RF Test Report

Applicant	:	Lightspeed International Co
Product Type	:	5G gateway 500G
Trade Name	:	LIGHTSPEED
Model Number	:	5G-500G
Applicable Standard	:	FCC 47 CFR PART 22H ANSI C63.26 2015
Received Date	:	Jun. 11, 2021
Test Period	:	Oct. 05 ~ Nov. 10, 2021
Issued Date	:	Nov. 15, 2021

Issued by

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade District,
Taoyuan City 33465, Taiwan (R.O.C.)
Tel：+886-3-2710188 / Fax：+886-3-2710190

Taiwan Accreditation Foundation accreditation number: 1330
Frequency Range : 9 kHz to 40 GHz
Test Firm MRA designation number: TW0010

Note:
1.The test results are valid only for samples provided by customers and under the test conditions described in this report.
2.This report shall not be reproduced except in full, without the written approval of A Test Lab Technology Corporation.
3.The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Revision History

Rev.	Issued Date	Revisions	Revised By
00	Nov. 15, 2021	Initial Issue	Snow Wang

Verification of Compliance

Applicant	:	Lightspeed International Co
Product Type	:	5G gateway 500G
Trade Name	:	LIGHTSPEED
Model Number	:	5G-500G
FCC ID	:	NGJ-5G-500G
EUT Rated Voltage	:	DC 12 V, 5.0 A
Test Voltage	:	AC 120 V, 60 Hz
Applicable Standard	:	FCC 47 CFR PART 22H ANSI C63.26 2015
Test Result	:	Complied
Performing Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade District, Taoyuan City 33465, Taiwan (R.O.C.) Tel：+886-3-2710188 / Fax：+886-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330 http://www.atl-lab.com.tw/e-index.htm

A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By : Kai Yu Yang

(Kai Yu Yang)

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Appendix A: Conducted Test Results
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2. Peak-to-Average Ratio(CCDF)
3. 26dB Bandwidth and Occupied Bandwidth
4. Band Edge
5. Conducted Spurious Emission
6. Frequency Stability

1 General Information

1.1. EUT Description

Applicant	Lightspeed International Co No.20, Lane 526 Niupu East Road HsinChu, Taiwan, ROC 30091		
Manufacturer	Lightspeed International Co No.20, Lane 526 Niupu East Road HsinChu, Taiwan, ROC 30091		
Product Type	5G gateway 500G		
Trade Name	LIGHTSPEED		
Model Number	5G-500G		
FCC ID	NGJ-5G-500G		
IMEI No.	355979860033311		
Operate Band	Frequency Range (MHz)	Modulation	Channel Bandwidth
LTE Band 5	UL: 824 ~ 849	QPSK, 16QAM	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
	DL: 869 ~ 894	QPSK, 16QAM	
Type of Antenna	Linear Antenna		
Antenna Gain	1.78 dBi		
Operate Temp. Range	0 ~ +40 ℃		

Band	Channel Bandwidth	Modulation	E.R.P. /E.I.R.P.	
			(dBm)	(W)
LTE Band5	1.4 MHz	QPSK	22.62	0.183
LTE Band5	1.4 MHz	16QAM	21.93	0.156
LTE Band5	1.4 MHz	64QAM	21.09	0.129
LTE Band5	1.4 MHz	256QAM	19.44	0.088
LTE Band5	3 MHz	QPSK	22.61	0.182
LTE Band5	3 MHz	16QAM	21.97	0.157
LTE Band5	3 MHz	64QAM	21.13	0.130
LTE Band5	3 MHz	256QAM	19.47	0.089
LTE Band5	5 MHz	QPSK	22.63	0.183
LTE Band5	5 MHz	16QAM	21.98	0.158
LTE Band5	5 MHz	64QAM	21.29	0.135
LTE Band5	5 MHz	256QAM	19.5	0.089
LTE Band5	10 MHz	QPSK	22.56	0.180
LTE Band5	10 MHz	16QAM	21.99	0.158
LTE Band5	10 MHz	64QAM	21.31	0.135
LTE Band5	10 MHz	256QAM	19.49	0.089

Band	Channel Bandwidth	Modulation	Occupied Bandwidth (MHz)	Emission Designator
LTE Band5	1.4 MHz	QPSK	1.0866	1M09G7D
LTE Band5	1.4 MHz	16QAM	1.0898	1M09W7D
LTE Band5	1.4 MHz	64QAM	1.0904	1M09W7D
LTE Band5	1.4 MHz	256QAM	1.0863	1M09W7D
LTE Band5	3 MHz	QPSK	2.6853	2M69G7D
LTE Band5	3 MHz	16QAM	2.6898	2M69W7D
LTE Band5	3 MHz	64QAM	2.6971	2M70W7D
LTE Band5	3 MHz	256QAM	2.6943	2M69W7D
LTE Band5	5 MHz	QPSK	4.4939	4M49G7D
LTE Band5	5 MHz	16QAM	4.4917	4M49W7D
LTE Band5	5 MHz	64QAM	4.4906	4M49W7D
LTE Band5	5 MHz	256QAM	4.4989	4M50W7D
LTE Band5	10 MHz	QPSK	8.9899	8M99G7D
LTE Band5	10 MHz	16QAM	8.9522	8M95W7D
LTE Band5	10 MHz	64QAM	8.9630	8M96W7D
LTE Band5	10 MHz	256QAM	8.9751	8M98W7D

1.2. Mode of Operation

Three channels had been tested for each channel bandwidth.

LTE Band 5				
Channel Bandwidth	1.4 MHz		3 MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	20407	824.7	20415	825.5
Middle CH	20525	836.5	20525	836.5
High CH	20643	848.3	20635	847.5
Channel Bandwidth	5 MHz		10 MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	20425	826.5	20450	829.0
Middle CH	20525	836.5	20525	836.5
High CH	20625	846.5	20600	844.0

Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

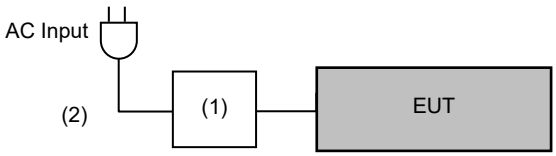
Band	Channel Bandwidth	Test Modes	
LTE Band 5	1.4 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 2) Link ☐ LTE(RB Size 1, RB Offset 5) Link ☐ LTE(RB Size 3, RB Offset 0) Link ☐ LTE(RB Size 3, RB Offset 1) Link ☐ LTE(RB Size 3, RB Offset 3) Link ☐ LTE(RB Size 6, RB Offset 0) Link	QPSK
	3 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 7) Link ☐ LTE(RB Size 1, RB Offset 14) Link ☐ LTE(RB Size 8, RB Offset 0) Link ☐ LTE(RB Size 8, RB Offset 3) Link ☐ LTE(RB Size 8, RB Offset 7) Link ☐ LTE(RB Size 15, RB Offset 0) Link	QPSK
	5 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 12) Link ☐ LTE(RB Size 1, RB Offset 24) Link ☐ LTE(RB Size 12, RB Offset 0) Link ☐ LTE(RB Size 12, RB Offset 6) Link ☐ LTE(RB Size 12, RB Offset 13) Link ☐ LTE(RB Size 25, RB Offset 0) Link	QPSK
	10 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 24) Link ☐ LTE(RB Size 1, RB Offset 49) Link ☐ LTE(RB Size 25, RB Offset 0) Link ☐ LTE(RB Size 25, RB Offset 12) Link ☐ LTE(RB Size 25, RB Offset 25) Link ☐ LTE(RB Size 50, RB Offset 0) Link	QPSK

1.3. EUT Test Step

1	Setup the EUT shown on “Configuration of Test System Details”.
2	Turn on the power of all equipment.
3	EUT run test program test.

Measurement Software			
No.	Description	Software	Version
1	Radiated Emission	EZ EMC	1.1.4.4

1.4. Configuration of Test System Details



Devices Description					
Product		Manufacturer	Model Number	Serial Number	Power Cord
(1)	SWITCHING ADAPTER	SHENZHEN FU JIA APPLIANCE CO., LTD.	FJ-SW20171205000	---	---
(2)	Power cable	Yung Li	YP-12+YC-20D1	---	---

1.5. Test Instruments

For Radiated Emissions
Test Period: Oct. 05, 2021/ Nov. 10, 2021
Testing Engineer: Hung Chou, Eva Lee

Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9010A	MY52221312	01/18/2021	1 year
☐	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	01/08/2021	1 year
☒	Spectrum Analyzer (2 Hz~50 GHz)	Keysight	N9030B	MY57143537	04/19/2021	1 year
☒	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	01/15/2021	1 year
☐	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A10961	07/06/2021	1 year
☐	Broadband Amplifier (100 kHz~1 GHz)	Titan	T0910E00014330A 1F	001	07/23/2021	1 year
☐	Amplifier (1 GHz~26.5 GHz)	Agilent	8449B	3008A02237	10/21/2020	1 year
☒	Broadband Amplifier (1 GHz~26.5 GHz)	Titan	T0912E01263025A 1F	002	07/26/2021	1 year
☐	Preamplifier (26.5 GHz~40 GHz)	EMCI	EMC2654045	980028	08/19/2021	1 year
☒	Loop Antenna (9 kHz~30 MHz)	COM-POWER CORPORATION	AL-130	121014	04/07/2021	1 year
☒	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	01146	07/19/2021	1 year
☐	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	416	11/11/2020	1 year
☒	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	02207	07/09/2021	1 year
☐	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	9120D-550	08/24/2021	1 year
☐	Broadband Horn Antenna (18 GHz~40 GHz)	Schwarzbeck Mess-Elektronik	9170	9170-320	08/24/2021	1 year
☐	Horn Antenna (18 GHz~40 GHz)	ETS	3116	00086467	12/03/2020	1 year
☐	RF Cable	EMCI	EMC104-N-N-6000	TE01-1	02/19/2021	1 year
☐	Microwave Cable	EMCI	EMC104-SM-SM-1 3000	170814	02/19/2021	1 year
☐	Microwave Cable	EMCI	EMC102-KM-KM-1 4000	151001	02/19/2021	1 year

Note: N.C.R. = No Calibration Request.

Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Coaxial Cable	Titan	T0710AT327A10A 100	J11005	08/06/2021	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 900	J11004	08/06/2021	1 year
☒	Coaxial Cable	Titan	CFD400NL-LW	001	08/06/2021	1 year
☐	Universal Radio Communication Tester	R&S	CMU200	112387	03/17/2021	1 year
☐	Wideband Radio Communication Tester	R&S	CMW500	103168	11/20/2020	1 year
☐	Universal Radio Communication Tester	Agilent	E5515C	MY47511156	09/09/2021	1 year
☒	Radio Communication Analyzer	Anritsu	MT8820C	6201342039	12/03/2020	1 year
☐	Radio Communication Analyzer	Anritsu	MT8821C	6201300618	06/03/2021	1 year
☐	UXM 5G Wireless Test Platform	Keysight	E7515B	MY59321574	07/05/2021	1 year
☐	Radio Communication Analyzer	Anritsu	MT8000A	6262166824	09/18/2020	1 year
☐	Millimeter-Wave Signal Analyzer Frequency Extension Module (50-75GHz)	VDI	N9029AV15 (SAX 410)	US54250165	10/22/2019	2 years
☐	Millimeter-Wave Signal Analyzer Frequency Extension Module (60-90GHz)	VDI	N9029AV12 (SAX 409)	US54250171	10/22/2019	2 years
☐	Millimeter-Wave Signal Analyzer Frequency Extension Module (90-140GHz)	VDI	N9029AV08 (SAX 406)	US53250013	10/22/2019	2 years
☐	Millimeter-Wave Signal Analyzer Frequency Extension Module (140-220GHz)	VDI	N9029AV05 (SAX 407)	US53250020	10/22/2019	2 years
☐	Millimeter-Wave Signal Analyzer Frequency Extension Module (220-330GHz)	VDI	N9029AV03 (SAX 408)	US53250022	10/22/2019	2 years
☐	Std Gain Horn Antenna Std Gain (50-75GHz)	VDI	N9029AH15 (WR15)	WR15-01	08/06/2019	2 years
☐	Std Gain Horn Antenna Std Gain (60-90GHz)	VDI	N9029AH12 (WR12)	WR12-01	08/16/2019	2 years
☐	Std Gain Horn Antenna Std Gain (90-140GHz)	VDI	N9029AH08 (WR8.0)	WR08-01	08/06/2019	2 years

Note: N.C.R. = No Calibration Request.

Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Std Gain Horn Antenna Std Gain (140-220GHz)	VDI	N9029AH05 (WR5.0)	WR05-01	08/22/2019	2 years
☐	Std Gain Horn Antenna Std Gain (220-325GHz)	VDI	N9029AH03 (WR3.4)	WR3.4-01	08/29/2019	2 years
☐	Power Supply	KEITHLEY	2303	4045290	02/01/2021	1 year

For Conducted
Test Period: Oct. 28, 2021
Testing Engineer: Eric Ou yang

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Divider	Warison	WDIV-2I0.5-26.5S20	WR222AM2B1	03/12/2021	1 year
☐	Divider	Warison	WDIV-2I0.5-26.5S20	WR222AM2B2	11/02/2020	1 year
☐	Spectrum Analyzer (3 Hz~13.2 GHz)	Agilent	E4445A	MY45300744	12/02/2020	1 year
☒	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	01/08/2021	1 year
☐	Spectrum Analyzer (20 Hz~26.5 GHz)	R&S	FSU26	201118	01/14/2021	1 year
☐	Universal Radio Communication Tester	R&S	CMU200	112387	03/17/2021	1 year
☐	Wideband Radio Communication Tester	R&S	CMW500	103168	11/20/2020	1 year
☐	Universal Radio Communication Tester	Agilent	E5515C	MY47511156	09/09/2021	1 year
☒	Radio Communication Analyzer	Anritsu	MT8820C	6201342039	12/03/2020	1 year
☐	Radio Communication Analyzer	Anritsu	MT8821C	6201300618	06/03/2021	1 year
☐	UXM 5G Wireless Test Platform	Keysight	E7515B	MY59321574	07/05/2021	1 year
☐	Radio Communication Analyzer	Anritsu	MT8000A	6262166824	09/18/2020	1 year
☐	Signalling Tester	Anritsu	MD8475A	6201357755	03/29/2021	1 year

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	USB sound vibration measurement system	National Instruments	USB-4432	1AF01D4	11/27/2020	1 year
☐	USB sound vibration measurement system	PCB	352C65	LW161409	12/02/2020	1 year
☐	USB sound vibration measurement system	G.R.A.S	40PH	186006	12/04/2020	1 year
☒	Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	03/30/2021	1 year
☐	Electromagnetic high frequency vibration testing machine	KING DESIGN	KD-9363-EM-30F4 K-10N10	RZ110218299	05/15/2020	1 year
☐	Power Supply	KEITHLEY	2303	4045290	02/01/2021	1 year
☒	Digital Power Analyzer	IDRC	CP-268	268711	12/01/2020	1 year

1.6. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-30
Humidity (%RH)	25-75	45-75

Test Setting Condition		
L.V.	Low Voltage	AC 100 V
N.V.	Normal Voltage	AC 120 V
H.V.	High Voltage	AC 138 V
L.T.	Low Temperature	0 °C
N.T.	Normal Temperature	+25 °C
H.T.	High Temperature	+40 °C

1.7. Measurement Uncertainty

Parameter	Uncertainty
Conducted Output Average Power	1.1 dB
Effective Radiated Power / Equivalent Isotropic Radiated Power	6.3 dB
Frequency Stability	1.2×10^{-7} x fc (Hz)
Emission Bandwidth &Occupied Bandwidth	4.5 %
Peak to Average Ratio	1.1 dB
Band Edge	1.1 dB
Conducted Spurious Emission	1.1 dB
Radiated Emission	6.3 dB

1.8. Summary of Test Result

FCC Rule	Description	Result
§2.1046	Conducted Output Average Power	Pass
§22.913	Equivalent Isotropic Radiated Power / Equivalent Radiated Power	Pass
§ANSI C63.26	Peak to average ratio	Pass
§2.1055 §22.355	Frequency Stability	Pass
§2.1049	Emission Bandwidth & Occupied Bandwidth	Pass
§2.1051 §22.917	Band Edge	Pass
§2.1051 §22.917	Conducted Spurious Emissions	Pass
§2.1053 §22.917	Radiated Spurious Emissions	Pass

Decision Rule

■ Uncertainty is not included.

□ Uncertainty is included.

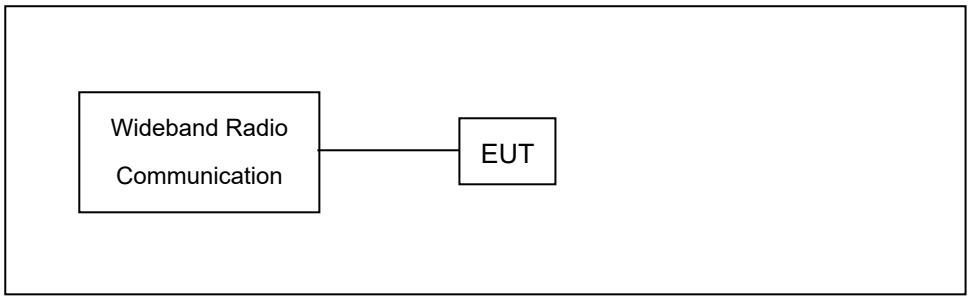
2 Measurement Procedure

2.1. Conducted Output Average Power Test

■ Limit

N/A

■ Test Setup



■ Test Procedure

a. The EUT was set up for the maximum power with simulator.

b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

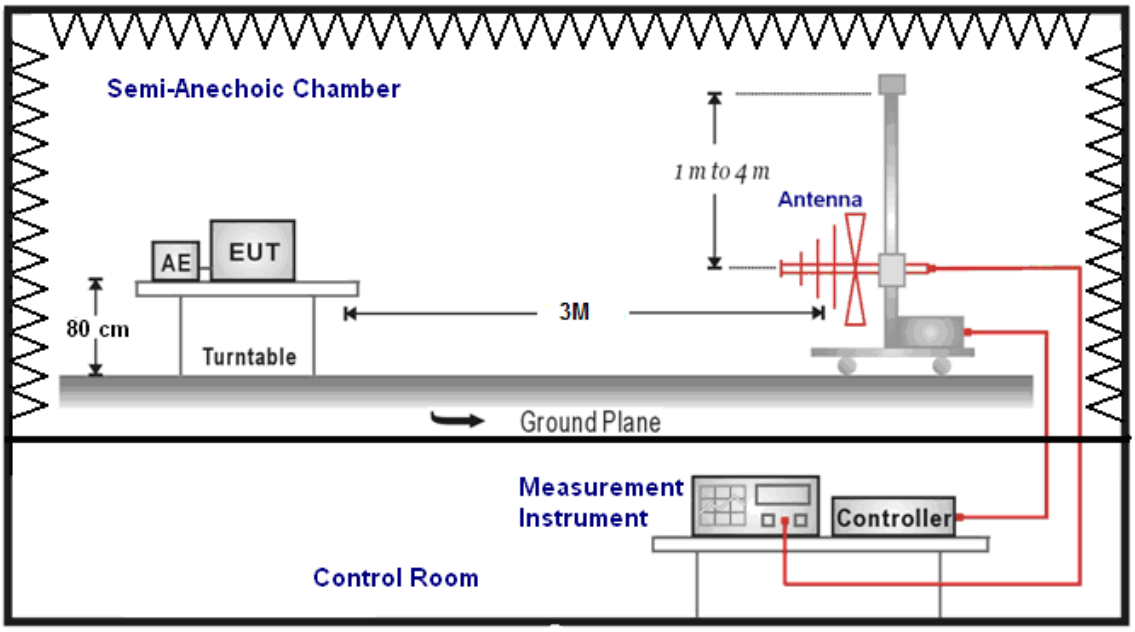
2.2. Effective Radiated Power / Equivalent Isotropic Radiated Power Test

