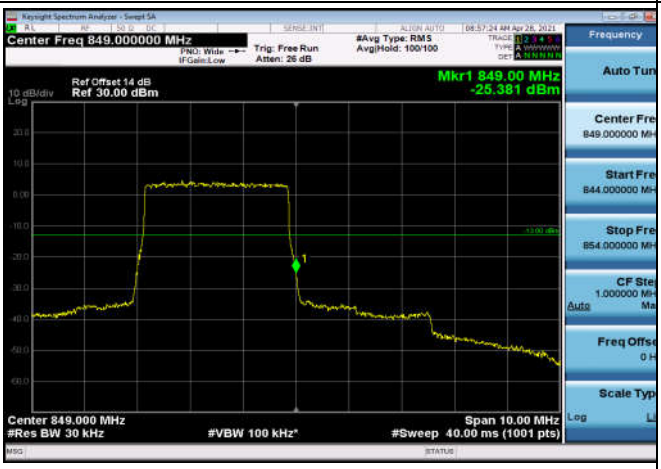
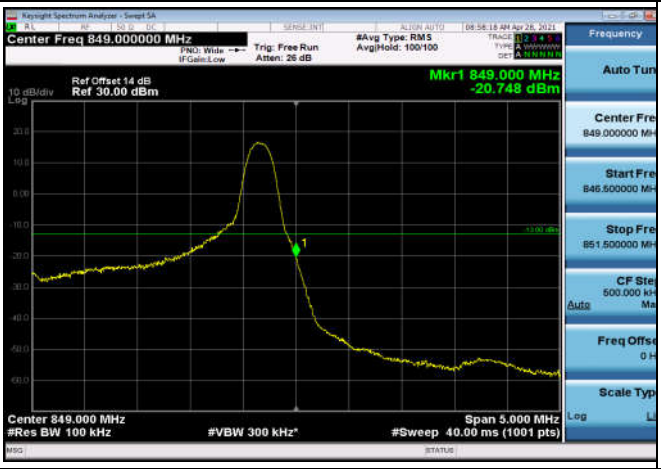
Test Result and Data

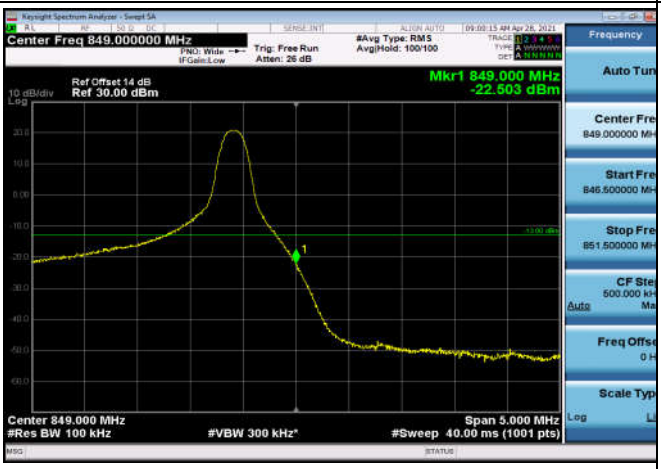
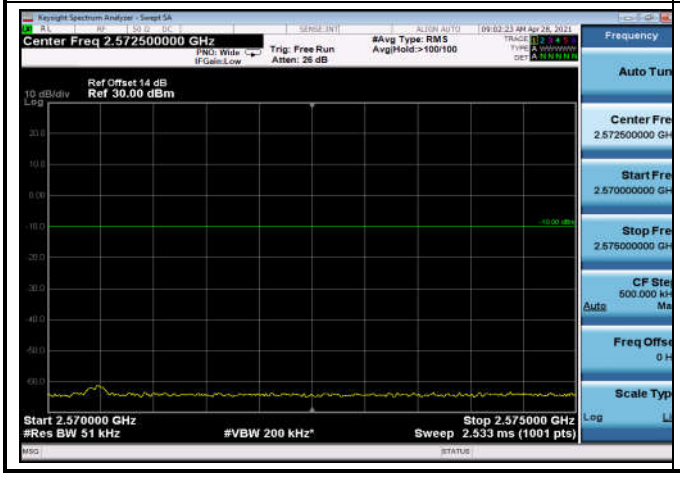
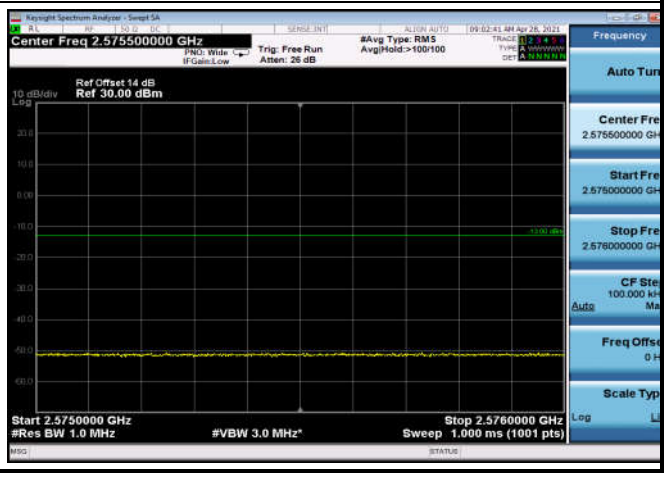
LowRange_FDD05_1.4MHz_824.7_OneRB_low_QPSK	LowRange_FDD05_1.4MHz_824.7_OneRB_low_Q16
	
LowRange_ FDD05_1.4MHz_824.7_fullRB_Low_QPSK	LowRange_ FDD05_1.4MHz_824.7_fullRB_Low_Q16
	

