



RF TEST REPORT

Report No.: 20230517G05470X-W5

Product Name: Mobile Data terminal

Main Model No.: DT50P

Serial Model No.: DT50U, DT50E, DT50D, DT51P, DT51U, DT51E, DT51D

FCC ID: SWSDT50P

Applicant: UROVO TECHNOLOGY CO., LTD.

Address: 36F,High-Tech Zone Union Tower,No.63,Xuefu Road, Nanshan District, Shenzhen, Guangdong, China

Dates of Testing: 06/02/2023 - 07/03/2023

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: Mobile Data terminal
Brand Name: UROVO
Trade Name: UROVO
Applicant.....: UROVO TECHNOLOGY CO., LTD.
Applicant Address.....: 36F,High-Tech Zone Union Tower,No.63,Xuefu Road,
Nanshan District, Shenzhen, Guangdong, China
Manufacturer: UROVO TECHNOLOGY CO., LTD.
Manufacturer Address: 36F,High-Tech Zone Union Tower,No.63,Xuefu Road,
Nanshan District, Shenzhen, Guangdong, China
Test Standards: 47 CFR Part 2/22/24/27
Test Result.....: Pass

Tested by: Kim Li 2023.07.05

Kim Li, Test Engineer

Reviewed by: Chris You 2023.07.05

Chris You, Senior Engineer

Approved by: Yang Fan 2023.07.05

Yang Fan, Manager



Table of Contents

1. GENERAL INFORMATION	5
1.1. EUT Description	5
1.2. Maximum ERP/EIRP, Frequency Tolerance and Emission Designator.....	6
1.3. Test Standards and Results.....	8
1.4. Test Configuration of Equipment Under Test	10
1.5. Measurement Results Explanation Example.....	12
1.6. Laboratory Facilities	12
1.7. Test Environment Conditions.....	12
2. 47 CFR PART 2 REQUIREMENTS.....	13
2.1. Conducted Output Power and ERP/EIRP	13
2.2. Peak-to-average power ratio (PAPR).....	15
2.3. 99% Occupied Bandwidth and 26dB Emission Bandwidth.....	17
2.4. Conducted Band Edge.....	19
2.5. Conducted Spurious Emission	22
2.6. Radiated Spurious Emission	24
2.7. Frequency Stability	30
3. LIST OF MEASURING EQUIPMENT	32
4. UNCERTAINTY OF EVALUATION	33
APPENDIX A	34
Conducted Output Power and ERP/EIRP	34
99% Occupied Bandwidth and 26dB Emission Bandwidth.....	56
Frequency Stability	68
Conducted Band Edge.....	71



Change History		
Issue	Date	Reason for change
1.0	2023.07.05	First edition



1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Mobile Data terminal	
Main Model No.	DT50P	
Serial Model No.	DT50U, DT50E, DT50D, DT51P, DT51U, DT51E, DT51D	
Hardware Version	SQ53S_SUB_V03	
Software Version	SQ53S_WE_DS_D_230327_02	
EUT supports Radios application	LTE Band 2/4/5/7/38/41	
Frequency Range(Tx)	LTE Band 2: 1850MHz~1910MHz LTE Band 4: 1710MHz~1755MHz LTE Band 5: 824MHz~849MHz LTE Band 7: 2500MHz~2570MHz LTE Band 38: 2570MHz~2620MHz LTE Band 41: 2496MHz~2690MHz	
Channel Bandwidth	LTE Band 2/4: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz LTE Band 5: 1.4MHz/3MHz/5MHz/10MHz LTE Band 7/38/41: 5MHz/10MHz/15MHz/20MHz	
Modulation Type	QPSK/16QAM/64QAM(downlink only)	
Maximum ERP/EIRP	LTE Band 2: 24.45dBm	LTE Band 4: 21.15dBm
	LTE Band 5: 18.16dBm	LTE Band 7: 25.98dBm
	LTE Band 38: 25.99dBm	LTE Band 41: 26.13dBm
Antenna Type	Internal Antenna	
Antenna gain	LTE Band 2: 1.28dBi	LTE Band 4: -1.90dBi
	LTE Band 5: -3.37dBi	LTE Band 7: 2.94dBi
	LTE Band 38: 2.83dBi	LTE Band 41: 2.94dBi
Power supply	Rechargeable Li-ion Battery DC3.85V/9000mAh	

Note: DT50U, DT50E, DT50D, DT51P, DT51U, DT51E, DT51D compared with DT50P, only have different model name. All of the model's circuit theory, electrical design and Critical Components are the same.

**1.2. Maximum ERP/EIRP, Frequency Tolerance and Emission Designator**

Band	Type of Modulation	BW (MHz)	Emission Designator	Frequency Tolerance (ppm)	Maximum EIRP(W)
LTE Band 2	QPSK	1.4	1M09G7D	—	0.270
LTE Band 2	16QAM	1.4	1M09W7D	—	0.214
LTE Band 2	QPSK	3	2M68G7D	—	0.265
LTE Band 2	16QAM	3	2M68W7D	—	0.217
LTE Band 2	QPSK	5	4M49G7D	—	0.279
LTE Band 2	16QAM	5	4M49W7D	—	0.215
LTE Band 2	QPSK	10	8M93G7D	0.004	0.271
LTE Band 2	16QAM	10	8M92W7D	—	0.216
LTE Band 2	QPSK	15	13M5G7D	—	0.270
LTE Band 2	16QAM	15	13M5W7D	—	0.209
LTE Band 2	QPSK	20	17M9G7D	—	0.270
LTE Band 2	16QAM	20	17M9W7D	—	0.210
LTE Band 4	QPSK	1.4	1M09G7D	—	0.127
LTE Band 4	16QAM	1.4	1M09W7D	—	0.098
LTE Band 4	QPSK	3	2M68G7D	—	0.124
LTE Band 4	16QAM	3	2M68W7D	—	0.098
LTE Band 4	QPSK	5	4M49G7D	—	0.128
LTE Band 4	16QAM	5	4M50W7D	—	0.099
LTE Band 4	QPSK	10	8M93G7D	0.004	0.127
LTE Band 4	16QAM	10	8M92W7D	—	0.099
LTE Band 4	QPSK	15	13M5G7D	—	0.130
LTE Band 4	16QAM	15	13M5W7D	—	0.097
LTE Band 4	QPSK	20	17M9G7D	—	0.127
LTE Band 4	16QAM	20	17M9W7D	—	0.098
LTE Band 7	QPSK	5	4M50G7D	—	0.385
LTE Band 7	16QAM	5	4M50W7D	—	0.332
LTE Band 7	QPSK	10	8M93G7D	0.003	0.396
LTE Band 7	16QAM	10	8M91W7D	—	0.304
LTE Band 7	QPSK	15	13M5G7D	—	0.379



LTE Band 7	16QAM	15	13M5W7D	—	0.301
LTE Band 7	QPSK	20	17M9G7D	—	0.381
LTE Band 7	16QAM	20	17M9W7D	—	0.307
LTE Band 38	QPSK	5	4M50G7D	—	0.373
LTE Band 38	16QAM	5	4M49W7D	—	0.293
LTE Band 38	QPSK	10	8M92G7D	0.007	0.375
LTE Band 38	16QAM	10	8M92W7D	—	0.299
LTE Band 38	QPSK	15	13M5G7D	—	0.395
LTE Band 38	16QAM	15	13M5W7D	—	0.366
LTE Band 38	QPSK	20	17M9G7D	—	0.397
LTE Band 38	16QAM	20	17M9W7D	—	0.299
LTE Band 41	QPSK	5	4M50G7D	—	0.402
LTE Band 41	16QAM	5	4M50W7D	—	0.303
LTE Band 41	QPSK	10	8M92G7D	0.011	0.406
LTE Band 41	16QAM	10	8M93W7D	—	0.313
LTE Band 41	QPSK	15	13M5G7D	—	0.404
LTE Band 41	16QAM	15	13M5W7D	—	0.314
LTE Band 41	QPSK	20	17M9G7D	—	0.410
LTE Band 41	16QAM	20	17M9W7D	—	0.313

Band	Type of Modulation	BW (MHz)	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP(W)
LTE Band 5	QPSK	1.4	1M10G7D	—	0.065
LTE Band 5	16QAM	1.4	1M09W7D	—	0.051
LTE Band 5	QPSK	3	2M69G7D	—	0.065
LTE Band 5	16QAM	3	2M68W7D	—	0.052
LTE Band 5	QPSK	5	4M50G7D	—	0.065
LTE Band 5	16QAM	5	4M51W7D	—	0.051
LTE Band 5	QPSK	10	8M94G7D	0.005	0.065
LTE Band 5	16QAM	10	8M93W7D	—	0.051



1.3. Test Standards and Results

The purpose of the report is to conduct testing according to the following FCC certification standards:

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22	Public Mobile Services
3	47 CFR Part 24	Personal Communications Services
4	47 CFR Part 27	Miscellaneous Wireless Communications Services
6	KDB 971168 D01 Power Meas License Digital Systems v03r01	Measurement Guidance For Certification of Licensed Digital Transmitters
7	KDB 412172 D01 Determining ERP and EIRP v01r01	Guidelines for Determining the Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) of an RF Transmitting Systems
8	ANSI/TIA-603-E-2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
9	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services



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

No.	FCC Rule	Description	Limit	Result
1	2.1046	Conducted Output Power	Reporting Only	PASS
2	22.913 (d) 24.232 (d) 27.50 (d)(5)	Peak to Average Ratio	< 13dB	PASS
3	24.232 (c) 27.50 (h)(2)	Equivalent Isotropic Radiated Power (Band 2/7/38/41)	EIRP < 2W	PASS
	27.50 (d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1W	PASS
	22.913 (a)(5)	Effective Radiated Power (Band 5)	ERP < 7W	PASS
4	2.1049	Occupied Bandwidth	Reporting Only	PASS
5	2.1051 22.917 (a) 24.238 (a) 27.53 (h)	Conducted Spurious Emission and Conducted Band Edge (Band 2/4/5)	< 43+10log ₁₀ (P[watt])	PASS
	27.53 (m)(2)	Conducted Spurious Emission and Conducted Band Edge (Band 7/38/41)	Refer to 27.53(m)(4)	PASS
6	2.1053 22.917 (a) 24.238 (a) 27.53 (h)	Radiated Spurious Emission (Band 2/4/5)	< 43+10log ₁₀ (P[Watts])	PASS
	27.53 (m)(2)	Radiated Spurious Emission (Band 7/38/41)	< 55+10log ₁₀ (P[watt])	PASS
7	2.1055 22.355	Frequency Stability (Band 5)	< ±2.5ppm	PASS
	24.235 27.54	Frequency Stability (Band 2/4/7/38/41)	Within the Authorized Band	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 Configuration			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Conducted Output Power and ERP/EIRP	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	5	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
	7			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	38			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	41			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Peak-to-Average Ratio	2						✓		✓	✓		✓	✓	✓	✓
	4						✓		✓	✓		✓	✓	✓	✓
	5				✓				✓	✓		✓	✓	✓	✓
	7						✓		✓	✓		✓	✓	✓	✓
	38						✓		✓	✓		✓	✓	✓	✓
	41						✓		✓	✓		✓	✓	✓	✓
99% OBW and 26dB EBW	2	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	
	4	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	
	5	✓	✓	✓	✓			✓	✓			✓		✓	
	7			✓	✓	✓	✓	✓	✓			✓		✓	
	38			✓	✓	✓	✓	✓	✓			✓		✓	
	41			✓	✓	✓	✓	✓	✓			✓		✓	
Conducted Band Edge	2	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	5	✓	✓	✓	✓			✓	✓	✓		✓	✓		✓
	7			✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	38			✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	41			✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
Conducted Spurious Emission	2						✓	✓		✓			✓	✓	✓
	4						✓	✓		✓			✓	✓	✓
	5				✓			✓		✓			✓	✓	✓
	7						✓	✓		✓			✓	✓	✓
	38						✓	✓		✓			✓	✓	✓
	41						✓	✓		✓			✓	✓	✓
Frequency Stability	2				✓			✓				✓		✓	
	4				✓			✓				✓		✓	
	5				✓			✓				✓		✓	
	7				✓			✓				✓		✓	



	38				√			√				√		√	
	41				√			√				√		√	
Radiated Spurious Emission	2	Worst case												√	
	4	Worst case												√	
	5	Worst case												√	
	7	Worst case												√	
	38	Worst case												√	
	41	Worst case												√	
Note 1: The mark “√” means that this configuration is chosen for testing.															



1.5. Measurement Results Explanation Example

For all conduction 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 + Power Splitter + attenuator factor..

Following shows an offset computation example with cable loss 1dB, 3dB Power Splitter, 10dB attenuator.

Example: Offset (dB) = RF cable loss(dB) + Power Splitter(dB) + attenuator factor(dB).
= 1 + 3 + 10 = 14 (dB)

1.6. Laboratory Facilities

FCC-Registration No.: 406086

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 Sep. 30, 2023.

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 Sep. 30, 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.

1.7. Test Environment Conditions

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

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

2. 47 CFR Part 2 Requirements

2.1. Conducted Output Power and ERP/EIRP

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).

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 2/7/38/41.

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5.

According to KDB 412172 D01 Determining ERP and EIRP v01r01.

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm;

G_T = gain of the transmitting antenna in dBi;

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB.

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 of Conducted Output Power and ERP/EIRP

Please refer to Appendix A for detail

2.2. Peak-to-average power ratio (PAPR)

2.2.1. Requirement

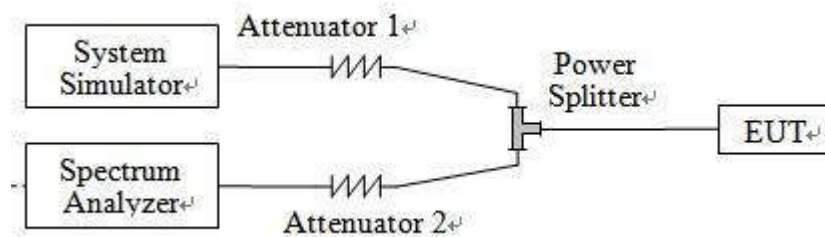
Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement 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 power ratio (PAPR) of the transmission may not exceed 13 dB.

2.2.2. Measuring Instruments

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

2.2.3. Test Description



2.2.4. Test Procedures

1. The testing follows the of KDB 971168 D01 v03r01 Section 5.7.2 and ANSI C63.26-2015 Section 5.2.3.4.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. Set resolution/measurement bandwidth \geq OBW or specified reference bandwidth.
5. Set the number of counts to a value that stabilizes the measured CCDF curve.
6. Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.
7. Repeat step 3~6 at other frequency and modulations.



2.2.5. Test Results of Peak-to-average power ratio (PAPR)

Please refer to Appendix A for detail

2.3. 99% Occupied Bandwidth and 26dB Emission Bandwidth

2.3.1. Requirement

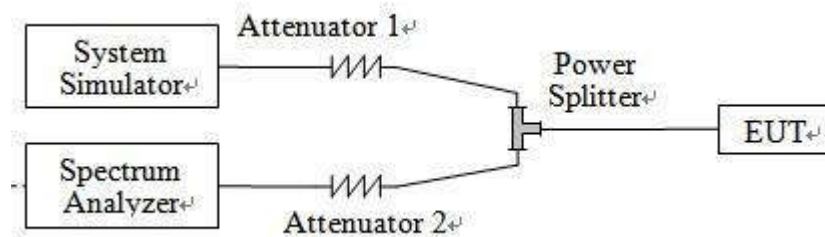
The Occupied Bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

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 3 of this test report.

2.3.3. Test Setup



2.3.4. Test Procedures

1. The testing follows the of KDB 971168 D01 v03r01 Section 4 and ANSI C63.26-2015 Section 5.4.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency.
4. Set span to be approximately 1.5 to 5 times the OBW.
5. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW.
6. Set VBW $\geq 3 \times$ RBW.
7. Set Detection mode = peak.
8. Set Trace mode = max hold.
9. Allow trace to stabilize.
10. Repeat step 3~9 at other frequency and modulations.



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

Please refer to Appendix A for detail

2.4. Conducted Band Edge

2.4.1. Requirement

For Band 2 [Part 24.238 (a)]:

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. 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 4 [Part 27.53 (h)]:

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 5 [Part 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. In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified).

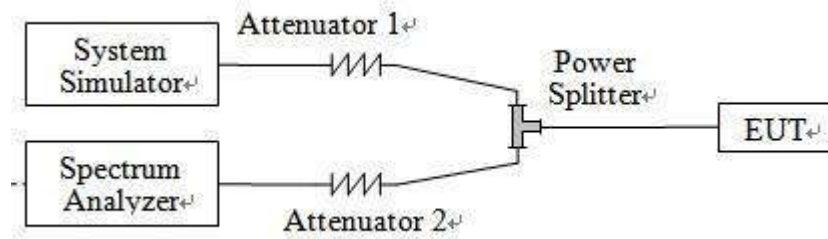
For Band 7 & 38 & 41:

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 than $43 + 10 \log(P)$ 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.

2.4.2. 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 testing follows the of KDB 971168 D01 v03r01 Section 6 and ANSI C63.26-2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. Span was set large enough so as to capture all out of band emissions near the Channel Edge.
4. Use $RBW \geq 1\%$ EBW in the 1 megahertz bands immediately outside and adjacent to the licensee's authorized frequency channel, and use $RBW = 1$ MHz outside 1 MHz of the authorized frequency channel.
5. Set $VBW \geq 3 \times RBW$
6. Set Detector = power averaging (rms).
7. Set the number of points in sweep $\geq 2 \times \text{span} / RBW$.
8. Set sweep trigger to "free run."
9. Set the Sweep time $> (\text{number of points in sweep}) \times (\text{transmitter period})$ (i.e., the transmit on-time + the off-time).
10. Perform a trace average of at least 100 traces.
11. Repeat step 3~10 at other frequency and modulations.



2.4.5. Test Result of Conducted Band Edge

Please refer to Appendix A for detail

2.5. Conducted Spurious Emission

2.5.1. Requirement

For Band 2 & 4 & 5:

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.

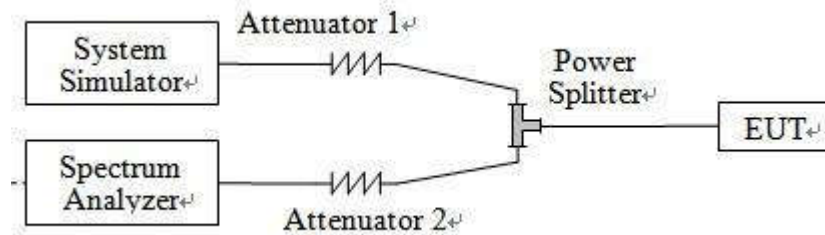
For Band 7 & 38 & 41:

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.

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 the of KDB 971168 D01 v03r01 Section 6 and ANSI C63.26-2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. Set the spectrum analyzer start frequency to 9kHz and stop frequency to the tenth harmonic of the highest fundamental frequency.
4. Set $RBW = 1\text{MHz}$, $VBW \geq 3 \times RBW$
5. Set Detector = peak.
6. Set Trace mode = max hold.
7. Set Sweep time = auto-couple.
8. Identify and measure the highest spurious emission levels in each frequency range.
9. Compare the results with the corresponding limit in the applicable regulation.
10. Repeat step 3~9 at other frequency and modulations.



2.5.5. Test Result of Conducted Spurious Emission

Please refer to Appendix A for detail

2.6. Radiated Spurious Emission

2.6.1. Requirement

The radiated spurious emission was measured by substitution method according to ANSI/TIA-603-E-2016.

For Band 2 & 4 & 5:

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 & 38 & 41:

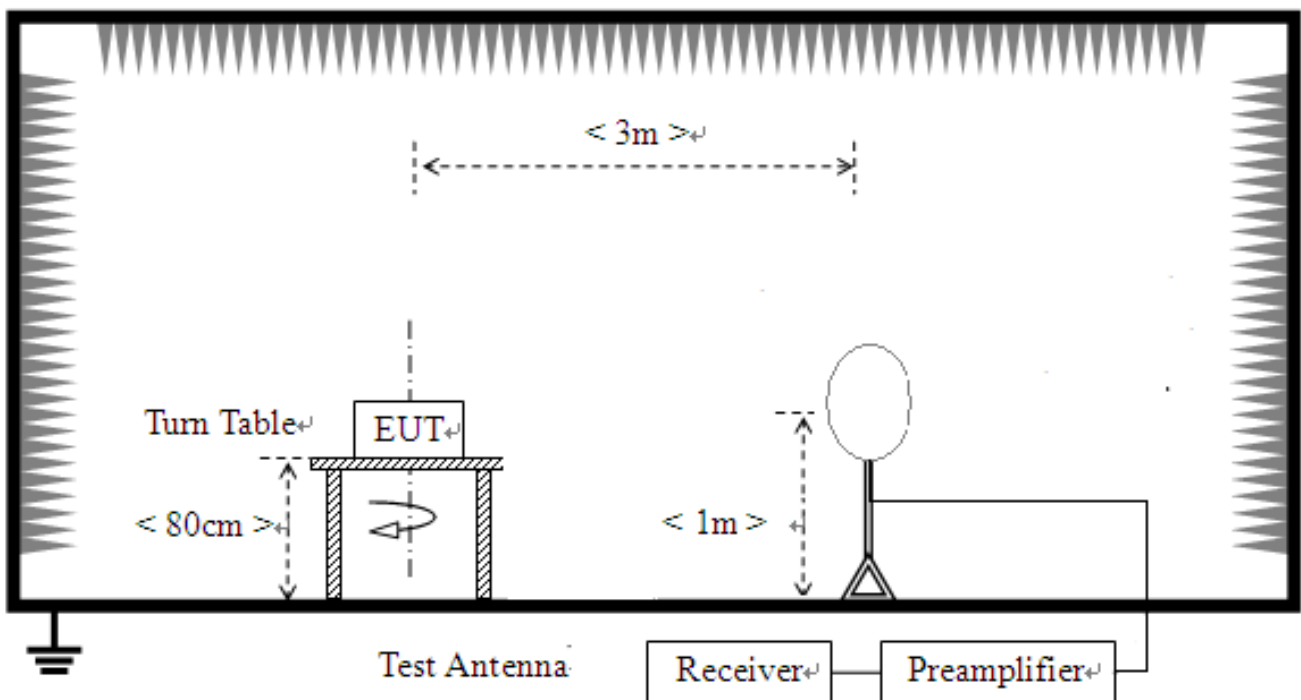
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB.

2.6.2. Measuring Instruments

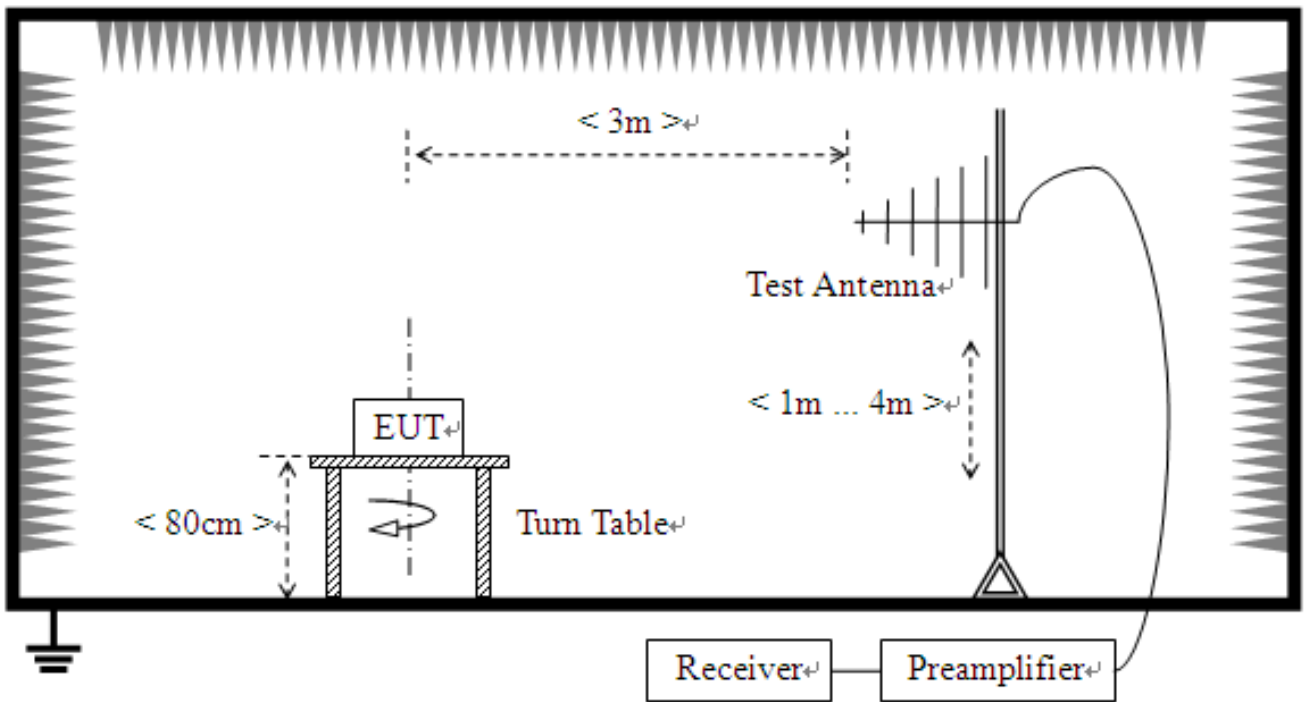
The measuring equipment is listed in the section 3 of this test report.