■ Limit

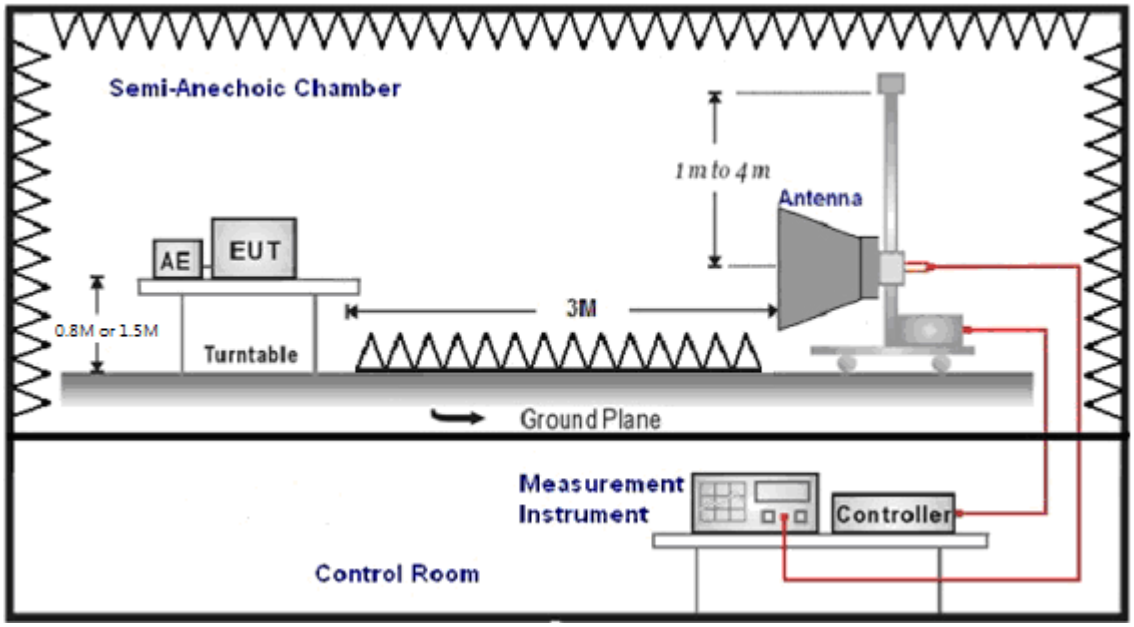
For FCC Part 22.913(a)(5): The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

■ Test Setup

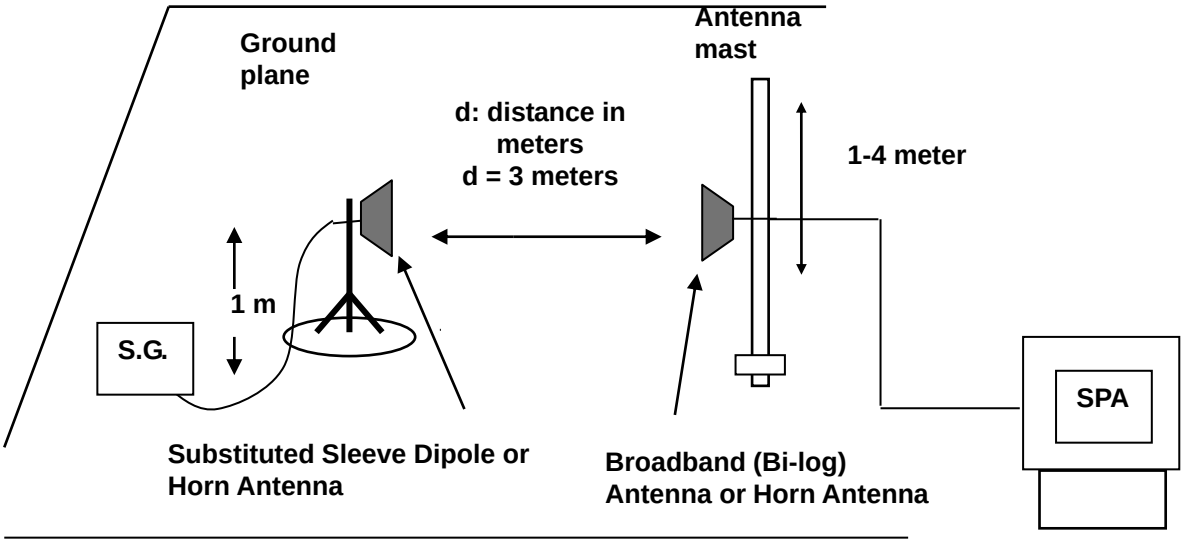
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



■ **Test Procedure**

a. The EUT was set up for the maximum power with wwan link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range).

b. E.I.R.P power measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (1.5 m for above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

c. The substitution antenna (Note:1 & 2) is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G.

d. E.I.R.P. = Output power level of S.G - TX cable loss + Antenna gain of substitution horn

e. E.R.P. = E.I.R.P- 2.15 dB

Note: 1. Below 1 GHz Substituted Method Test：Sleeve dipole antenna to Bi-Log Antenna

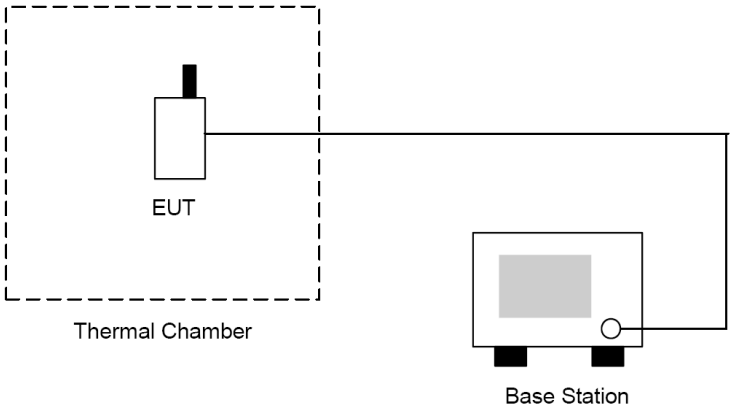
2. Above 1 GHz Substituted Method Test：Horn antenna to Horn Antenna

2.3. Frequency Stability Test

■ Limit

According to the FCC rule shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with the 2.1055(a)(1) -30 °C ~ 50 °C.

■ Setup



■ Test Procedure

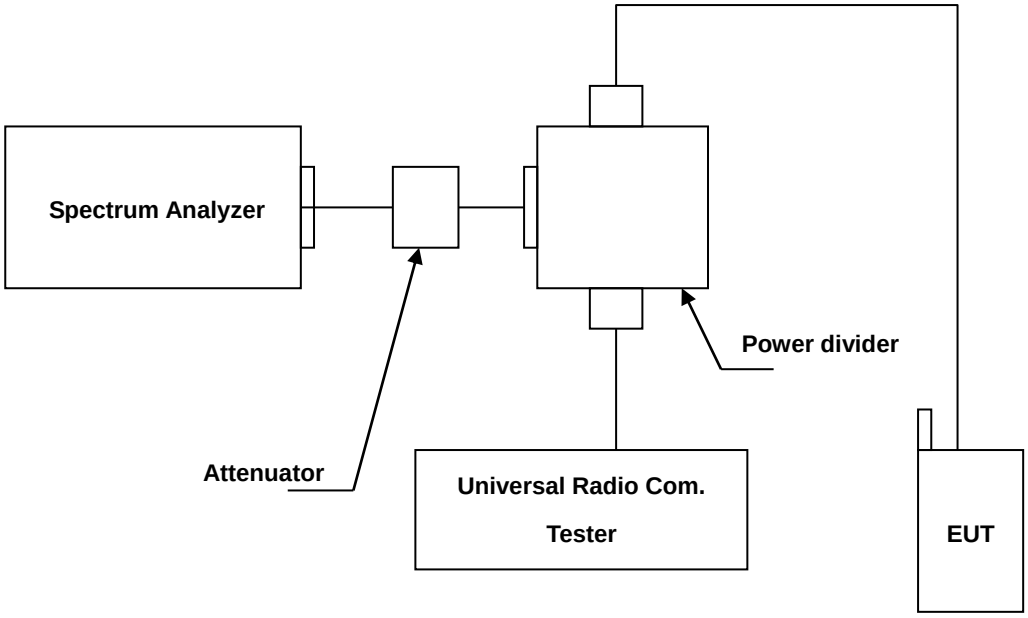
1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to -30 °C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in 10 °C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The EUT was placed in a temperature chamber at 25 ± 5 °C and connected as the following section.
5. The power supply voltage to the EUT was varied from BEP to 115 % of the nominal value measured at the input to the EUT.
6. The temperature tests were performed for the worst case.
7. Test data was recorded.

2.4. Emission Bandwidth & Occupied Bandwidth Test

■ Limit

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.
The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

■ Setup



■ Test Procedure

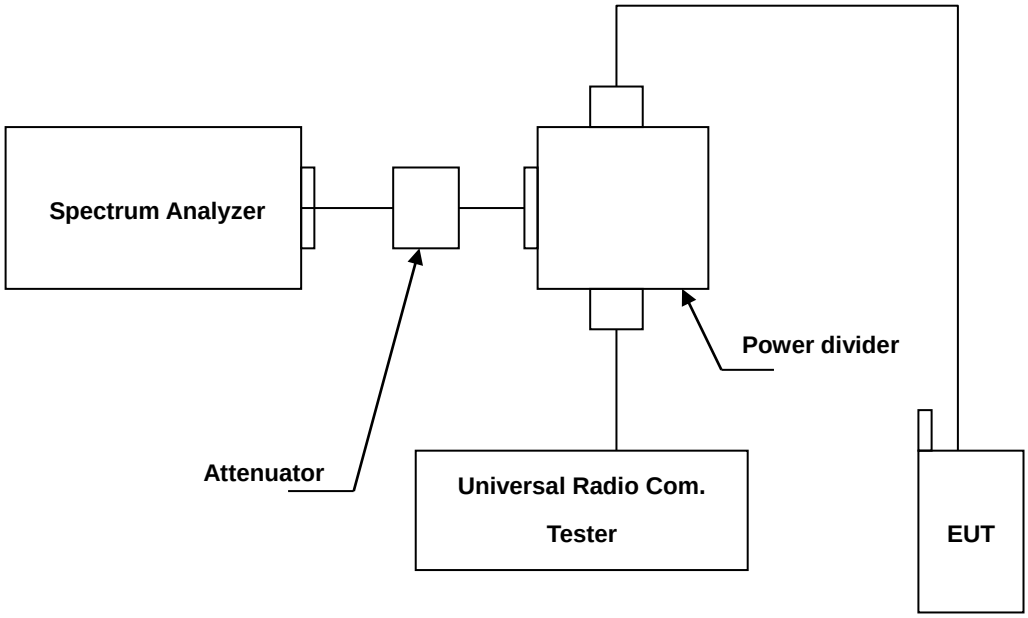
a. The EUT makes a phone call to the communication simulator. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels. (low, middle and high operational frequency range.)
b. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
c. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

2.5. Peak to Average Ratio Test

■ Limit

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

■ Setup



■ Test Procedure

a. Set resolution/measurement bandwidth signal's occupied bandwidth;

b. Set the number of counts to a value that stabilizes the measured CCDF curve;

c. Record the maximum PAPR level associated with a probability of 0.1 %.

2.6. Band Edge Test

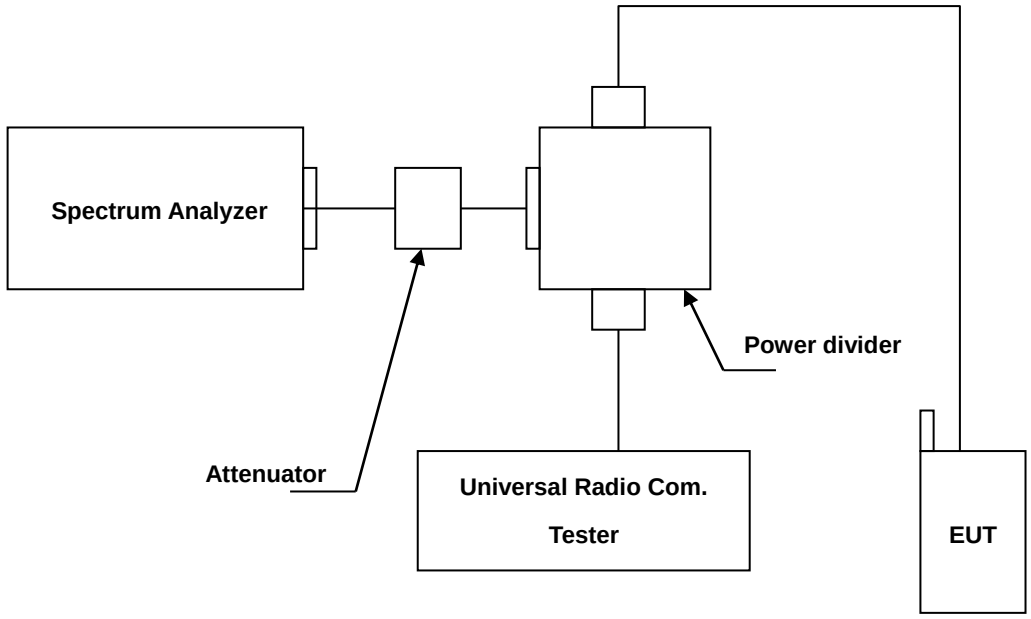
■ Limit

The Band Edge Limit:

§22.917(a), §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.

■ Setup



■ Test Procedure

a. The EUT was set up for the maximum peak power with WWAN link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.)

b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss in the transmitted path track.

c. The center frequency of spectrum is the band edge frequency and span is 10 MHz. RB of the resolution bandwidth of at least one percent of the emission bandwidth.

d. Record the max trace plot into the test report.

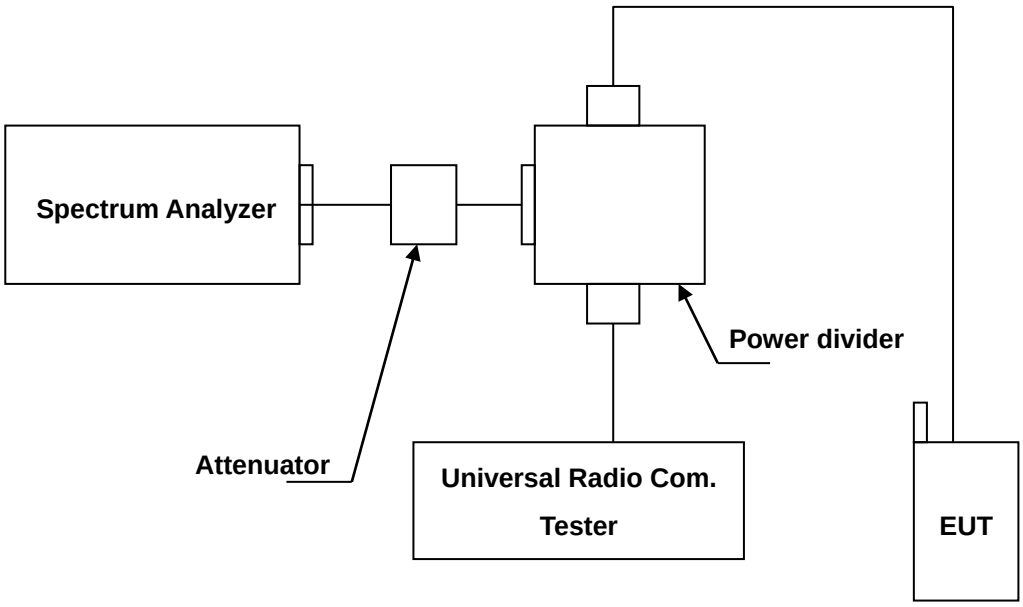
2.7. Conducted Spurious Emission Test

■ Limit

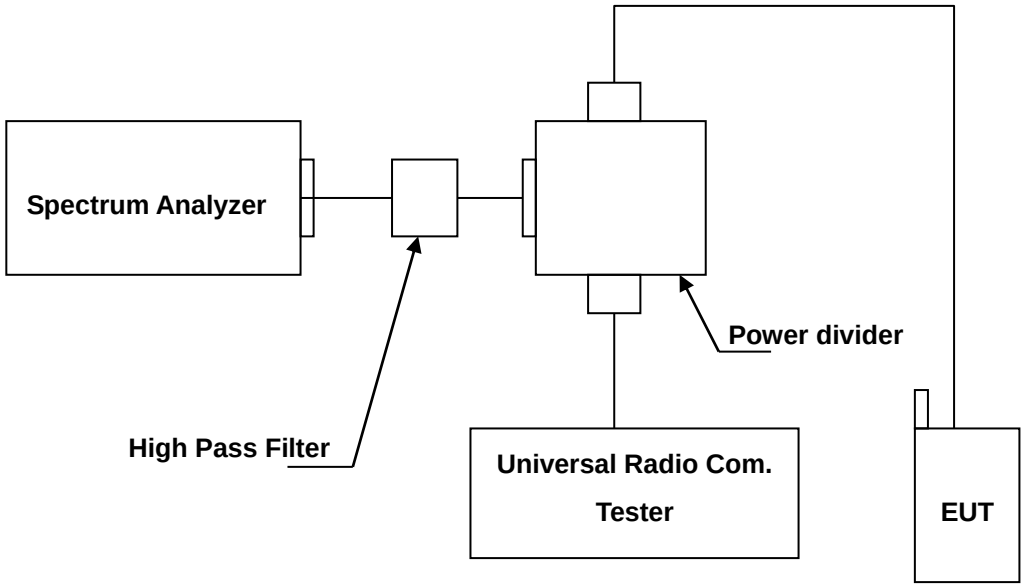
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 $\log_{10}$(P) dB. The limit of emission equal to -13 dBm

■ Setup

Below 2.8 GHz



Above 2.8 GHz



■ Test Procedure

a. The EUT was set up for the maximum peak power with WWAN link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range.).

b. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

c. When the spectrum scanned from 10 MHz to 2.5 GHz (Band 7and Band 41: scanned from 10 MHz to 4 GHz), it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB=1 MHz, VB=1 MHz.

d. When the spectrum scanned from 2.5 GHz to 10th harmonic (Band 7 and Band 41: scanned from 4 GHz to 10th harmonic). The spectrum set RB=1 MHz, VB=1 MHz.