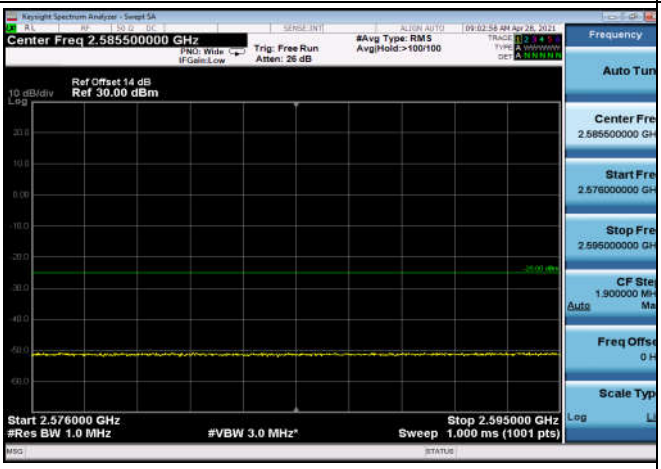
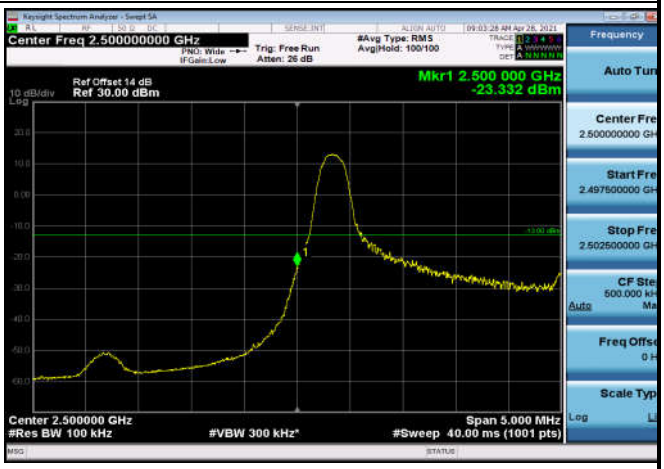
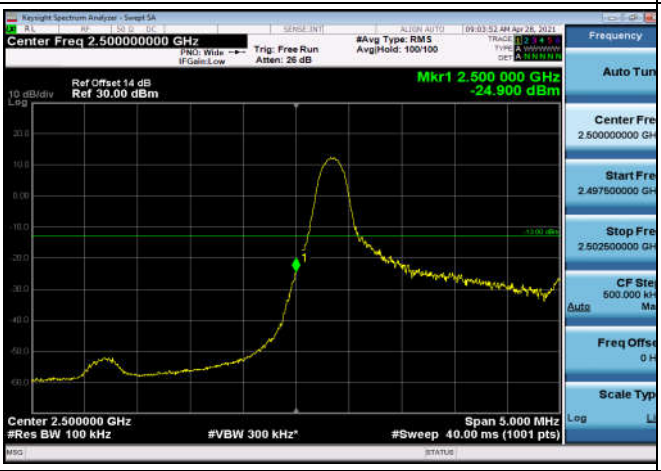
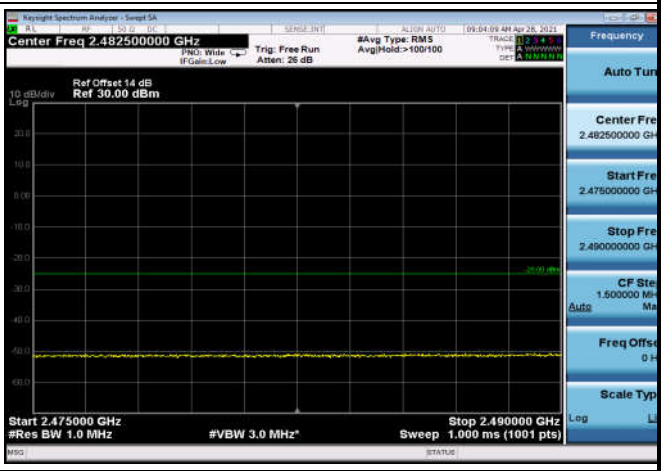
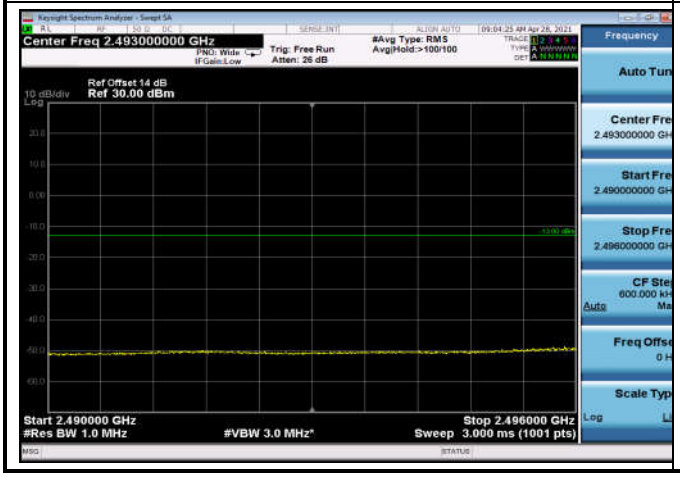
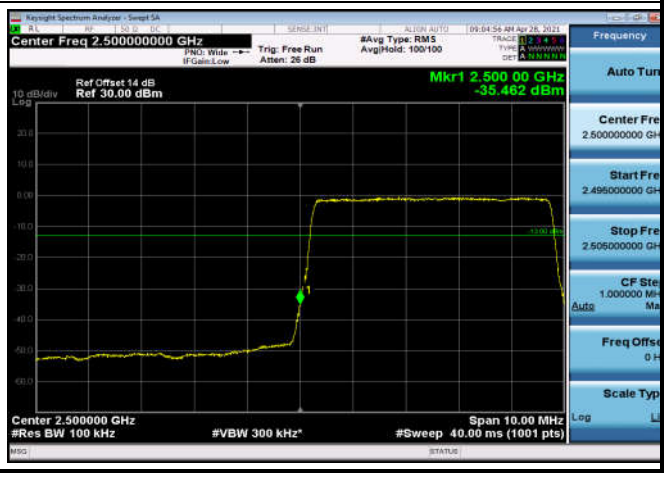
LowRange_FDD05_3MHz_825.5_OneRB_low_QPSK	LowRange_FDD05_3MHz_825.5_OneRB_low_Q16
	
LowRange_ FDD05_3MHz_825.5_fullRB_Low_QPSK	LowRange_ FDD05_3MHz_825.5_fullRB_Low_Q16
	