2.6.3. Test Setup

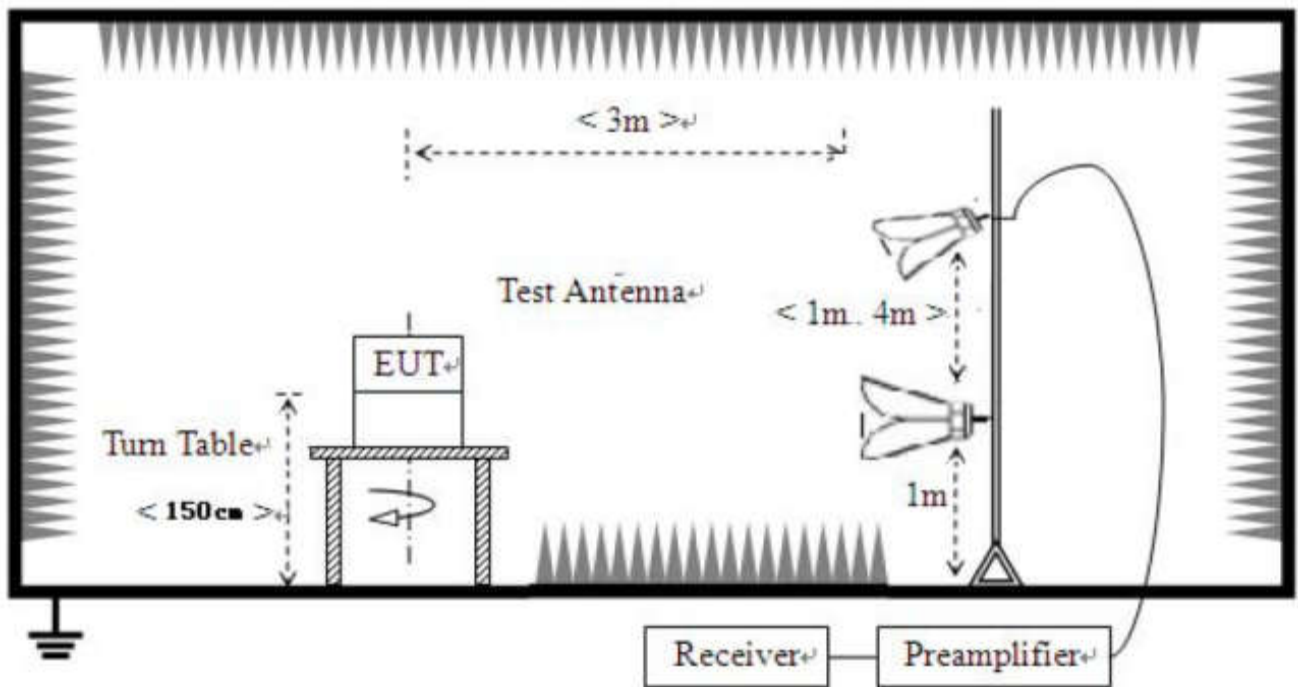
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.6.4. Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter (for below 1GHz) / 1.5 meters (for above 1GHz) 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.
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 full, RB Offset 0.

2.6.5. Test Result of Radiated Spurious Emission

Note: 1. The emission levels of above 18GHz are lower than the limit 20dB and not show in test report.

2. Absolute Level = Reading Level + Factor



LTE Band 2 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	507.964	-105.12	-72.52	-13.00	59.52	32.60	Horizontal
2	652.081	-104.26	-69.44	-13.00	56.44	34.82	Horizontal
3	804.932	-105.00	-67.88	-13.00	54.88	37.12	Horizontal
4	1495.72	-56.96	-58.95	-13.00	45.95	-1.99	Horizontal
5	5158.20	-58.33	-43.88	-13.00	30.88	14.45	Horizontal
6	17200.7	-63.89	-35.64	-13.00	22.64	28.25	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	30.4852	-91.96	-70.49	-13.00	57.49	21.47	Vertical
2	556.488	-105.42	-73.78	-13.00	60.78	31.64	Vertical
3	909.259	-105.28	-67.90	-13.00	54.90	37.38	Vertical
4	1321.01	-57.17	-59.50	-13.00	46.50	-2.33	Vertical
5	5025.20	-57.71	-43.42	-13.00	30.42	14.29	Vertical
6	17328.3	-63.44	-34.49	-13.00	21.49	28.95	Vertical

LTE Band 4 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	662.756	-104.04	-69.25	-13.00	56.25	34.79	Horizontal
2	818.519	-104.48	-67.42	-13.00	54.42	37.06	Horizontal
3	1356.91	-56.68	-59.00	-13.00	46.00	-2.32	Horizontal
4	4994.57	-58.55	-44.34	-13.00	31.34	14.21	Horizontal
5	7468.34	-59.79	-40.11	-13.00	27.11	19.68	Horizontal
6	17334.6	-64.66	-35.67	-13.00	22.67	28.99	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	30.4852	-93.85	-72.38	-13.00	59.38	21.47	Vertical
2	478.364	-103.87	-73.88	-13.00	60.88	29.99	Vertical
3	734.572	-105.25	-70.11	-13.00	57.11	35.14	Vertical
4	1316.11	-57.55	-59.89	-13.00	46.89	-2.34	Vertical
5	4804.16	-59.06	-44.33	-13.00	31.33	14.73	Vertical
6	17071.9	-63.38	-35.73	-13.00	22.73	27.65	Vertical



LTE Band 5 QPSK 10MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	30.4852	-93.74	-69.86	-13.00	56.86	23.88	Horizontal
2	507.964	-104.55	-71.95	-13.00	58.95	32.60	Horizontal
3	663.726	-104.52	-69.74	-13.00	56.74	34.78	Horizontal
4	1654.43	-57.27	-58.18	-13.00	45.18	-0.91	Horizontal
5	4789.28	-58.43	-43.85	-13.00	30.85	14.58	Horizontal
6	17293.8	-64.02	-35.27	-13.00	22.27	28.75	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	41.6458	-93.48	-73.55	-13.00	60.55	19.93	Vertical
2	69.3047	-96.77	-75.64	-13.00	62.64	21.13	Vertical
3	593.851	-104.52	-71.70	-13.00	58.70	32.82	Vertical
4	1535.02	-55.28	-56.99	-13.00	43.99	-1.71	Vertical
5	4790.86	-59.11	-44.51	-13.00	31.51	14.60	Vertical
6	17313.4	-63.82	-34.95	-13.00	21.95	28.87	Vertical

LTE Band 7 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	500.920	-104.53	-71.88	-25.00	46.88	32.65	Horizontal
2	860.180	-104.54	-67.48	-25.00	42.48	37.06	Horizontal
3	1814.40	-69.78	-67.15	-25.00	42.15	2.63	Horizontal
4	4960.73	-60.52	-46.12	-25.00	21.12	14.40	Horizontal
5	7409.20	-60.45	-41.07	-25.00	16.07	19.38	Horizontal
6	12696.3	-62.23	-35.96	-25.00	10.96	26.27	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	604.814	-104.63	-71.72	-25.00	46.72	32.91	Vertical
2	959.219	-104.85	-66.81	-25.00	41.81	38.04	Vertical
3	1663.33	-70.22	-68.82	-25.00	43.82	1.40	Vertical
4	4989.99	-60.79	-46.55	-25.00	21.55	14.24	Vertical
5	7418.95	-59.97	-40.50	-25.00	15.50	19.47	Vertical
6	12515.8	-61.93	-35.47	-25.00	10.47	26.46	Vertical



LTE Band 38 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	641.890	-106.29	-72.02	-13.00	59.02	34.27	Horizontal
2	813.666	-105.76	-68.61	-13.00	55.61	37.15	Horizontal
3	1361.21	-58.02	-60.34	-13.00	47.34	-2.32	Horizontal
4	4892.36	-59.01	-44.27	-13.00	31.27	14.74	Horizontal
5	7757.58	-60.35	-41.08	-13.00	28.08	19.27	Horizontal
6	17266.2	-64.68	-36.08	-13.00	23.08	28.60	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	69.7899	-95.48	-74.29	-13.00	61.29	21.19	Vertical
2	422.076	-106.40	-77.77	-13.00	64.77	28.63	Vertical
3	766.113	-102.77	-66.86	-13.00	53.86	35.91	Vertical
4	1279.91	-57.20	-59.53	-13.00	46.53	-2.33	Vertical
5	4912.67	-59.52	-44.85	-13.00	31.85	14.67	Vertical
6	17344.4	-64.38	-35.33	-13.00	22.33	29.05	Vertical

LTE Band 41 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	501.891	-104.84	-72.20	-25.00	47.20	32.64	Horizontal
2	665.015	-105.43	-70.67	-25.00	45.67	34.76	Horizontal
3	930.090	-103.45	-66.14	-25.00	41.14	37.31	Horizontal
4	1573.28	-67.80	-67.30	-25.00	42.30	0.50	Horizontal
5	4868.05	-59.20	-44.46	-25.00	19.46	14.74	Horizontal
6	12301.2	-60.98	-35.71	-25.00	10.71	25.27	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	68.8388	-93.86	-72.78	-25.00	47.78	21.08	Vertical
2	896.106	-104.82	-67.72	-25.00	42.72	37.10	Vertical
3	1986.49	-69.04	-64.76	-25.00	39.76	4.28	Vertical
4	5029.01	-59.73	-45.43	-25.00	20.43	14.30	Vertical
5	7477.48	-60.81	-40.86	-25.00	15.86	19.95	Vertical
6	12496.3	-61.91	-35.38	-25.00	10.38	26.53	Vertical

2.7. Frequency Stability

2.7.1. Requirement

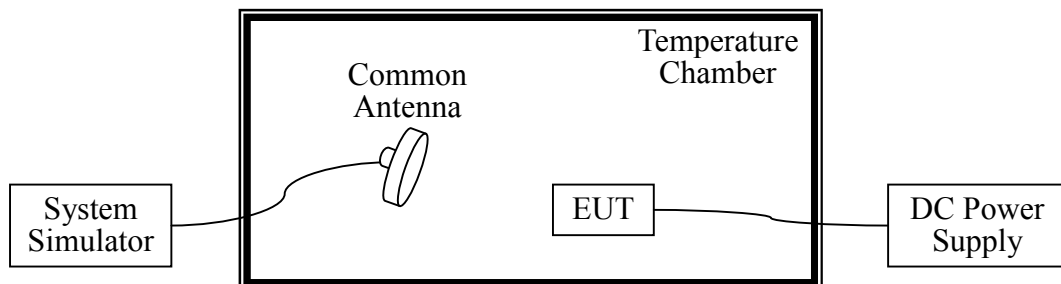
According to FCC requirement, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental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

- (1) The temperature is varied from -30°C to $+50^{\circ}\text{C}$ at intervals of not more than 10°C .
- (2) 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.

2.7.2. 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 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 20°C .
5. The variation in frequency was measured for the worst case.



2.7.5. Test Result of Frequency Stability

Please refer to Appendix A for detail

3. List of measuring equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Receiver	ROHDE&SCHWARZ	ESW26	A180502935	2022.07.21	2023.07.20
2	5M Anechoic Chamber	Albatross	SAC-5MAC 12.8x6.8x6.4m	A0304210	2022.06.09	2025.06.08
3	Loop Antenna	Schwarz beck	HFH2-Z2	A0304220	2022.05.02	2025.05.01
4	Broadband antenna (30MHz~1GHz)	R&S	HL562	A0304224	2020.06.19	2023.06.18
5	Broadband antenna (30MHz~1GHz)	R&S	HL562	A0304224	2023.06.08	2026.06.07
6	EMI Horn Ant. (1-18G)	ETC	1209	A150402241	2021.01.02	2024.01.01
7	Horn antenna (18GHz~26.5GHz)	AR	AT4510	A0804450	2023.06.01	2026.05.31
8	Amplifier 30M~1GHz	MILMEGA	80RF1000-10004	A140101634	2022.12.13	2023.12.12
9	Amplifier 1G~18GHz	MILMEGA	AS0104R-800/400	A160302517	2022.12.13	2023.12.12
10	Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2023.02.20	2024.02.19
11	Test Receiver	R&S	ESIB7	A0501375	2023.03.16	2024.03.15
12	Broadband Ant.	2786	ETC	A150402240	2021.09.16	2024.03.03
13	3M Anechoic Chamber	Albatross	SAC-3MAC 9*6*6m	A0412375	2019.03.26	2024.03.25
14	Temperature chamber	TABAI	PS-232	A8708054	2022.08.18	2023.08.17
15	Wideband Radio Communication tester	R&S	CMW500	A141001984	2022.09.26	2023.09.25
16	Test Receiver	KEYSIGHT	N9038A	A141202036	2022.07.21	2023.07.20
17	LISN	ROHDE&SCHWARZ	ENV216	A140701847	2022.07.21	2023.07.20
18	Cable	MATCHING PAD	W7	/	2022.07.21	2023.07.20



4. Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence . The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	2.8dB
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Uncertainty of Radiated Emission Measurement (9kHz~30MHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	3.5dB
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Uncertainty of Radiated Emission Measurement (30MHz~1GHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	3.91dB
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Uncertainty of Radiated Emission Measurement (1GHz~18GHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	4.5dB
---	-------

Uncertainty of Radiated Emission Measurement (18GHz~40GHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	4.9dB
---	-------

Uncertainty of RF Conducted Measurement (9kHz~40GHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	1.2dB
---	-------



APPENDIX A

Conducted Output Power and ERP/EIRP

LTE Band 2 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18607	18900	19193			
			1850.7MHz	1880.0MHz	1909.3MHz			
QPSK	1	0	23.03	22.85	22.92	1.28	24.31	33.00
	1	2	23.02	22.78	22.76			
	1	5	23.00	22.74	22.83			
	3	0	21.97	21.79	21.83			
	3	1	21.94	21.88	21.75			
	3	2	21.91	21.78	21.73			
16QAM	6	0	21.89	21.71	21.78	1.28	23.3	33.00
	1	0	21.86	21.79	21.94			
	1	2	21.95	21.87	21.94			
	1	5	21.99	21.88	22.02			
	3	0	20.98	20.81	20.81			
	3	1	21.02	20.78	20.83			
	3	2	20.96	20.71	20.82			
6	0	20.98	20.62	20.78				
LTE Band 2 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18615	18900	19185			
			1851.5MHz	1880.0MHz	1908.5MHz			
QPSK	1	0	22.84	22.73	22.84	1.28	24.23	33.00
	1	7	22.95	22.84	22.77			
	1	14	22.93	22.79	22.79			
	8	0	21.94	21.83	21.87			
	8	4	21.94	21.72	21.98			
	8	7	21.87	21.79	21.79			
	15	0	21.93	21.78	21.80			
16QAM	1	0	21.94	22.09	21.89	1.28	23.37	33.00
	1	7	21.89	21.91	21.94			
	1	14	22.01	21.87	22.05			
	8	0	21.01	20.82	20.97			
	8	4	21.02	20.81	20.99			
	8	7	20.95	20.83	20.96			
	15	0	20.97	20.72	20.83			



LTE Band 2 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18625	18900	19175			
			1852.5MHz	1880.0MHz	1907.5MHz			
QPSK	1	0	22.95	23.12	22.81	1.28	24.45	33.00
	1	12	23.17	22.97	23.05			
	1	24	23.01	22.86	22.82			
	12	0	21.90	21.97	21.94			
	12	6	21.99	21.99	21.84			
	12	11	21.94	21.83	21.90			
	25	0	21.87	21.87	21.88			
16QAM	1	0	21.80	21.85	21.78	1.28	23.32	33.00
	1	12	22.04	21.97	21.88			
	1	24	21.91	21.80	21.77			
	12	0	21.00	20.96	20.91			
	12	6	20.99	20.97	20.84			
	12	11	20.94	20.82	20.80			
	25	0	20.86	20.85	20.86			
LTE Band 2 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18650	18900	19150			
			1855.0MHz	1880.0MHz	1905.0MHz			
QPSK	1	0	22.94	22.85	22.84	1.28	24.33	33.00
	1	24	23.05	22.94	22.98			
	1	49	22.87	22.75	22.77			
	25	0	21.88	21.78	21.86			
	25	12	21.88	21.86	21.91			
	25	24	21.76	21.74	21.79			
	50	0	21.83	21.80	21.77			
16QAM	1	0	21.95	22.05	22.06	1.28	23.34	33.00
	1	24	22.03	21.94	21.92			
	1	49	21.98	21.92	21.83			
	25	0	20.93	20.87	20.84			
	25	12	20.94	20.75	20.93			
	25	24	20.82	20.86	20.86			
	50	0	20.83	20.74	20.75			



LTE Band 2 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18675	18900	19125			
			1857.5MHz	1880.0MHz	1902.5MHz			
QPSK	1	0	22.94	22.87	23.03	1.28	24.31	33.00
	1	37	23.02	22.97	22.84			
	1	74	22.85	22.84	22.91			
	36	0	21.87	21.78	21.84			
	36	16	21.83	21.80	21.81			
	36	35	21.92	21.62	21.70			
	75	0	21.78	21.68	21.76			
16QAM	1	0	21.81	21.74	21.87	1.28	23.21	33.00
	1	37	21.76	21.93	21.92			
	1	74	21.72	21.83	21.84			
	36	0	20.68	20.75	20.84			
	36	16	20.76	20.47	20.89			
	36	35	20.64	20.69	20.75			
	75	0	20.63	20.50	20.81			
LTE Band 2 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18700	18900	19100			
			1860.0MHz	1880.0MHz	1900.0MHz			
QPSK	1	0	23.04	22.92	22.88	1.28	24.32	33.00
	1	49	22.90	22.73	22.76			
	1	99	22.86	22.89	22.80			
	50	0	21.89	21.89	21.65			
	50	24	21.79	21.78	21.65			
	50	49	21.85	21.81	21.77			
	100	0	21.76	21.80	21.62			
16QAM	1	0	21.86	21.68	21.95	1.28	23.23	33.00
	1	49	21.84	21.92	21.92			
	1	99	21.71	21.89	21.89			
	50	0	20.73	20.71	20.89			
	50	24	20.75	20.85	20.86			
	50	49	20.84	20.74	20.79			
	100	0	20.61	20.73	20.64			



LTE Band 4 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19957	20175	20393			
			1710.7MHz	1732.5MHz	1754.3MHz			
QPSK	1	0	22.89	22.89	22.86	-1.90	21.03	30.00
	1	2	22.76	22.86	22.69			
	1	5	22.85	22.93	22.71			
	3	0	21.73	21.86	21.72			
	3	1	21.80	21.61	21.75			
	3	2	21.71	21.71	21.64			
	6	0	21.65	21.76	21.68			
16QAM	1	0	21.65	21.66	21.77	-1.90	19.91	30.00
	1	2	21.76	21.81	21.65			
	1	5	21.74	21.71	21.62			
	3	0	20.69	20.61	20.69			
	3	1	20.68	20.73	20.73			
	3	2	20.72	20.68	20.61			
	6	0	20.64	20.51	20.58			
LTE Band 4 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19965	20175	20385			
			1711.5MHz	1732.5MHz	1753.5MHz			
QPSK	1	0	22.72	22.82	22.71	-1.90	20.92	30.00
	1	7	22.74	22.64	22.55			
	1	14	22.68	22.77	22.67			
	8	0	21.71	21.65	21.68			
	8	4	21.75	21.73	21.65			
	8	7	21.69	21.61	21.71			
	15	0	21.67	21.59	21.60			
16QAM	1	0	21.68	21.70	21.75	-1.90	19.92	30.00
	1	7	21.79	21.82	21.66			
	1	14	21.76	21.75	21.72			
	8	0	20.69	20.69	20.68			
	8	4	20.73	20.70	20.62			
	8	7	20.66	20.68	20.75			
	15	0	20.61	20.56	20.69			



LTE Band 4 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19975	20175	20375			
			1712.5MHz	1732.5MHz	1752.5MHz			
QPSK	1	0	22.81	22.83	22.84	-1.90	21.06	30.00
	1	12	22.94	22.96	22.80			
	1	24	22.78	22.79	22.67			
	12	0	21.81	21.72	21.76			
	12	6	21.69	21.80	21.64			
	12	11	21.78	21.63	21.70			
	25	0	21.32	21.60	21.69			
16QAM	1	0	21.68	21.72	21.60	-1.90	19.94	30.00
	1	12	21.74	21.84	21.71			
	1	24	21.77	21.75	21.63			
	12	0	20.63	20.72	20.65			
	12	6	20.70	20.61	20.54			
	12	11	20.59	20.65	20.67			
	25	0	20.62	20.66	20.58			
LTE Band 4 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20000	20175	20350			
			1715.0MHz	1732.5MHz	1750.0MHz			
QPSK	1	0	22.93	22.77	22.87	-1.90	21.03	30.00
	1	24	22.90	22.89	22.73			
	1	49	22.86	22.64	22.78			
	25	0	21.74	21.79	21.69			
	25	12	21.83	21.66	21.64			
	25	24	21.69	21.75	21.72			
	50	0	21.62	21.62	21.65			
16QAM	1	0	21.81	21.73	21.72	-1.90	19.96	30.00
	1	24	21.72	21.86	21.74			
	1	49	21.77	21.64	21.65			
	25	0	20.71	20.66	20.65			
	25	12	20.69	20.70	20.62			
	25	24	20.74	20.61	20.57			
	50	0	20.64	20.56	20.59			



LTE Band 4 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20025	20175	20325			
			1717.5MHz	1732.5MHz	1747.5MHz			
QPSK	1	0	23.00	22.85	22.93	-1.90	21.15	30.00
	1	37	23.05	22.91	22.87			
	1	74	22.86	22.76	22.84			
	36	0	21.83	21.81	21.80			
	36	16	21.77	21.65	21.67			
	36	35	21.75	21.74	21.74			
	75	0	21.65	21.69	21.64			
16QAM	1	0	21.69	21.68	21.67	-1.90	19.86	30.00
	1	37	21.70	21.62	21.58			
	1	74	21.34	21.72	21.76			
	36	0	20.73	20.63	20.69			
	36	16	20.72	20.66	20.58			
	36	35	20.61	20.54	20.63			
	75	0	20.62	20.56	20.43			
LTE Band 4 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20050	20175	20300			
			1720.0MHz	1732.5MHz	1745.0MHz			
QPSK	1	0	22.83	22.91	22.85	-1.90	21.04	30.00
	1	49	22.94	22.87	22.88			
	1	99	22.69	22.72	22.74			
	50	0	21.80	21.66	21.67			
	50	24	21.69	21.75	21.75			
	50	49	21.76	21.67	21.58			
	100	0	21.66	21.62	21.62			
16QAM	1	0	21.71	21.72	21.69	-1.90	19.92	30.00
	1	49	21.82	21.80	21.75			
	1	99	21.65	21.64	21.64			
	50	0	20.65	20.60	20.59			
	50	24	20.67	20.63	20.65			
	50	49	20.55	20.55	20.44			
	100	0	20.65	20.52	20.48			



LTE Band 5 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20407	20525	20643			
			824.7MHz	836.5MHz	848.3MHz			
QPSK	1	0	23.28	23.58	23.48	-3.37	18.13	38.45
	1	2	23.44	23.65	23.50			
	1	5	23.50	23.59	23.58			
	3	0	22.51	22.57	22.51			
	3	1	22.41	22.49	22.51			
	3	2	22.49	22.46	22.48			
	6	0	22.40	22.52	22.42			
16QAM	1	0	22.48	22.46	22.58	-3.37	17.09	38.45
	1	2	22.50	22.49	22.55			
	1	5	22.61	22.57	22.61			
	3	0	21.47	21.56	21.43			
	3	1	21.46	21.47	21.45			
	3	2	21.40	21.49	21.47			
	6	0	21.41	21.50	21.41			
LTE Band 5 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20415	20525	20635			
			825.5MHz	836.5MHz	847.5MHz			
QPSK	1	0	23.53	23.52	23.54	-3.37	18.12	38.45
	1	7	23.39	23.64	23.59			
	1	14	23.47	23.59	23.61			
	8	0	22.64	22.58	22.54			
	8	4	22.53	22.59	22.60			
	8	7	22.43	22.63	22.53			
	15	0	22.54	22.51	22.49			
16QAM	1	0	22.59	22.54	22.65	-3.37	17.16	38.45
	1	7	22.54	22.61	22.61			
	1	14	22.62	22.41	22.68			
	8	0	21.64	21.59	21.52			
	8	4	21.63	21.66	21.53			
	8	7	21.64	21.64	21.50			
	15	0	21.62	21.58	21.46			