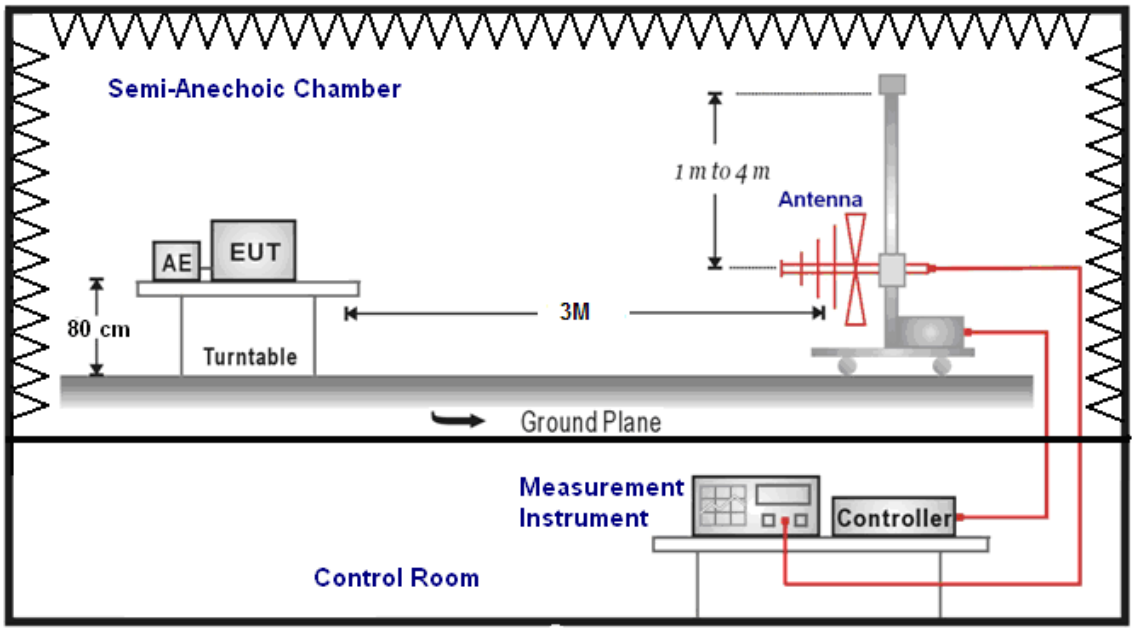
2.8. Radiated Emission Test

■ Limit

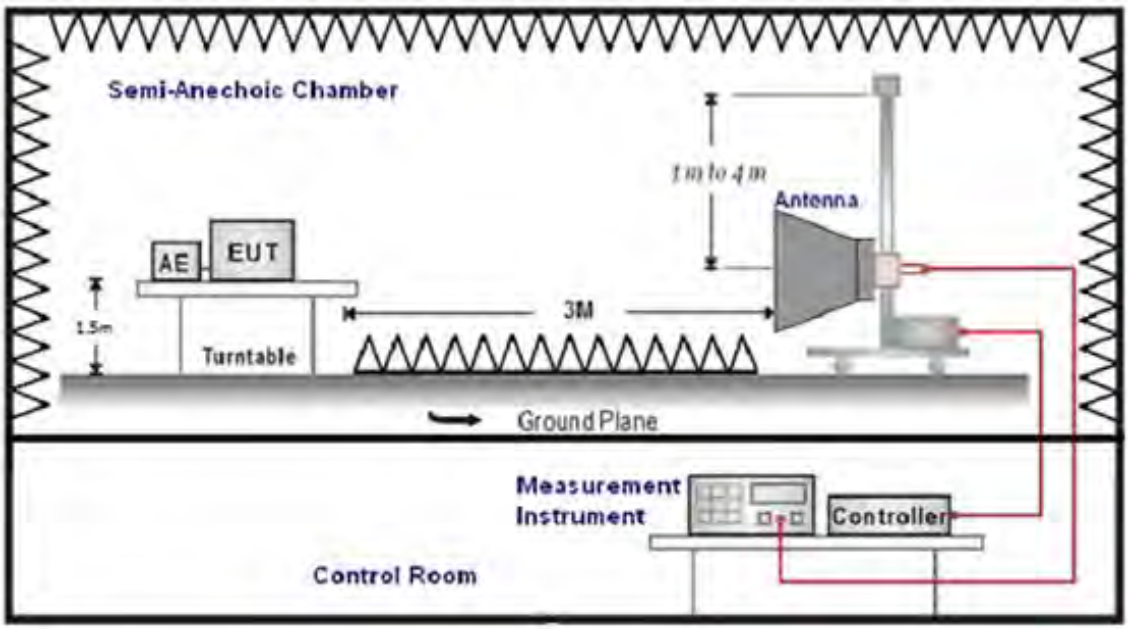
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 $\log_{10}$(P) dB. The limit of emission equal to -13 dBm

■ Setup

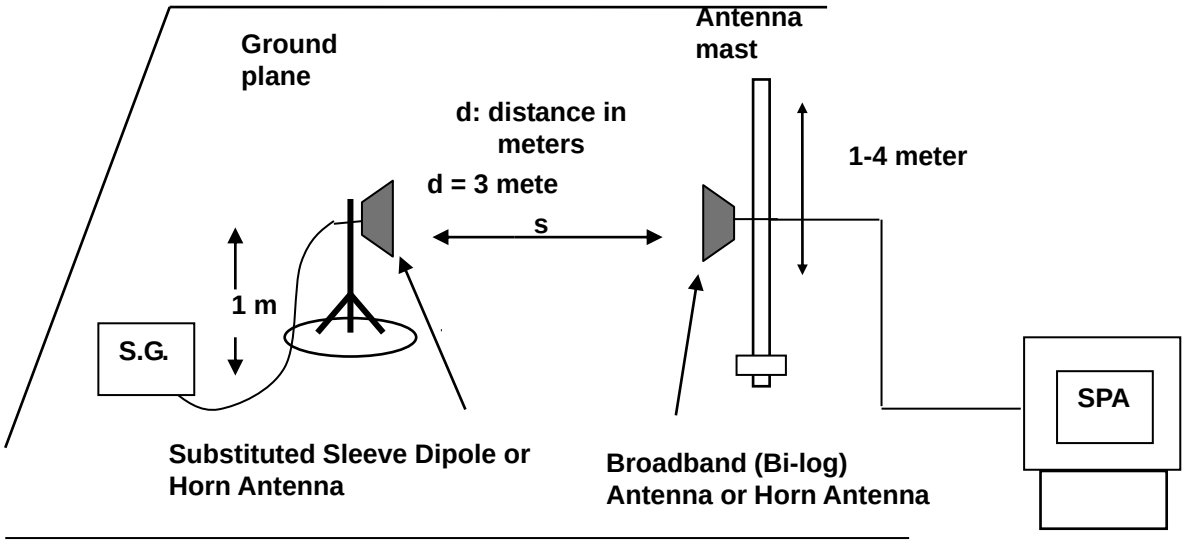
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



■ **Test Procedure**

a. The EUT was set up for the maximum power with wwan link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range).

b. Radiation Emission measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (1.5 m for above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

c. The substitution antenna (Note:1 & 2) is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G.

d. E.I.R.P. = Output power level of S.G - TX cable loss + Antenna gain of substitution horn

e. E.R.P. = E.I.R.P- 2.15 dB

f. Measurement range 9 kHz - 10 th Harmonic

Note: 1. Below 1 GHz Substituted Method Test：Sleeve dipole antenna to Bi-Log Antenna

2. Above 1 GHz Substituted Method Test：Horn antenna to Horn Antenn

3 Test Results

3.1. Effective Radiated Power / Equivalent Isotropic Radiated Power Test

LTE Band 5										
Channel Bandwidth	Modulation	CH	Frequency (MHz)	RB Configuration		Average Power (dBm)	Antenna Gain (dBi)	E.R.P.		Limit (W)
				Size	Offset			(dBm)	(W)	
1.4 M	QPSK	20525	836.5	1	0	22.99	1.78	22.62	0.183	< 2
	16QAM	20407	824.7	1	2	22.3	1.78	21.93	0.156	< 2
	64QAM	20407	824.7	1	2	21.46	1.78	21.09	0.129	< 2
	256QAM	20407	824.7	1	2	19.81	1.78	19.44	0.088	< 2
3 MHz	QPSK	20415	825.5	1	0	22.98	1.78	22.61	0.182	< 2
	16QAM	20525	836.5	1	7	22.34	1.78	21.97	0.157	< 2
	64QAM	20415	825.5	1	7	21.5	1.78	21.13	0.130	< 2
	256QAM	20415	825.5	1	0	19.84	1.78	19.47	0.089	< 2
5 MHz	QPSK	20625	846.5	1	0	23	1.78	22.63	0.183	< 2
	16QAM	20425	826.5	1	0	22.35	1.78	21.98	0.158	< 2
	64QAM	20425	826.5	1	0	21.66	1.78	21.29	0.135	< 2
	256QAM	20425	826.5	1	0	19.87	1.78	19.5	0.089	< 2
10 MHz	QPSK	20525	836.5	1	0	22.93	1.78	22.56	0.180	< 2
	16QAM	20450	829.0	1	0	22.36	1.78	21.99	0.158	< 2
	64QAM	20450	829.0	1	0	21.68	1.78	21.31	0.135	< 2
	256QAM	20525	836.5	1	24	19.86	1.78	19.49	0.089	< 2