LowRange_FDD05_5MHz_826.5_OneRB_low_QPSK	LowRange_FDD05_5MHz_826.5_OneRB_low_Q16
	

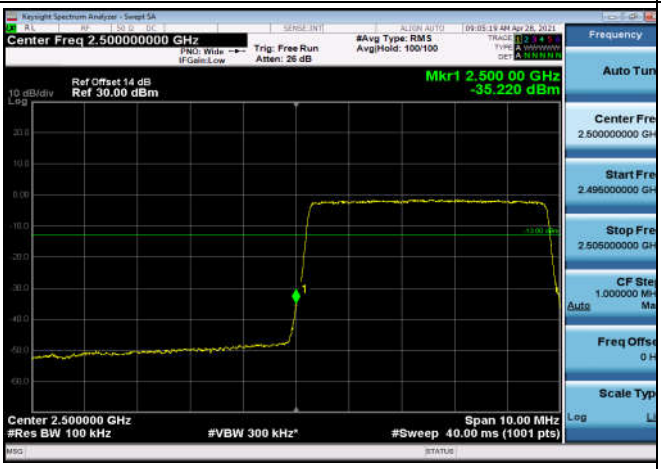
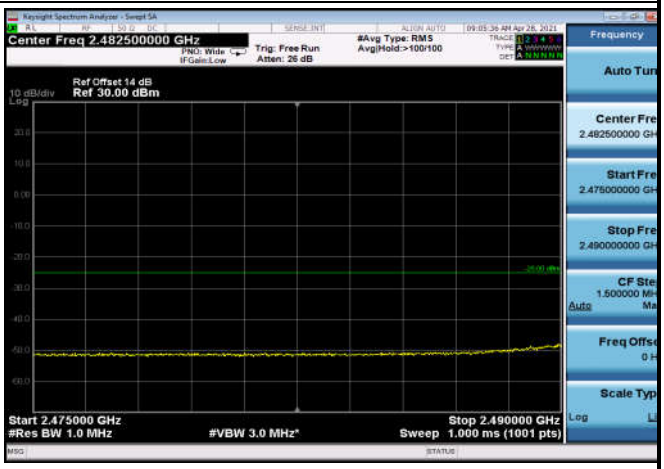
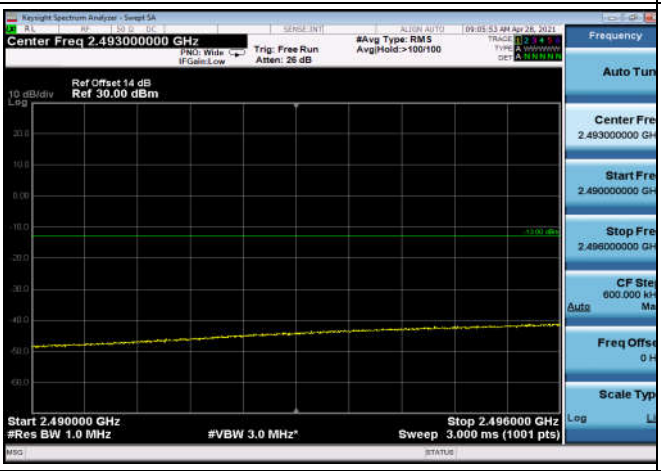
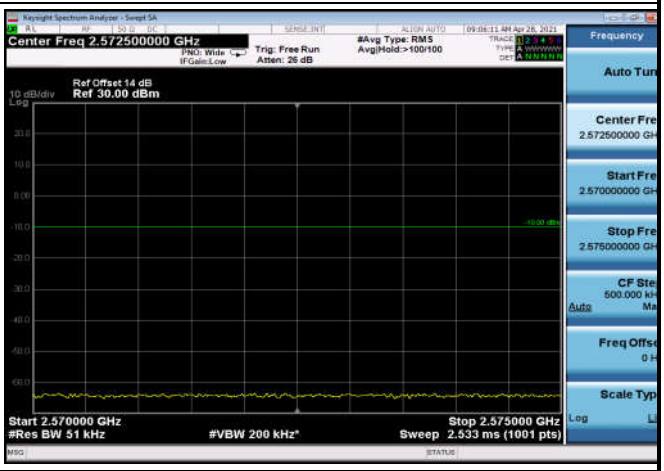
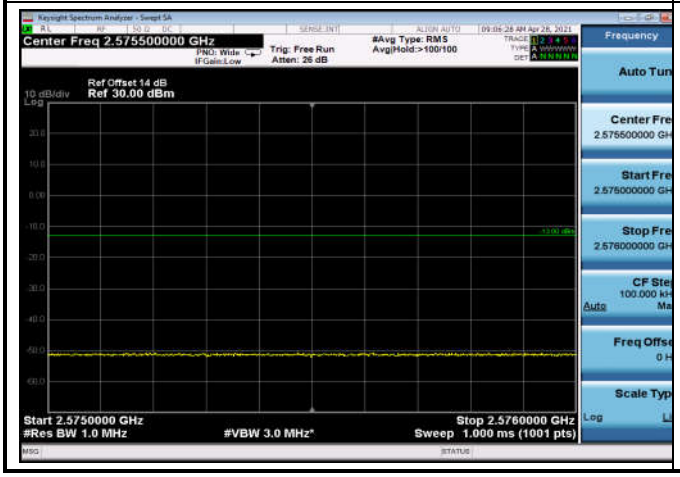
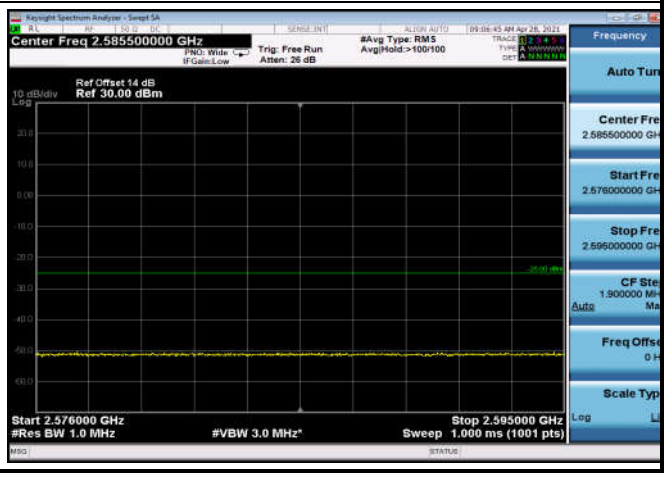
LowRange_ FDD05_5MHz_826.5_fullRB _Low_QPSK	LowRange_ FDD05_5MHz_826.5_fullRB _Low_Q16
	
LowRange_FDD05_10MHz_829_OneRB _low_QPSK	LowRange_FDD05_10MHz_829_OneRB _low_Q16
	
LowRange_ FDD05_10MHz_829_fullRB _Low_QPSK	LowRange_ FDD05_10MHz_829_fullRB _Low_Q16
	