LTE Band 5 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20425	20525	20625			
			826.5MHz	836.5MHz	846.5MHz			
QPSK	1	0	23.31	23.49	23.44	-3.37	18.14	38.45
	1	12	23.47	23.56	23.51			
	1	24	23.43	23.66	23.42			
	12	0	22.56	22.63	22.59			
	12	6	22.49	22.58	22.51			
	12	11	22.61	22.65	22.46			
	25	0	22.52	22.59	22.50			
16QAM	1	0	22.44	22.47	22.46	-3.37	17.05	38.45
	1	12	22.52	22.48	22.41			
	1	24	22.51	22.53	22.57			
	12	0	21.47	21.55	21.52			
	12	6	21.53	21.59	21.30			
	12	11	21.58	21.60	21.49			
	25	0	21.49	21.46	21.57			
LTE Band 5 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20450	20525	20600			
			829.0MHz	836.5MHz	844.0MHz			
QPSK	1	0	23.63	23.58	23.68	-3.37	18.16	38.45
	1	24	23.48	23.61	23.42			
	1	49	23.32	23.60	23.51			
	25	0	22.52	22.60	22.38			
	25	12	22.51	22.63	22.47			
	25	24	22.59	22.57	22.44			
	50	0	22.46	22.46	22.36			
16QAM	1	0	22.63	22.47	22.62	-3.37	17.11	38.45
	1	24	22.58	22.53	22.51			
	1	49	22.45	22.51	22.35			
	25	0	21.56	21.57	21.47			
	25	12	21.50	21.59	21.41			
	25	24	21.58	21.68	21.52			
	50	0	21.49	21.51	21.45			



LTE Band 7 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20775	21100	21425			
			2502.5MHz	2535.0MHz	2567.5MHz			
QPSK	1	0	22.88	22.84	22.78	2.94	25.86	30.00
	1	12	22.73	22.92	22.91			
	1	24	22.76	22.77	22.84			
	12	0	21.68	21.80	21.90			
	12	6	21.74	21.82	21.93			
	12	11	21.72	21.82	21.91			
	25	0	21.64	21.75	21.84			
16QAM	1	0	21.79	21.81	22.14	2.94	25.21	30.00
	1	12	21.82	21.89	22.27			
	1	24	21.75	21.76	22.27			
	12	0	20.74	20.83	20.89			
	12	6	20.78	20.78	20.94			
	12	11	20.69	20.82	20.91			
	25	0	20.68	20.77	20.85			
LTE Band 7 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20800	21100	21400			
			2505.0MHz	2535.0MHz	2565.0MHz			
QPSK	1	0	23.01	22.97	22.86	2.94	25.98	30.00
	1	24	22.85	23.04	23.04			
	1	49	22.89	22.81	22.82			
	25	0	21.77	21.78	21.89			
	25	12	21.69	21.76	21.90			
	25	24	21.74	21.89	21.86			
	50	0	21.64	21.81	21.82			
16QAM	1	0	21.81	21.84	21.74	2.94	24.83	30.00
	1	24	21.89	21.72	21.66			
	1	49	21.79	21.81	21.80			
	25	0	20.70	20.75	20.75			
	25	12	20.65	20.85	20.73			
	25	24	20.77	20.78	20.81			
	50	0	20.68	20.72	20.78			



LTE Band 7 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20825	21100	21375			
			2507.5MHz	2535.0MHz	2562.5MHz			
QPSK	1	0	22.85	22.79	22.72	2.94	25.79	30.00
	1	37	22.71	22.68	22.83			
	1	74	22.79	22.75	22.80			
	36	0	21.68	21.79	21.70			
	36	16	21.77	21.68	21.74			
	36	35	22.71	21.75	21.69			
	75	0	21.62	21.70	21.67			
16QAM	1	0	21.65	21.64	21.71	2.94	24.78	30.00
	1	37	21.72	21.73	21.80			
	1	74	21.61	21.60	21.65			
	36	0	21.74	21.79	20.74			
	36	16	21.71	21.70	20.73			
	36	35	21.69	21.84	20.69			
	75	0	20.68	20.71	20.62			
LTE Band 7 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20850	21100	21350			
			2510.0MHz	2535.0MHz	2560.0MHz			
QPSK	1	0	22.71	22.73	22.78	2.94	25.81	30.00
	1	49	22.57	22.77	22.87			
	1	99	22.62	22.66	22.80			
	50	0	21.61	21.71	21.79			
	50	24	21.64	21.66	21.77			
	50	49	21.70	21.73	21.86			
	100	0	21.57	21.70	21.75			
16QAM	1	0	21.85	21.76	21.89	2.94	24.87	30.00
	1	49	21.72	21.82	21.82			
	1	99	21.71	21.80	21.93			
	50	0	20.74	20.80	20.76			
	50	24	20.67	20.68	20.77			
	50	49	20.69	20.72	20.88			
	100	0	20.61	20.74	20.79			



LTE Band 38 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			37775	38000	38225			
			2572.5MHz	2595.0MHz	2617.5MHz			
QPSK	1	0	22.64	22.85	22.74	2.83	25.72	30.00
	1	12	22.83	22.72	22.89			
	1	24	22.76	22.66	22.78			
	12	0	21.68	21.69	21.79			
	12	6	21.71	21.66	21.78			
	12	11	21.55	21.72	21.75			
	25	0	21.59	21.60	21.77			
16QAM	1	0	21.72	21.65	21.77	2.83	24.67	30.00
	1	12	21.84	21.75	21.84			
	1	24	21.66	21.67	21.75			
	12	0	20.67	20.64	20.78			
	12	6	20.68	20.73	20.84			
	12	11	20.56	20.60	20.77			
	25	0	20.63	20.62	20.80			
LTE Band 38 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			37800	38000	38200			
			2575.0MHz	2595.0MHz	2615.0MHz			
QPSK	1	0	22.86	22.88	22.91	2.83	25.74	30.00
	1	24	22.78	22.67	22.88			
	1	49	22.85	22.75	22.77			
	25	0	21.66	21.75	21.74			
	25	12	21.74	21.67	21.71			
	25	24	21.73	21.86	21.81			
	50	0	21.63	21.63	21.75			
16QAM	1	0	21.79	21.76	21.91	2.83	24.75	30.00
	1	24	21.84	21.92	21.86			
	1	49	21.72	21.83	21.80			
	25	0	20.79	20.79	20.80			
	25	12	20.84	20.84	20.76			
	25	24	20.70	20.72	20.78			
	50	0	20.72	20.78	20.72			



LTE Band 38 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			37825	38000	38175			
			2577.5MHz	2595.0MHz	2612.5MHz			
QPSK	1	0	22.86	23.02	23.14	2.83	25.97	30.00
	1	37	22.95	22.92	22.98			
	1	74	22.78	23.02	23.03			
	36	0	21.84	21.85	21.81			
	36	16	21.85	21.74	21.71			
	36	35	21.76	21.81	21.90			
	75	0	21.64	21.75	21.76			
16QAM	1	0	21.79	21.86	21.90	2.83	25.64	30.00
	1	37	21.82	21.78	21.78			
	1	74	21.63	21.87	21.84			
	36	0	20.83	20.76	20.76			
	36	16	20.80	20.85	20.84			
	36	35	20.77	20.79	22.81			
	75	0	20.76	20.63	20.76			
LTE Band 38 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			37850	38000	38150			
			2580.0MHz	2595.0MHz	2610.0MHz			
QPSK	1	0	22.98	23.16	23.04	2.83	25.99	30.00
	1	49	22.83	22.87	22.83			
	1	99	22.86	23.10	22.92			
	50	0	21.69	21.98	21.87			
	50	24	21.74	21.99	21.90			
	50	49	21.81	22.09	21.93			
	100	0	21.64	21.79	21.82			
16QAM	1	0	21.83	21.75	21.79	2.83	24.75	30.00
	1	49	21.90	21.82	21.91			
	1	99	21.62	21.86	21.92			
	50	0	20.81	20.76	20.85			
	50	24	20.75	20.89	20.98			
	50	49	20.67	20.86	20.91			
	100	0	20.70	20.81	20.79			



LTE Band 41 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			39675	40620	41565			
			2498.5MHz	2593.0MHz	2687.5MHz			
QPSK	1	0	22.87	22.78	22.96	2.94	26.04	30.00
	1	12	22.73	22.86	23.10			
	1	24	22.98	22.82	23.00			
	12	0	21.70	21.70	21.76			
	12	6	21.75	21.71	21.85			
	12	11	21.87	21.82	21.79			
	25	0	21.68	21.64	21.71			
16QAM	1	0	21.71	21.79	21.76	2.94	24.81	30.00
	1	12	21.84	21.87	21.83			
	1	24	21.79	21.85	21.77			
	12	0	20.69	20.77	20.82			
	12	6	20.71	20.78	20.75			
	12	11	20.54	20.84	20.71			
	25	0	20.68	20.81	20.65			
LTE Band 41 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			39700	40620	41540			
			2501.0MHz	2593.0MHz	2685.0MHz			
QPSK	1	0	22.93	23.01	23.14	2.94	26.08	30.00
	1	24	23.07	22.88	23.13			
	1	49	22.78	22.76	22.97			
	25	0	21.71	21.79	21.78			
	25	12	21.68	21.77	21.75			
	25	24	21.65	21.85	21.82			
	50	0	21.66	21.79	21.71			
16QAM	1	0	21.71	21.81	22.01	2.94	24.95	30.00
	1	24	21.84	21.86	21.93			
	1	49	21.63	21.77	21.86			
	25	0	20.71	20.75	20.81			
	25	12	20.68	20.76	20.97			
	25	24	20.60	20.79	20.92			
	50	0	20.63	20.78	20.75			



LTE Band 41 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			39725	40620	41515			
			2503.5MHz	2593.0MHz	2682.5MHz			
QPSK	1	0	23.04	22.94	23.12	2.94	26.06	30.00
	1	37	22.85	22.80	22.99			
	1	74	22.92	22.71	23.01			
	36	0	21.85	21.96	22.04			
	36	16	21.86	21.97	21.93			
	36	35	21.71	22.04	22.12			
	75	0	21.64	21.79	21.86			
16QAM	1	0	21.74	22.00	22.03	2.94	24.97	30.00
	1	37	21.86	21.94	21.91			
	1	74	21.53	21.81	21.92			
	36	0	20.87	20.79	20.84			
	36	16	20.85	20.77	20.80			
	36	35	20.76	20.83	20.93			
	75	0	20.61	20.72	20.74			
LTE Band 41 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			39750	40620	41490			
			2506.0MHz	2593.0MHz	2680.0MHz			
QPSK	1	0	22.95	22.87	23.19	2.94	26.13	30.00
	1	49	22.86	22.76	22.99			
	1	99	22.81	22.93	23.07			
	50	0	21.86	21.76	21.89			
	50	24	21.76	21.77	21.84			
	50	49	21.68	21.88	21.95			
	100	0	21.65	21.76	21.84			
16QAM	1	0	21.85	21.90	22.02	2.94	24.96	30.00
	1	49	21.74	21.75	21.95			
	1	99	21.77	21.83	21.86			
	50	0	20.81	20.78	20.89			
	50	24	20.79	20.73	20.95			
	50	49	20.68	20.86	21.03			
	100	0	20.61	20.77	20.84			

**Peak To Average Ratio**

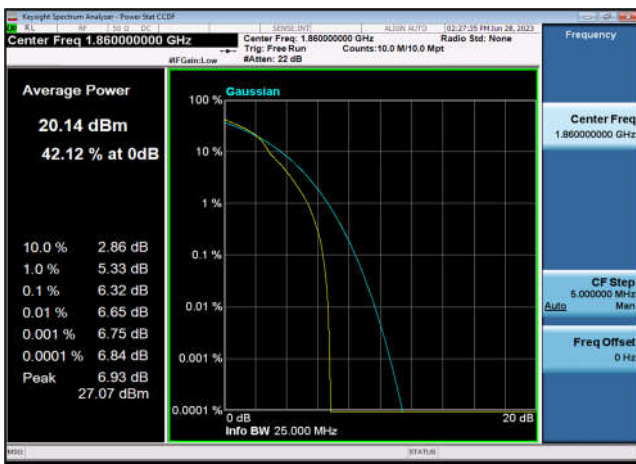
PeakToAveragePowerRatio NormalTC_NormalVol							
Band	Range	BandWidth	RbMode	Modulation	PAPR (dBm)	Limit (dBm)	Result
FDD02	LowRange	20	OneRB_high	Q16	6.32	13.00	Pass
FDD02	LowRange	20	fullRB	Q16	6.54	13.00	Pass
FDD02	MidRange	20	OneRB_high	Q16	6.79	13.00	Pass
FDD02	MidRange	20	fullRB	Q16	6.64	13.00	Pass
FDD02	HighRange	20	OneRB_high	Q16	6.67	13.00	Pass
FDD02	HighRange	20	fullRB	Q16	6.47	13.00	Pass
FDD04	LowRange	20	OneRB_high	Q16	5.93	13.00	Pass
FDD04	LowRange	20	fullRB	Q16	6.49	13.00	Pass
FDD04	MidRange	20	OneRB_high	Q16	6.61	13.00	Pass
FDD04	MidRange	20	fullRB	Q16	6.46	13.00	Pass
FDD04	HighRange	20	OneRB_high	Q16	6.02	13.00	Pass
FDD04	HighRange	20	fullRB	Q16	6.61	13.00	Pass
FDD05	LowRange	10	OneRB_high	Q16	5.74	13.00	Pass
FDD05	LowRange	10	fullRB	Q16	6.23	13.00	Pass
FDD05	MidRange	10	OneRB_high	Q16	4.54	13.00	Pass
FDD05	MidRange	10	fullRB	Q16	6.00	13.00	Pass
FDD05	HighRange	10	OneRB_high	Q16	5.48	13.00	Pass
FDD05	HighRange	10	fullRB	Q16	6.02	13.00	Pass
FDD07	LowRange	20	OneRB_high	Q16	5.43	13.00	Pass
FDD07	LowRange	20	fullRB	Q16	6.27	13.00	Pass
FDD07	MidRange	20	OneRB_high	Q16	5.84	13.00	Pass
FDD07	MidRange	20	fullRB	Q16	6.25	13.00	Pass
FDD07	HighRange	20	OneRB_high	Q16	5.30	13.00	Pass
FDD07	HighRange	20	fullRB	Q16	6.12	13.00	Pass
TDD38	LowRange	20	OneRB_high	Q16	9.33	13.00	Pass
TDD38	LowRange	20	fullRB	Q16	9.83	13.00	Pass
TDD38	MidRange	20	OneRB_high	Q16	9.35	13.00	Pass
TDD38	MidRange	20	fullRB	Q16	9.77	13.00	Pass
TDD38	HighRange	20	OneRB_high	Q16	9.25	13.00	Pass
TDD38	HighRange	20	fullRB	Q16	9.47	13.00	Pass
TDD41	LowRange	20	OneRB_high	Q16	9.47	13.00	Pass



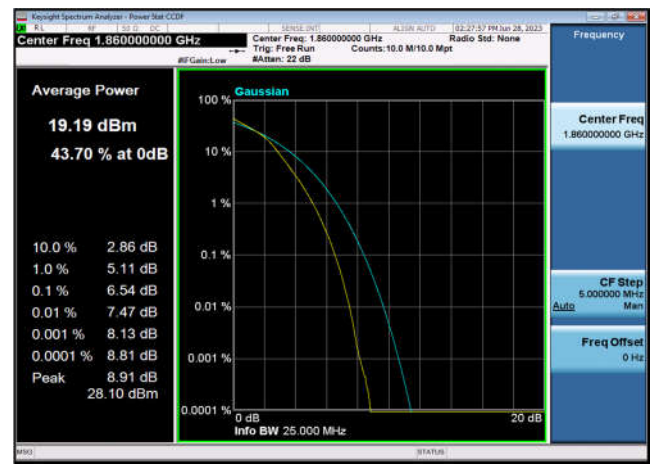
TDD41	LowRange	20	fullRB	Q16	9.76	13.00	Pass
TDD41	MidRange	20	OneRB_high	Q16	9.39	13.00	Pass
TDD41	MidRange	20	fullRB	Q16	9.97	13.00	Pass
TDD41	HighRange	20	OneRB_high	Q16	8.90	13.00	Pass
TDD41	HighRange	20	fullRB	Q16	9.71	13.00	Pass



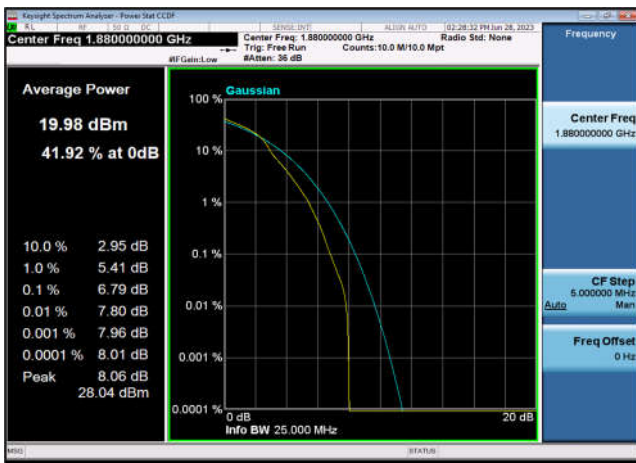
FDD02_LowRange_20MHz_1860_OneRB_high_Q16



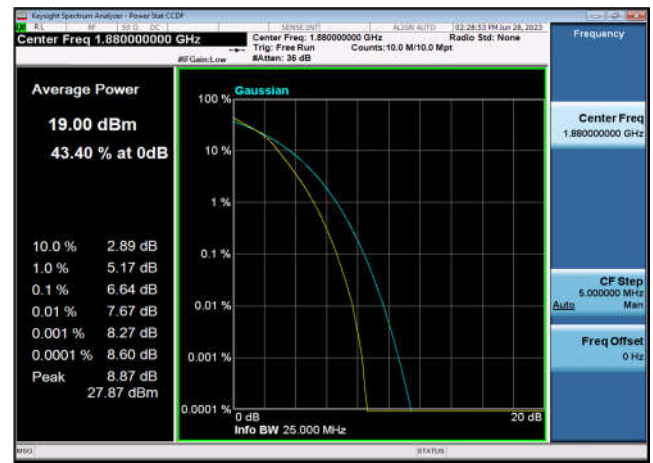
FDD02_LowRange_20MHz_1860_fullRB_Q16



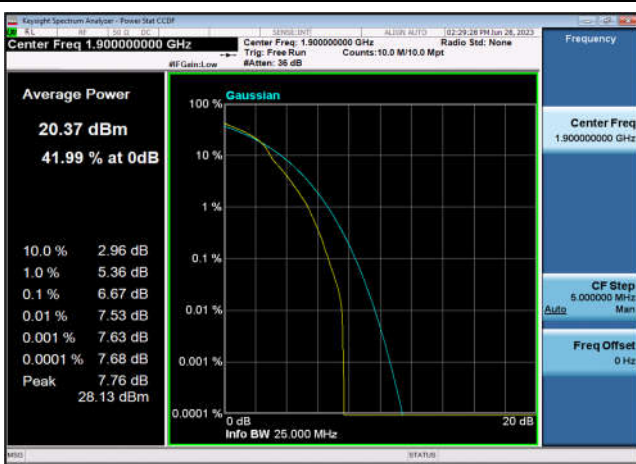
FDD02_MidRange_20MHz_1880_OneRB_high_Q16



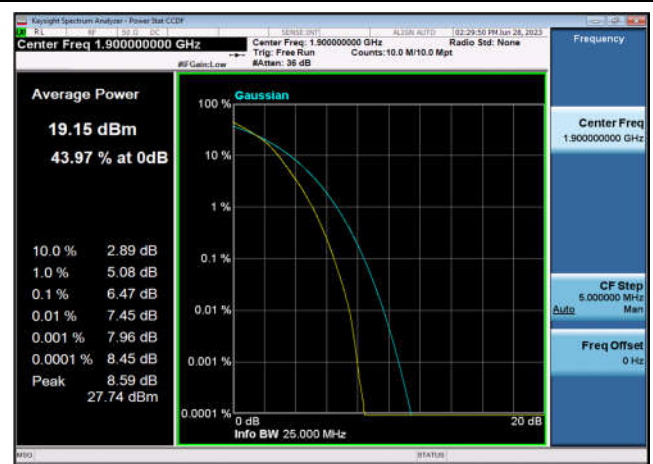
FDD02_MidRange_20MHz_1880_fullRB_Q16



FDD02_HighRange_20MHz_1900_OneRB_high_Q16

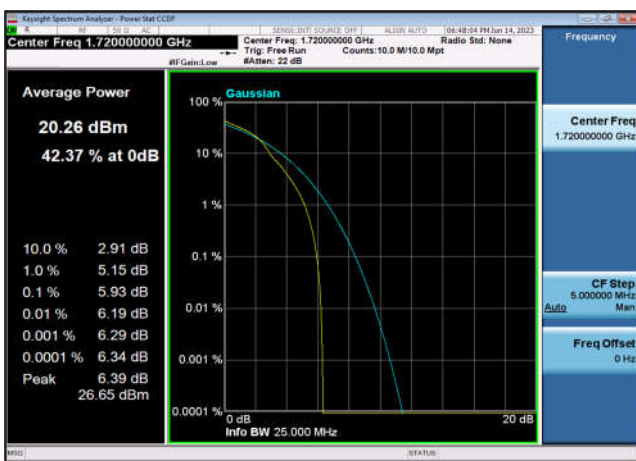


FDD02_HighRange_20MHz_1900_fullRB_Q16

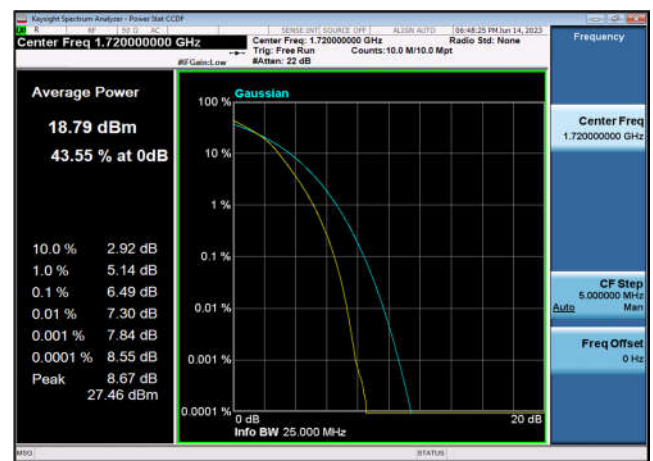




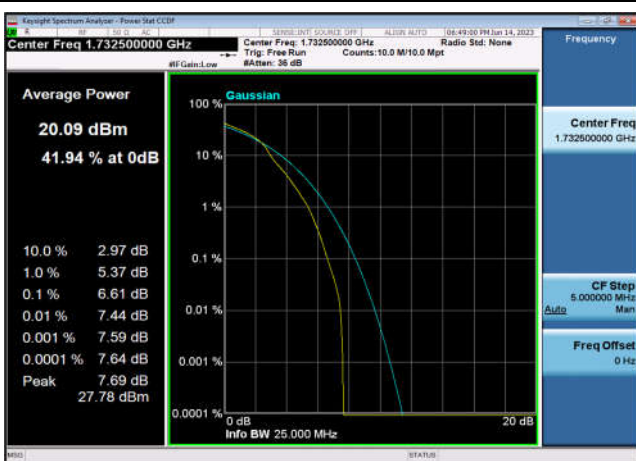
FDD04_LowRange_20MHz_1720_OneRB_high_Q16