3.2. Radiated Emission

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	824.7 MHz		
Mode:	4G_BAND 5_1.4M_QPSK_CH20407_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-65.61	-2.33	-67.94	-13.00	-54.94	peak
2	312.2700	-78.74	-0.34	-79.08	-13.00	-66.08	peak
3	458.7400	-78.91	2.08	-76.83	-13.00	-63.83	peak
4	528.5800	-78.49	3.15	-75.34	-13.00	-62.34	peak
5	644.9800	-78.26	5.59	-72.67	-13.00	-59.67	peak
6	814.7300	-77.30	8.29	-69.01	-13.00	-56.01	peak
7	1649.400	-59.15	2.14	-57.01	-13.00	-44.01	peak
8	2474.100	-59.77	4.84	-54.93	-13.00	-41.93	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	824.7 MHz		
Mode:	4G_BAND 5_1.4M_QPSK_CH20407_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.64	-0.39	-67.03	-13.00	-54.03	peak
2	239.7297	-77.31	-2.15	-79.46	-13.00	-66.46	peak
3	295.7800	-71.76	-0.64	-72.40	-13.00	-59.40	peak
4	374.3500	-78.55	0.63	-77.92	-13.00	-64.92	peak
5	482.0200	-77.78	2.42	-75.36	-13.00	-62.36	peak
6	698.3300	-78.18	6.58	-71.60	-13.00	-58.60	peak
7	1649.400	-58.41	2.14	-56.27	-13.00	-43.27	peak
8	2474.100	-60.76	4.84	-55.92	-13.00	-42.92	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M_QPSK_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-65.99	-2.33	-68.32	-13.00	-55.32	peak
2	235.6400	-77.40	-2.29	-79.69	-13.00	-66.69	peak
3	366.5900	-79.82	0.49	-79.33	-13.00	-66.33	peak
4	477.1700	-78.93	2.34	-76.59	-13.00	-63.59	peak
5	567.3800	-77.71	3.94	-73.77	-13.00	-60.77	peak
6	634.3100	-77.19	5.38	-71.81	-13.00	-58.81	peak
7	1673.000	-56.44	2.20	-54.24	-13.00	-41.24	peak
8	2509.500	-59.56	4.97	-54.59	-13.00	-41.59	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M_QPSK_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-64.65	-2.33	-66.98	-13.00	-53.98	peak
2	158.0400	-71.09	-0.08	-71.17	-13.00	-58.17	peak
3	295.7800	-73.15	-0.64	-73.79	-13.00	-60.79	peak
4	459.7100	-78.11	2.09	-76.02	-13.00	-63.02	peak
5	576.1100	-78.30	4.14	-74.16	-13.00	-61.16	peak
6	745.8600	-78.80	7.20	-71.60	-13.00	-58.60	peak
7	1673.000	-57.34	2.20	-55.14	-13.00	-42.14	peak
8	2509.500	-60.23	4.97	-55.26	-13.00	-42.26	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	848.3 MHz		
Mode:	4G_BAND 5_1.4M_QPSK_CH20643_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-65.36	-2.33	-67.69	-13.00	-54.69	peak
2	231.7600	-77.15	-2.41	-79.56	-13.00	-66.56	peak
3	314.2100	-78.63	-0.31	-78.94	-13.00	-65.94	peak
4	459.7100	-77.59	2.09	-75.50	-13.00	-62.50	peak
5	598.4200	-78.86	4.66	-74.20	-13.00	-61.20	peak
6	669.2300	-78.36	6.03	-72.33	-13.00	-59.33	peak
7	1696.600	-57.55	2.25	-55.30	-13.00	-42.30	peak
8	2544.900	-59.42	5.08	-54.34	-13.00	-41.34	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	848.3 MHz		
Mode:	4G_BAND 5_1.4M_QPSK_CH20643_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.89	-0.39	-68.28	-13.00	-55.28	peak
2	175.5000	-74.25	-1.86	-76.11	-13.00	-63.11	peak
3	295.7800	-71.02	-0.64	-71.66	-13.00	-58.66	peak
4	414.1200	-76.93	1.32	-75.61	-13.00	-62.61	peak
5	518.8800	-75.81	2.98	-72.83	-13.00	-59.83	peak
6	686.6900	-78.38	6.36	-72.02	-13.00	-59.02	peak
7	1696.600	-58.04	2.25	-55.79	-13.00	-42.79	peak
8	2544.900	-59.64	5.08	-54.56	-13.00	-41.56	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M-16QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-66.29	-1.26	-67.55	-13.00	-54.55	peak
2	231.7600	-76.42	-2.41	-78.83	-13.00	-65.83	peak
3	311.3000	-78.12	-0.35	-78.47	-13.00	-65.47	peak
4	413.1500	-77.60	1.31	-76.29	-13.00	-63.29	peak
5	616.8500	-77.21	5.04	-72.17	-13.00	-59.17	peak
6	768.1700	-77.42	7.56	-69.86	-13.00	-56.86	peak
7	1673.000	-62.84	2.20	-60.64	-13.00	-47.64	peak
8	2509.500	-65.34	4.97	-60.37	-13.00	-47.37	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M-16QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.29	-0.39	-66.68	-13.00	-53.68	peak
2	245.3400	-75.67	-2.03	-77.70	-13.00	-64.70	peak
3	295.7800	-73.15	-0.64	-73.79	-13.00	-60.79	peak
4	391.8100	-76.94	0.93	-76.01	-13.00	-63.01	peak
5	489.7800	-76.32	2.51	-73.81	-13.00	-60.81	peak
6	650.8000	-77.98	5.71	-72.27	-13.00	-59.27	peak
7	1673.000	-63.33	2.20	-61.13	-13.00	-48.13	peak
8	2509.500	-65.35	4.97	-60.38	-13.00	-47.38	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M-64QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-66.91	-1.26	-68.17	-13.00	-55.17	peak
2	231.7600	-77.47	-2.41	-79.88	-13.00	-66.88	peak
3	315.1800	-79.09	-0.29	-79.38	-13.00	-66.38	peak
4	451.9500	-78.44	1.98	-76.46	-13.00	-63.46	peak
5	550.8900	-77.82	3.54	-74.28	-13.00	-61.28	peak
6	715.7900	-78.17	6.82	-71.35	-13.00	-58.35	peak
7	1673.000	-62.89	2.20	-60.69	-13.00	-47.69	peak
8	2509.500	-65.68	4.97	-60.71	-13.00	-47.71	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M-64QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.19	-0.39	-66.58	-13.00	-53.58	peak
2	250.1900	-76.01	-1.92	-77.93	-13.00	-64.93	peak
3	295.7800	-73.62	-0.64	-74.26	-13.00	-61.26	peak
4	472.3200	-77.82	2.27	-75.55	-13.00	-62.55	peak
5	607.1500	-78.10	4.84	-73.26	-13.00	-60.26	peak
6	700.2700	-78.08	6.60	-71.48	-13.00	-58.48	peak
7	1673.000	-63.36	2.20	-61.16	-13.00	-48.16	peak
8	2509.500	-65.73	4.97	-60.76	-13.00	-47.76	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M-256QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.17	-1.26	-69.43	-13.00	-56.43	peak
2	235.6400	-78.17	-2.29	-80.46	-13.00	-67.46	peak
3	312.2700	-78.24	-0.34	-78.58	-13.00	-65.58	peak
4	439.3400	-78.59	1.77	-76.82	-13.00	-63.82	peak
5	618.7900	-78.74	5.07	-73.67	-13.00	-60.67	peak
6	746.8300	-78.49	7.21	-71.28	-13.00	-58.28	peak
7	1673.000	-64.66	2.20	-62.46	-13.00	-49.46	peak
8	2509.500	-66.43	4.97	-61.46	-13.00	-48.46	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_1.4M-256QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.79	-0.39	-67.18	-13.00	-54.18	peak
2	252.1300	-76.67	-1.89	-78.56	-13.00	-65.56	peak
3	295.7800	-74.78	-0.64	-75.42	-13.00	-62.42	peak
4	479.1100	-78.10	2.36	-75.74	-13.00	-62.74	peak
5	617.8200	-78.53	5.06	-73.47	-13.00	-60.47	peak
6	744.8900	-75.25	7.18	-68.07	-13.00	-55.07	peak
7	1673.000	-63.84	2.20	-61.64	-13.00	-48.64	peak
8	2509.500	-65.85	4.97	-60.88	-13.00	-47.88	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	825.5 MHz		
Mode:	4G_BAND 5_3M_QPSK_CH20415_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.28	-1.26	-68.54	-13.00	-55.54	peak
2	231.7600	-75.77	-2.41	-78.18	-13.00	-65.18	peak
3	311.3000	-78.31	-0.35	-78.66	-13.00	-65.66	peak
4	405.3900	-78.50	1.16	-77.34	-13.00	-64.34	peak
5	491.7200	-68.87	2.53	-66.34	-13.00	-53.34	peak
6	690.5700	-77.80	6.43	-71.37	-13.00	-58.37	peak
7	1651.000	-58.81	2.16	-56.65	-13.00	-43.65	peak
8	2476.500	-60.75	4.84	-55.91	-13.00	-42.91	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	825.5 MHz		
Mode:	4G_BAND 5_3M_QPSK_CH20415_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.34	-0.39	-66.73	-13.00	-53.73	peak
2	250.1900	-77.25	-1.92	-79.17	-13.00	-66.17	peak
3	295.7800	-75.41	-0.64	-76.05	-13.00	-63.05	peak
4	375.3200	-78.25	0.66	-77.59	-13.00	-64.59	peak
5	545.0700	-77.98	3.45	-74.53	-13.00	-61.53	peak
6	653.7100	-78.32	5.76	-72.56	-13.00	-59.56	peak
7	1651.000	-58.00	2.16	-55.84	-13.00	-42.84	peak
8	2476.500	-60.63	4.84	-55.79	-13.00	-42.79	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M_QPSK_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-66.23	-2.33	-68.56	-13.00	-55.56	peak
2	234.6700	-77.44	-2.33	-79.77	-13.00	-66.77	peak
3	326.8200	-78.51	-0.12	-78.63	-13.00	-65.63	peak
4	449.0400	-78.74	1.93	-76.81	-13.00	-63.81	peak
5	523.7300	-78.06	3.07	-74.99	-13.00	-61.99	peak
6	737.1300	-73.02	7.09	-65.93	-13.00	-52.93	peak
7	1673.000	-58.97	2.20	-56.77	-13.00	-43.77	peak
8	2509.500	-61.25	4.97	-56.28	-13.00	-43.28	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M_QPSK_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-68.00	-0.39	-68.39	-13.00	-55.39	peak
2	251.1600	-76.09	-1.91	-78.00	-13.00	-65.00	peak
3	295.7800	-74.68	-0.64	-75.32	-13.00	-62.32	peak
4	433.5200	-78.26	1.67	-76.59	-13.00	-63.59	peak
5	594.5400	-78.27	4.57	-73.70	-13.00	-60.70	peak
6	729.3700	-76.46	6.99	-69.47	-13.00	-56.47	peak
7	1673.000	-58.72	2.20	-56.52	-13.00	-43.52	peak
8	2509.500	-61.23	4.97	-56.26	-13.00	-43.26	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	847.5 MHz		
Mode:	4G_BAND 5_3M_QPSK_CH20635_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-65.83	-2.33	-68.16	-13.00	-55.16	peak
2	235.6400	-77.59	-2.29	-79.88	-13.00	-66.88	peak
3	316.1500	-78.38	-0.27	-78.65	-13.00	-65.65	peak
4	416.0600	-78.32	1.36	-76.96	-13.00	-63.96	peak
5	493.6600	-77.57	2.56	-75.01	-13.00	-62.01	peak
6	616.8500	-77.87	5.04	-72.83	-13.00	-59.83	peak
7	1695.000	-58.27	2.24	-56.03	-13.00	-43.03	peak
8	2542.500	-60.17	5.06	-55.11	-13.00	-42.11	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	847.5 MHz		
Mode:	4G_BAND 5_3M_QPSK_CH20635_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.83	-0.39	-68.22	-13.00	-55.22	peak
2	251.1600	-77.34	-1.91	-79.25	-13.00	-66.25	peak
3	295.7800	-74.21	-0.64	-74.85	-13.00	-61.85	peak
4	426.7300	-78.22	1.55	-76.67	-13.00	-63.67	peak
5	594.5400	-78.43	4.57	-73.86	-13.00	-60.86	peak
6	674.0800	-78.20	6.13	-72.07	-13.00	-59.07	peak
7	1695.000	-58.03	2.24	-55.79	-13.00	-42.79	peak
8	2542.500	-60.67	5.06	-55.61	-13.00	-42.61	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M-16QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.46	-1.26	-69.72	-13.00	-56.72	peak
2	231.7600	-77.32	-2.41	-79.73	-13.00	-66.73	peak
3	337.4900	-78.70	0.02	-78.68	-13.00	-65.68	peak
4	406.3600	-77.83	1.18	-76.65	-13.00	-63.65	peak
5	583.8700	-78.08	4.32	-73.76	-13.00	-60.76	peak
6	641.1000	-78.28	5.51	-72.77	-13.00	-59.77	peak
7	1673.000	-63.61	2.20	-61.41	-13.00	-48.41	peak
8	2509.500	-65.44	4.97	-60.47	-13.00	-47.47	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M-16QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.94	-0.39	-67.33	-13.00	-54.33	peak
2	245.3400	-76.28	-2.03	-78.31	-13.00	-65.31	peak
3	295.7800	-72.39	-0.64	-73.03	-13.00	-60.03	peak
4	403.4500	-78.49	1.12	-77.37	-13.00	-64.37	peak
5	494.6300	-77.90	2.58	-75.32	-13.00	-62.32	peak
6	647.8900	-77.94	5.64	-72.30	-13.00	-59.30	peak
7	1673.000	-64.20	2.20	-62.00	-13.00	-49.00	peak
8	2509.500	-65.20	4.97	-60.23	-13.00	-47.23	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M-64QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.77	-1.26	-69.03	-13.00	-56.03	peak
2	231.7600	-77.42	-2.41	-79.83	-13.00	-66.83	peak
3	311.3000	-78.77	-0.35	-79.12	-13.00	-66.12	peak
4	454.8600	-78.47	2.02	-76.45	-13.00	-63.45	peak
5	554.7700	-77.43	3.66	-73.77	-13.00	-60.77	peak
6	677.9600	-77.27	6.21	-71.06	-13.00	-58.06	peak
7	1673.000	-62.80	2.20	-60.60	-13.00	-47.60	peak
8	2509.500	-66.33	4.97	-61.36	-13.00	-48.36	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M-64QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.72	-0.39	-68.11	-13.00	-55.11	peak
2	184.2300	-74.79	-2.92	-77.71	-13.00	-64.71	peak
3	295.7800	-73.56	-0.64	-74.20	-13.00	-61.20	peak
4	430.6100	-79.14	1.61	-77.53	-13.00	-64.53	peak
5	512.0900	-77.61	2.86	-74.75	-13.00	-61.75	peak
6	623.6400	-78.14	5.17	-72.97	-13.00	-59.97	peak
7	1673.000	-63.05	2.20	-60.85	-13.00	-47.85	peak
8	2509.500	-66.47	4.97	-61.50	-13.00	-48.50	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M-256QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	134.7600	-67.51	-1.34	-68.85	-13.00	-55.85	peak
2	231.7600	-77.03	-2.41	-79.44	-13.00	-66.44	peak
3	356.8900	-79.61	0.32	-79.29	-13.00	-66.29	peak
4	418.9700	-78.41	1.41	-77.00	-13.00	-64.00	peak
5	587.7500	-77.46	4.42	-73.04	-13.00	-60.04	peak
6	669.2300	-77.33	6.03	-71.30	-13.00	-58.30	peak
7	1673.000	-64.54	2.20	-62.34	-13.00	-49.34	peak
8	2509.500	-66.20	4.97	-61.23	-13.00	-48.23	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_3M-256QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.77	-0.39	-68.16	-13.00	-55.16	peak
2	250.1900	-76.56	-1.92	-78.48	-13.00	-65.48	peak
3	295.7800	-72.37	-0.64	-73.01	-13.00	-60.01	peak
4	425.7600	-78.58	1.54	-77.04	-13.00	-64.04	peak
5	515.0000	-75.73	2.92	-72.81	-13.00	-59.81	peak
6	633.3400	-77.94	5.37	-72.57	-13.00	-59.57	peak
7	1673.000	-62.83	2.20	-60.63	-13.00	-47.63	peak
8	2509.500	-66.60	4.97	-61.63	-13.00	-48.63	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	826.5 MHz		
Mode:	4G_BAND 5_5M_QPSK_CH20425_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.57	-1.26	-68.83	-13.00	-55.83	peak
2	234.6700	-77.71	-2.33	-80.04	-13.00	-67.04	peak
3	338.4600	-79.01	0.04	-78.97	-13.00	-65.97	peak
4	471.3500	-78.93	2.26	-76.67	-13.00	-63.67	peak
5	622.6700	-78.04	5.15	-72.89	-13.00	-59.89	peak
6	776.9000	-77.33	7.72	-69.61	-13.00	-56.61	peak
7	1653.000	-59.50	2.16	-57.34	-13.00	-44.34	peak
8	2479.500	-60.27	4.85	-55.42	-13.00	-42.42	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	826.5 MHz		
Mode:	4G_BAND 5_5M_QPSK_CH20425_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-68.41	-0.39	-68.80	-13.00	-55.80	peak
2	248.2500	-76.57	-1.96	-78.53	-13.00	-65.53	peak
3	295.7800	-73.68	-0.64	-74.32	-13.00	-61.32	peak
4	455.8300	-77.93	2.04	-75.89	-13.00	-62.89	peak
5	592.6000	-78.77	4.53	-74.24	-13.00	-61.24	peak
6	729.3700	-75.49	6.99	-68.50	-13.00	-55.50	peak
7	1653.000	-58.95	2.16	-56.79	-13.00	-43.79	peak
8	2479.500	-60.55	4.85	-55.70	-13.00	-42.70	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M_QPSK_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.80	-1.26	-69.06	-13.00	-56.06	peak
2	234.6700	-77.25	-2.33	-79.58	-13.00	-66.58	peak
3	367.5600	-78.39	0.52	-77.87	-13.00	-64.87	peak
4	450.9800	-77.04	1.96	-75.08	-13.00	-62.08	peak
5	574.1700	-78.54	4.10	-74.44	-13.00	-61.44	peak
6	681.8400	-78.50	6.26	-72.24	-13.00	-59.24	peak
7	1673.000	-58.95	2.20	-56.75	-13.00	-43.75	peak
8	2509.500	-61.00	4.97	-56.03	-13.00	-43.03	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M_QPSK_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.79	-0.39	-67.18	-13.00	-54.18	peak
2	250.1900	-75.42	-1.92	-77.34	-13.00	-64.34	peak
3	295.7800	-72.87	-0.64	-73.51	-13.00	-60.51	peak
4	432.5500	-77.77	1.64	-76.13	-13.00	-63.13	peak
5	515.9700	-69.93	2.94	-66.99	-13.00	-53.99	peak
6	729.3700	-73.63	6.99	-66.64	-13.00	-53.64	peak
7	1673.000	-58.92	2.20	-56.72	-13.00	-43.72	peak
8	2509.500	-60.64	4.97	-55.67	-13.00	-42.67	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	846.5 MHz		
Mode:	4G_BAND 5_5M_QPSK_CH20625_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.25	-1.26	-69.51	-13.00	-56.51	peak
2	221.0900	-77.42	-3.06	-80.48	-13.00	-67.48	peak
3	310.3300	-78.62	-0.36	-78.98	-13.00	-65.98	peak
4	434.4900	-78.41	1.68	-76.73	-13.00	-63.73	peak
5	573.2000	-78.69	4.08	-74.61	-13.00	-61.61	peak
6	667.2900	-78.04	6.00	-72.04	-13.00	-59.04	peak
7	1693.000	-59.05	2.23	-56.82	-13.00	-43.82	peak
8	2539.500	-60.44	5.05	-55.39	-13.00	-42.39	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	846.5 MHz		
Mode:	4G_BAND 5_5M_QPSK_CH20625_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-65.91	-0.39	-66.30	-13.00	-53.30	peak
2	295.7800	-73.50	-0.64	-74.14	-13.00	-61.14	peak
3	376.2900	-77.84	0.66	-77.18	-13.00	-64.18	peak
4	438.3700	-78.93	1.76	-77.17	-13.00	-64.17	peak
5	515.9700	-74.79	2.94	-71.85	-13.00	-58.85	peak
6	653.7100	-77.33	5.76	-71.57	-13.00	-58.57	peak
7	1693.000	-57.51	2.23	-55.28	-13.00	-42.28	peak
8	2539.500	-61.51	5.05	-56.46	-13.00	-43.46	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M-16QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.60	-1.26	-69.86	-13.00	-56.86	peak
2	224.9700	-77.21	-2.82	-80.03	-13.00	-67.03	peak
3	312.2700	-79.72	-0.34	-80.06	-13.00	-67.06	peak
4	373.3800	-79.30	0.61	-78.69	-13.00	-65.69	peak
5	471.3500	-78.87	2.26	-76.61	-13.00	-63.61	peak
6	604.2400	-77.70	4.79	-72.91	-13.00	-59.91	peak
7	1673.000	-64.13	2.20	-61.93	-13.00	-48.93	peak
8	2509.500	-66.71	4.97	-61.74	-13.00	-48.74	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M-16QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.58	-0.39	-67.97	-13.00	-54.97	peak
2	246.3100	-76.71	-2.01	-78.72	-13.00	-65.72	peak
3	295.7800	-73.44	-0.64	-74.08	-13.00	-61.08	peak
4	393.7500	-78.39	0.95	-77.44	-13.00	-64.44	peak
5	522.7600	-78.11	3.06	-75.05	-13.00	-62.05	peak
6	625.5800	-78.25	5.22	-73.03	-13.00	-60.03	peak
7	1673.000	-63.52	2.20	-61.32	-13.00	-48.32	peak
8	2509.500	-65.71	4.97	-60.74	-13.00	-47.74	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M-64QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.46	-1.26	-68.72	-13.00	-55.72	peak
2	224.0000	-77.01	-2.87	-79.88	-13.00	-66.88	peak
3	311.3000	-78.16	-0.35	-78.51	-13.00	-65.51	peak
4	416.0600	-78.05	1.36	-76.69	-13.00	-63.69	peak
5	494.6300	-78.36	2.58	-75.78	-13.00	-62.78	peak
6	612.9700	-76.73	4.95	-71.78	-13.00	-58.78	peak
7	1673.000	-64.64	2.20	-62.44	-13.00	-49.44	peak
8	2509.500	-65.85	4.97	-60.88	-13.00	-47.88	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M-64QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.78	-0.39	-68.17	-13.00	-55.17	peak
2	246.3100	-75.75	-2.01	-77.76	-13.00	-64.76	peak
3	295.7800	-73.83	-0.64	-74.47	-13.00	-61.47	peak
4	434.4900	-79.02	1.68	-77.34	-13.00	-64.34	peak
5	547.0100	-77.60	3.49	-74.11	-13.00	-61.11	peak
6	626.5500	-78.09	5.23	-72.86	-13.00	-59.86	peak
7	1673.000	-63.43	2.20	-61.23	-13.00	-48.23	peak
8	2509.500	-66.14	4.97	-61.17	-13.00	-48.17	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M-256QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.94	-1.26	-69.20	-13.00	-56.20	peak
2	175.5000	-74.64	-1.86	-76.50	-13.00	-63.50	peak
3	312.2700	-79.20	-0.34	-79.54	-13.00	-66.54	peak
4	365.6200	-79.22	0.47	-78.75	-13.00	-65.75	peak
5	488.8100	-78.43	2.49	-75.94	-13.00	-62.94	peak
6	628.4900	-78.61	5.26	-73.35	-13.00	-60.35	peak
7	1673.000	-64.59	2.20	-62.39	-13.00	-49.39	peak
8	2509.500	-66.14	4.97	-61.17	-13.00	-48.17	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_5M-256QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.85	-0.39	-68.24	-13.00	-55.24	peak
2	247.2800	-77.61	-1.98	-79.59	-13.00	-66.59	peak
3	295.7800	-74.14	-0.64	-74.78	-13.00	-61.78	peak
4	451.9500	-79.01	1.98	-77.03	-13.00	-64.03	peak
5	515.9700	-77.97	2.94	-75.03	-13.00	-62.03	peak
6	661.4700	-78.87	5.90	-72.97	-13.00	-59.97	peak
7	1673.000	-63.17	2.20	-60.97	-13.00	-47.97	peak
8	2509.500	-65.95	4.97	-60.98	-13.00	-47.98	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	829 MHz		
Mode:	4G_BAND 5_10M_QPSK_CH20450_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-66.63	-2.33	-68.96	-13.00	-55.96	peak
2	233.7000	-78.18	-2.34	-80.52	-13.00	-67.52	peak
3	295.7800	-78.99	-0.64	-79.63	-13.00	-66.63	peak
4	451.9500	-79.25	1.98	-77.27	-13.00	-64.27	peak
5	520.8200	-78.55	3.01	-75.54	-13.00	-62.54	peak
6	651.7700	-77.97	5.71	-72.26	-13.00	-59.26	peak
7	1658.000	-59.55	2.16	-57.39	-13.00	-44.39	peak
8	2487.000	-60.97	4.88	-56.09	-13.00	-43.09	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	829 MHz		
Mode:	4G_BAND 5_10M_QPSK_CH20450_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.26	-0.39	-67.65	-13.00	-54.65	peak
2	250.1900	-76.94	-1.92	-78.86	-13.00	-65.86	peak
3	295.7800	-74.55	-0.64	-75.19	-13.00	-62.19	peak
4	442.2500	-78.95	1.82	-77.13	-13.00	-64.13	peak
5	563.5000	-77.97	3.85	-74.12	-13.00	-61.12	peak
6	643.0400	-77.85	5.55	-72.30	-13.00	-59.30	peak
7	1658.000	-58.55	2.16	-56.39	-13.00	-43.39	peak
8	2487.000	-60.51	4.88	-55.63	-13.00	-42.63	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M_QPSK_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.55	-1.26	-69.81	-13.00	-56.81	peak
2	231.7600	-77.68	-2.41	-80.09	-13.00	-67.09	peak
3	316.1500	-78.50	-0.27	-78.77	-13.00	-65.77	peak
4	421.8800	-78.89	1.47	-77.42	-13.00	-64.42	peak
5	551.8600	-77.53	3.58	-73.95	-13.00	-60.95	peak
6	648.8600	-78.23	5.67	-72.56	-13.00	-59.56	peak
7	1673.000	-59.07	2.20	-56.87	-13.00	-43.87	peak
8	2509.500	-61.27	4.97	-56.30	-13.00	-43.30	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M_QPSK_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-68.18	-0.39	-68.57	-13.00	-55.57	peak
2	250.1900	-76.99	-1.92	-78.91	-13.00	-65.91	peak
3	295.7800	-73.30	-0.64	-73.94	-13.00	-60.94	peak
4	412.1800	-78.24	1.28	-76.96	-13.00	-63.96	peak
5	598.4200	-77.78	4.66	-73.12	-13.00	-60.12	peak
6	679.9000	-76.93	6.24	-70.69	-13.00	-57.69	peak
7	1673.000	-58.36	2.20	-56.16	-13.00	-43.16	peak
8	2509.500	-61.40	4.97	-56.43	-13.00	-43.43	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	844 MHz		
Mode:	4G_BAND 5_10M_QPSK_CH20600_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.79	-1.26	-69.05	-13.00	-56.05	peak
2	233.7000	-75.69	-2.34	-78.03	-13.00	-65.03	peak
3	311.3000	-78.82	-0.35	-79.17	-13.00	-66.17	peak
4	374.3500	-78.28	0.63	-77.65	-13.00	-64.65	peak
5	450.0100	-78.22	1.95	-76.27	-13.00	-63.27	peak
6	606.1800	-77.35	4.83	-72.52	-13.00	-59.52	peak
7	1688.000	-57.89	2.23	-55.66	-13.00	-42.66	peak
8	2532.000	-60.31	5.02	-55.29	-13.00	-42.29	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	844 MHz		
Mode:	4G_BAND 5_10M_QPSK_CH20600_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.57	-0.39	-67.96	-13.00	-54.96	peak
2	250.1900	-76.46	-1.92	-78.38	-13.00	-65.38	peak
3	295.7800	-75.38	-0.64	-76.02	-13.00	-63.02	peak
4	443.2200	-78.97	1.83	-77.14	-13.00	-64.14	peak
5	515.9700	-77.20	2.94	-74.26	-13.00	-61.26	peak
6	666.3200	-78.61	5.98	-72.63	-13.00	-59.63	peak
7	1688.000	-58.53	2.23	-56.30	-13.00	-43.30	peak
8	2532.000	-59.79	5.02	-54.77	-13.00	-41.77	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M-16QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.56	-1.26	-68.82	-13.00	-55.82	peak
2	234.6700	-75.99	-2.33	-78.32	-13.00	-65.32	peak
3	310.3300	-77.73	-0.36	-78.09	-13.00	-65.09	peak
4	409.2700	-78.26	1.24	-77.02	-13.00	-64.02	peak
5	527.6100	-76.70	3.15	-73.55	-13.00	-60.55	peak
6	642.0700	-77.11	5.54	-71.57	-13.00	-58.57	peak
7	1673.000	-62.98	2.20	-60.78	-13.00	-47.78	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M-16QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-66.91	-0.39	-67.30	-13.00	-54.30	peak
2	250.1900	-76.76	-1.92	-78.68	-13.00	-65.68	peak
3	295.7800	-73.67	-0.64	-74.31	-13.00	-61.31	peak
4	380.1700	-77.58	0.73	-76.85	-13.00	-63.85	peak
5	552.8300	-77.57	3.61	-73.96	-13.00	-60.96	peak
6	666.3200	-77.65	5.98	-71.67	-13.00	-58.67	peak
7	1673.000	-63.70	2.20	-61.50	-13.00	-48.50	peak
8	2509.500	-65.79	4.97	-60.82	-13.00	-47.82	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M-64QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.01	-1.26	-69.27	-13.00	-56.27	peak
2	234.6700	-77.40	-2.33	-79.73	-13.00	-66.73	peak
3	396.6600	-78.55	1.01	-77.54	-13.00	-64.54	peak
4	498.5100	-78.25	2.62	-75.63	-13.00	-62.63	peak
5	629.4600	-78.08	5.28	-72.80	-13.00	-59.80	peak
6	689.6000	-77.60	6.41	-71.19	-13.00	-58.19	peak
7	1673.000	-63.67	2.20	-61.47	-13.00	-48.47	peak
8	2509.500	-65.62	4.97	-60.65	-13.00	-47.65	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M-64QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.50	-0.39	-67.89	-13.00	-54.89	peak
2	239.5200	-76.42	-2.15	-78.57	-13.00	-65.57	peak
3	295.7800	-74.56	-0.64	-75.20	-13.00	-62.20	peak
4	416.0600	-78.50	1.36	-77.14	-13.00	-64.14	peak
5	490.7500	-76.18	2.52	-73.66	-13.00	-60.66	peak
6	626.5500	-77.41	5.23	-72.18	-13.00	-59.18	peak
7	1673.000	-63.92	2.20	-61.72	-13.00	-48.72	peak
8	2509.500	-65.82	4.97	-60.85	-13.00	-47.85	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M-256QAM_CH20525_H		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.47	-1.26	-68.73	-13.00	-55.73	peak
2	235.6400	-77.26	-2.29	-79.55	-13.00	-66.55	peak
3	343.3100	-78.41	0.09	-78.32	-13.00	-65.32	peak
4	428.6700	-78.91	1.58	-77.33	-13.00	-64.33	peak
5	590.6600	-78.46	4.49	-73.97	-13.00	-60.97	peak
6	692.5100	-78.14	6.47	-71.67	-13.00	-58.67	peak
7	1673.000	-64.22	2.20	-62.02	-13.00	-49.02	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	836.5 MHz		
Mode:	4G_BAND 5_10M-256QAM_CH20525_V		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.97	-0.39	-68.36	-13.00	-55.36	peak
2	249.2200	-76.79	-1.95	-78.74	-13.00	-65.74	peak
3	295.7800	-74.08	-0.64	-74.72	-13.00	-61.72	peak
4	390.8400	-78.63	0.92	-77.71	-13.00	-64.71	peak
5	515.0000	-76.38	2.92	-73.46	-13.00	-60.46	peak
6	674.0800	-78.62	6.13	-72.49	-13.00	-59.49	peak
7	1673.000	-62.97	2.20	-60.77	-13.00	-47.77	peak
8	2509.500	-65.95	4.97	-60.98	-13.00	-47.98	peak

--- END---

Appendix A: Conducted Test Results

1. Average Output Power Data

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	22.90	PASS
		1	2	22.88	PASS
		1	5	22.81	PASS
		3	0	22.82	PASS
		3	1	22.84	PASS
		3	3	22.86	PASS
		6	0	21.87	PASS
	MCH	1	0	**22.99**	PASS
		1	2	22.96	PASS
		1	5	22.85	PASS
		3	0	22.90	PASS
		3	1	22.89	PASS
		3	3	22.91	PASS
		6	0	21.93	PASS
	HCH	1	0	22.86	PASS
		1	2	22.74	PASS
		1	5	22.65	PASS
		3	0	22.69	PASS
		3	1	22.75	PASS
		3	3	22.71	PASS
		6	0	21.77	PASS