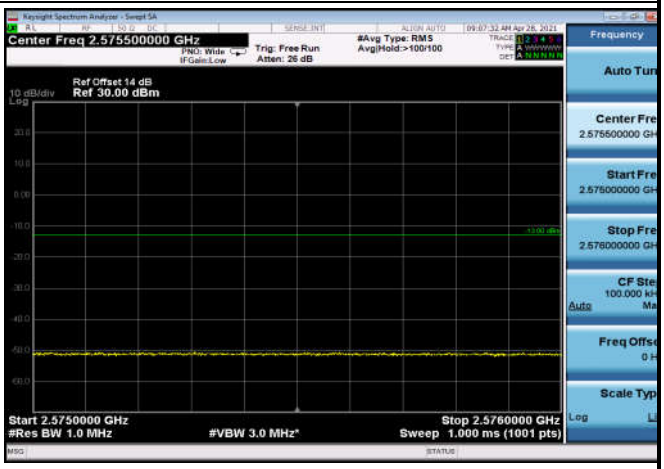
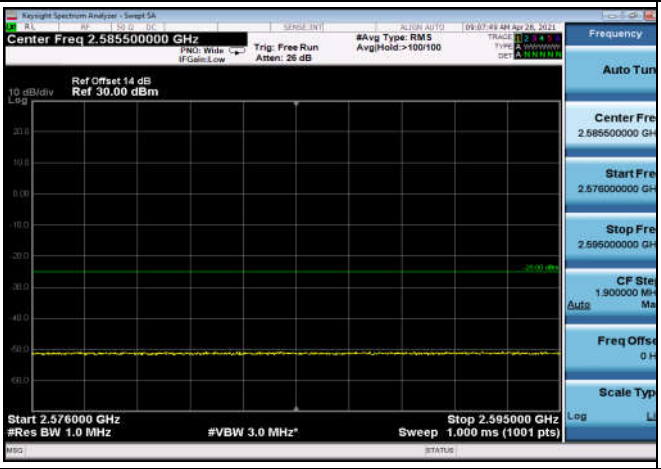
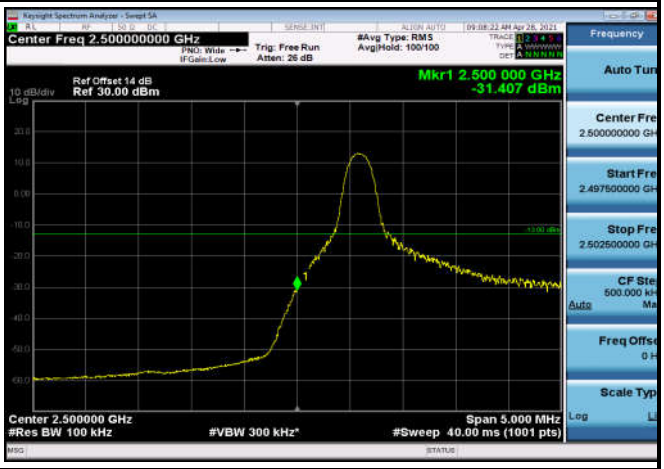
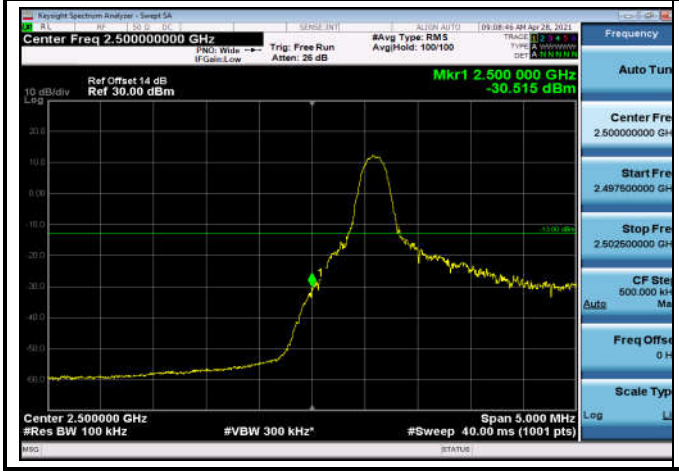
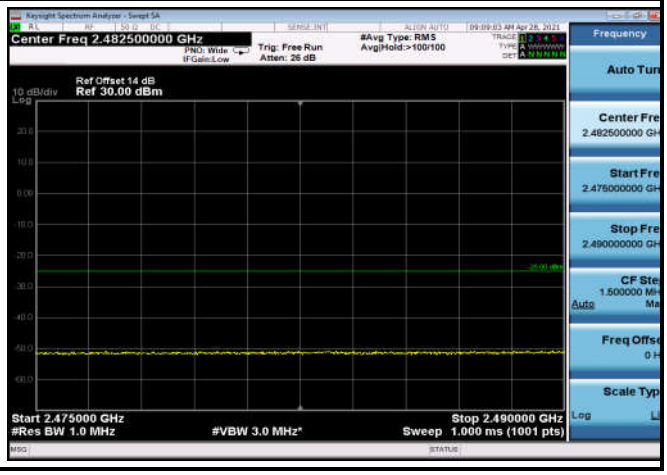
HighRange_FDD05_1.4MHz_848.3_OneRB_high_QPSK	HighRange_FDD05_1.4MHz_848.3_OneRB_high_Q16
	
HighRange_ FDD05_1.4MHz_848.3_fullRB_High_QPSK	HighRange_ FDD05_1.4MHz_848.3_fullRB_High_Q16
	
HighRange_FDD05_3MHz_847.5_OneRB_high_QPSK	HighRange_FDD05_3MHz_847.5_OneRB_high_Q16
	

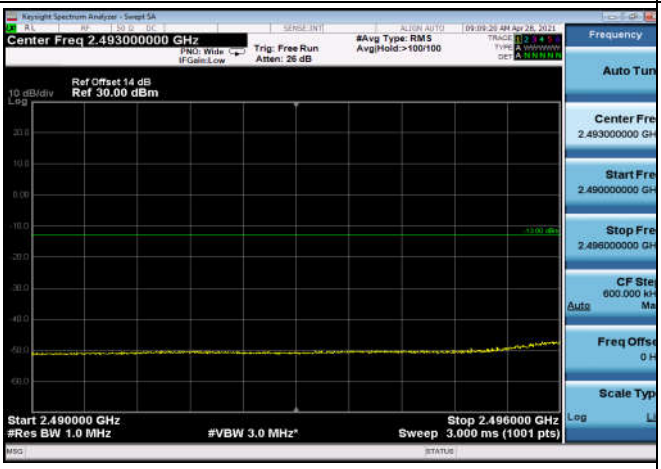
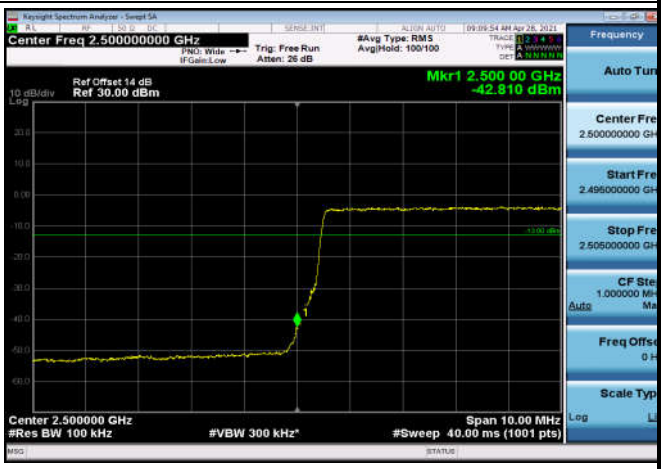
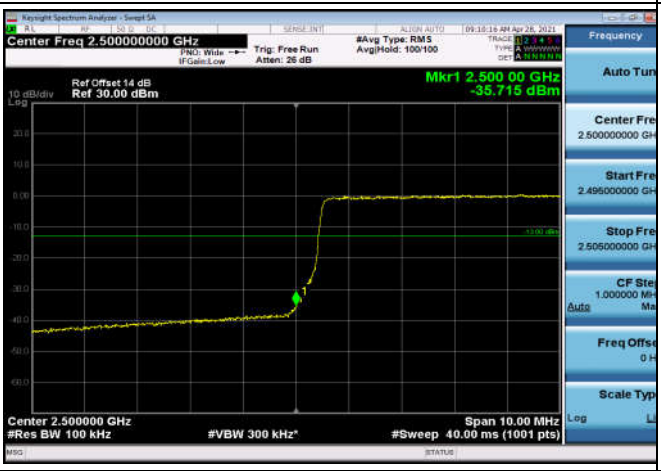
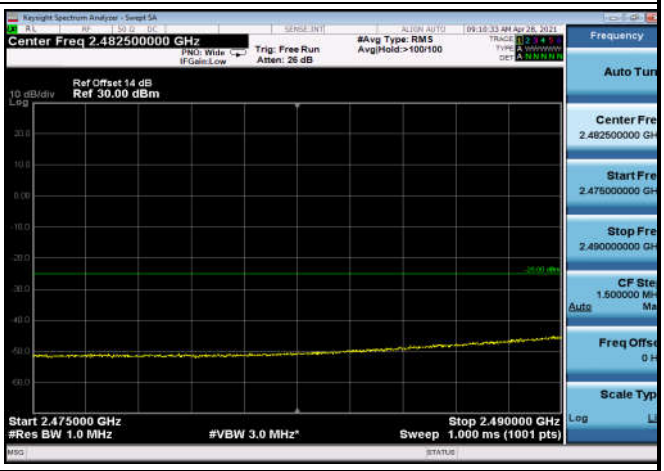
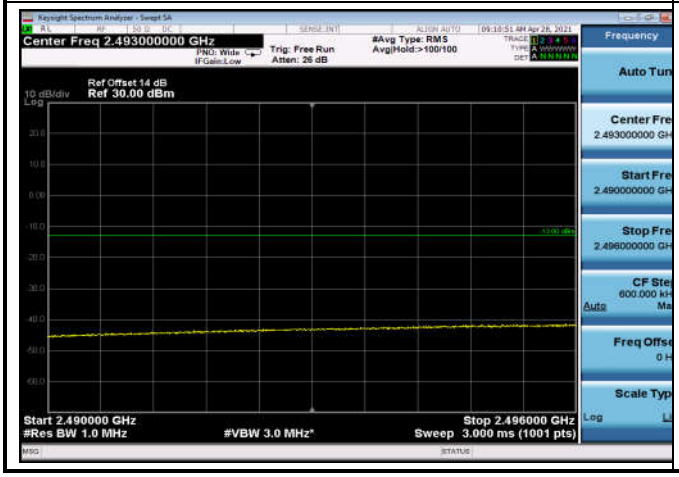
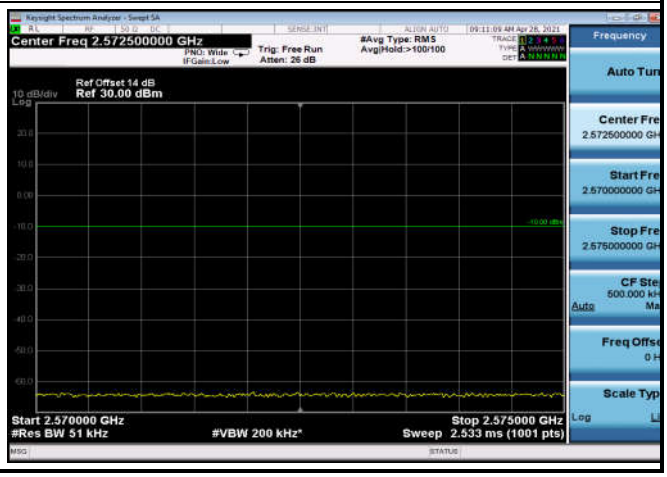
HighRange_ FDD05_3MHz_847.5_fullRB _High_QPSK	HighRange_ FDD05_3MHz_847.5_fullRB _High_Q16
	