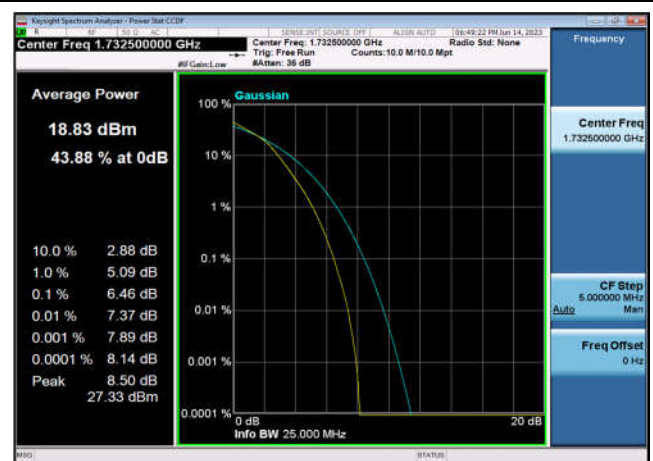
FDD04_LowRange_20MHz_1720_fullRB_Q16



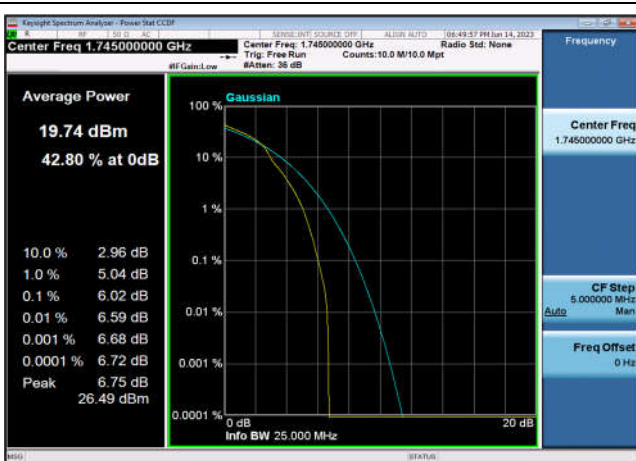
FDD04_MidRange_20MHz_1732.5_OneRB_high_Q16



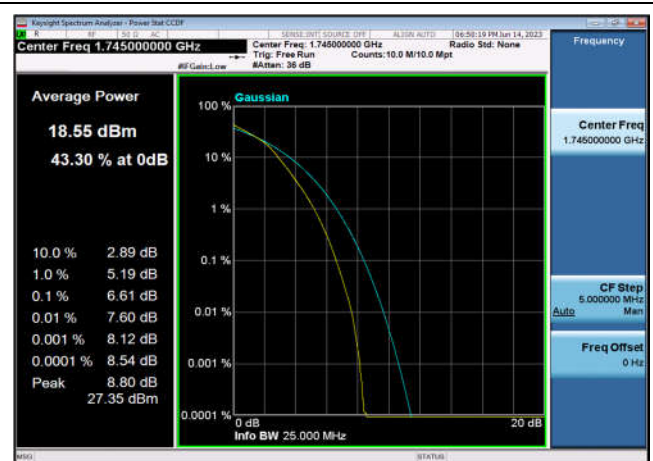
FDD04_MidRange_20MHz_1732.5_fullRB_Q16



FDD04_HighRange_20MHz_1745_OneRB_high_Q16

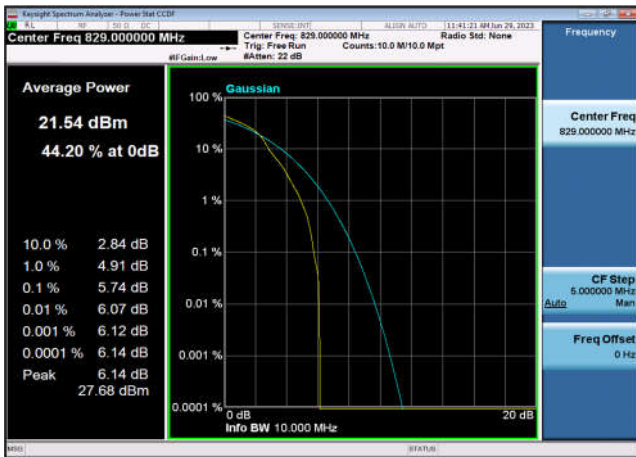


FDD04_HighRange_20MHz_1745_fullRB_Q16

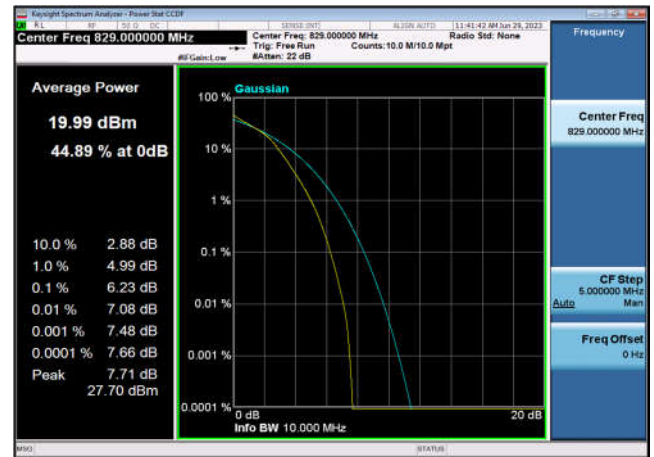




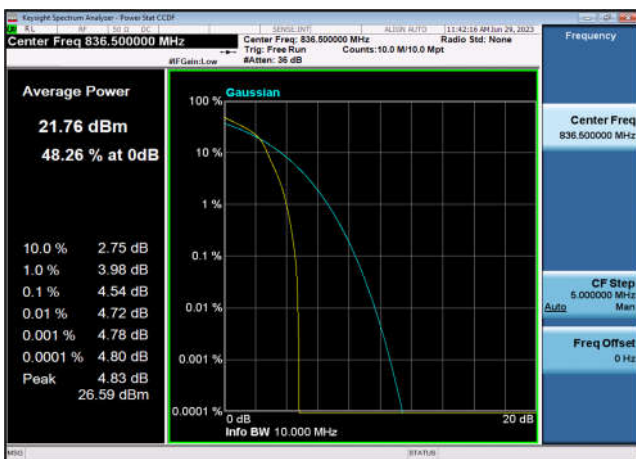
FDD05_LowRange_10MHz_829_OneRB_high_Q16



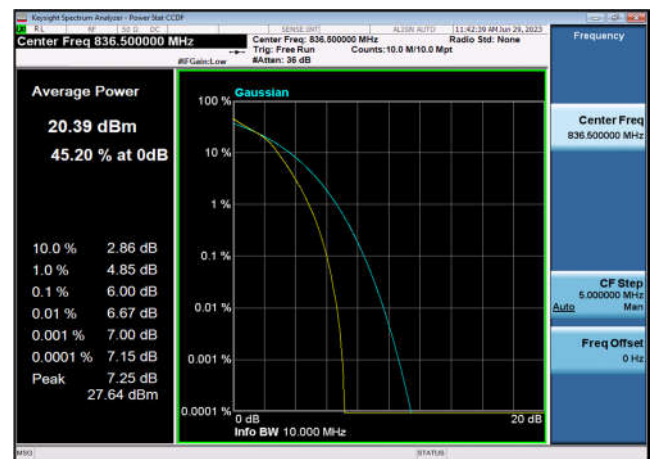
FDD05_LowRange_10MHz_829_fullRB_Q16



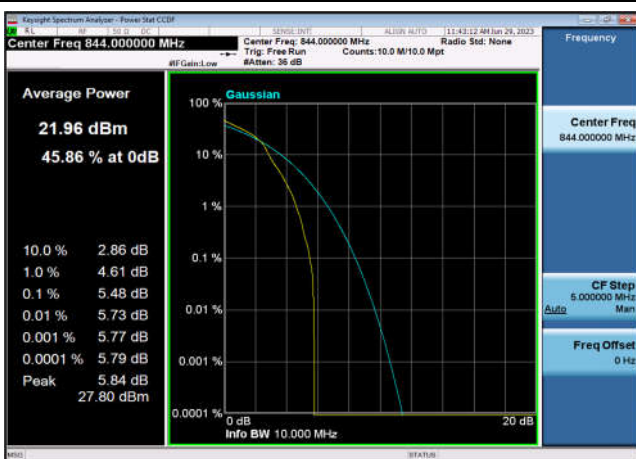
FDD05_MidRange_10MHz_836.5_OneRB_high_Q16



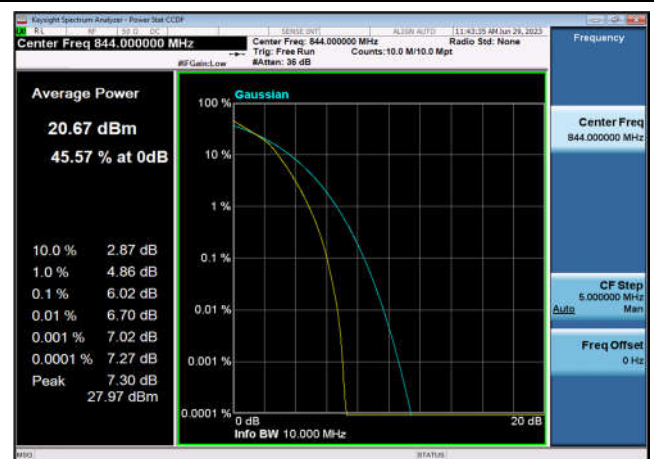
FDD05_MidRange_10MHz_836.5_fullRB_Q16



FDD05_HighRange_10MHz_844_OneRB_high_Q16

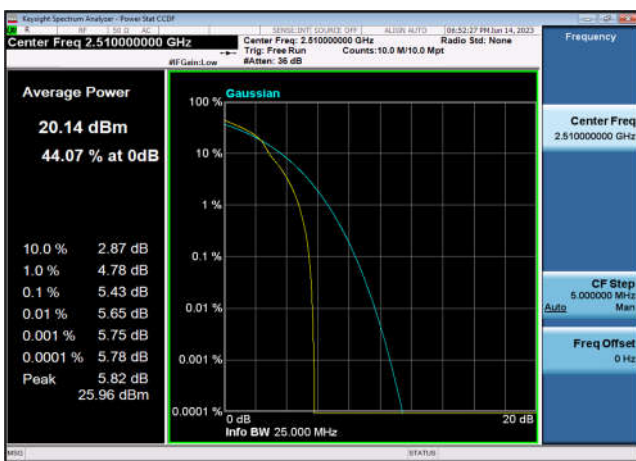


FDD05_HighRange_10MHz_844_fullRB_Q16

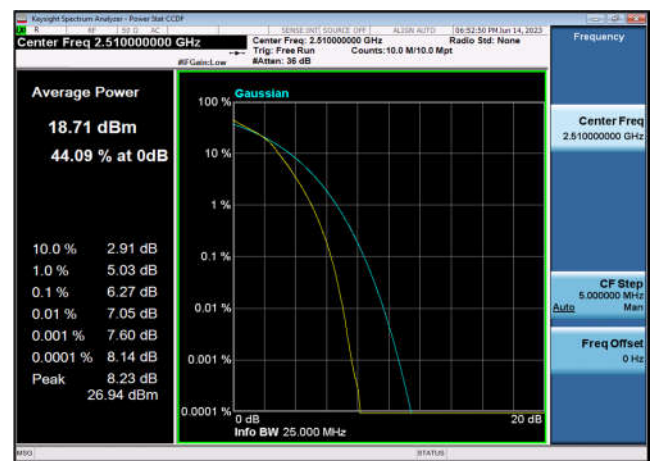




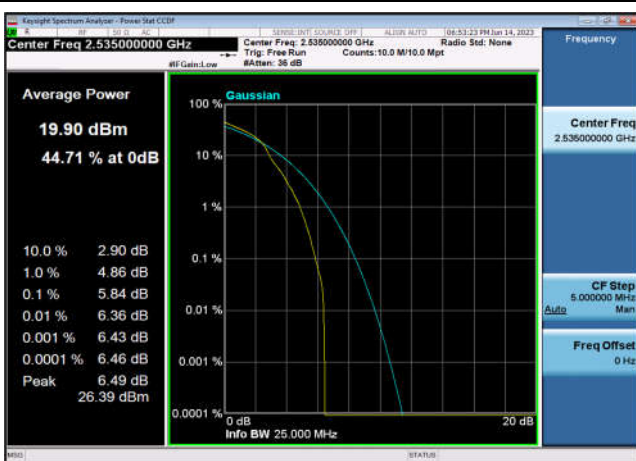
FDD07_LowRange_20MHz_2510_OneRB_high_Q16



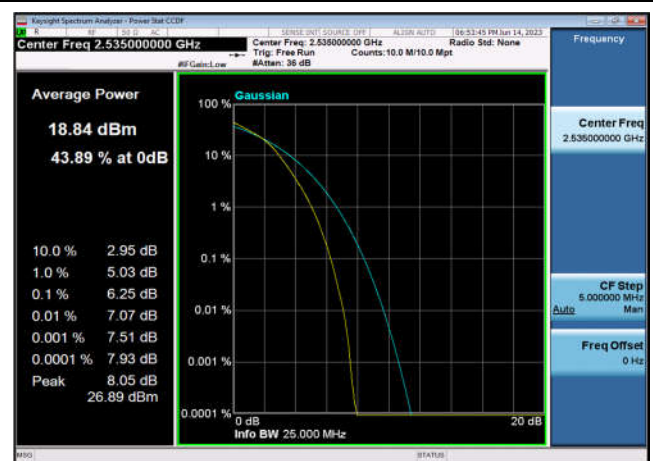
FDD07_LowRange_20MHz_2510_fullRB_Q16



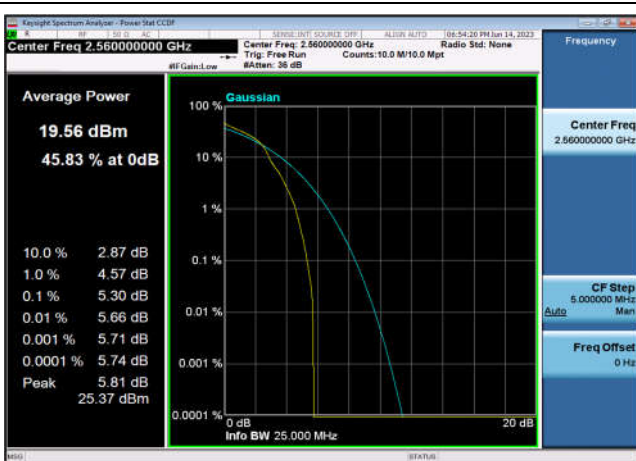
FDD07_MidRange_20MHz_2535_OneRB_high_Q16



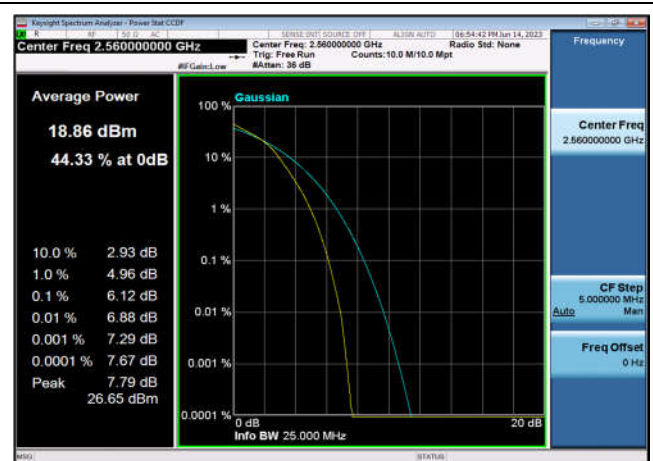
FDD07_MidRange_20MHz_2535_fullRB_Q16



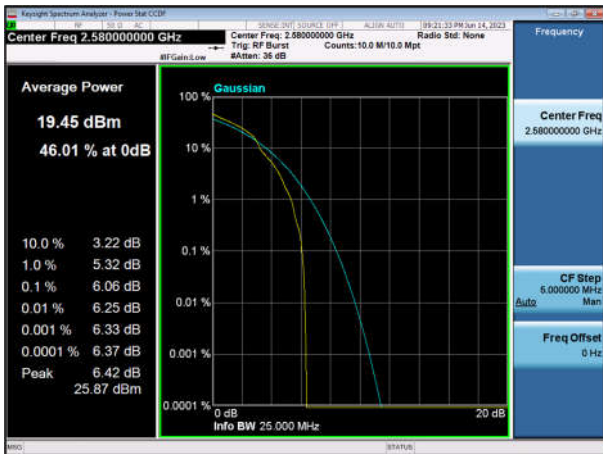
FDD07_HighRange_20MHz_2560_OneRB_high_Q16



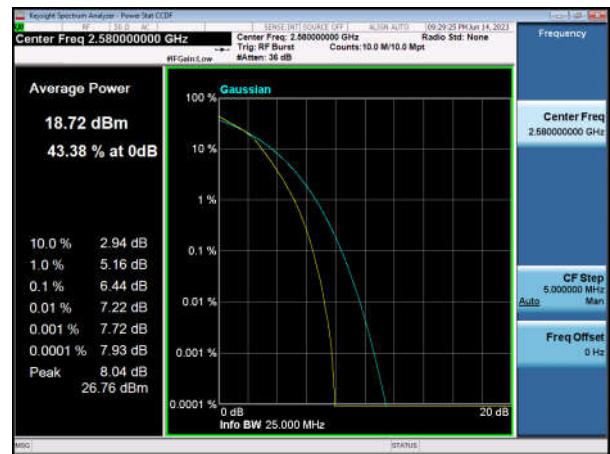
FDD07_HighRange_20MHz_2560_fullRB_Q16



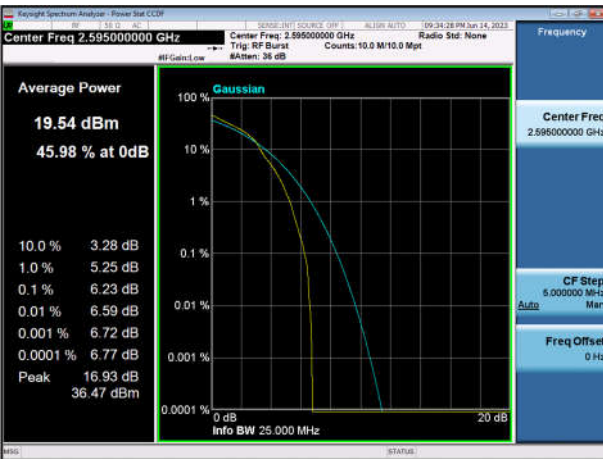
TDD38_LowRange_20MHz_2580_OneRB_high_Q16



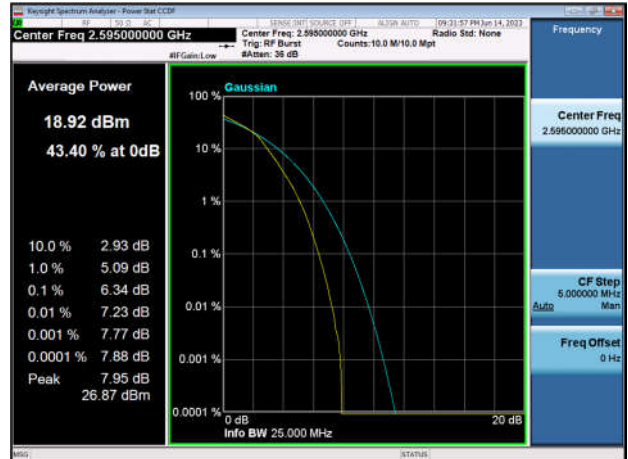
TDD38_LowRange_20MHz_2580_fullIRB_Q16



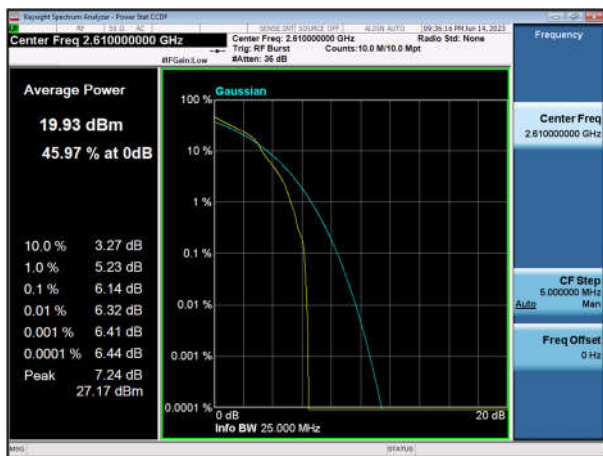
TDD38_MidRange_20MHz_2595_OneRB_high_Q16



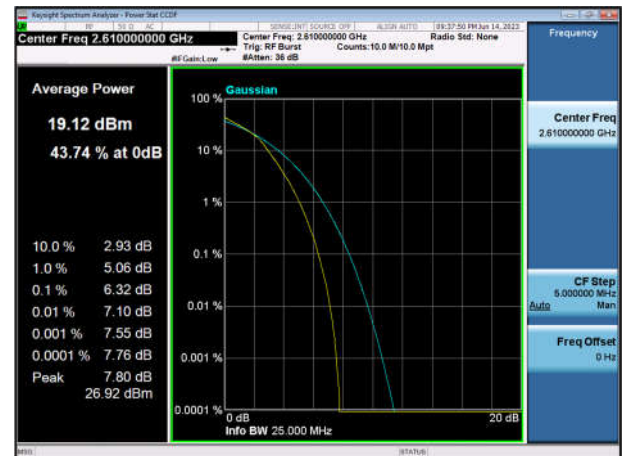
TDD38_MidRange_20MHz_2595_fullIRB_Q16



TDD38_HighRange_20MHz_2610_OneRB_high_Q16

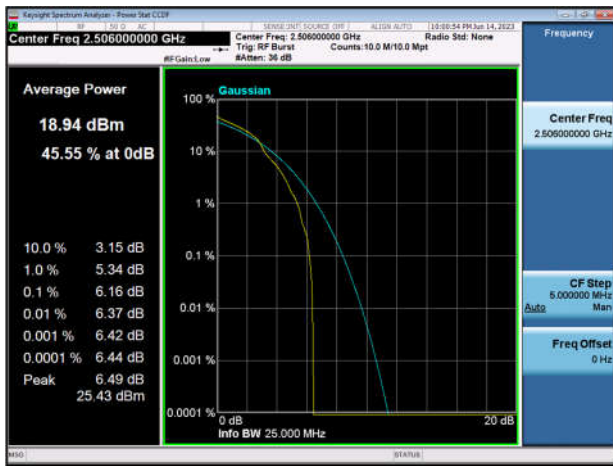


TDD38_HighRange_20MHz_2610_fullIRB_Q16

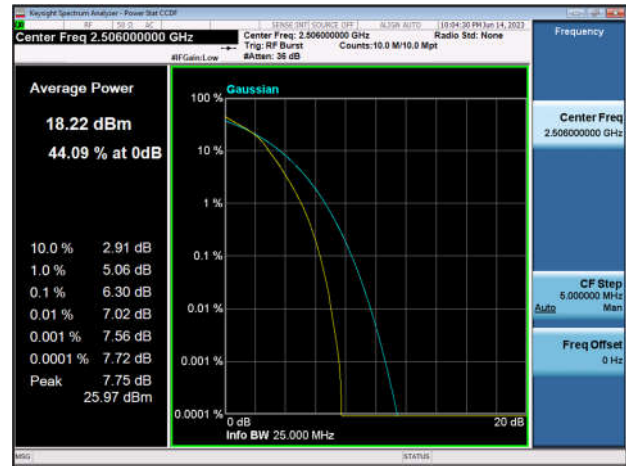




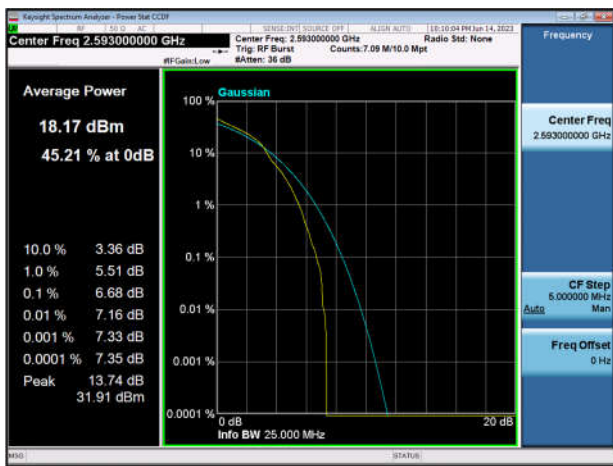
TDD41_LowRange_20MHz_2506_OneRB_high_Q16