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
16QAM	LCH	1	0	22.21	PASS
		1	2	22.30	PASS
		1	5	22.11	PASS
		3	0	22.14	PASS
		3	1	22.17	PASS
		3	3	22.07	PASS
		6	0	21.03	PASS
	MCH	1	0	22.12	PASS
		1	2	22.29	PASS
		1	5	22.11	PASS
		3	0	22.00	PASS
		3	1	22.06	PASS
		3	3	22.06	PASS
		6	0	20.93	PASS
	HCH	1	0	21.98	PASS
		1	2	22.04	PASS
		1	5	21.97	PASS
		3	0	21.94	PASS
		3	1	21.98	PASS
		3	3	21.91	PASS
		6	0	20.79	PASS

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
64QAM	LCH	1	0	21.43	PASS
		1	2	21.46	PASS
		1	5	21.31	PASS
		3	0	21.37	PASS
		3	1	21.40	PASS
		3	3	21.34	PASS
		6	0	20.27	PASS
	MCH	1	0	21.33	PASS
		1	2	21.42	PASS
		1	5	21.32	PASS
		3	0	21.29	PASS
		3	1	21.33	PASS
		3	3	21.35	PASS
		6	0	20.23	PASS
	HCH	1	0	21.20	PASS
		1	2	21.23	PASS
		1	5	21.09	PASS
		3	0	21.16	PASS
		3	1	21.21	PASS
		3	3	21.14	PASS
		6	0	20.10	PASS

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
256QAM	LCH	1	0	19.72	PASS
		1	2	19.81	PASS
		1	5	19.60	PASS
		3	0	19.77	PASS
		3	1	19.79	PASS
		3	3	19.72	PASS
		6	0	18.68	PASS
	MCH	1	0	19.52	PASS
		1	2	19.73	PASS
		1	5	19.68	PASS
		3	0	19.63	PASS
		3	1	19.65	PASS
		3	3	19.59	PASS
		6	0	18.56	PASS
	HCH	1	0	19.51	PASS
		1	2	19.51	PASS
		1	5	19.48	PASS
		3	0	19.46	PASS
		3	1	19.47	PASS
		3	3	19.37	PASS
		6	0	18.32	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	**22.98**	PASS
		1	7	22.96	PASS
		1	14	22.89	PASS
		8	0	22.05	PASS
		8	3	22.03	PASS
		8	7	21.97	PASS
		15	0	22.02	PASS
	MCH	1	0	22.96	PASS
		1	7	22.92	PASS
		1	14	22.88	PASS
		8	0	21.98	PASS
		8	3	21.93	PASS
		8	7	21.96	PASS
		15	0	21.97	PASS
	HCH	1	0	22.83	PASS
		1	7	22.80	PASS
		1	14	22.72	PASS
		8	0	21.85	PASS
		8	3	21.86	PASS
		8	7	21.80	PASS
		15	0	21.85	PASS

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
16QAM	LCH	1	0	22.31	PASS
		1	7	22.26	PASS
		1	14	22.19	PASS
		8	0	21.09	PASS
		8	3	21.11	PASS
		8	7	21.03	PASS
		15	0	21.00	PASS
	MCH	1	0	22.20	PASS
		1	7	22.34	PASS
		1	14	22.22	PASS
		8	0	21.00	PASS
		8	3	20.99	PASS
		8	7	21.01	PASS
		15	0	20.93	PASS
	HCH	1	0	22.12	PASS
		1	7	22.13	PASS
		1	14	22.04	PASS
		8	0	20.91	PASS
		8	3	20.93	PASS
		8	7	20.88	PASS
		15	0	20.83	PASS

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
64QAM	LCH	1	0	21.49	PASS
		1	7	21.50	PASS
		1	14	21.39	PASS
		8	0	20.45	PASS
		8	3	20.44	PASS
		8	7	20.40	PASS
		15	0	20.41	PASS
	MCH	1	0	21.42	PASS
		1	7	21.48	PASS
		1	14	21.44	PASS
		8	0	20.38	PASS
		8	3	20.36	PASS
		8	7	20.33	PASS
		15	0	20.33	PASS
	HCH	1	0	21.32	PASS
		1	7	21.33	PASS
		1	14	21.24	PASS
		8	0	20.25	PASS
		8	3	20.24	PASS
		8	7	20.21	PASS
		15	0	20.23	PASS

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
256QAM	LCH	1	0	19.84	PASS
		1	7	19.78	PASS
		1	14	19.66	PASS
		8	0	18.70	PASS
		8	3	18.69	PASS
		8	7	18.68	PASS
		15	0	18.68	PASS
	MCH	1	0	19.70	PASS
		1	7	19.79	PASS
		1	14	19.69	PASS
		8	0	18.64	PASS
		8	3	18.63	PASS
		8	7	18.62	PASS
		15	0	18.65	PASS
	HCH	1	0	19.61	PASS
		1	7	19.63	PASS
		1	14	19.57	PASS
		8	0	18.52	PASS
		8	3	18.53	PASS
		8	7	18.45	PASS
		15	0	18.49	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	22.94	PASS
		1	12	22.85	PASS
		1	24	22.87	PASS
		12	0	22.15	PASS
		12	6	22.18	PASS
		12	13	22.06	PASS
		25	0	21.91	PASS
	MCH	1	0	22.95	PASS
		1	12	22.93	PASS
		1	24	22.94	PASS
		12	0	22.02	PASS
		12	6	22.00	PASS
		12	13	21.99	PASS
		25	0	21.98	PASS
	HCH	1	0	**23.00**	PASS
		1	12	22.91	PASS
		1	24	22.96	PASS
		12	0	22.07	PASS
		12	6	22.08	PASS
		12	13	22.00	PASS
		25	0	22.05	PASS

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
16QAM	LCH	1	0	22.35	PASS
		1	12	22.15	PASS
		1	24	22.22	PASS
		12	0	21.10	PASS
		12	6	21.11	PASS
		12	13	21.02	PASS
		25	0	21.08	PASS
	MCH	1	0	22.25	PASS
		1	12	22.21	PASS
		1	24	22.20	PASS
		12	0	21.03	PASS
		12	6	20.99	PASS
		12	13	21.01	PASS
		25	0	20.96	PASS
	HCH	1	0	22.18	PASS
		1	12	22.15	PASS
		1	24	22.03	PASS
		12	0	20.91	PASS
		12	6	20.90	PASS
		12	13	20.86	PASS
		25	0	20.82	PASS

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
64QAM	LCH	1	0	21.66	PASS
		1	12	21.52	PASS
		1	24	21.54	PASS
		12	0	20.48	PASS
		12	6	20.43	PASS
		12	13	20.41	PASS
		25	0	20.43	PASS
	MCH	1	0	21.52	PASS
		1	12	21.53	PASS
		1	24	21.48	PASS
		12	0	20.40	PASS
		12	6	20.38	PASS
		12	13	20.35	PASS
		25	0	20.38	PASS
	HCH	1	0	21.34	PASS
		1	12	21.29	PASS
		1	24	21.29	PASS
		12	0	20.24	PASS
		12	6	20.25	PASS
		12	13	20.24	PASS
		25	0	20.24	PASS

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
256QAM	LCH	1	0	19.87	PASS
		1	12	19.82	PASS
		1	24	19.80	PASS
		12	0	18.74	PASS
		12	6	18.69	PASS
		12	13	18.67	PASS
		25	0	18.69	PASS
	MCH	1	0	19.77	PASS
		1	12	19.77	PASS
		1	24	19.69	PASS
		12	0	18.66	PASS
		12	6	18.62	PASS
		12	13	18.63	PASS
		25	0	18.65	PASS
	HCH	1	0	19.60	PASS
		1	12	19.52	PASS
		1	24	19.52	PASS
		12	0	18.51	PASS
		12	6	18.47	PASS
		12	13	18.50	PASS
		25	0	18.51	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	22.92	PASS
		1	24	22.90	PASS
		1	49	22.86	PASS
		25	0	21.96	PASS
		25	12	22.06	PASS
		25	25	22.01	PASS
		50	0	22.04	PASS
	MCH	1	0	**22.93**	PASS
		1	24	22.92	PASS
		1	49	22.90	PASS
		25	0	21.96	PASS
		25	12	21.97	PASS
		25	25	22.00	PASS
		50	0	21.96	PASS
	HCH	1	0	22.84	PASS
		1	24	22.82	PASS
		1	49	22.72	PASS
		25	0	21.86	PASS
		25	12	21.84	PASS
		25	25	21.89	PASS
		50	0	21.82	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
16QAM	LCH	1	0	22.36	PASS
		1	24	22.25	PASS
		1	49	22.27	PASS
		25	0	20.97	PASS
		25	12	21.07	PASS
		25	25	21.02	PASS
		50	0	21.05	PASS
	MCH	1	0	22.36	PASS
		1	24	22.28	PASS
		1	49	22.26	PASS
		25	0	20.95	PASS
		25	12	20.94	PASS
		25	25	20.97	PASS
		50	0	20.98	PASS
	HCH	1	0	22.24	PASS
		1	24	22.09	PASS
		1	49	22.12	PASS
		25	0	20.86	PASS
		25	12	20.87	PASS
		25	25	20.92	PASS
		50	0	20.85	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
64QAM	LCH	1	0	21.68	PASS
		1	24	21.59	PASS
		1	49	21.55	PASS
		25	0	20.45	PASS
		25	12	20.53	PASS
		25	25	20.52	PASS
		50	0	20.51	PASS
	MCH	1	0	21.64	PASS
		1	24	21.55	PASS
		1	49	21.57	PASS
		25	0	20.44	PASS
		25	12	20.39	PASS
		25	25	20.43	PASS
		50	0	20.38	PASS
	HCH	1	0	21.51	PASS
		1	24	21.31	PASS
		1	49	21.31	PASS
		25	0	20.30	PASS
		25	12	20.30	PASS
		25	25	20.33	PASS
		50	0	20.30	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
256QAM	LCH	1	0	19.84	PASS
		1	24	19.74	PASS
		1	49	19.80	PASS
		25	0	18.62	PASS
		25	12	18.72	PASS
		25	25	18.66	PASS
		50	0	18.67	PASS
	MCH	1	0	19.85	PASS
		1	24	19.86	PASS
		1	49	19.76	PASS
		25	0	18.64	PASS
		25	12	18.60	PASS
		25	25	18.63	PASS
		50	0	18.61	PASS
	HCH	1	0	19.83	PASS
		1	24	19.75	PASS
		1	49	19.61	PASS
		25	0	18.49	PASS
		25	12	18.54	PASS
		25	25	18.60	PASS
		50	0	18.52	PASS

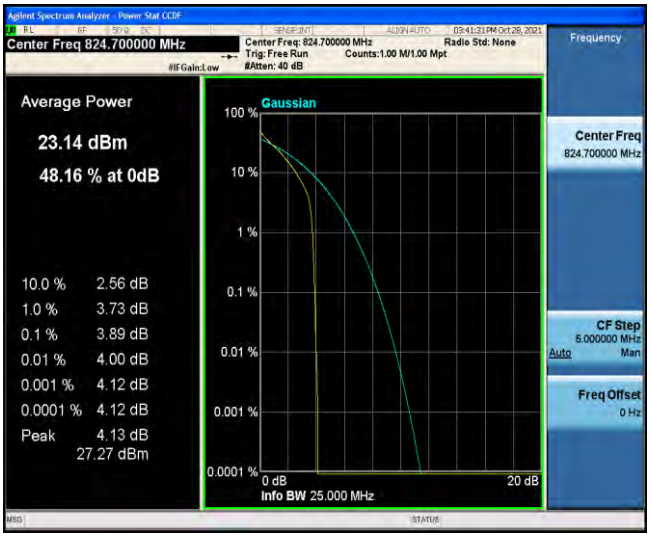
2. Peak-to-Average Ratio(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	3.89	13	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	3.85	13	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	3.93	13	PASS
Band5	1.4MHz	64QAM	20407	1RB#0	5.78	13	PASS
Band5	1.4MHz	64QAM	20525	1RB#0	6.60	13	PASS
Band5	1.4MHz	64QAM	20643	1RB#0	6.35	13	PASS
Band5	1.4MHz	256QAM	20407	1RB#0	7.02	13	PASS
Band5	1.4MHz	256QAM	20525	1RB#0	6.56	13	PASS
Band5	1.4MHz	256QAM	20643	1RB#0	6.47	13	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	5.74	13	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	5.59	13	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	5.10	13	PASS
Band5	3MHz	QPSK	20415	1RB#0	3.71	13	PASS
Band5	3MHz	QPSK	20525	1RB#0	3.66	13	PASS
Band5	3MHz	QPSK	20635	1RB#0	3.62	13	PASS
Band5	3MHz	64QAM	20415	1RB#0	5.69	13	PASS
Band5	3MHz	64QAM	20525	1RB#0	7.23	13	PASS
Band5	3MHz	64QAM	20635	1RB#0	6.36	13	PASS
Band5	3MHz	256QAM	20415	1RB#0	6.78	13	PASS
Band5	3MHz	256QAM	20525	1RB#0	6.59	13	PASS
Band5	3MHz	256QAM	20635	1RB#0	6.78	13	PASS
Band5	3MHz	16QAM	20415	1RB#0	5.70	13	PASS
Band5	3MHz	16QAM	20525	1RB#0	5.51	13	PASS
Band5	3MHz	16QAM	20635	1RB#0	5.19	13	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	5MHz	QPSK	20425	1RB#0	3.92	13	PASS
Band5	5MHz	QPSK	20525	1RB#0	3.69	13	PASS
Band5	5MHz	QPSK	20625	1RB#0	3.68	13	PASS
Band5	5MHz	64QAM	20425	1RB#0	5.74	13	PASS
Band5	5MHz	64QAM	20525	1RB#0	7.05	13	PASS
Band5	5MHz	64QAM	20625	1RB#0	6.66	13	PASS
Band5	5MHz	256QAM	20425	1RB#0	6.73	13	PASS
Band5	5MHz	256QAM	20525	1RB#0	6.95	13	PASS
Band5	5MHz	256QAM	20625	1RB#0	6.76	13	PASS
Band5	5MHz	16QAM	20425	1RB#0	5.72	13	PASS
Band5	5MHz	16QAM	20525	1RB#0	5.47	13	PASS
Band5	5MHz	16QAM	20625	1RB#0	5.44	13	PASS
Band5	10MHz	QPSK	20450	1RB#0	3.74	13	PASS
Band5	10MHz	QPSK	20525	1RB#0	3.83	13	PASS
Band5	10MHz	QPSK	20600	1RB#0	3.80	13	PASS
Band5	10MHz	64QAM	20450	1RB#0	5.68	13	PASS
Band5	10MHz	64QAM	20525	1RB#0	7.26	13	PASS
Band5	10MHz	64QAM	20600	1RB#0	6.72	13	PASS
Band5	10MHz	256QAM	20450	1RB#0	7.14	13	PASS
Band5	10MHz	256QAM	20525	1RB#0	7.03	13	PASS
Band5	10MHz	256QAM	20600	1RB#0	6.57	13	PASS
Band5	10MHz	16QAM	20450	1RB#0	5.64	13	PASS
Band5	10MHz	16QAM	20525	1RB#0	5.86	13	PASS
Band5	10MHz	16QAM	20600	1RB#0	5.51	13	PASS

Test Graphs

Band5-1.4MHz-QPSK-20407-1RB#0

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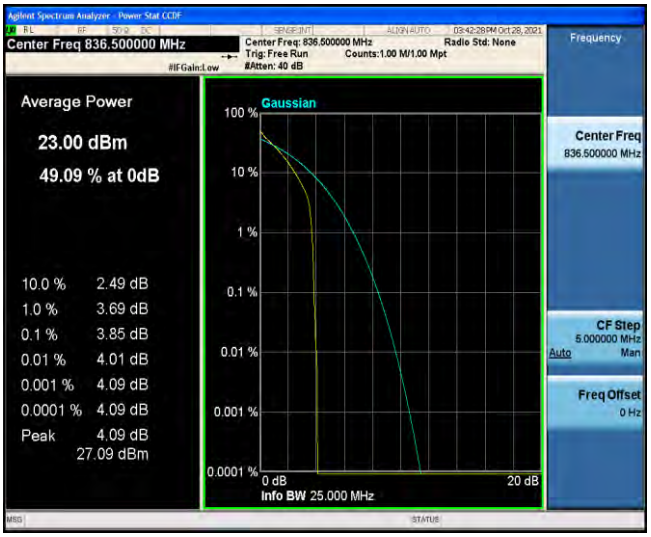

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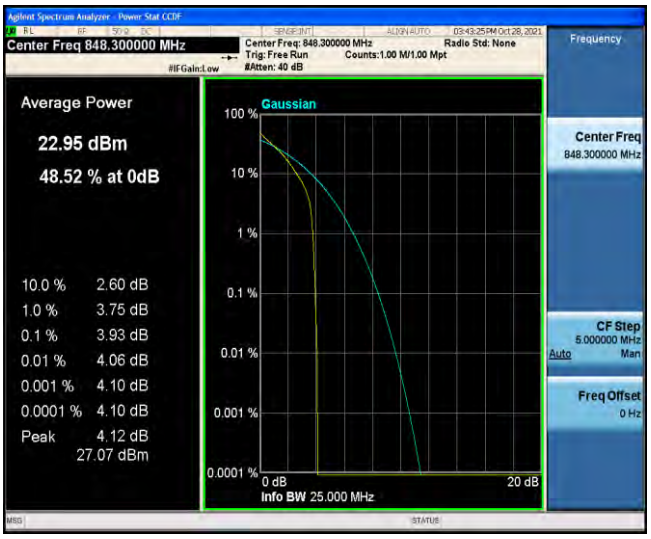
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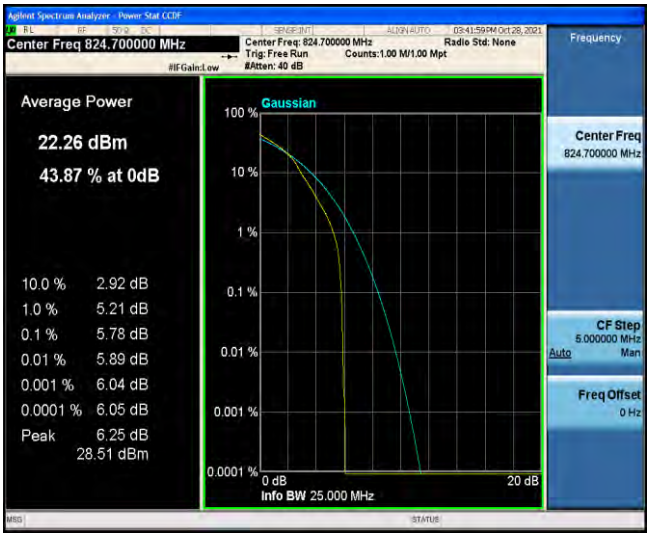
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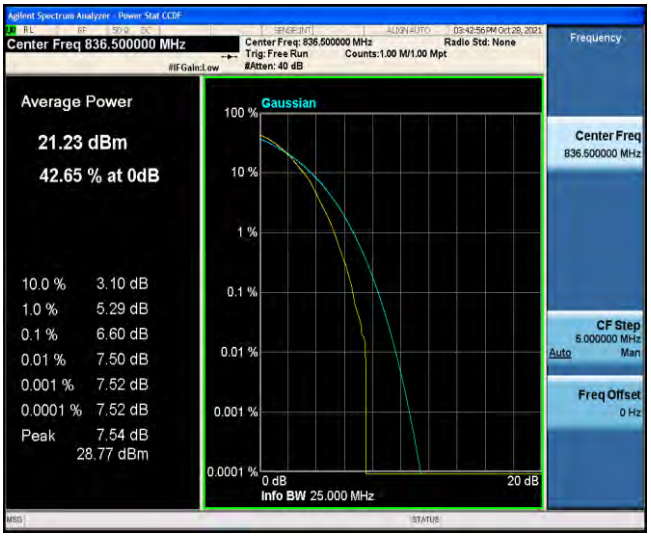