HighRange_FDD05_5MHz_846.5_OneRB _high_QPSK	HighRange_FDD05_5MHz_846.5_OneRB _high_Q16
	
HighRange_ FDD05_5MHz_846.5_fullRB _High_QPSK	HighRange_ FDD05_5MHz_846.5_fullRB _High_Q16
	

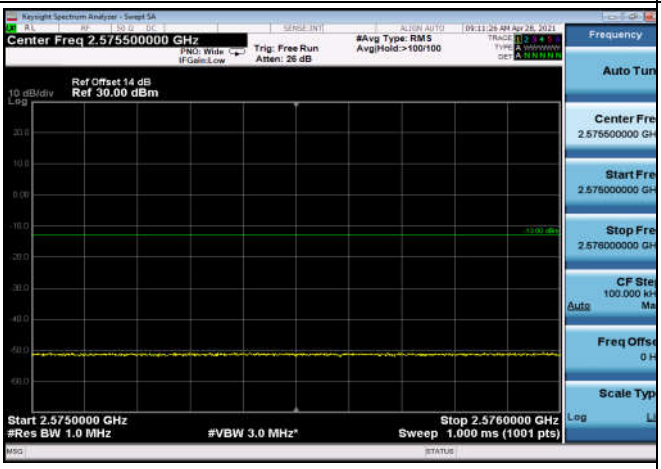
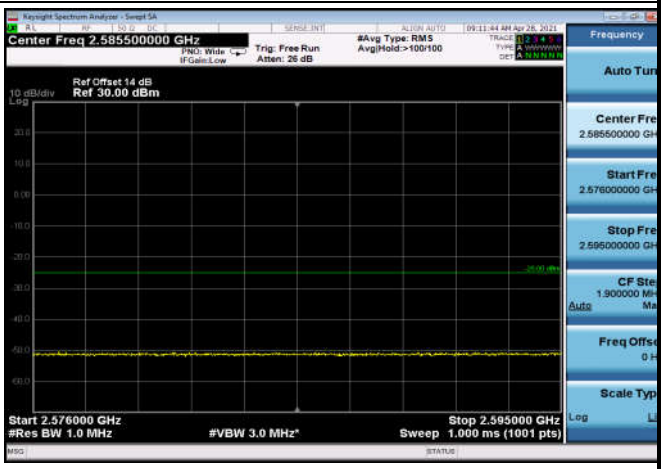
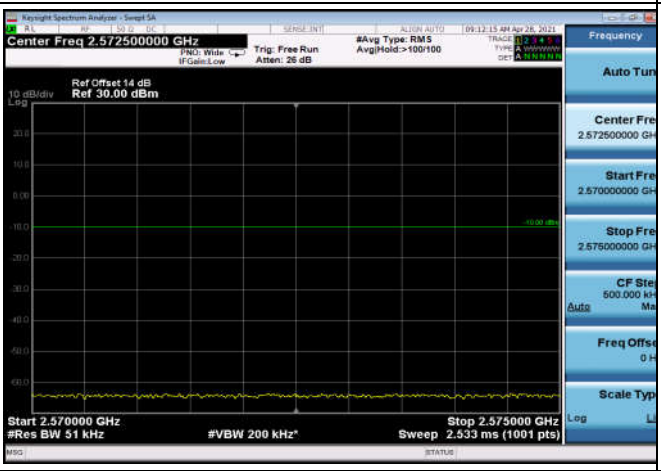
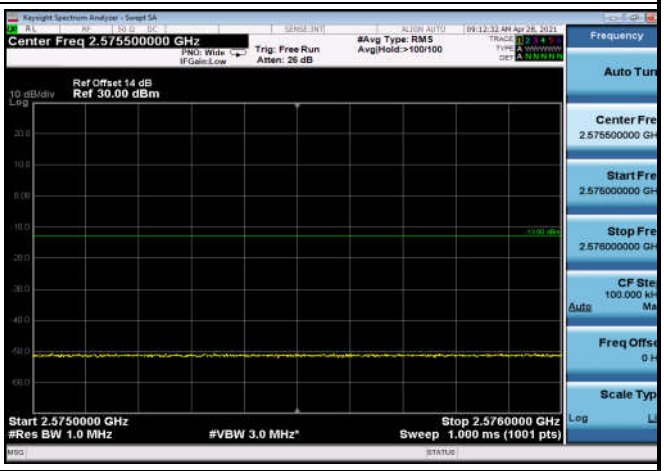
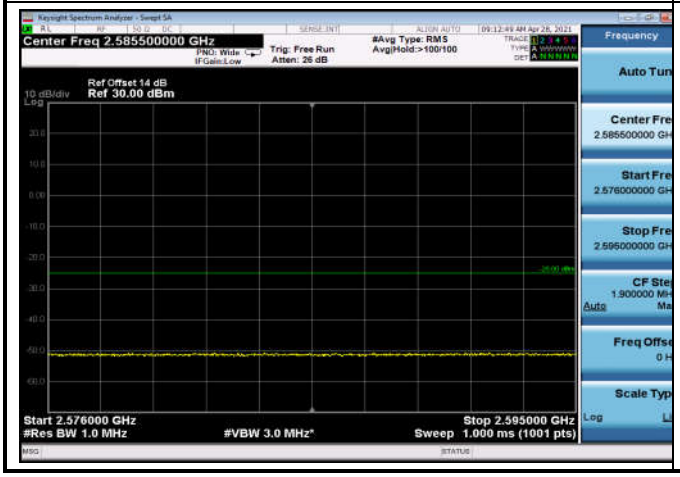
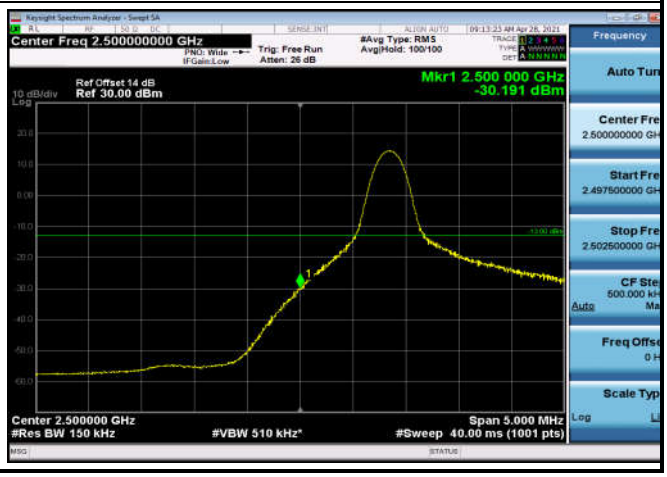
HighRange_FDD05_10MHz_844_OneRB_high_QPSK	HighRange_FDD05_10MHz_844_OneRB_high_Q16
	