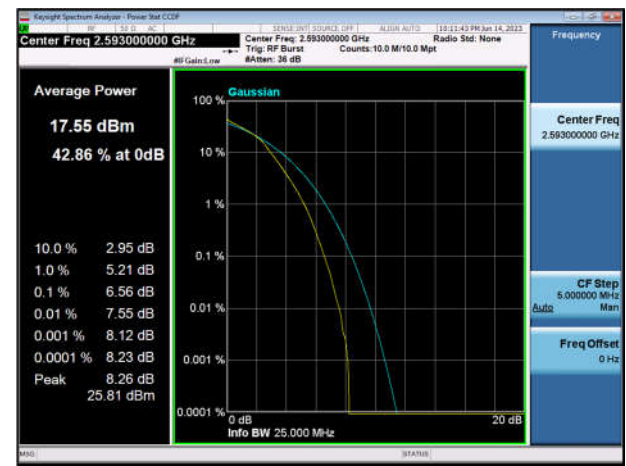
TDD41_LowRange_20MHz_2506_fullRB_Q16



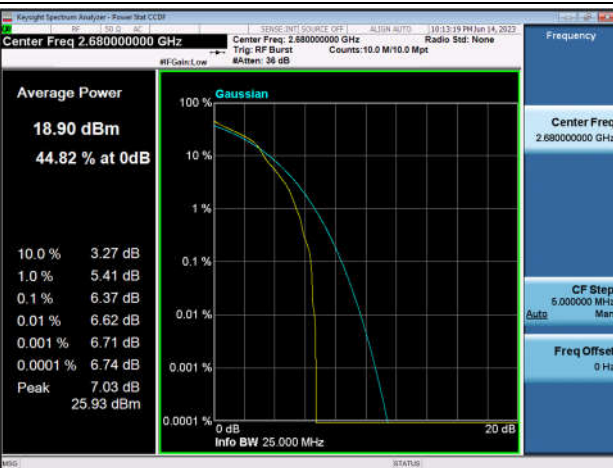
TDD41_MidRange_20MHz_2593_OneRB_high_Q16



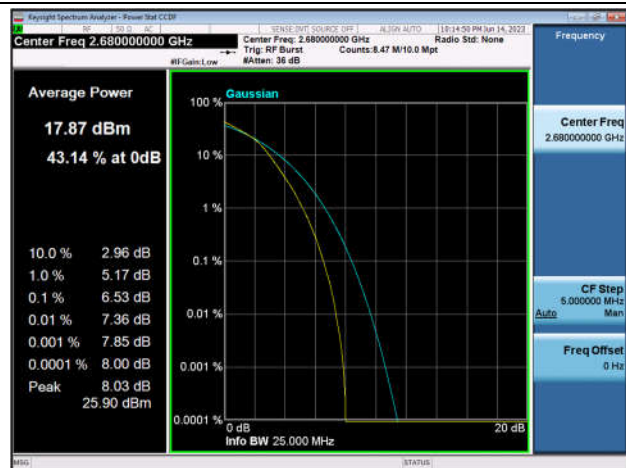
TDD41_MidRange_20MHz_2593_fullRB_Q16



TDD41_HighRange_20MHz_2680_OneRB_high_Q16



TDD41_HighRange_20MHz_2680_fullRB_Q16



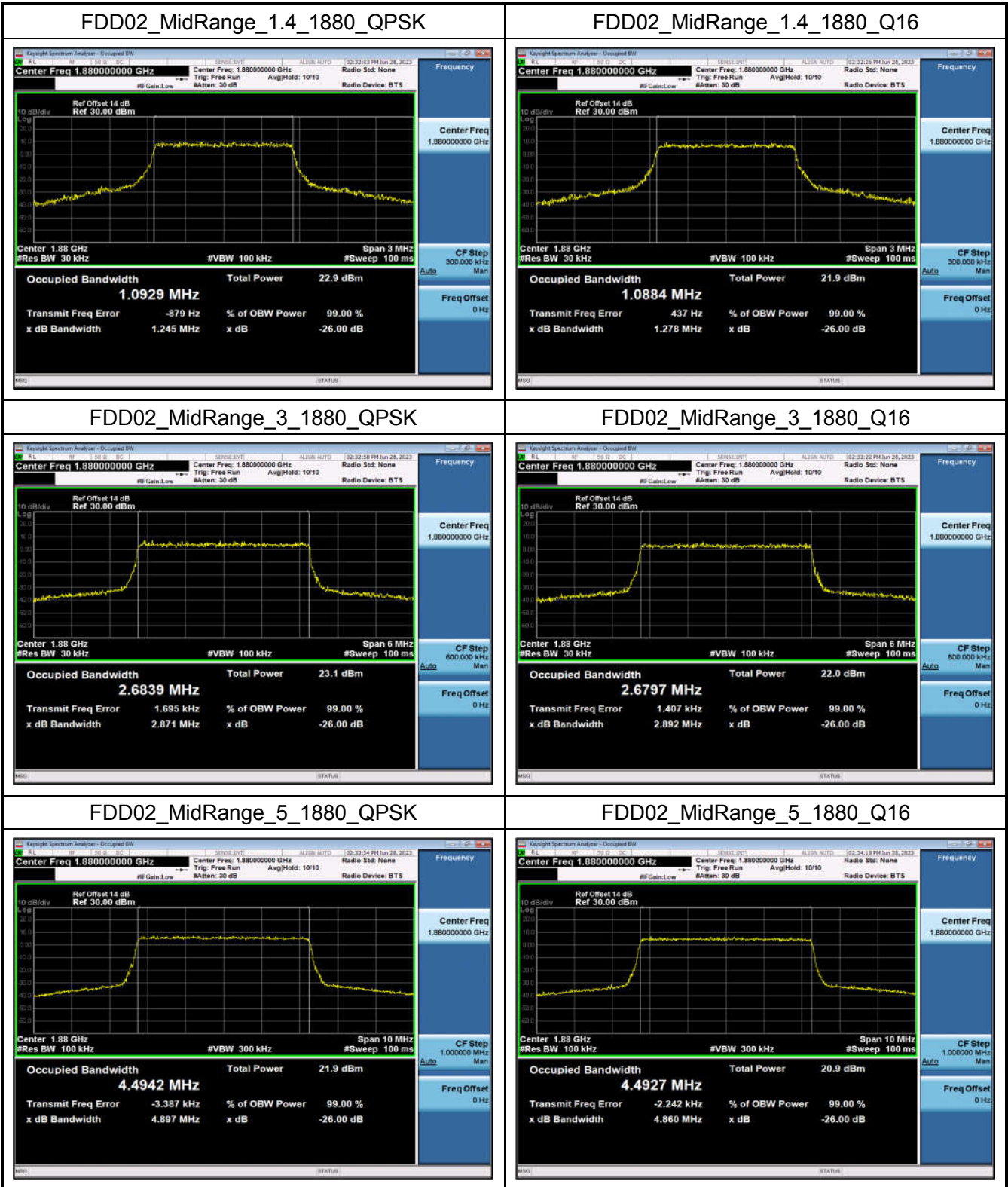


99% Occupied Bandwidth and 26dB Emission Bandwidth

Occupied Bandwidth NormalTC_NormalVol						
Band	Range	BandWidth	Frequency (MHz)	Modulation	OBW(99%) (MHz)	26dB EBW (MHz)
FDD02	MidRange	1.4	1880	QPSK	1.093	1.245
FDD02	MidRange	1.4	1880	Q16	1.088	1.278
FDD02	MidRange	3	1880	QPSK	2.684	2.871
FDD02	MidRange	3	1880	Q16	2.680	2.892
FDD02	MidRange	5	1880	QPSK	4.494	4.897
FDD02	MidRange	5	1880	Q16	4.493	4.860
FDD02	MidRange	10	1880	QPSK	8.931	9.461
FDD02	MidRange	10	1880	Q16	8.919	9.364
FDD02	MidRange	15	1880	QPSK	13.477	14.30
FDD02	MidRange	15	1880	Q16	13.463	14.26
FDD02	MidRange	20	1880	QPSK	17.904	18.76
FDD02	MidRange	20	1880	Q16	17.899	18.77
FDD04	MidRange	1.4	1732.5	QPSK	1.094	1.240
FDD04	MidRange	1.4	1732.5	Q16	1.088	1.265
FDD04	MidRange	3	1732.5	QPSK	2.679	2.885
FDD04	MidRange	3	1732.5	Q16	2.682	2.890
FDD04	MidRange	5	1732.5	QPSK	4.492	4.849
FDD04	MidRange	5	1732.5	Q16	4.495	4.834
FDD04	MidRange	10	1732.5	QPSK	8.932	9.419
FDD04	MidRange	10	1732.5	Q16	8.915	9.435
FDD04	MidRange	15	1732.5	QPSK	13.452	14.26
FDD04	MidRange	15	1732.5	Q16	13.450	14.25
FDD04	MidRange	20	1732.5	QPSK	17.870	18.73
FDD04	MidRange	20	1732.5	Q16	17.871	18.75
FDD05	MidRange	1.4	836.5	QPSK	1.095	1.261
FDD05	MidRange	1.4	836.5	Q16	1.091	1.253
FDD05	MidRange	3	836.5	QPSK	2.685	2.905
FDD05	MidRange	3	836.5	Q16	2.684	2.902
FDD05	MidRange	5	836.5	QPSK	4.500	4.873
FDD05	MidRange	5	836.5	Q16	4.507	4.845

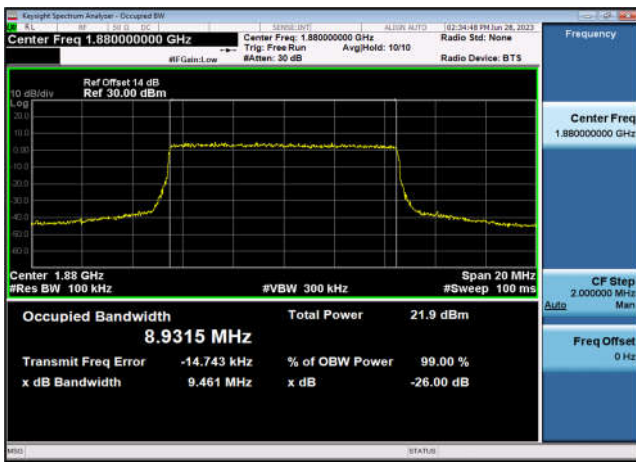


FDD05	MidRange	10	836.5	QPSK	8.939	9.493
FDD05	MidRange	10	836.5	Q16	8.927	9.361
FDD07	MidRange	5	2535	QPSK	4.491	4.842
FDD07	MidRange	5	2535	Q16	4.495	4.896
FDD07	MidRange	10	2535	QPSK	8.930	9.410
FDD07	MidRange	10	2535	Q16	8.907	9.454
FDD07	MidRange	15	2535	QPSK	13.463	14.27
FDD07	MidRange	15	2535	Q16	13.455	14.27
FDD07	MidRange	20	2535	QPSK	17.901	18.73
FDD07	MidRange	20	2535	Q16	17.881	18.76
TDD38	MidRange	5	2595	QPSK	4.498	4.835
TDD38	MidRange	5	2595	Q16	4.485	4.878
TDD38	MidRange	10	2595	QPSK	8.922	9.372
TDD38	MidRange	10	2595	Q16	8.922	9.364
TDD38	MidRange	15	2595	QPSK	13.461	14.23
TDD38	MidRange	15	2595	Q16	13.460	14.24
TDD38	MidRange	20	2595	QPSK	17.872	18.74
TDD38	MidRange	20	2595	Q16	17.886	18.72
TDD41	MidRange	5	2593	QPSK	4.500	4.794
TDD41	MidRange	5	2593	Q16	4.499	4.877
TDD41	MidRange	10	2593	QPSK	8.924	9.358
TDD41	MidRange	10	2593	Q16	8.934	9.357
TDD41	MidRange	15	2593	QPSK	13.458	14.25
TDD41	MidRange	15	2593	Q16	13.464	14.29
TDD41	MidRange	20	2593	QPSK	17.872	18.77
TDD41	MidRange	20	2593	Q16	17.879	18.75





FDD02_MidRange_10_1880_QPSK



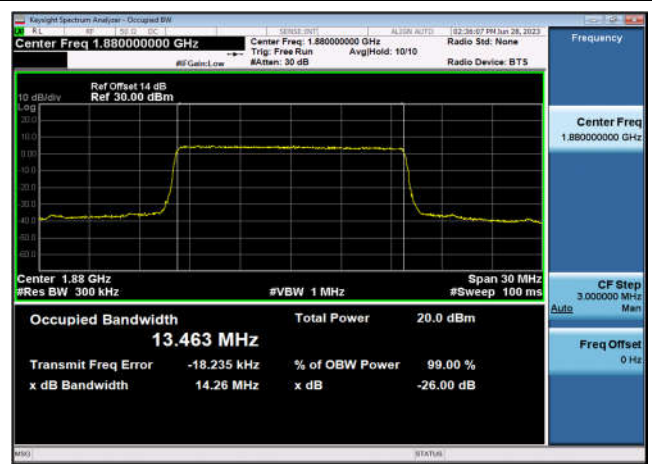
FDD02_MidRange_10_1880_Q16



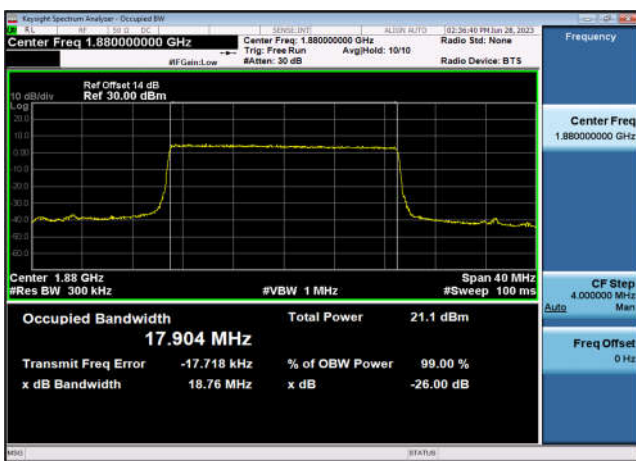
FDD02_MidRange_15_1880_QPSK



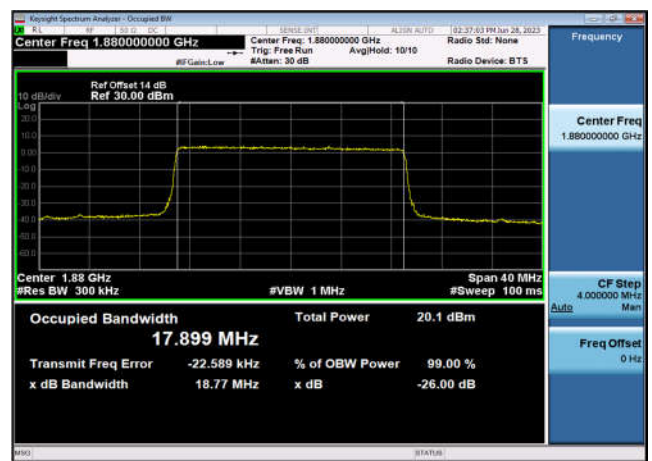
FDD02_MidRange_15_1880_Q16



FDD02_MidRange_20_1880_QPSK



FDD02_MidRange_20_1880_Q16





FDD04_MidRange_1.4_1732.5_QPSK



FDD04_MidRange_1.4_1732.5_Q16



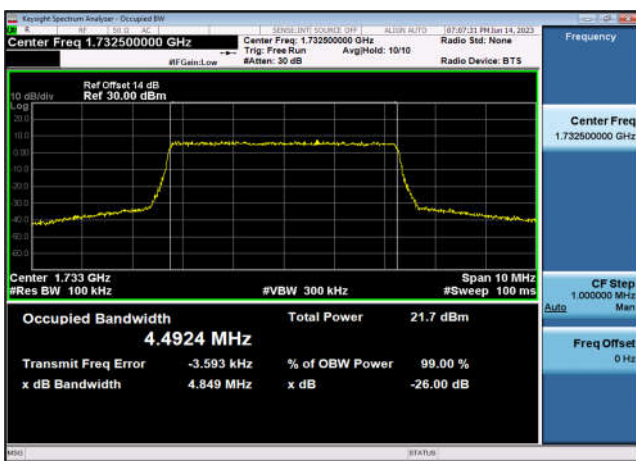
FDD04_MidRange_3_1732.5_QPSK



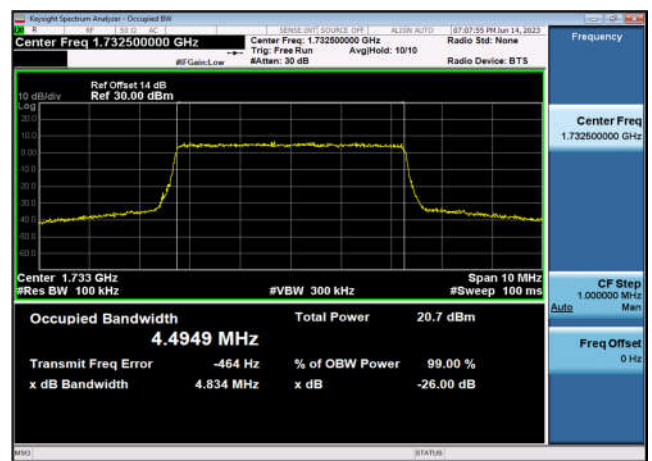
FDD04_MidRange_3_1732.5_Q16



FDD04_MidRange_5_1732.5_QPSK

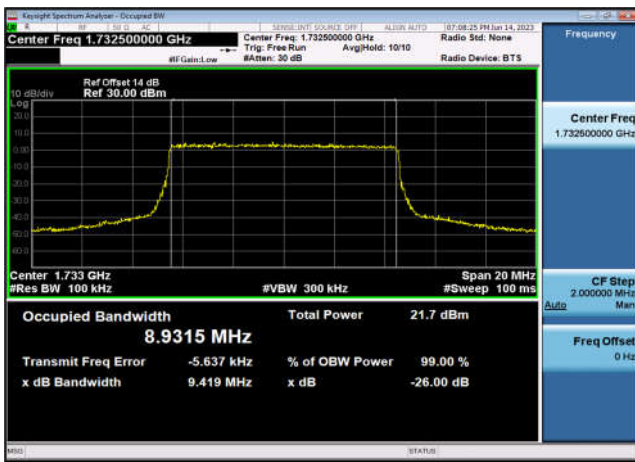


FDD04_MidRange_5_1732.5_Q16





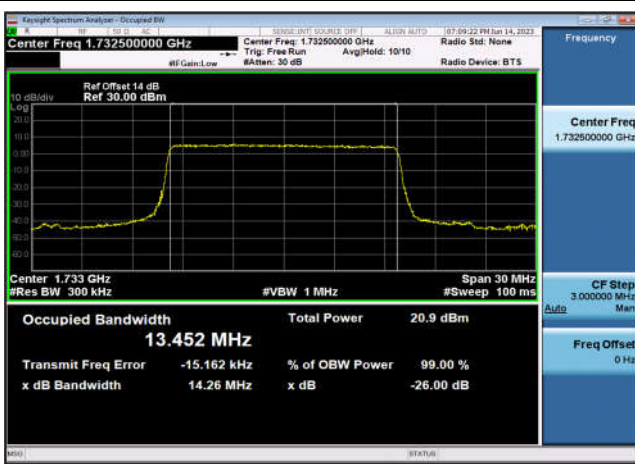
FDD04_MidRange_10_1732.5_QPSK



FDD04_MidRange_10_1732.5_Q16



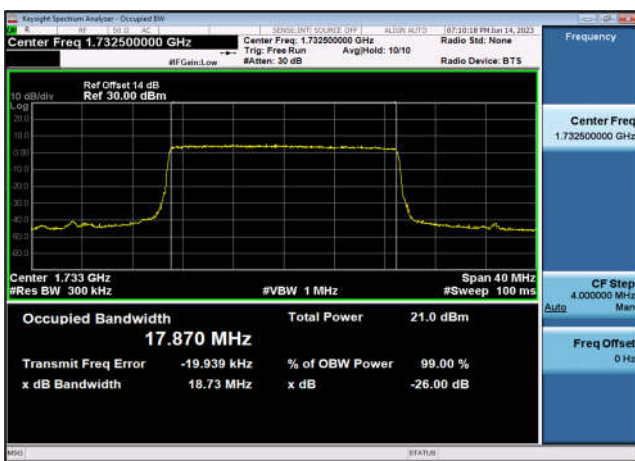
FDD04_MidRange_15_1732.5_QPSK



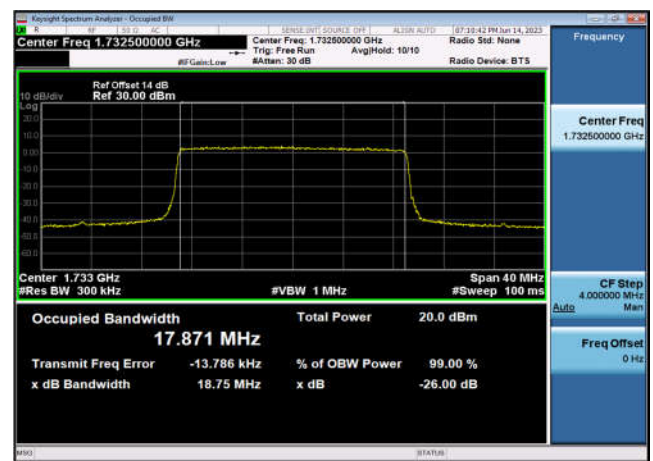
FDD04_MidRange_15_1732.5_Q16



FDD04_MidRange_20_1732.5_QPSK

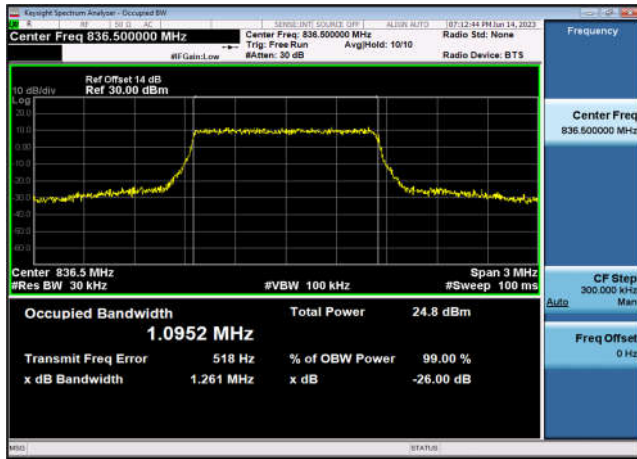


FDD04_MidRange_20_1732.5_Q16

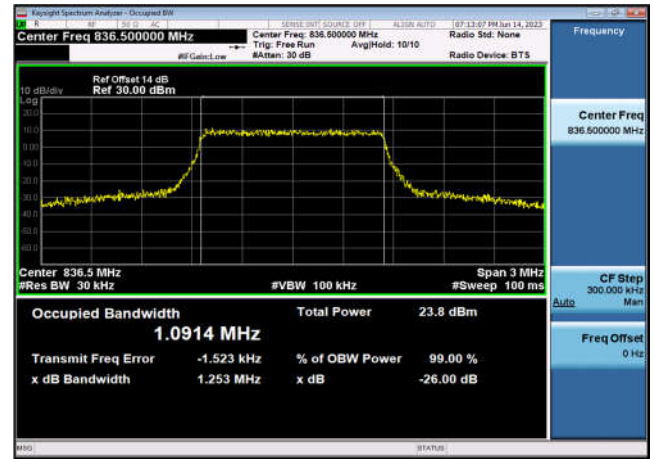




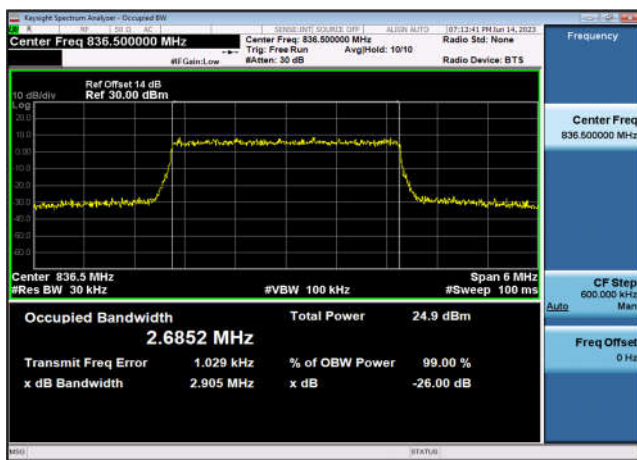
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FDD05_MidRange_1.4_836.5_Q16