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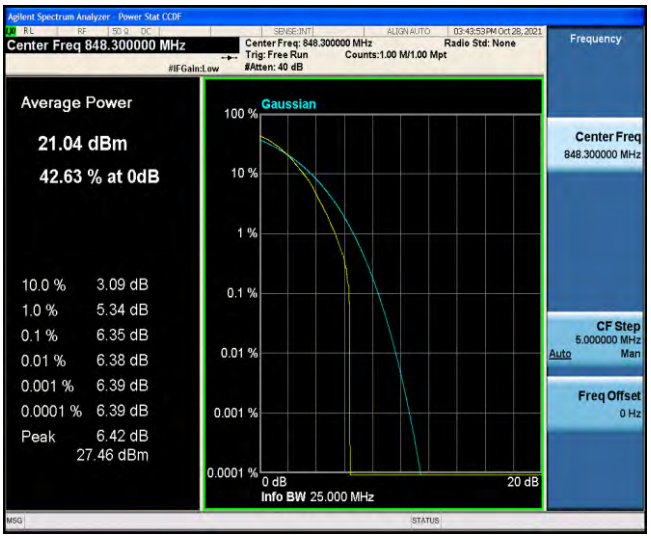
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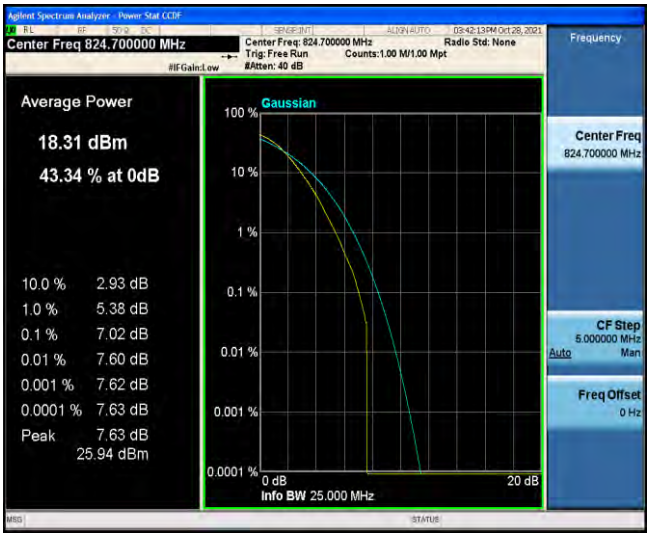
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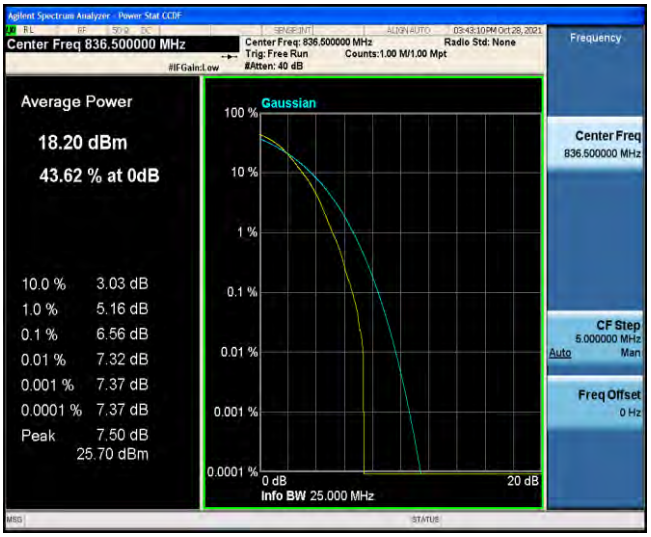

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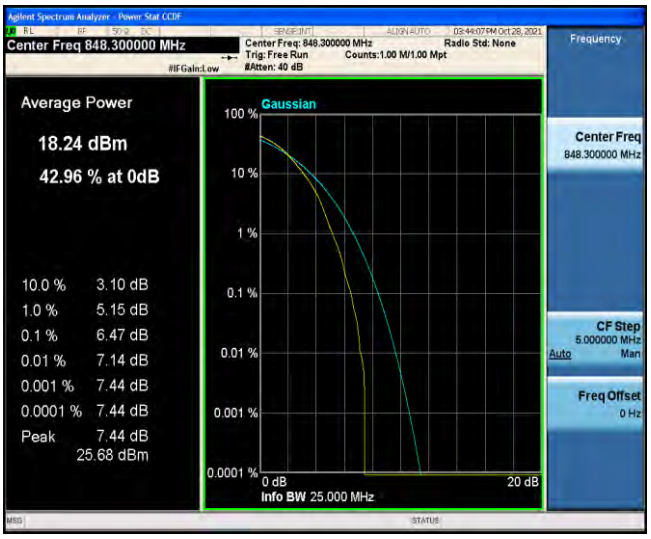
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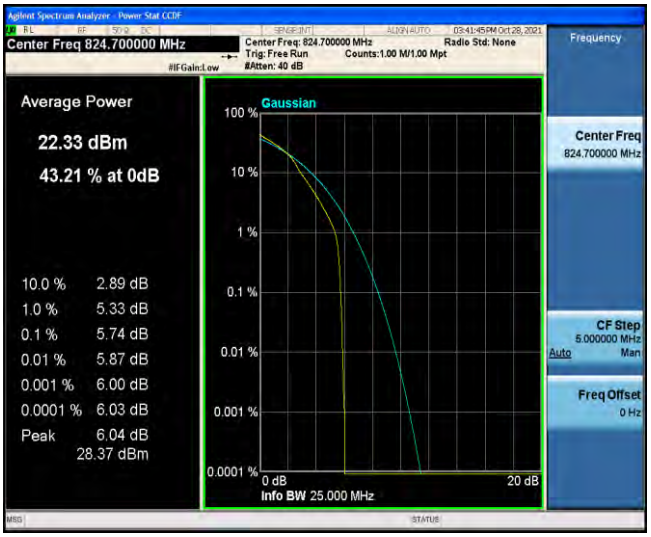
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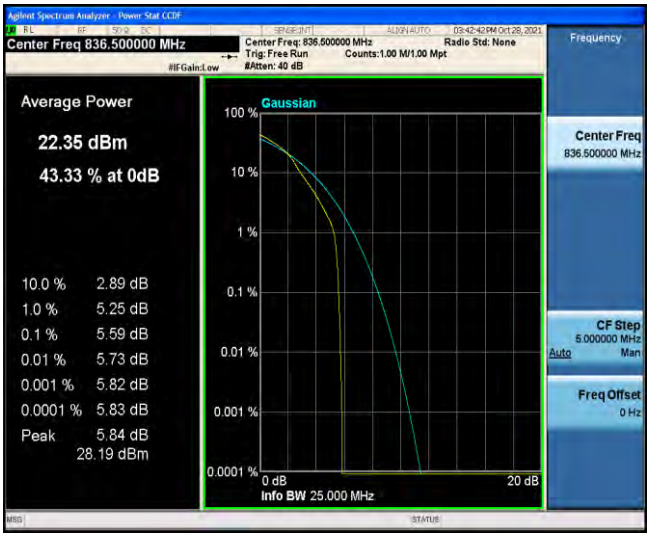

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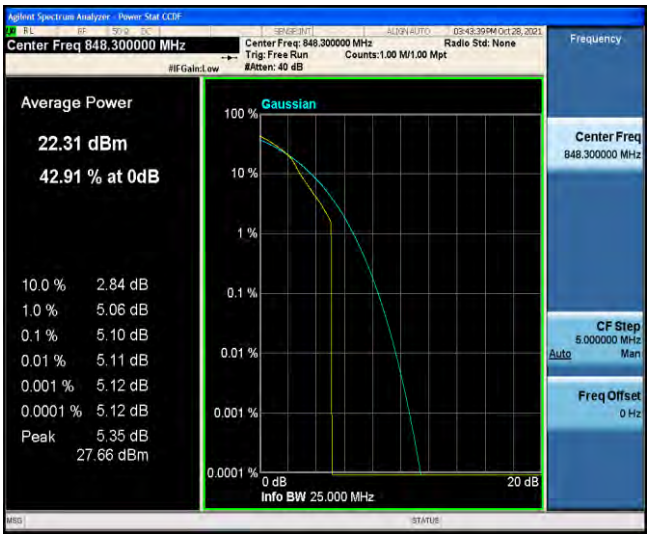
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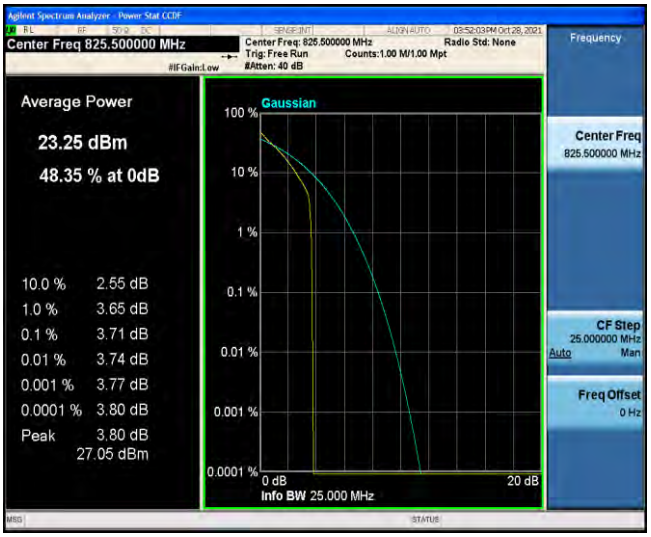
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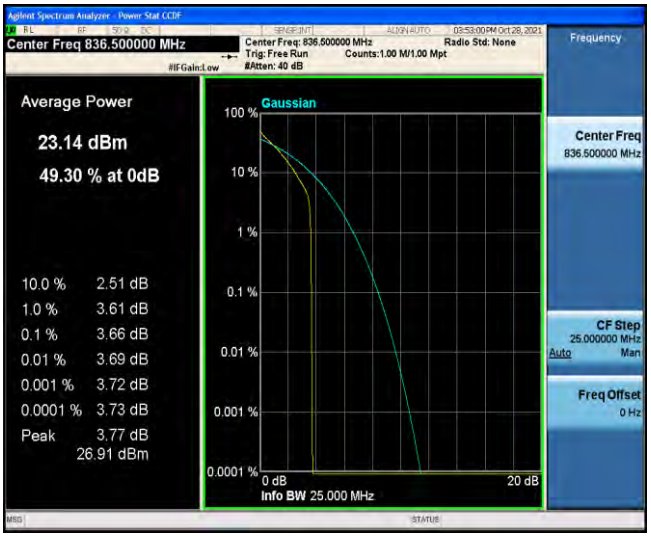

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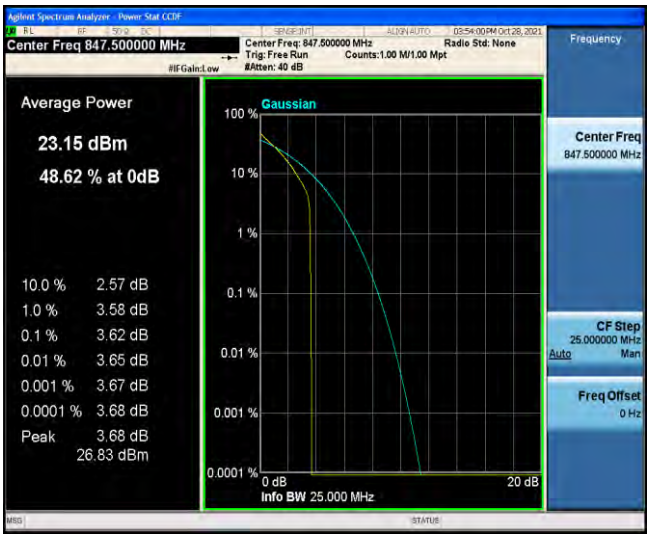
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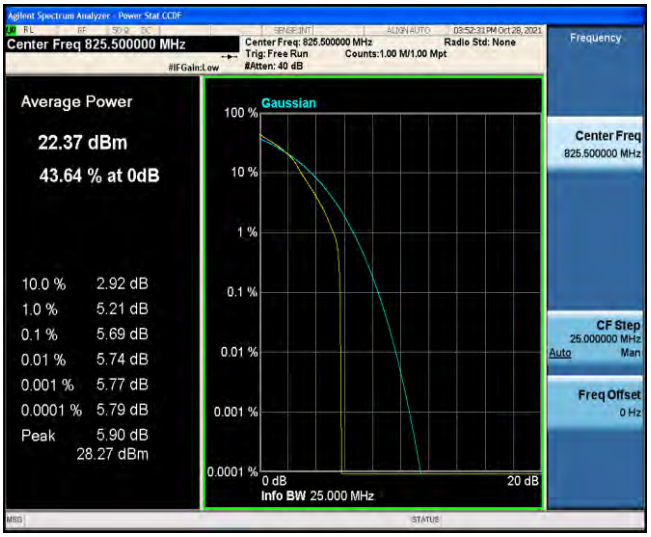
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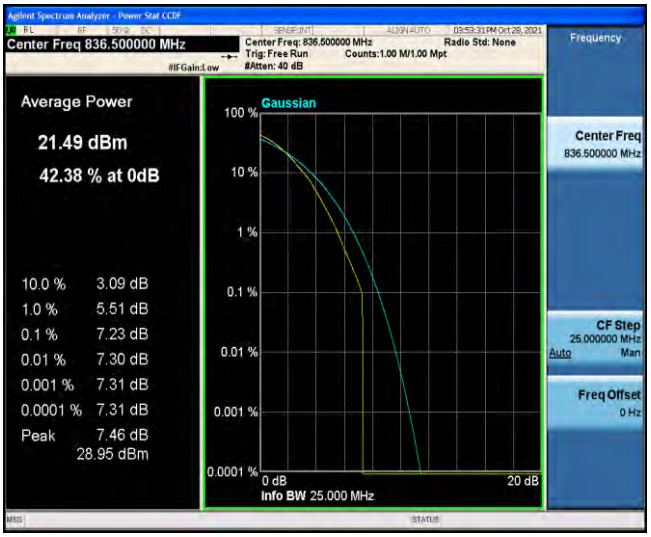

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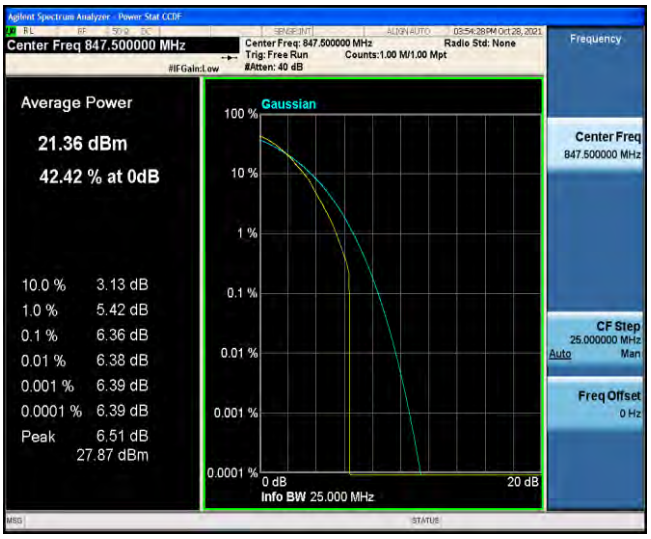
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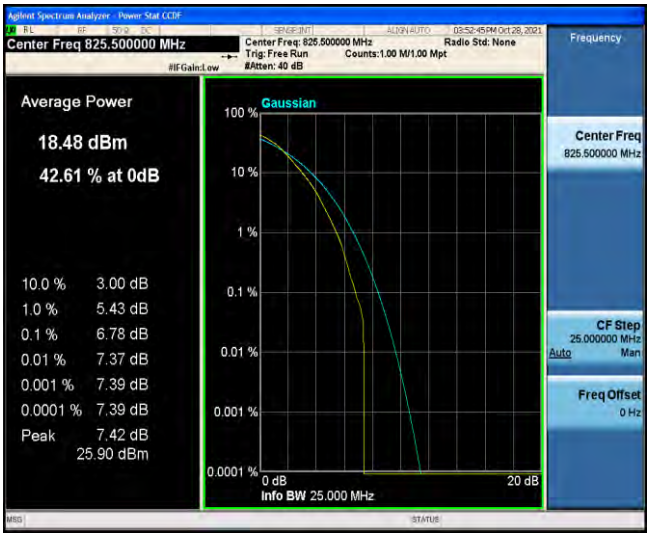
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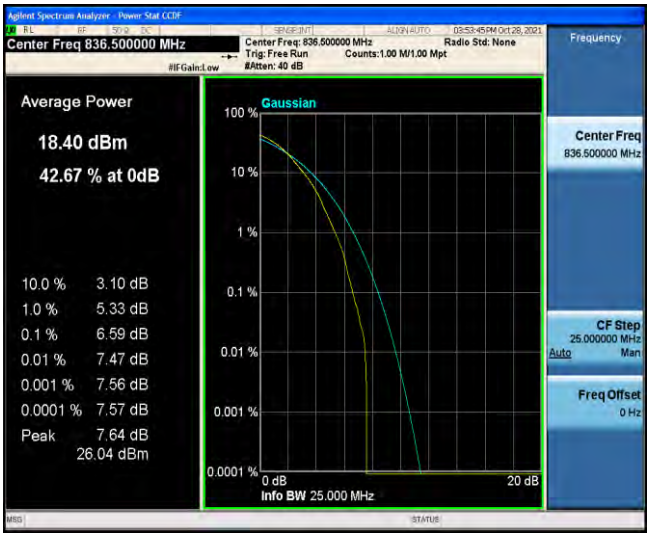

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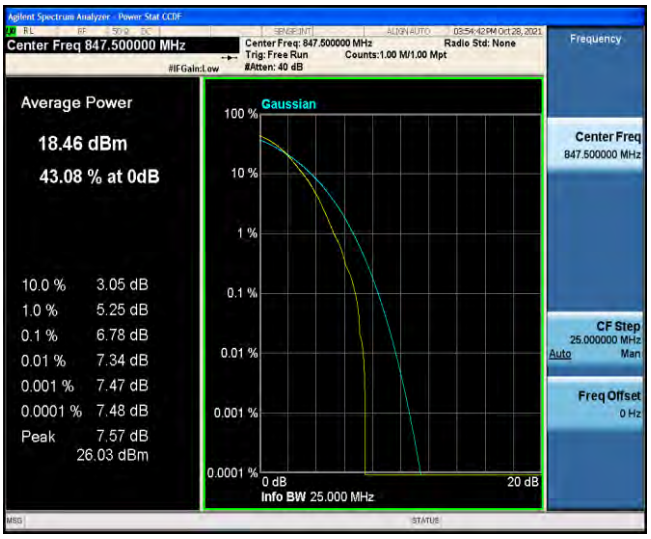
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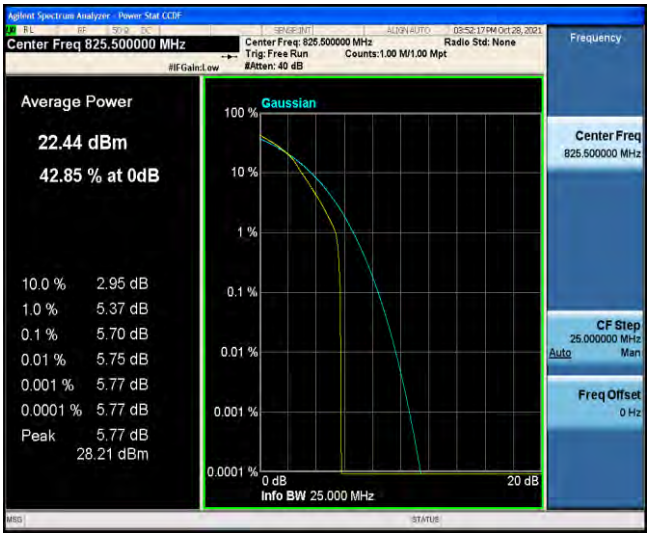
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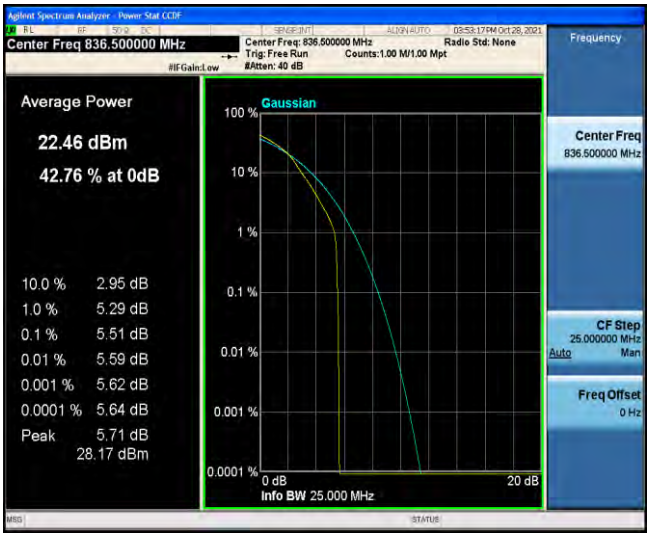