HighRange_ FDD05_10MHz_844_fullRB_High_QPSK	HighRange_ FDD05_10MHz_844_fullRB_High_Q16
	
FDD07_5MHz_2502.5_QPSK_OneRB_high_ExtraBands_Range_2570~2575	FDD07_5MHz_2502.5_QPSK_OneRB_high_ExtraBands_Range_2575~2576
	

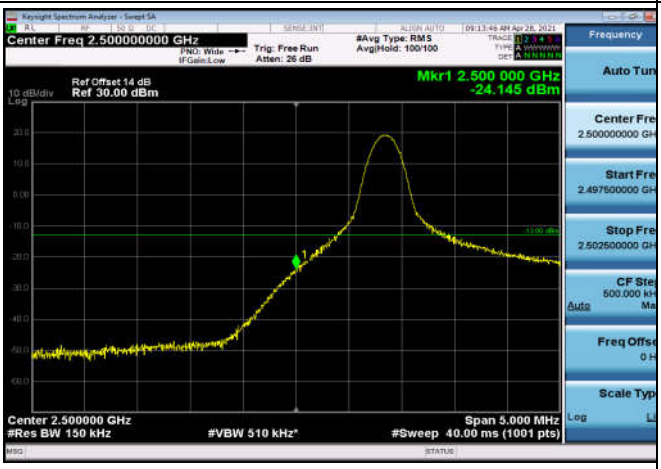
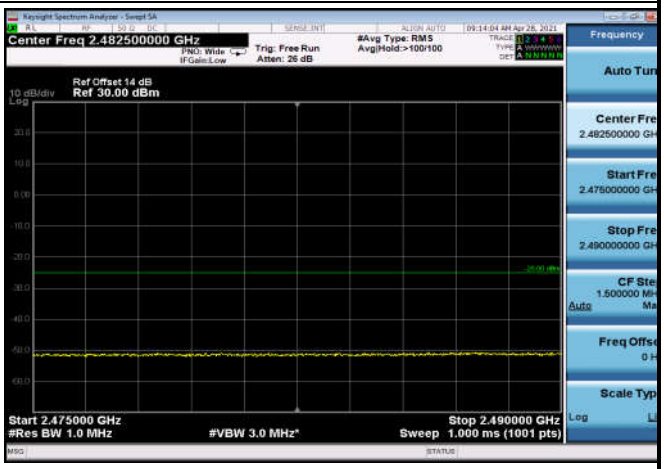
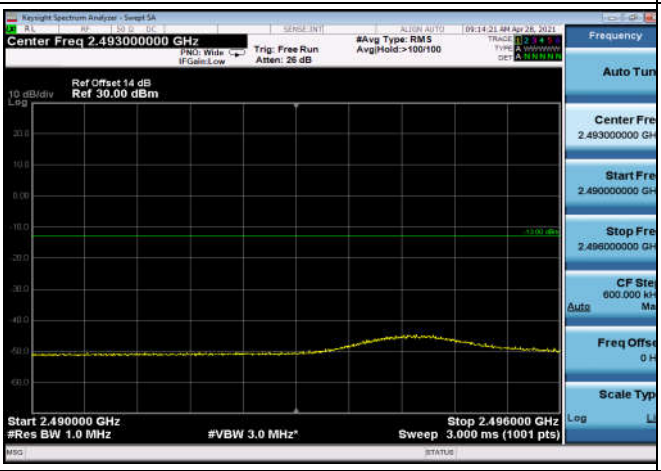
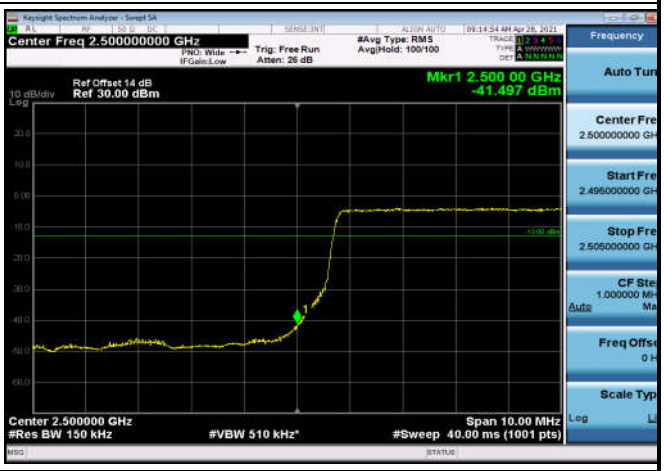
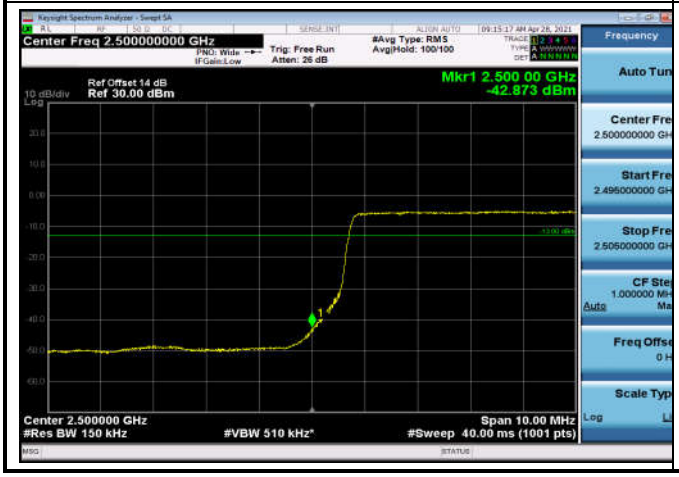
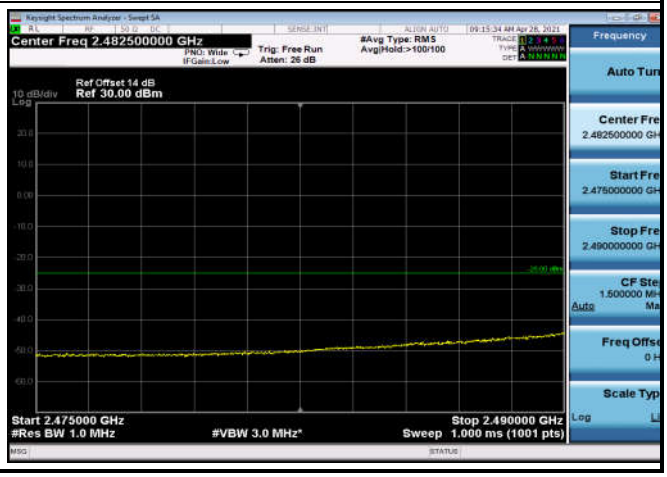
FDD07_5MHz_2502.5_QPSK_OneRB_high _ExtraBands_Range_2576~2595	LowRange_FDD07_5MHz_2502.5_OneRB _low_QPSK
	