FDD05_MidRange_3_836.5_QPSK



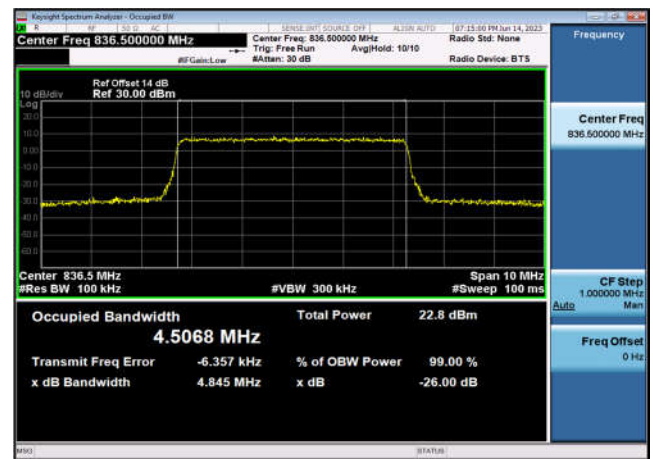
FDD05_MidRange_3_836.5_Q16



FDD05_MidRange_5_836.5_QPSK

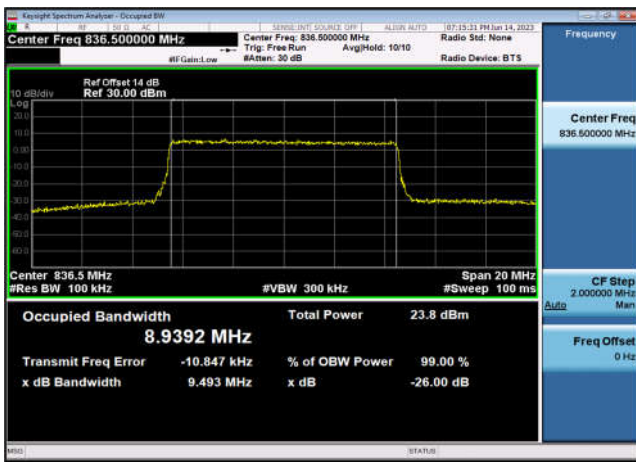


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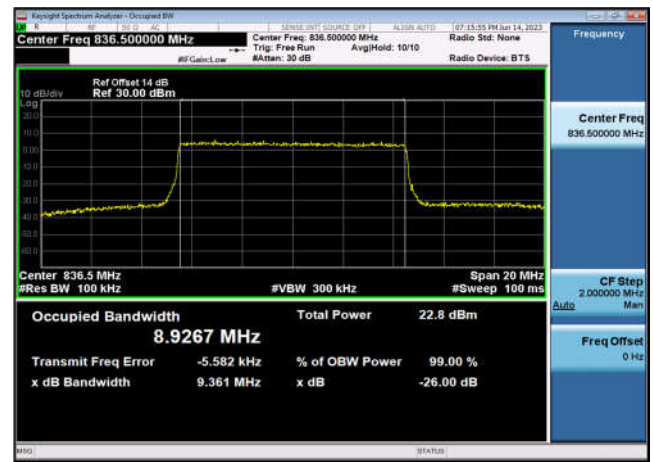




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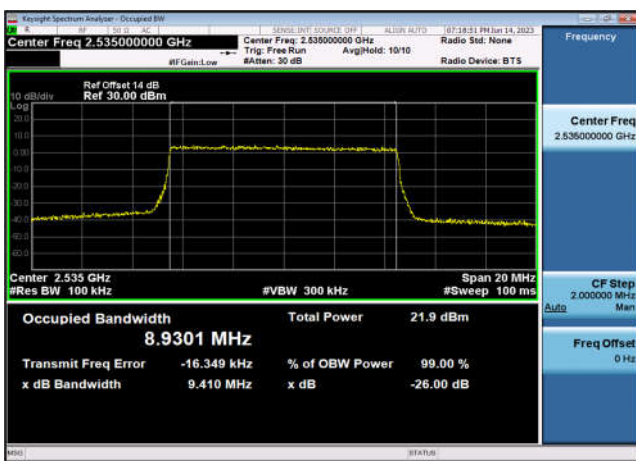
FDD07_MidRange_5_2535_QPSK



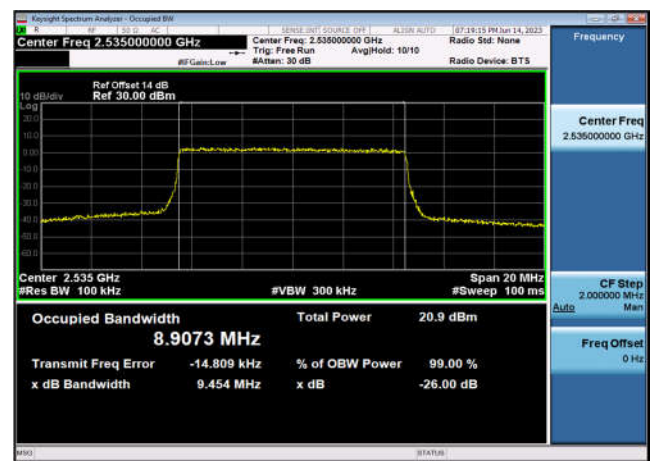
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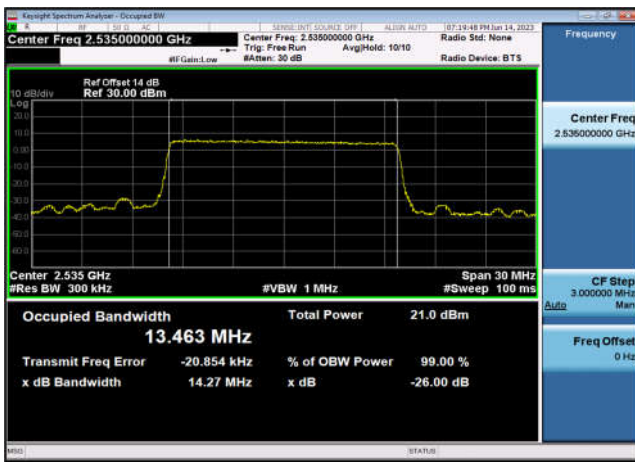


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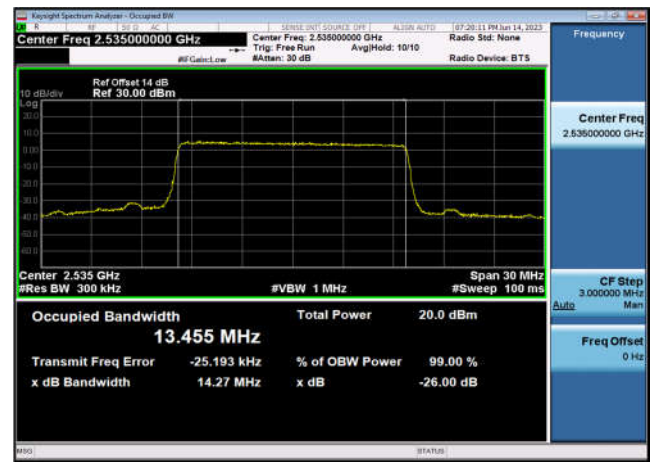




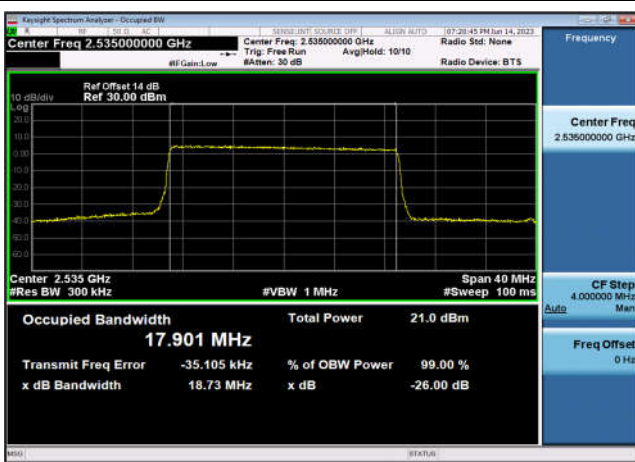
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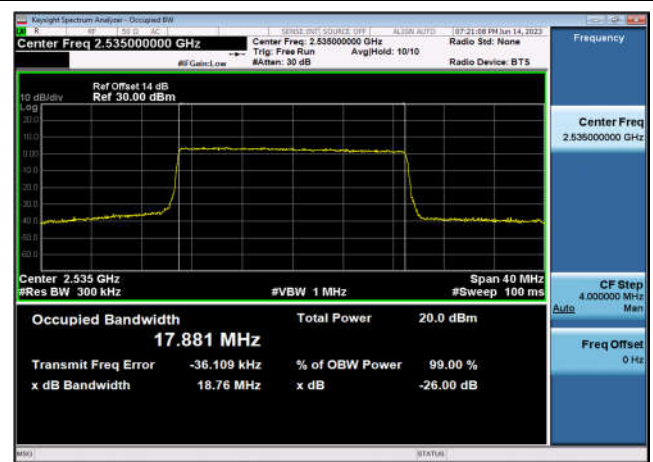
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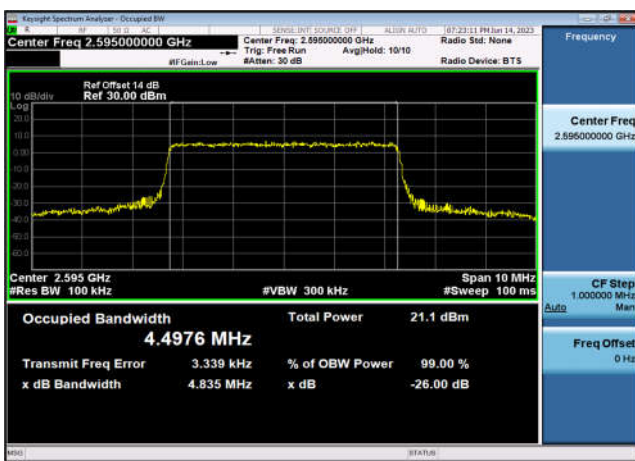
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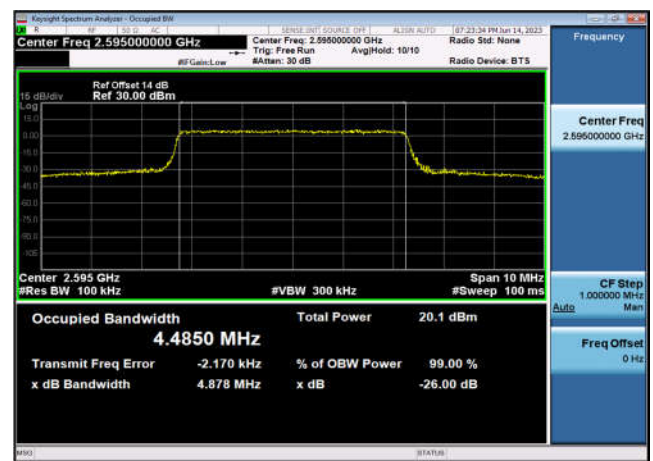
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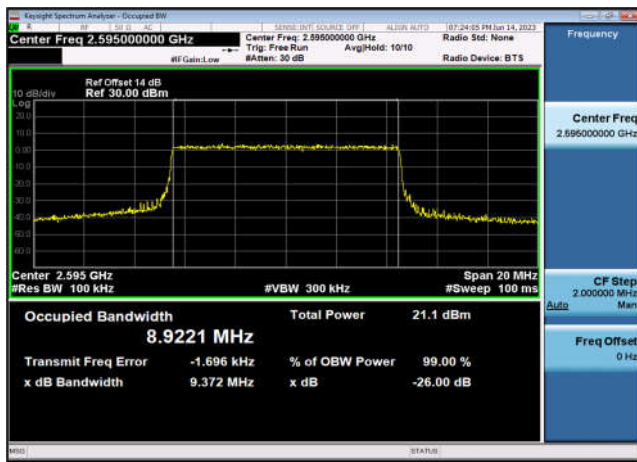
TDD38_MidRange_5_2595_QPSK



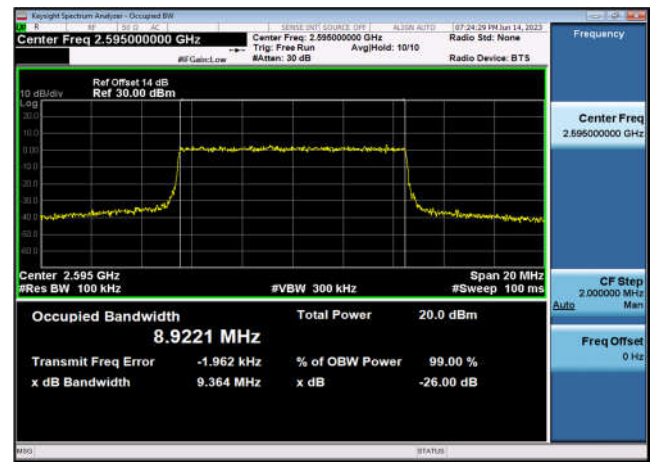
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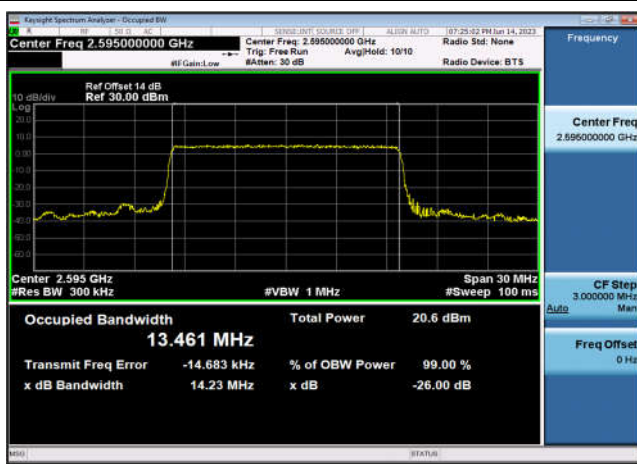
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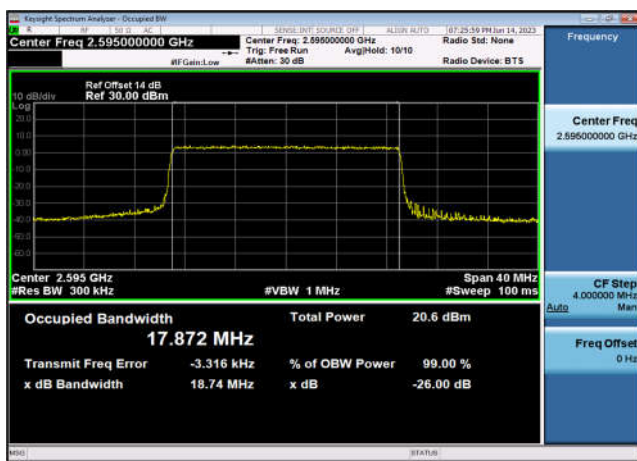
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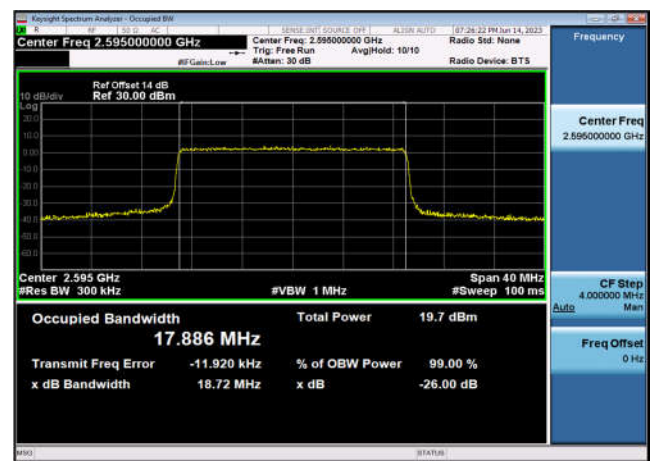
TDD38_MidRange_15_2595_Q16



TDD38_MidRange_20_2595_QPSK



TDD38_MidRange_20_2595_Q16

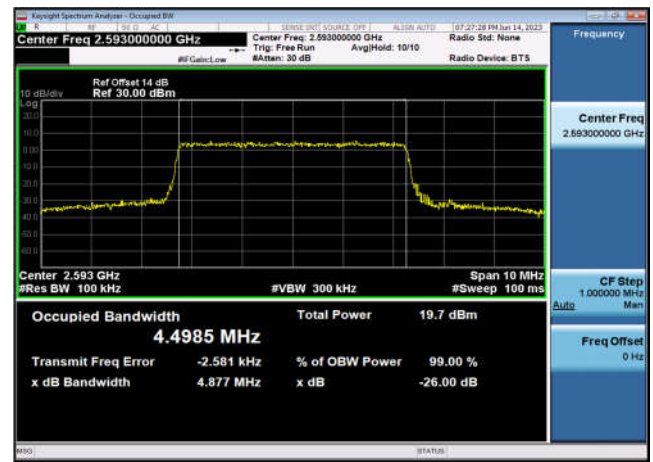




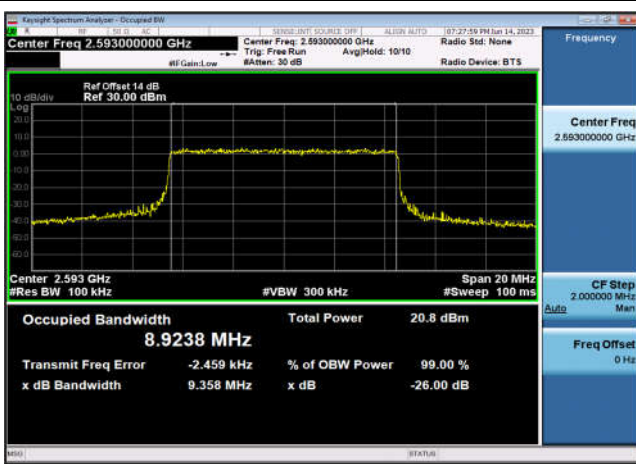
TDD41_MidRange_5_2593_QPSK



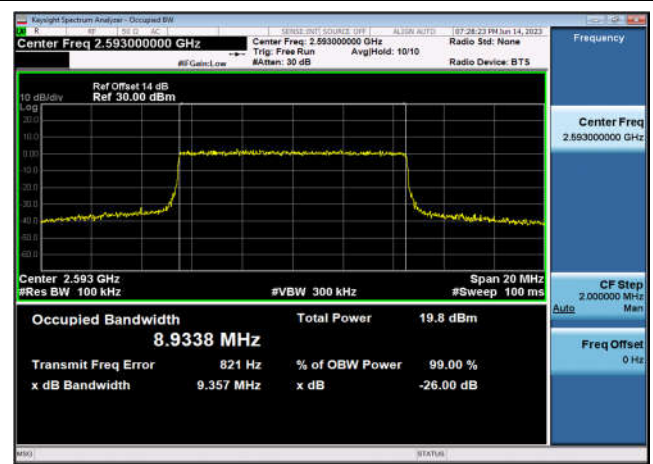
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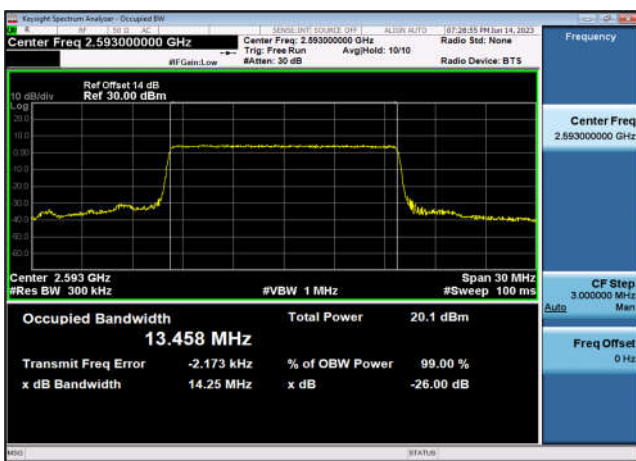
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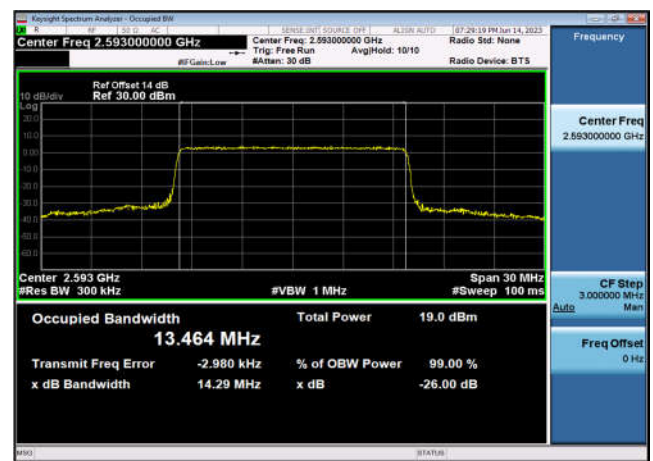
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TDD41_MidRange_15_2593_QPSK

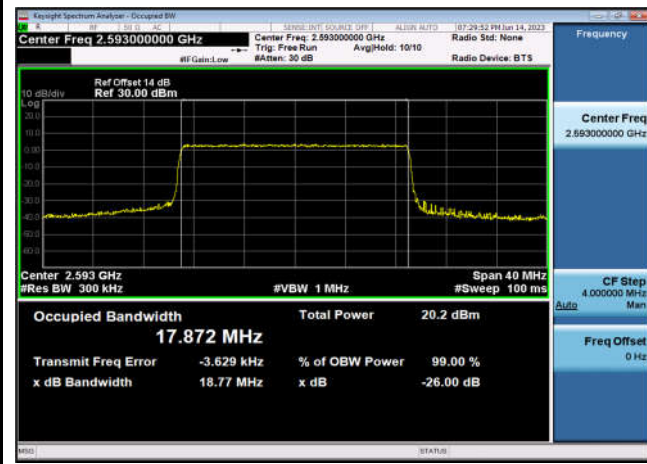


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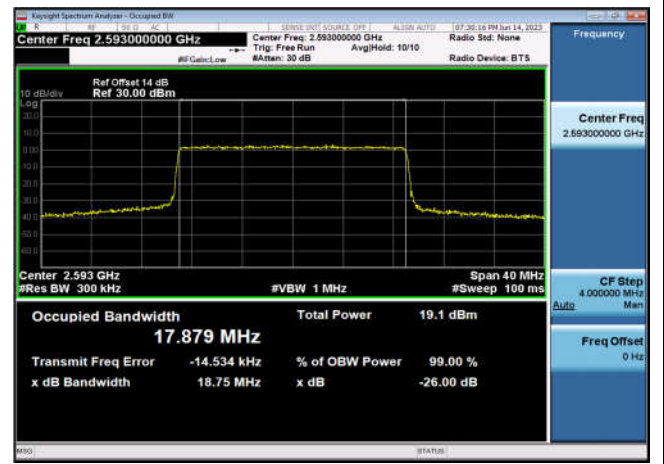




TDD41_MidRange_20_2593_QPSK



TDD41_MidRange_20_2593_Q16





Frequency Stability

Frequency Stability NormalTC_NormalVol									
Temperature	Voltage	Band	BandWidth (MHz)	RbMode	Modulation	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
Normal	Low	FDD02	10	fullIRB	QPSK	4.306	0.002	/	Pass
Normal	Normal	FDD02	10	fullIRB	QPSK	7.410	0.004	/	Pass
Normal	High	FDD02	10	fullIRB	QPSK	5.279	0.003	/	Pass
50	Normal	FDD02	10	fullIRB	QPSK	5.035	0.003	/	Pass
40	Normal	FDD02	10	fullIRB	QPSK	-5.393	0.003	/	Pass
30	Normal	FDD02	10	fullIRB	QPSK	-4.148	0.002	/	Pass
20	Normal	FDD02	10	fullIRB	QPSK	-4.849	0.003	/	Pass
10	Normal	FDD02	10	fullIRB	QPSK	-4.349	0.002	/	Pass
0	Normal	FDD02	10	fullIRB	QPSK	-5.021	0.003	/	Pass
-10	Normal	FDD02	10	fullIRB	QPSK	-4.735	0.003	/	Pass
-20	Normal	FDD02	10	fullIRB	QPSK	-5.293	0.003	/	Pass
-30	Normal	FDD02	10	fullIRB	QPSK	-4.349	0.002	/	Pass
Normal	Low	FDD04	10	fullIRB	QPSK	4.992	0.003	/	Pass
Normal	Normal	FDD04	10	fullIRB	QPSK	5.193	0.003	/	Pass
Normal	High	FDD04	10	fullIRB	QPSK	4.907	0.003	/	Pass
50	Normal	FDD04	10	fullIRB	QPSK	4.921	0.003	/	Pass
40	Normal	FDD04	10	fullIRB	QPSK	7.210	0.004	/	Pass
30	Normal	FDD04	10	fullIRB	QPSK	4.163	0.002	/	Pass
20	Normal	FDD04	10	fullIRB	QPSK	2.732	0.002	/	Pass
10	Normal	FDD04	10	fullIRB	QPSK	4.635	0.003	/	Pass
0	Normal	FDD04	10	fullIRB	QPSK	-6.995	0.004	/	Pass
-10	Normal	FDD04	10	fullIRB	QPSK	5.007	0.003	/	Pass
-20	Normal	FDD04	10	fullIRB	QPSK	6.123	0.004	/	Pass
-30	Normal	FDD04	10	fullIRB	QPSK	5.579	0.003	/	Pass
Normal	Low	FDD05	10	fullIRB	QPSK	2.003	0.002	±2.5	Pass
Normal	Normal	FDD05	10	fullIRB	QPSK	-3.362	0.004	±2.5	Pass
Normal	High	FDD05	10	fullIRB	QPSK	-3.090	0.004	±2.5	Pass
50	Normal	FDD05	10	fullIRB	QPSK	-2.546	0.003	±2.5	Pass
40	Normal	FDD05	10	fullIRB	QPSK	2.389	0.003	±2.5	Pass