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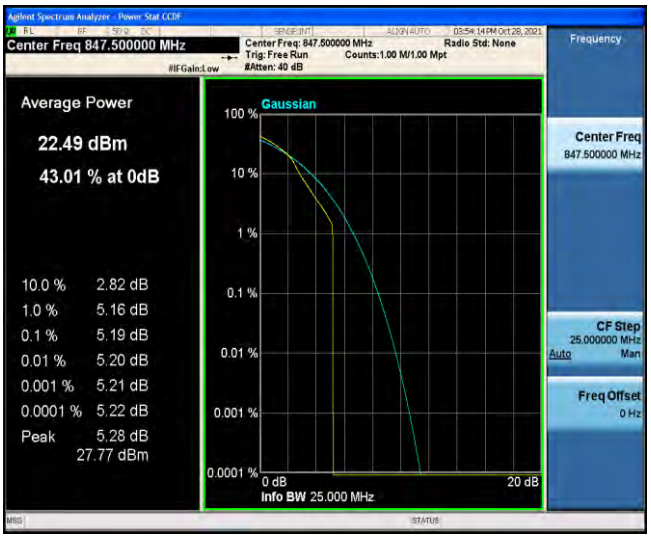
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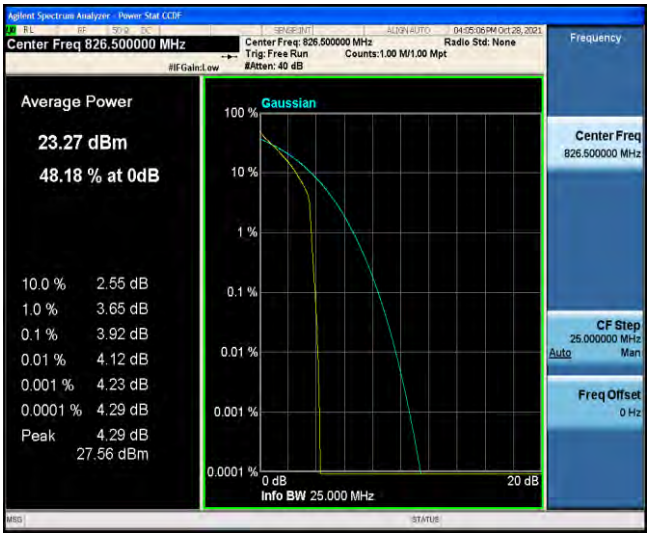
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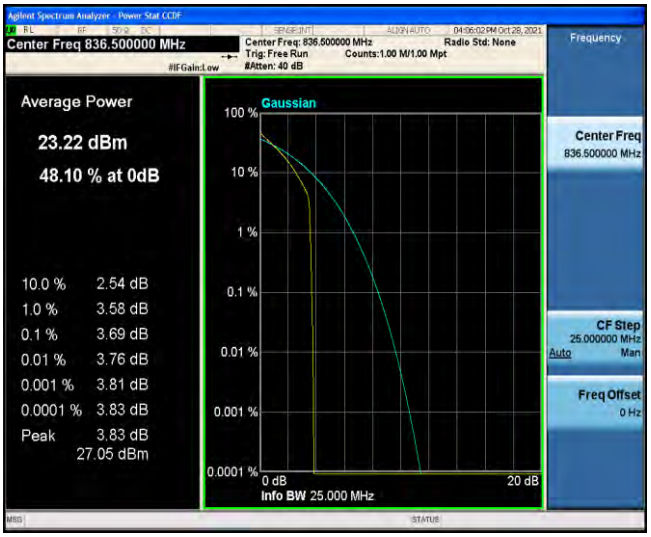

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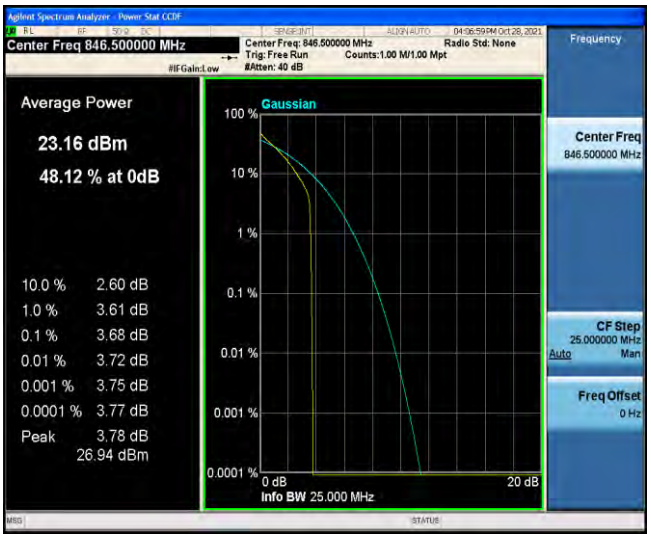
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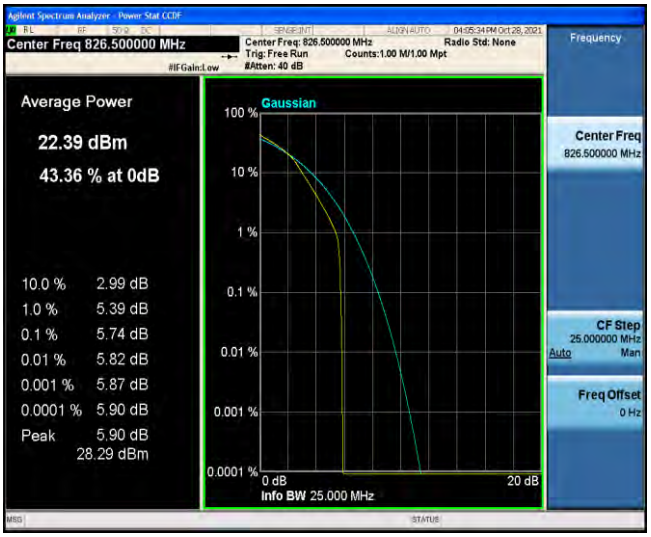
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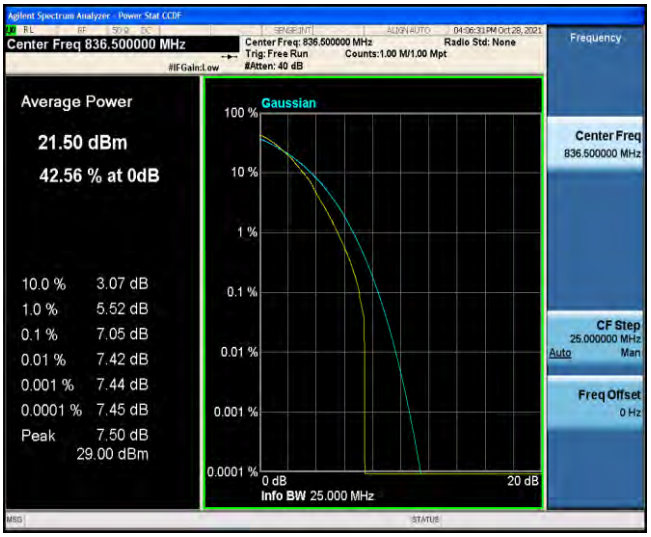

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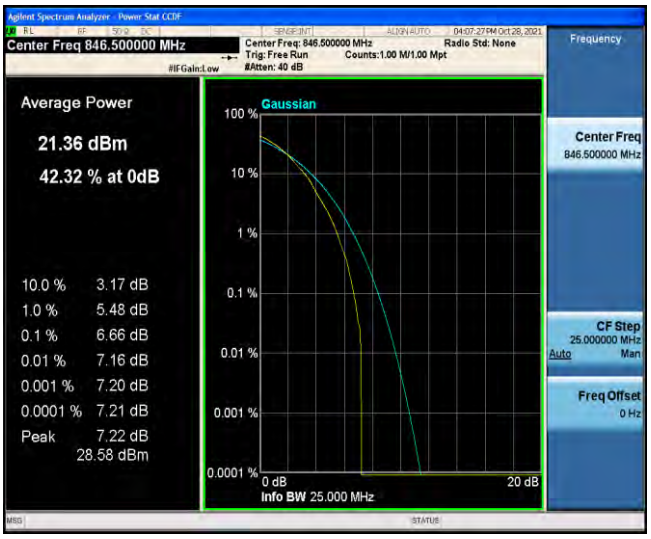

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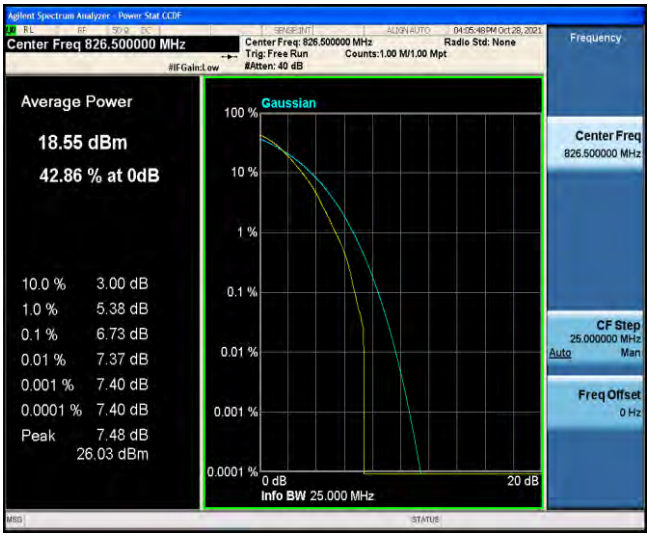

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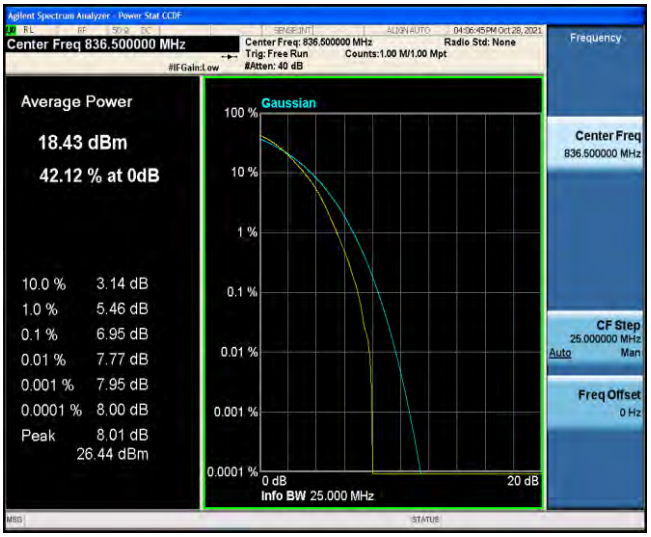

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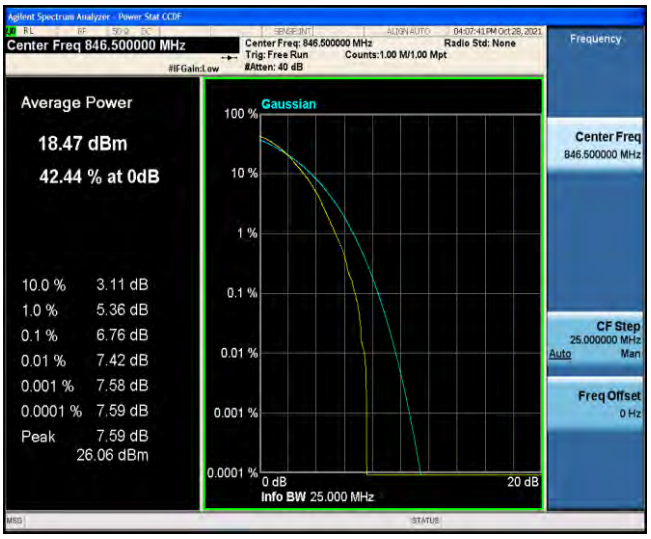
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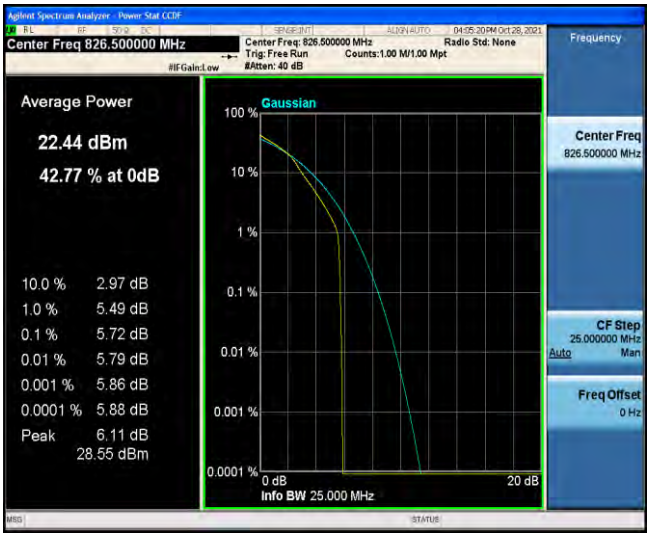
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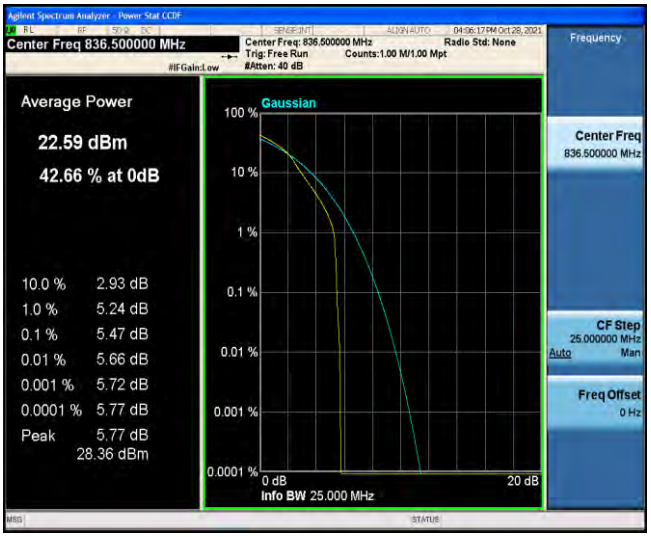

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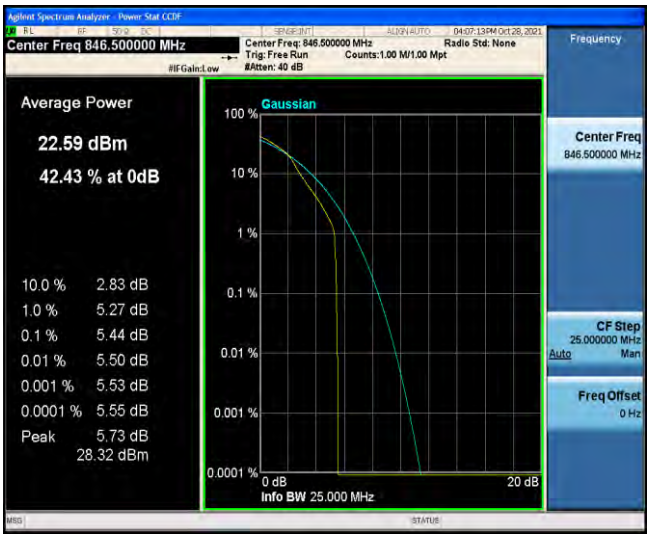

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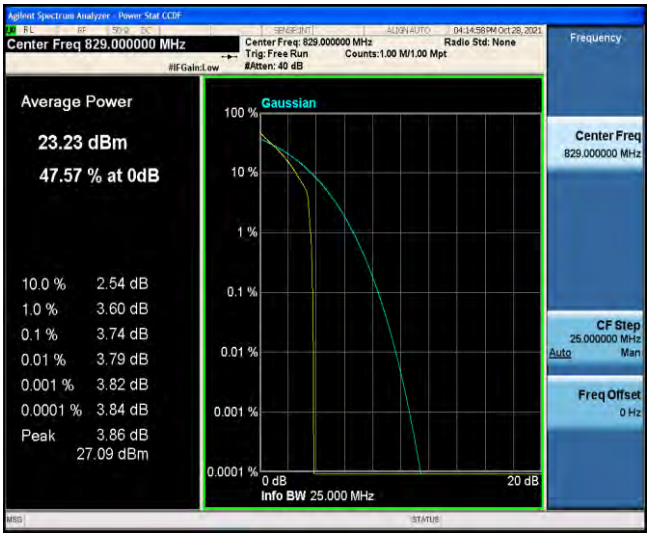

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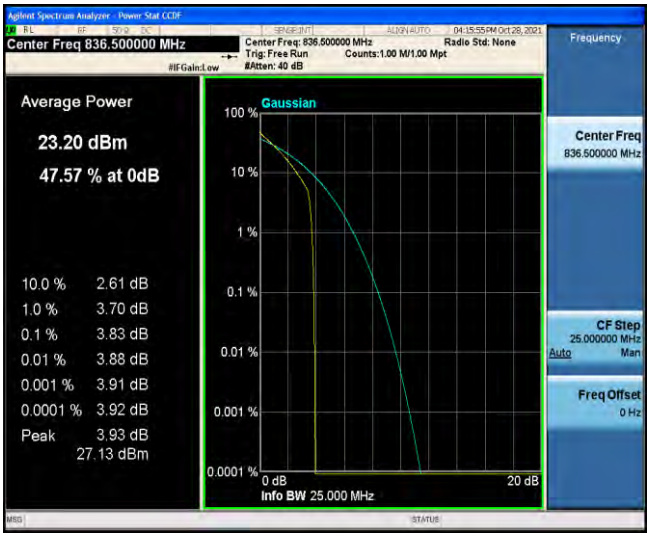