LowRange_FDD07_5MHz_2502.5_OneRB _low_Q16	FDD07_5MHz_2502.5_Q16_OneRB_low _ExtraBands_Range_2475~2490
	
FDD07_5MHz_2502.5_Q16_OneRB_low _ExtraBands_Range_2490~2496	LowRange_ FDD07_5MHz_2502.5_fullRB _Low_QPSK
	

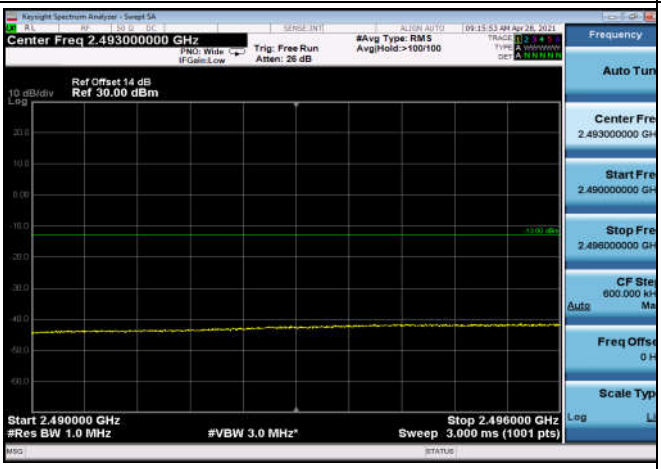
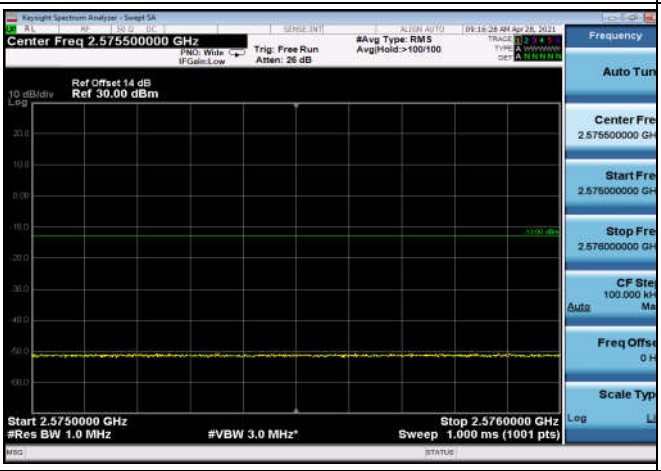
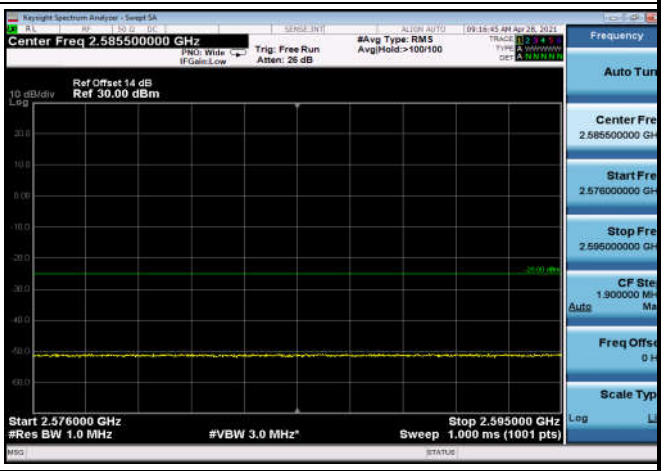
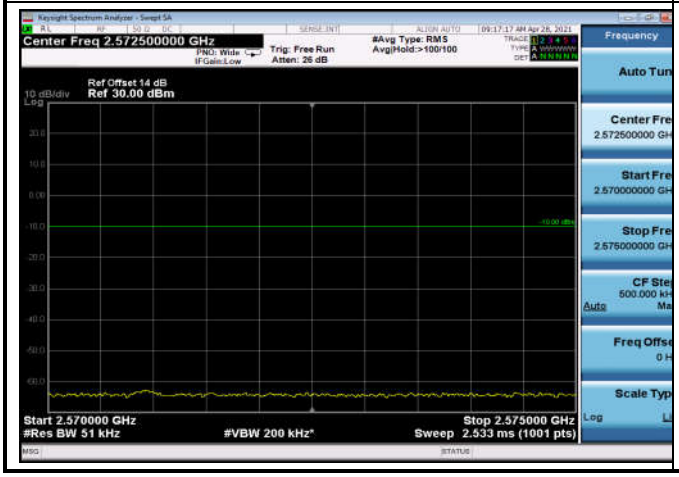
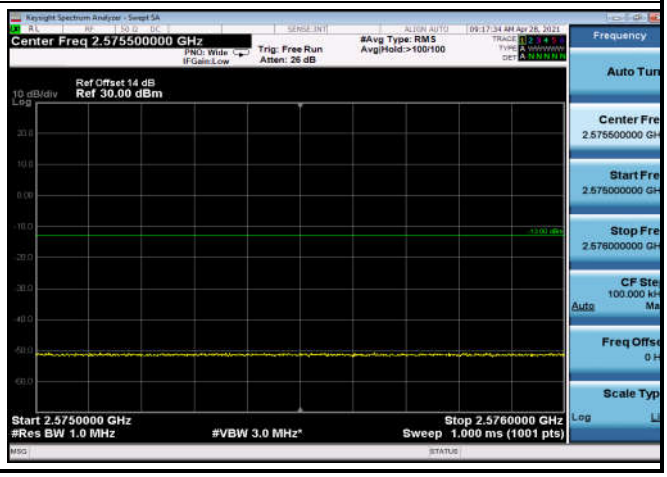
LowRange_ FDD07_5MHz_2502.5_fullRB _Low_Q16	FDD07_5MHz_2502.5_Q16_fullRB_ExtraBands_Range_2475~2490
	