30	Normal	FDD05	10	fullRB	QPSK	-2.432	0.003	±2.5	Pass
20	Normal	FDD05	10	fullRB	QPSK	3.276	0.004	±2.5	Pass
10	Normal	FDD05	10	fullRB	QPSK	3.090	0.004	±2.5	Pass
0	Normal	FDD05	10	fullRB	QPSK	1.817	0.002	±2.5	Pass
-10	Normal	FDD05	10	fullRB	QPSK	2.389	0.003	±2.5	Pass
-20	Normal	FDD05	10	fullRB	QPSK	-3.791	0.005	±2.5	Pass
-30	Normal	FDD05	10	fullRB	QPSK	-2.775	0.003	±2.5	Pass
Normal	Low	FDD07	10	fullRB	QPSK	-7.596	0.003	/	Pass
Normal	Normal	FDD07	10	fullRB	QPSK	-6.924	0.003	/	Pass
Normal	High	FDD07	10	fullRB	QPSK	-6.766	0.003	/	Pass
50	Normal	FDD07	10	fullRB	QPSK	-7.138	0.003	/	Pass
40	Normal	FDD07	10	fullRB	QPSK	-7.410	0.003	/	Pass
30	Normal	FDD07	10	fullRB	QPSK	4.377	0.002	/	Pass
20	Normal	FDD07	10	fullRB	QPSK	-8.755	0.003	/	Pass
10	Normal	FDD07	10	fullRB	QPSK	-8.569	0.003	/	Pass
0	Normal	FDD07	10	fullRB	QPSK	8.440	0.003	/	Pass
-10	Normal	FDD07	10	fullRB	QPSK	-7.710	0.003	/	Pass
-20	Normal	FDD07	10	fullRB	QPSK	-6.952	0.003	/	Pass
-30	Normal	FDD07	10	fullRB	QPSK	-8.483	0.003	/	Pass
Normal	Low	TDD38	10	fullRB	QPSK	16.851	0.006	/	Pass
Normal	Normal	TDD38	10	fullRB	QPSK	19.140	0.007	/	Pass
Normal	High	TDD38	10	fullRB	QPSK	17.109	0.007	/	Pass
50	Normal	TDD38	10	fullRB	QPSK	15.221	0.006	/	Pass
40	Normal	TDD38	10	fullRB	QPSK	15.306	0.006	/	Pass
30	Normal	TDD38	10	fullRB	QPSK	16.336	0.006	/	Pass
20	Normal	TDD38	10	fullRB	QPSK	18.511	0.007	/	Pass
10	Normal	TDD38	10	fullRB	QPSK	13.390	0.005	/	Pass
0	Normal	TDD38	10	fullRB	QPSK	18.597	0.007	/	Pass
-10	Normal	TDD38	10	fullRB	QPSK	-15.492	0.006	/	Pass
-20	Normal	TDD38	10	fullRB	QPSK	15.736	0.006	/	Pass
-30	Normal	TDD38	10	fullRB	QPSK	16.122	0.006	/	Pass
Normal	Low	TDD41	10	fullRB	QPSK	27.337	0.011	/	Pass
Normal	Normal	TDD41	10	fullRB	QPSK	22.559	0.009	/	Pass
Normal	High	TDD41	10	fullRB	QPSK	26.121	0.010	/	Pass
50	Normal	TDD41	10	fullRB	QPSK	23.632	0.009	/	Pass



40	Normal	TDD41	10	fullIRB	QPSK	24.762	0.010	/	Pass
30	Normal	TDD41	10	fullIRB	QPSK	22.831	0.009	/	Pass
20	Normal	TDD41	10	fullIRB	QPSK	22.044	0.009	/	Pass
10	Normal	TDD41	10	fullIRB	QPSK	21.544	0.008	/	Pass
0	Normal	TDD41	10	fullIRB	QPSK	23.246	0.009	/	Pass
-10	Normal	TDD41	10	fullIRB	QPSK	25.978	0.010	/	Pass
-20	Normal	TDD41	10	fullIRB	QPSK	22.302	0.009	/	Pass
-30	Normal	TDD41	10	fullIRB	QPSK	25.821	0.010	/	Pass

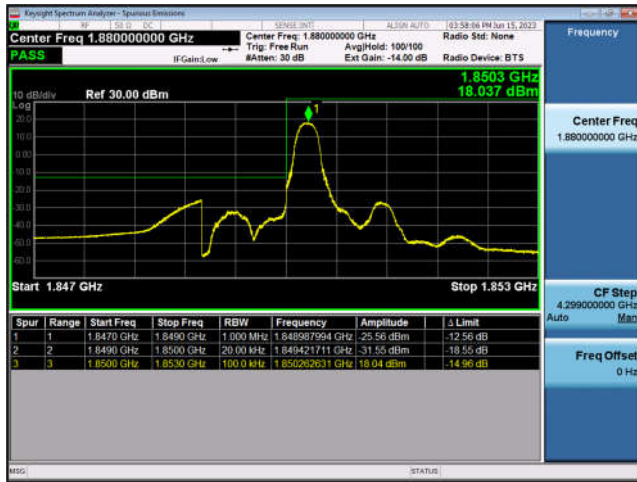
Note:

- 1. Normal Voltage = 3.85V, Low Voltage = 3.50V, High Voltage = 4.40V, Normal Temperature = 20 °C.*
- 2. Judge based on the measured frequency error result, the fundamental wave emission of Band 2/4/7/38/41 is kept within the authorized frequency band.*

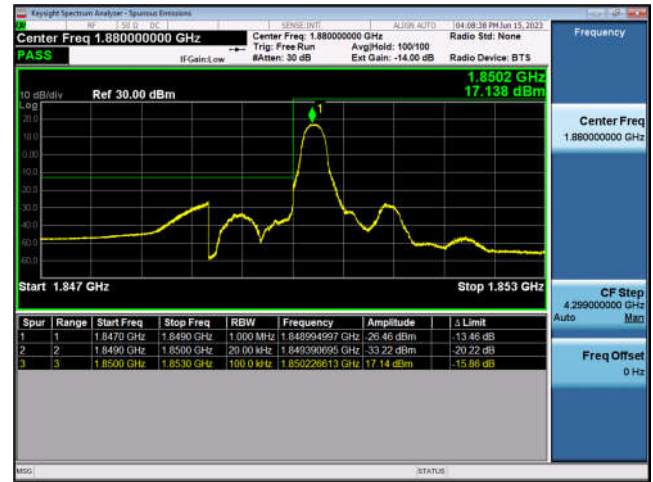
Conducted Band Edge

LTE Band 2:

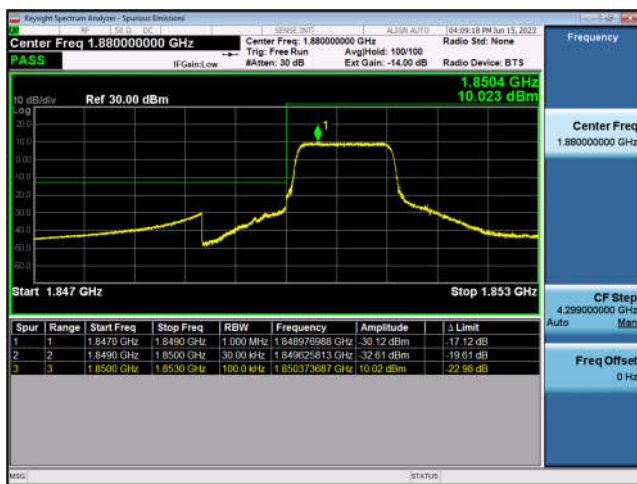
FDD2-1.4MHz-QPSK-LCH-1RB#0



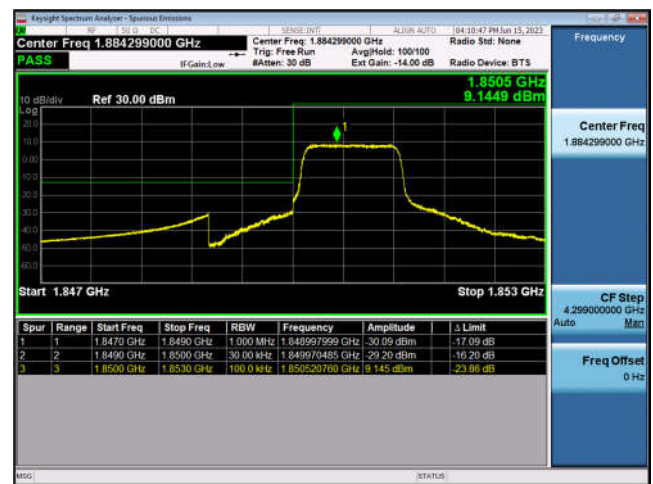
FDD2-1.4MHz-16QAM-LCH-1RB#0



FDD2-1.4MHz-QPSK-LCH-6RB#0



FDD2-1.4MHz-16QAM-LCH-6RB#0



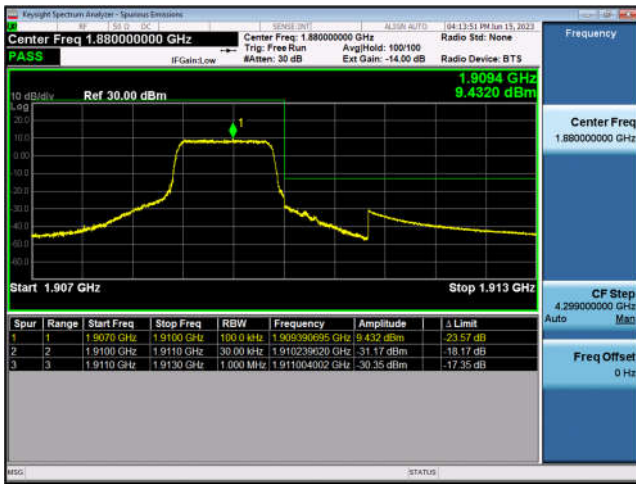
FDD2-1.4MHz-QPSK-HCH-1RB#5



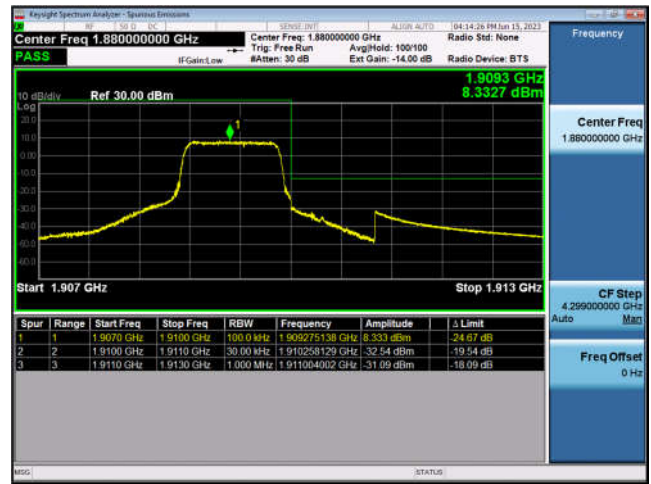
FDD2-1.4MHz-16QAM-HCH-1RB#5



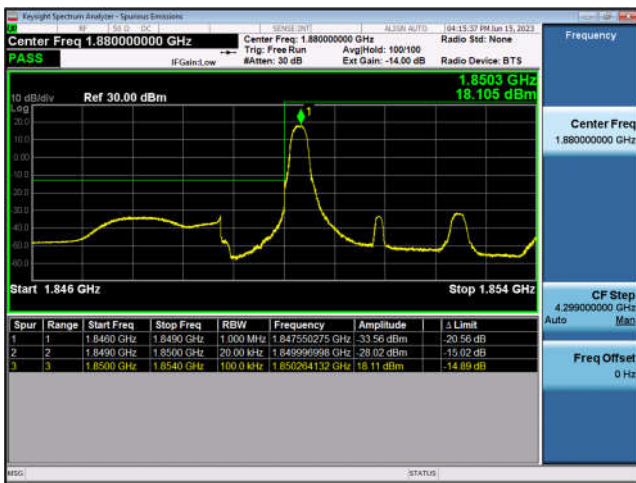
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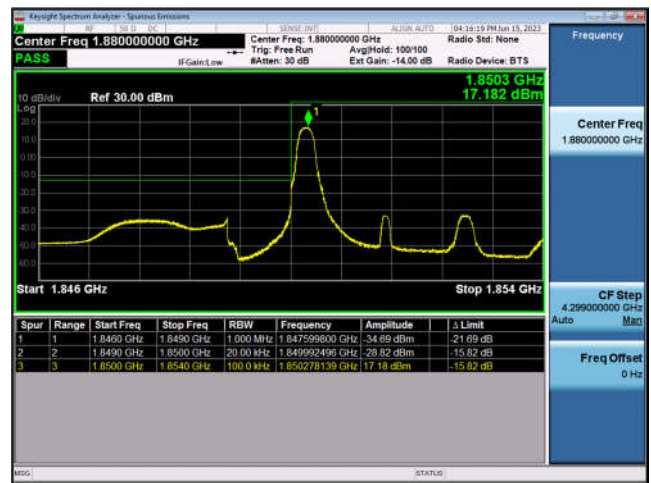
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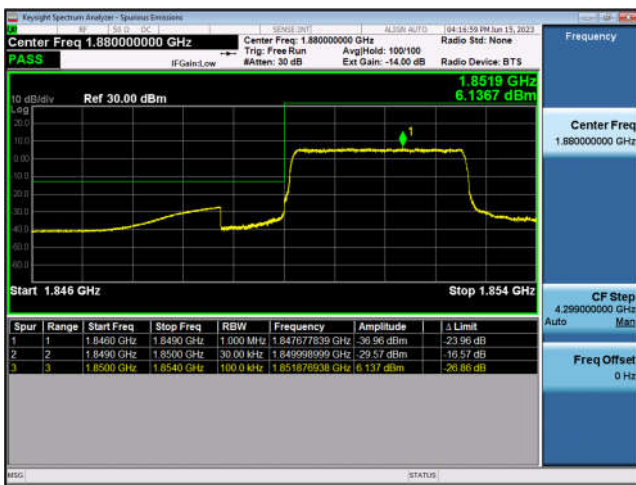
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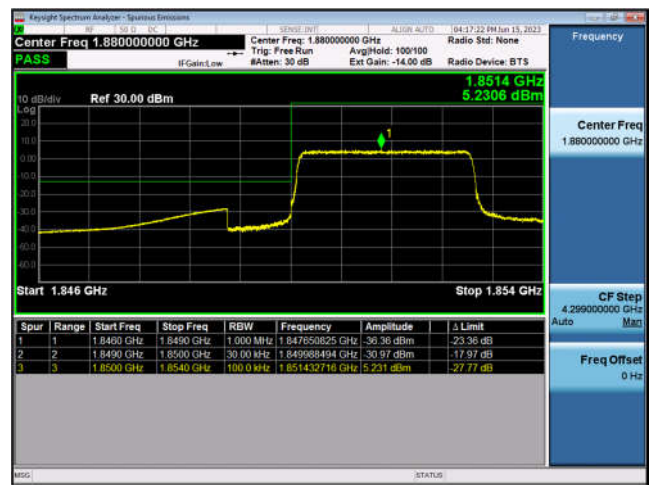
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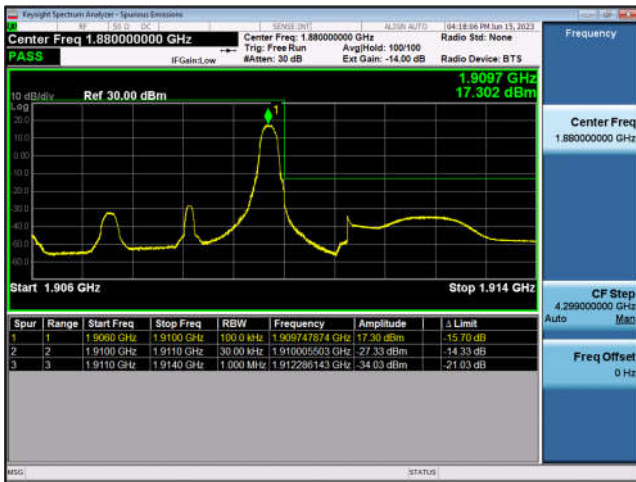
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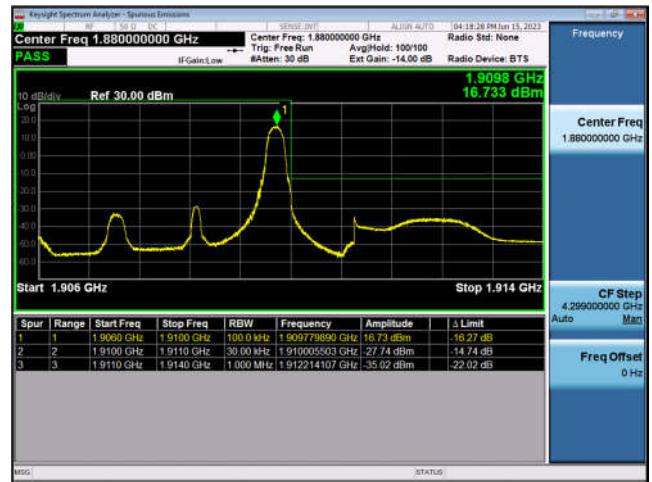
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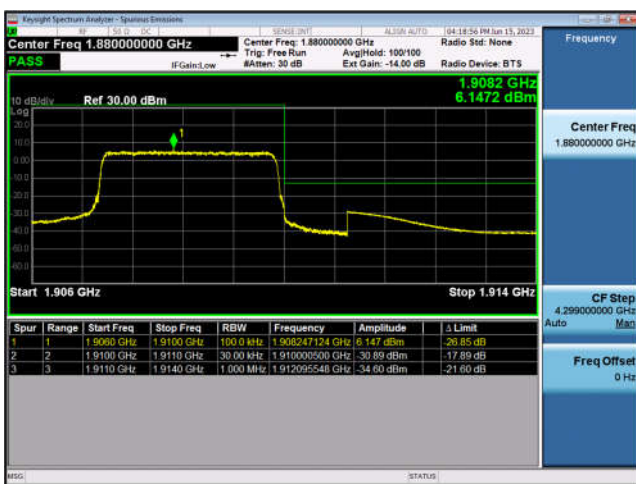
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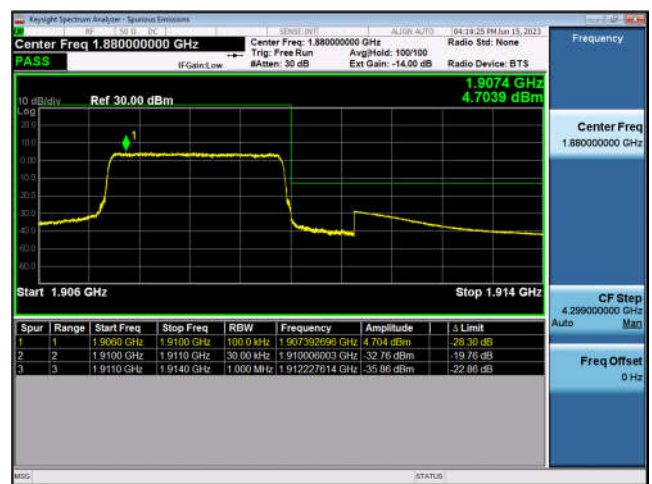
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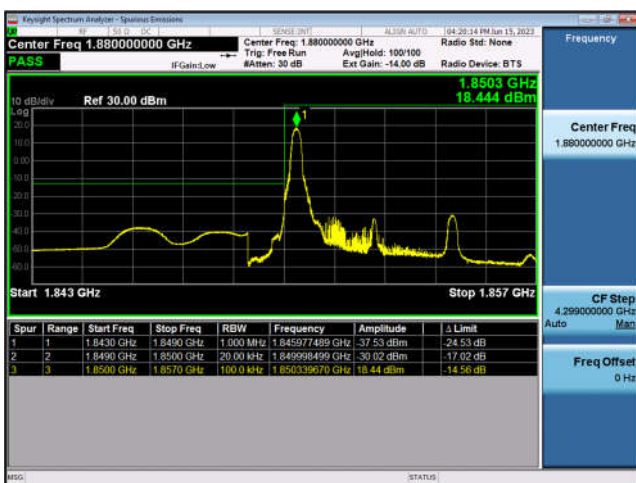
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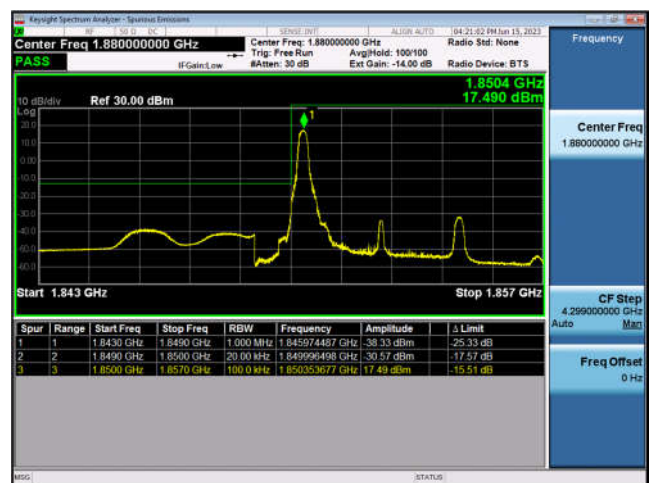
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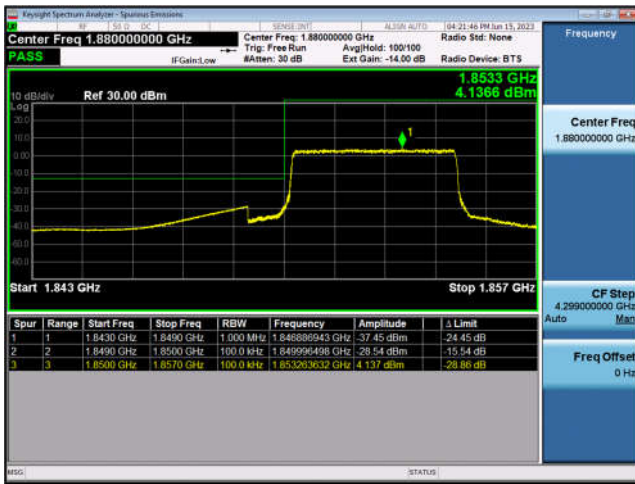
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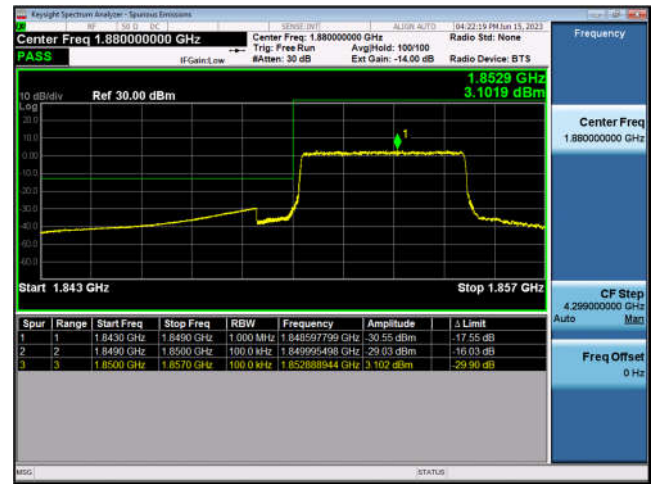
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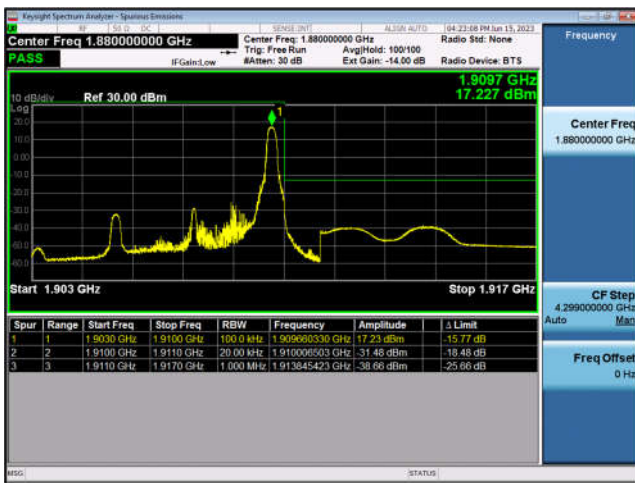
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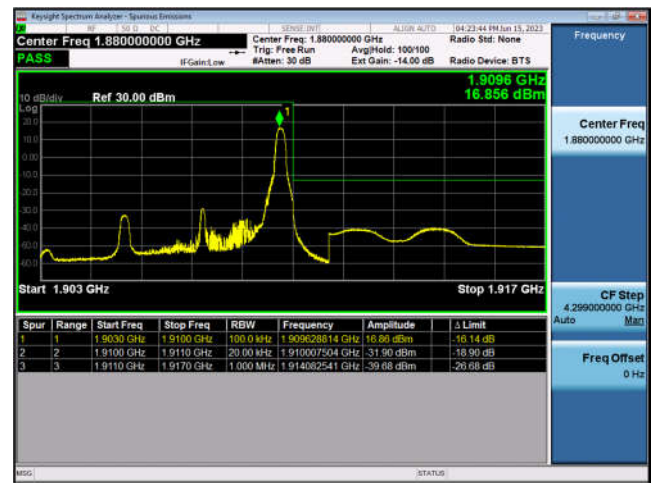
FDD2-5MHz-16QAM-LCH-25RB#0