FDD07_5MHz_2502.5_Q16_fullRB_ExtraBands_Range_2490~2496	FDD07_5MHz_2502.5_Q16_fullRB_ExtraBands_Range_2570~2575
	
FDD07_5MHz_2502.5_Q16_fullRB_ExtraBands_Range_2575~2576	FDD07_5MHz_2502.5_Q16_fullRB_ExtraBands_Range_2576~2595
	

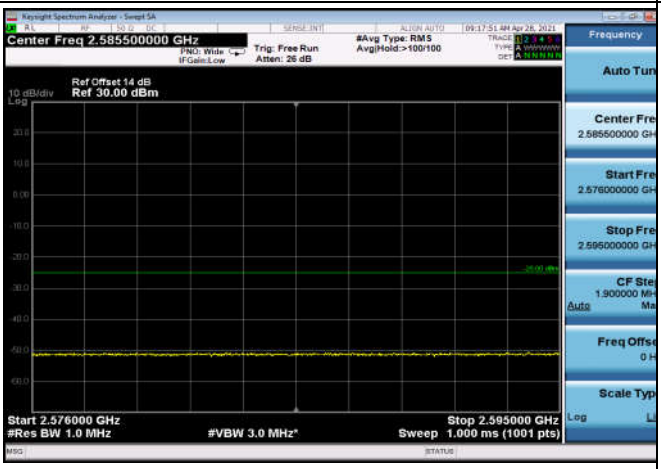
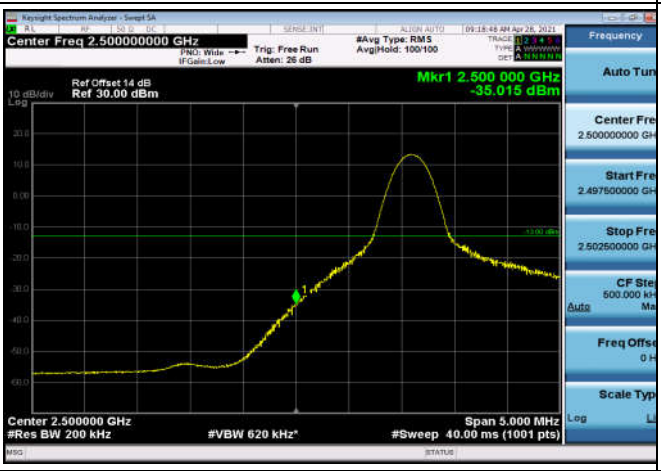
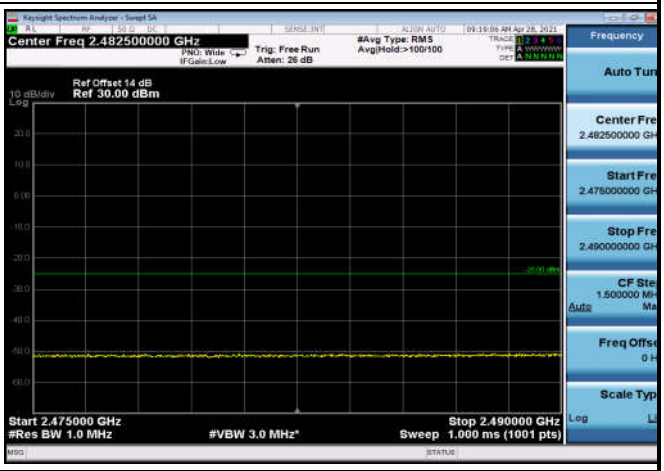
FDD07_10MHz_2505_QPSK_OneRB_high _ExtraBands_Range_2570~2575	FDD07_10MHz_2505_QPSK_OneRB_high _ExtraBands_Range_2575~2576
	
FDD07_10MHz_2505_QPSK_OneRB_high _ExtraBands_Range_2576~2595	LowRange_FDD07_10MHz_2505_OneRB _low_QPSK
	
LowRange_FDD07_10MHz_2505_OneRB _low_Q16	FDD07_10MHz_2505_Q16_OneRB_low _ExtraBands_Range_2475~2490
	

FDD07_10MHz_2505_Q16_OneRB_low _ExtraBands_Range_2490~2496	LowRange_ FDD07_10MHz_2505_fullRB _Low_QPSK
	
LowRange_ FDD07_10MHz_2505_fullRB _Low_Q16	FDD07_10MHz_2505_Q16_fullRB_ExtraBand s_Range_2475~2490
	
FDD07_10MHz_2505_Q16_fullRB_ExtraBand s_Range_2490~2496	FDD07_10MHz_2505_Q16_fullRB_ExtraBand s_Range_2570~2575
	

FDD07_10MHz_2505_Q16_fullRB_ExtraBands_Range_2575~2576	FDD07_10MHz_2505_Q16_fullRB_ExtraBands_Range_2576~2595
	
FDD07_15MHz_2507.5_QPSK_OneRB_high_ExtraBands_Range_2570~2575	FDD07_15MHz_2507.5_QPSK_OneRB_high_ExtraBands_Range_2575~2576
	
FDD07_15MHz_2507.5_QPSK_OneRB_high_ExtraBands_Range_2576~2595	LowRange_FDD07_15MHz_2507.5_OneRB_low_QPSK
	

LowRange_FDD07_15MHz_2507.5_OneRB_low_Q16	FDD07_15MHz_2507.5_Q16_OneRB_low_ExtraBands_Range_2475~2490
	
FDD07_15MHz_2507.5_Q16_OneRB_low_ExtraBands_Range_2490~2496	LowRange_ FDD07_15MHz_2507.5_fullRB_Low_QPSK
	
LowRange_ FDD07_15MHz_2507.5_fullRB_Low_Q16	FDD07_15MHz_2507.5_Q16_fullRB_ExtraBands_Range_2475~2490
	

FDD07_15MHz_2507.5_Q16_fullRB_ExtraBands_Range_2490~2496	FDD07_15MHz_2507.5_Q16_fullRB_ExtraBands_Range_2570~2575
	
FDD07_15MHz_2507.5_Q16_fullRB_ExtraBands_Range_2575~2576	FDD07_15MHz_2507.5_Q16_fullRB_ExtraBands_Range_2576~2595
	
FDD07_20MHz_2510_QPSK_OneRB_high_ExtraBands_Range_2570~2575	FDD07_20MHz_2510_QPSK_OneRB_high_ExtraBands_Range_2575~2576
	

FDD07_20MHz_2510_QPSK_OneRB_high _ExtraBands_Range_2576~2595	LowRange_FDD07_20MHz_2510_OneRB _low_QPSK
	
LowRange_FDD07_20MHz_2510_OneRB _low_Q16	FDD07_20MHz_2510_Q16_OneRB_low _ExtraBands_Range_2475~2490
	
FDD07_20MHz_2510_Q16_OneRB_low _ExtraBands_Range_2490~2496	LowRange_ FDD07_20MHz_2510_fullRB _Low_QPSK