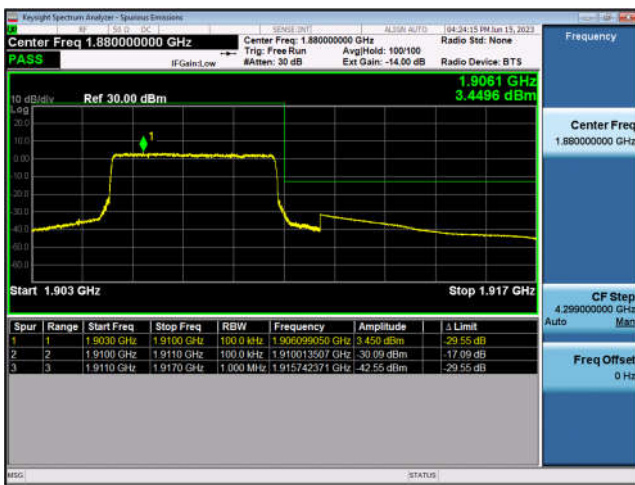
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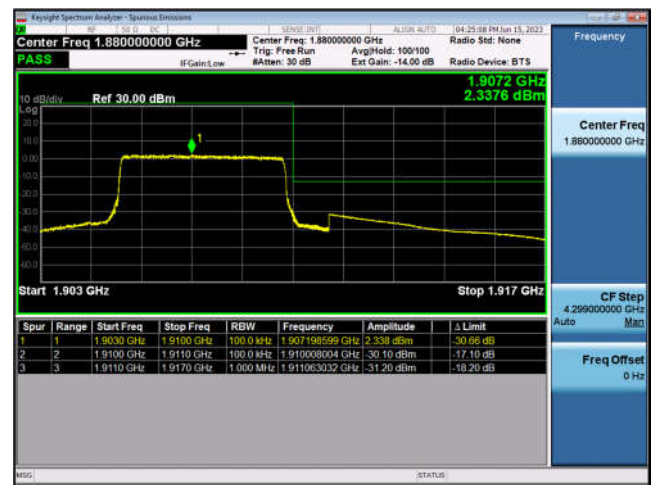
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FDD2-5MHz-QPSK-HCH-25RB#0

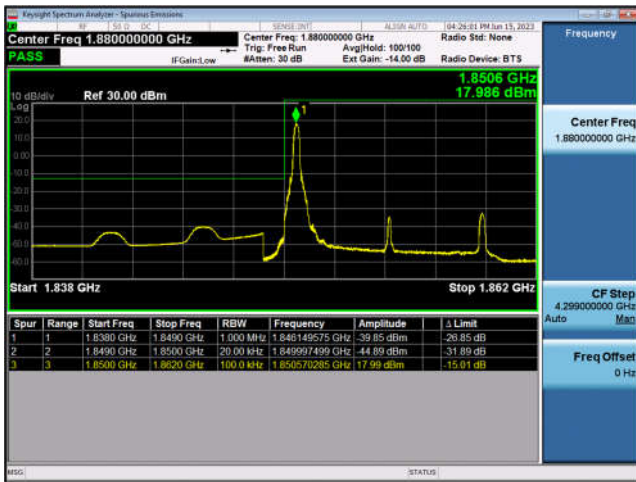


FDD2-5MHz-16QAM-HCH-25RB#0

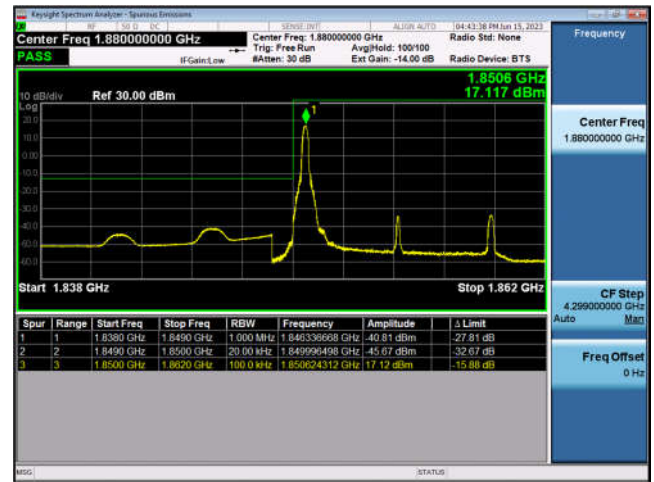




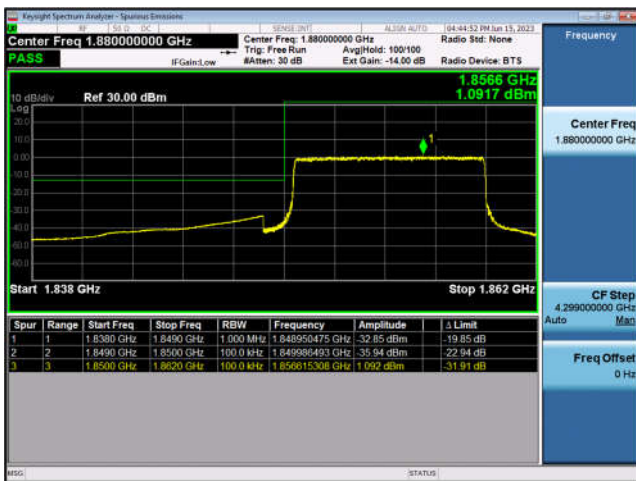
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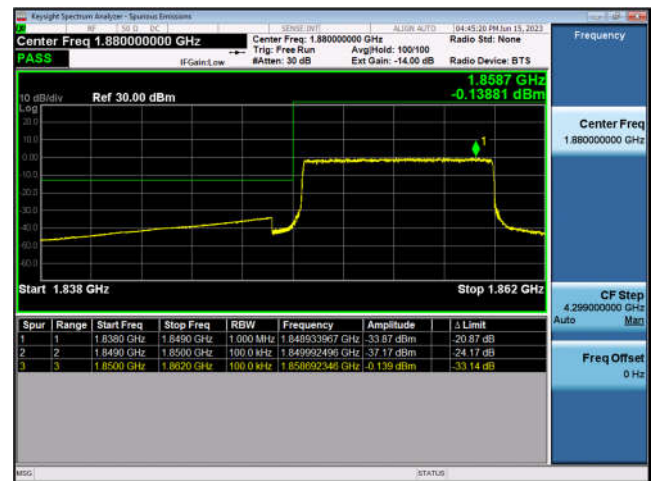
FDD2-10MHz-16QAM-LCH-1RB#0



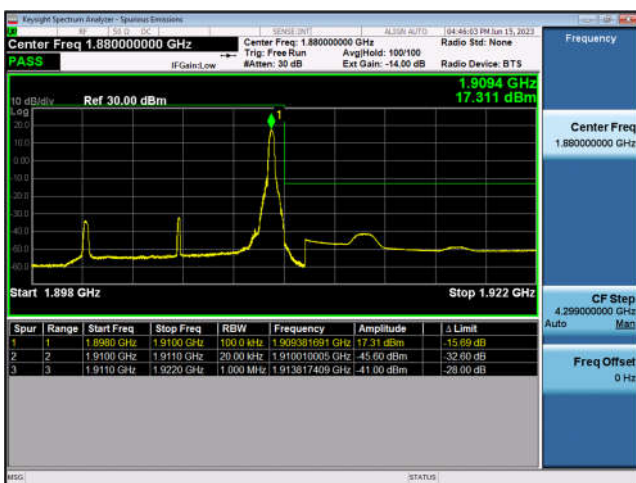
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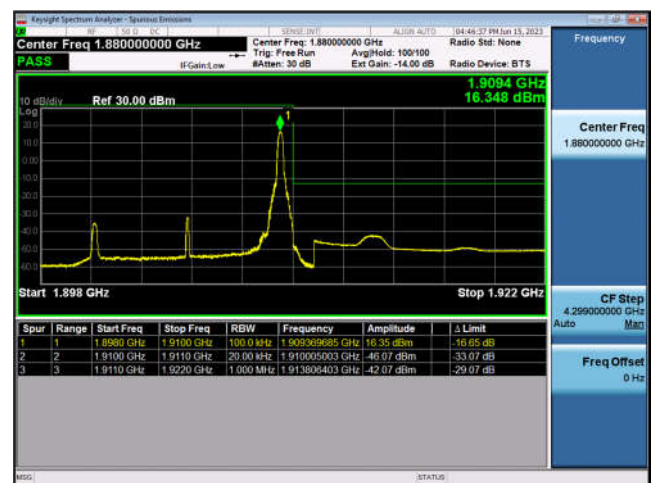
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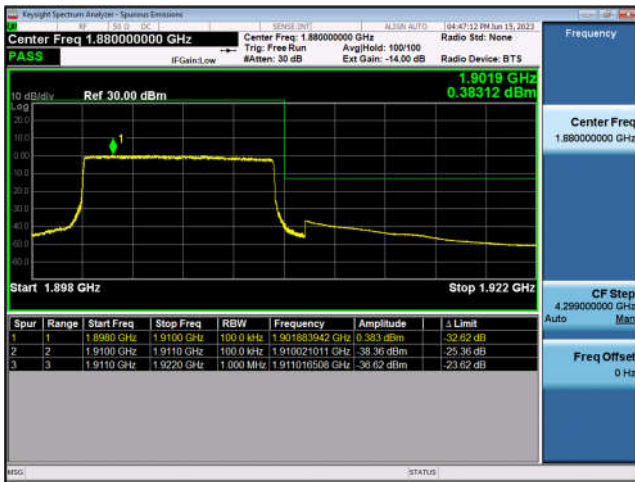
FDD2-10MHz-QPSK-HCH-1RB#49



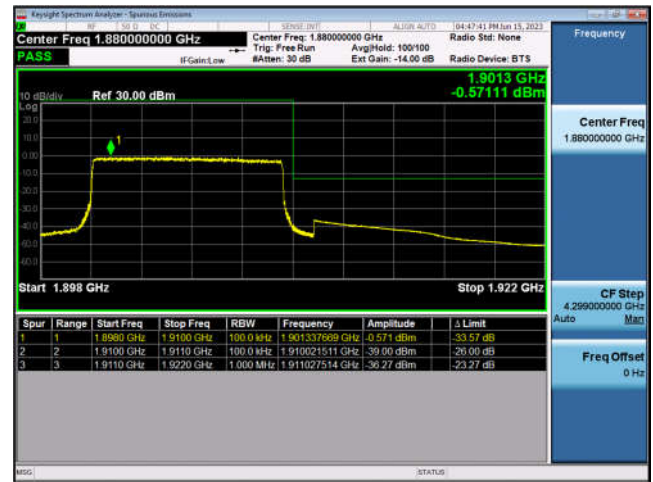
FDD2-10MHz-16QAM-HCH-1RB#49



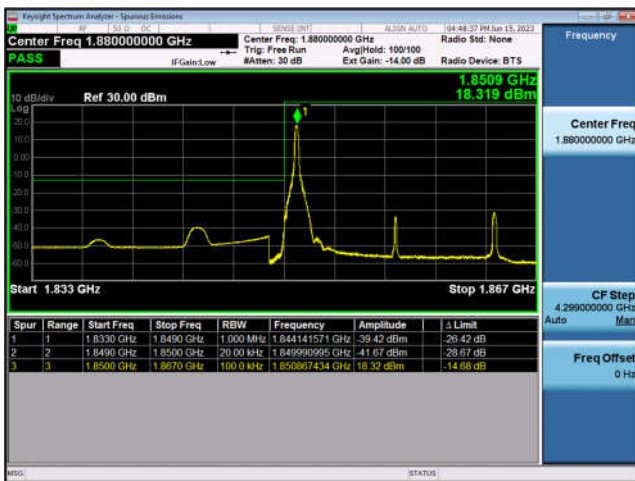
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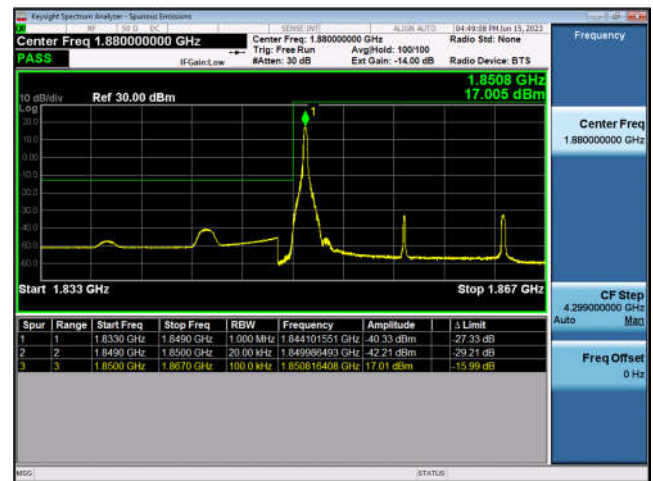
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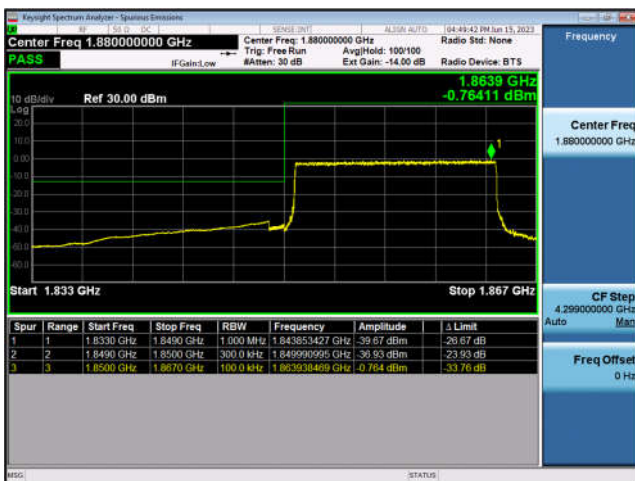
FDD2-15MHz-QPSK-LCH-1RB#0



FDD2-15MHz-16QAM-LCH-1RB#0



FDD2-15MHz-QPSK-LCH-75RB#0

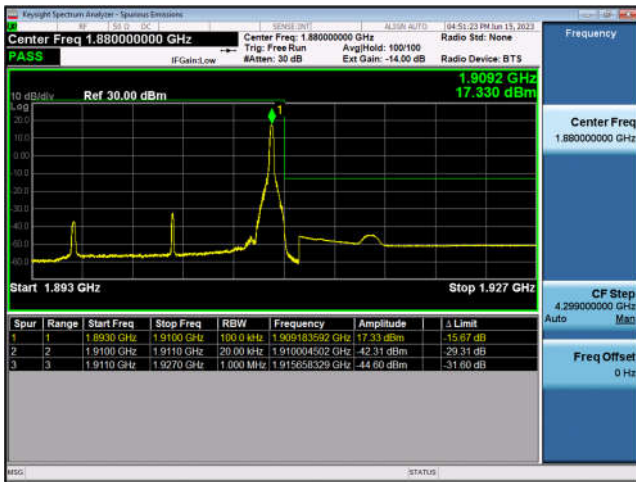


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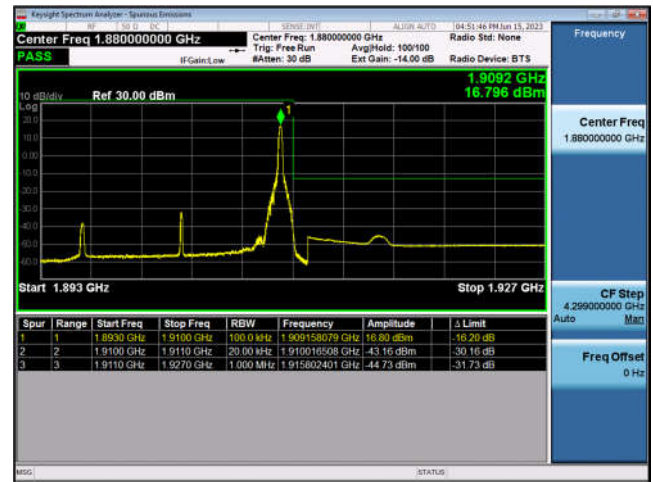




FDD2-15MHz-QPSK-HCH-1RB#74



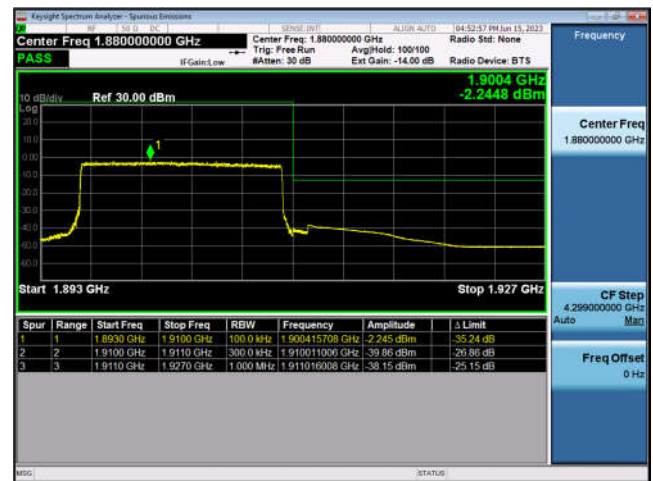
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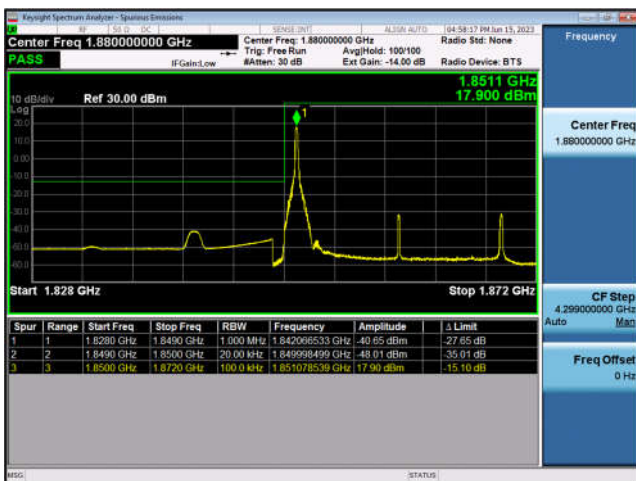
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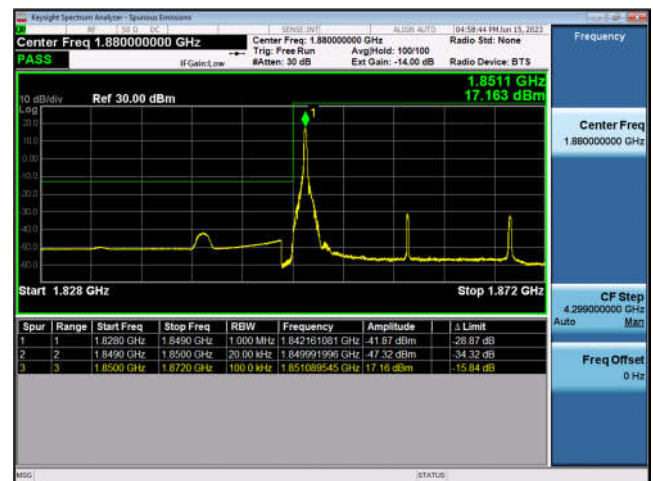
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FDD2-20MHz-QPSK-LCH-1RB#0

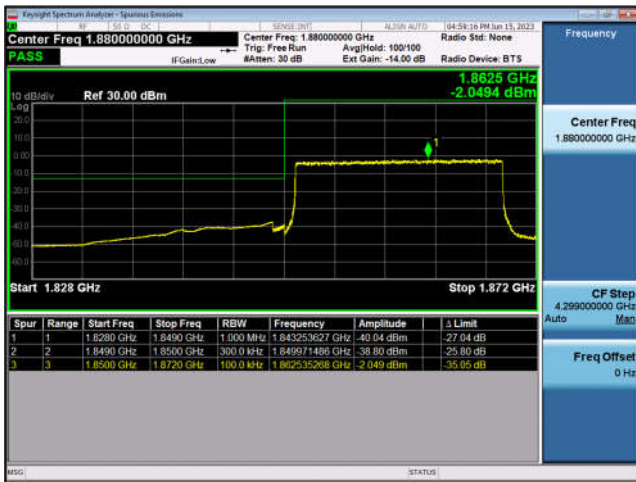


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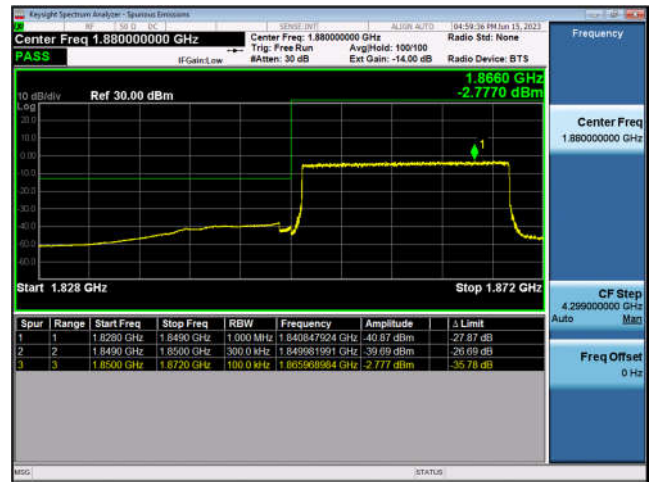




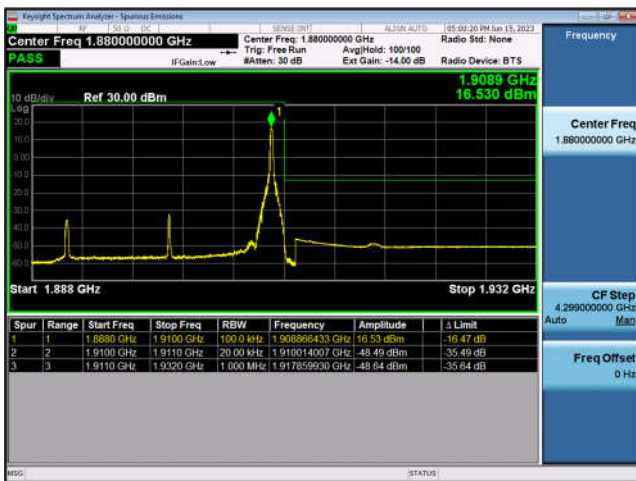
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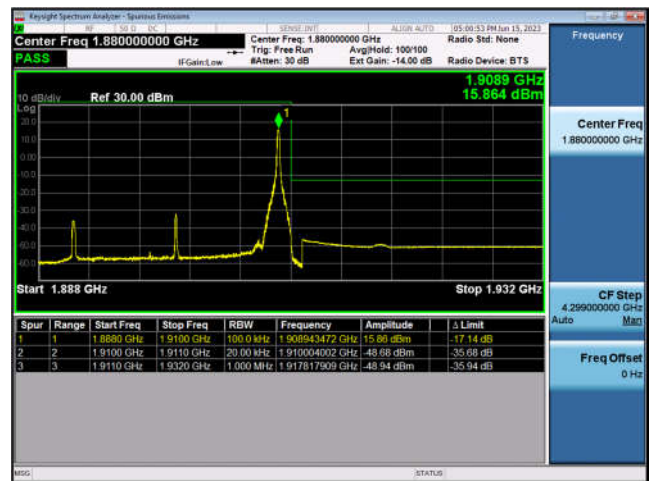
FDD2-20MHz-16QAM-LCH-100RB#0



FDD2-20MHz-QPSK-HCH-1RB#99



FDD2-20MHz-16QAM-HCH-1RB#99



FDD2-20MHz-QPSK-HCH-100RB#0



FDD2-20MHz-16QAM-HCH-100RB#0