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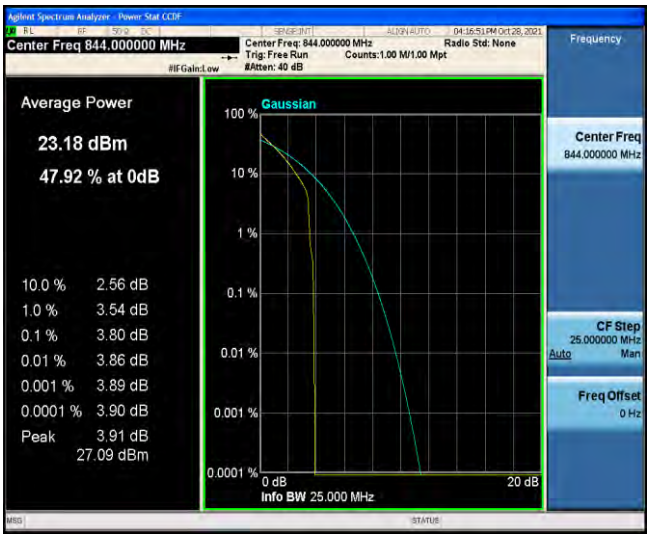
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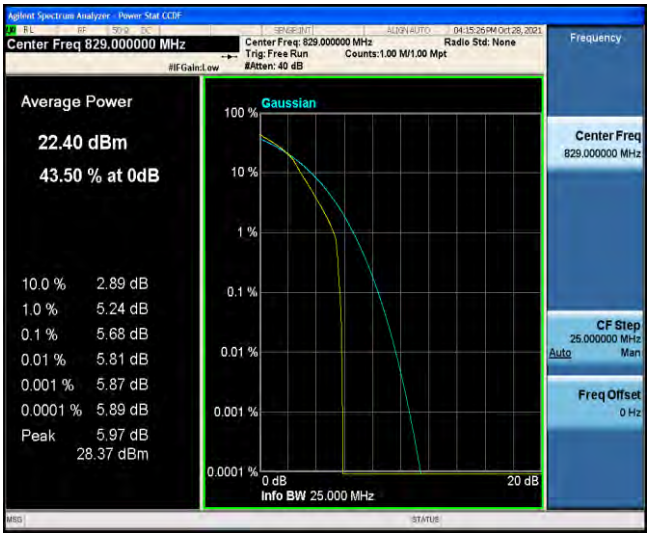
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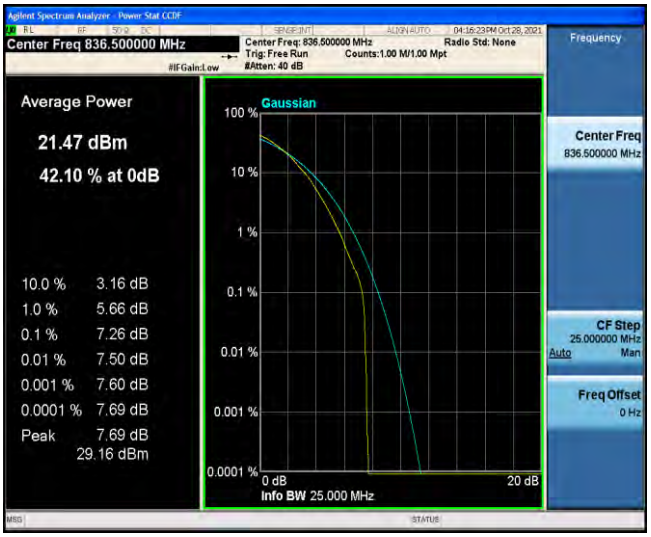

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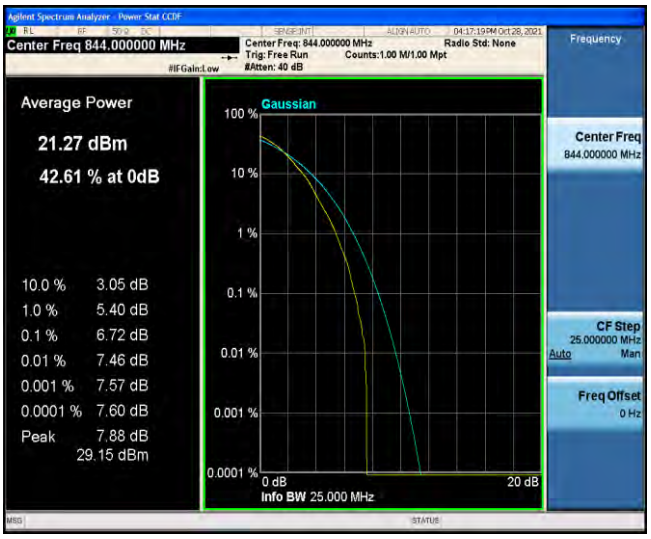
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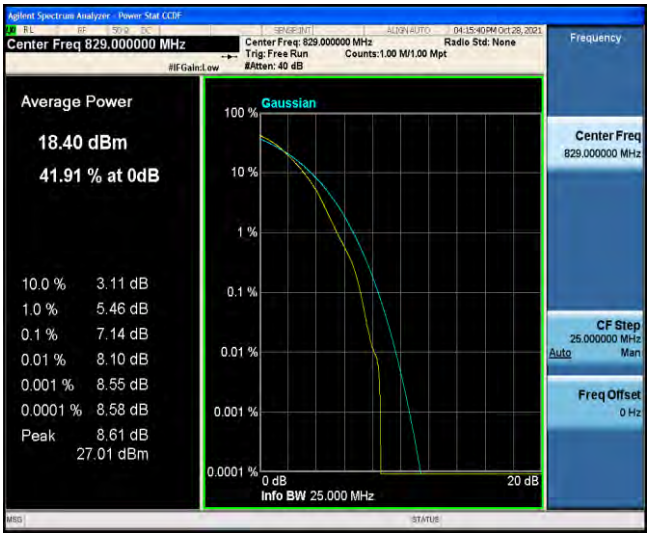
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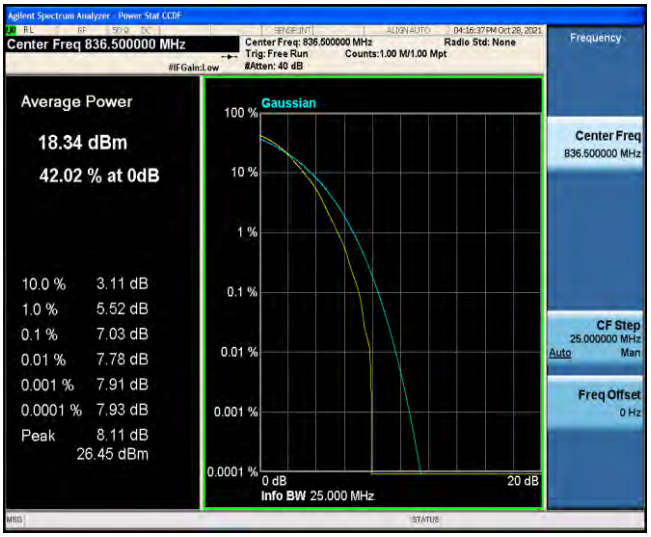

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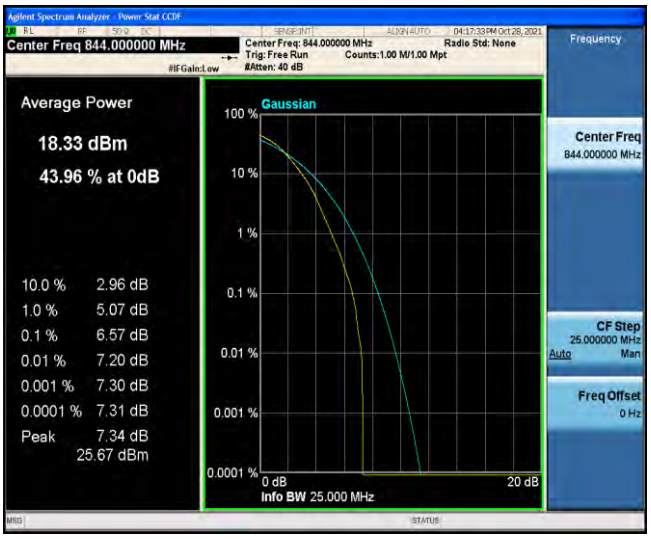

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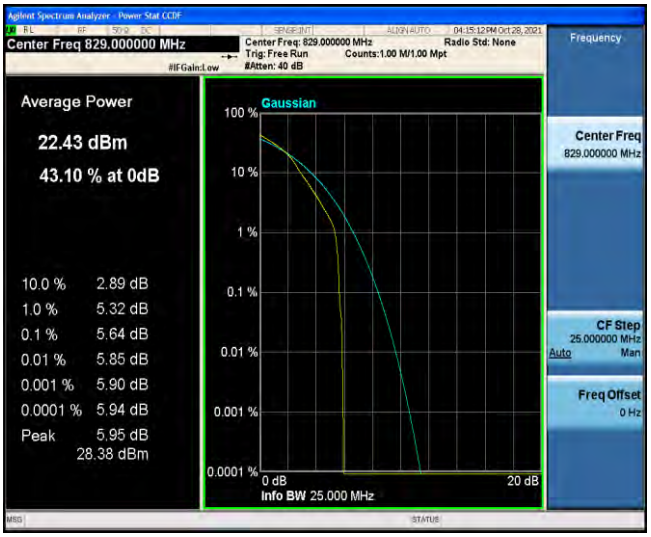

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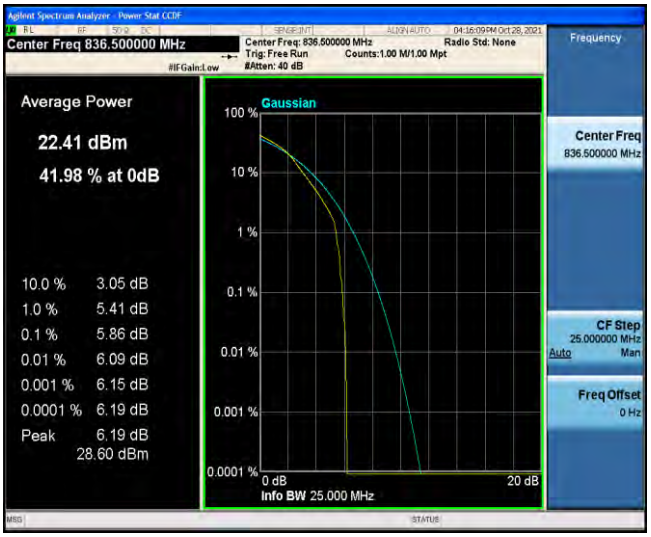

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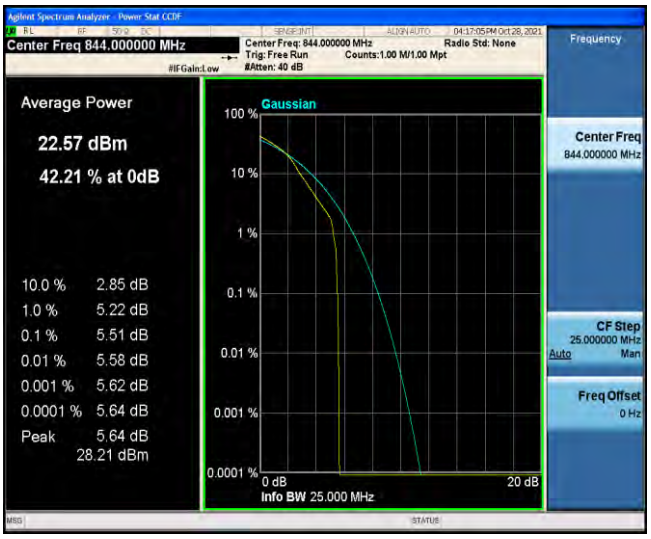


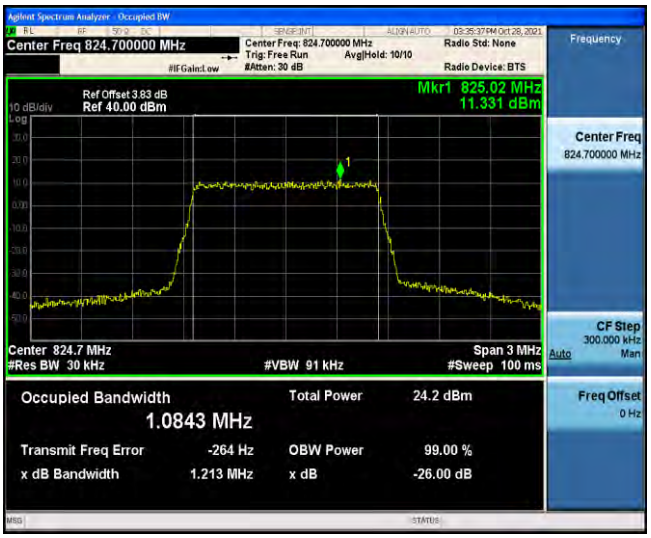
3. 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band5	1.4MHz	QPSK	20407	6RB#0	1.0843	1.213	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	1.0866	1.213	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	1.0871	1.200	PASS
Band5	1.4MHz	64QAM	20407	6RB#0	1.0904	1.200	PASS
Band5	1.4MHz	64QAM	20525	6RB#0	1.0858	1.211	PASS
Band5	1.4MHz	64QAM	20643	6RB#0	1.0892	1.212	PASS
Band5	1.4MHz	256QAM	20407	6RB#0	1.0863	1.208	PASS
Band5	1.4MHz	256QAM	20525	6RB#0	1.0873	1.208	PASS
Band5	1.4MHz	256QAM	20643	6RB#0	1.0882	1.205	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	1.0898	1.211	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	1.0841	1.225	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	1.0929	1.215	PASS
Band5	3MHz	QPSK	20415	15RB#0	2.6853	2.910	PASS
Band5	3MHz	QPSK	20525	15RB#0	2.6903	2.908	PASS
Band5	3MHz	QPSK	20635	15RB#0	2.6951	2.921	PASS
Band5	3MHz	64QAM	20415	15RB#0	2.6971	2.914	PASS
Band5	3MHz	64QAM	20525	15RB#0	2.6988	2.893	PASS
Band5	3MHz	64QAM	20635	15RB#0	2.6905	2.909	PASS
Band5	3MHz	256QAM	20415	15RB#0	2.6943	2.901	PASS
Band5	3MHz	256QAM	20525	15RB#0	2.6886	2.890	PASS
Band5	3MHz	256QAM	20635	15RB#0	2.6917	2.884	PASS
Band5	3MHz	16QAM	20415	15RB#0	2.6917	2.932	PASS
Band5	3MHz	16QAM	20525	15RB#0	2.6898	2.890	PASS
Band5	3MHz	16QAM	20635	15RB#0	2.6953	2.895	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band5	5MHz	QPSK	20425	25RB#0	4.4909	4.779	PASS
Band5	5MHz	QPSK	20525	25RB#0	4.5012	4.789	PASS
Band5	5MHz	QPSK	20625	25RB#0	4.4939	4.841	PASS
Band5	5MHz	64QAM	20425	25RB#0	4.4906	4.786	PASS
Band5	5MHz	64QAM	20525	25RB#0	4.4926	4.853	PASS
Band5	5MHz	64QAM	20625	25RB#0	4.4993	4.812	PASS
Band5	5MHz	256QAM	20425	25RB#0	4.4989	4.791	PASS
Band5	5MHz	256QAM	20525	25RB#0	4.4918	4.797	PASS
Band5	5MHz	256QAM	20625	25RB#0	4.4898	4.807	PASS
Band5	5MHz	16QAM	20425	25RB#0	4.4917	4.822	PASS
Band5	5MHz	16QAM	20525	25RB#0	4.4928	4.796	PASS
Band5	5MHz	16QAM	20625	25RB#0	4.4890	4.782	PASS
Band5	10MHz	QPSK	20450	50RB#0	8.9582	9.490	PASS
Band5	10MHz	QPSK	20525	50RB#0	8.9899	9.508	PASS
Band5	10MHz	QPSK	20600	50RB#0	8.9673	9.530	PASS
Band5	10MHz	64QAM	20450	50RB#0	8.9630	9.499	PASS
Band5	10MHz	64QAM	20525	50RB#0	8.9746	9.523	PASS
Band5	10MHz	64QAM	20600	50RB#0	8.9742	9.505	PASS
Band5	10MHz	256QAM	20450	50RB#0	8.9689	9.523	PASS
Band5	10MHz	256QAM	20525	50RB#0	8.9751	9.514	PASS
Band5	10MHz	256QAM	20600	50RB#0	8.9549	9.510	PASS
Band5	10MHz	16QAM	20450	50RB#0	8.9522	9.513	PASS
Band5	10MHz	16QAM	20525	50RB#0	8.9821	9.502	PASS
Band5	10MHz	16QAM	20600	50RB#0	8.9351	9.489	PASS

Test Graphs

Band5-1.4MHz-QPSK-20407-6RB#0-1.0843

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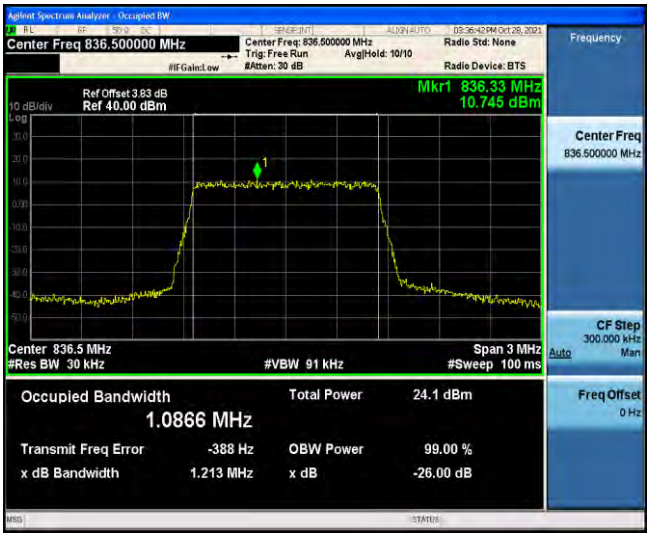

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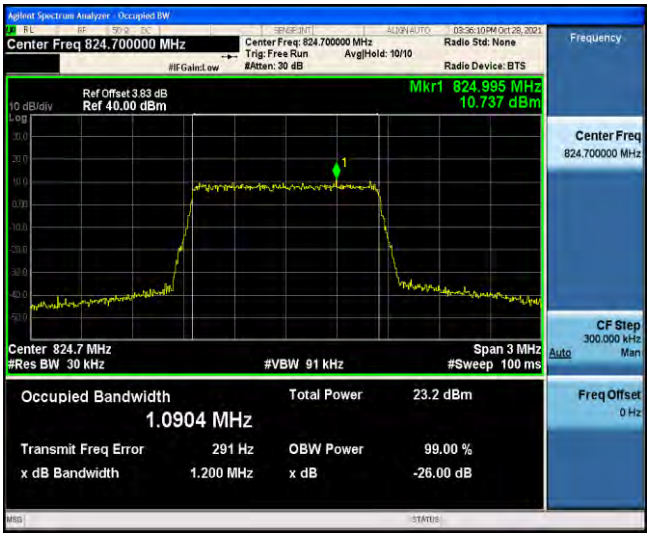
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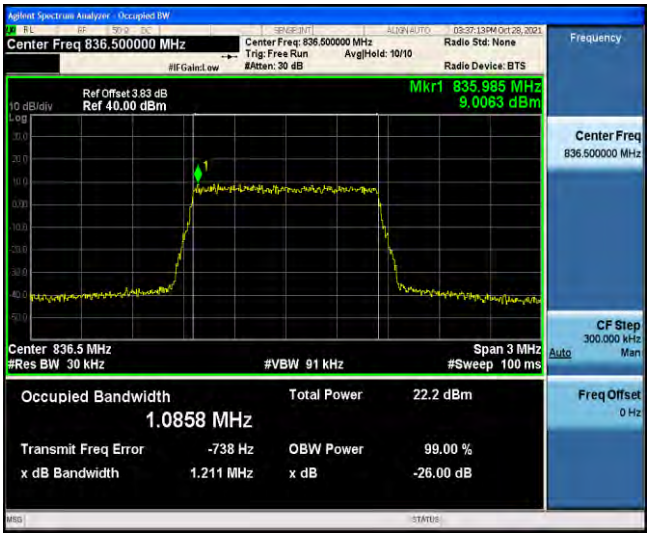

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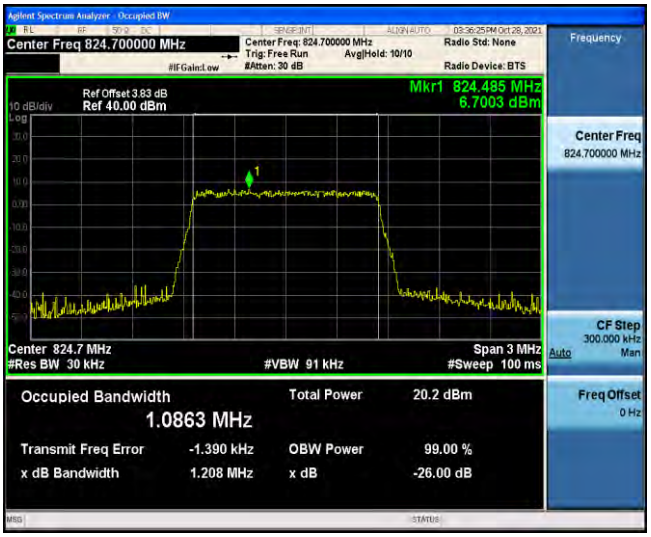
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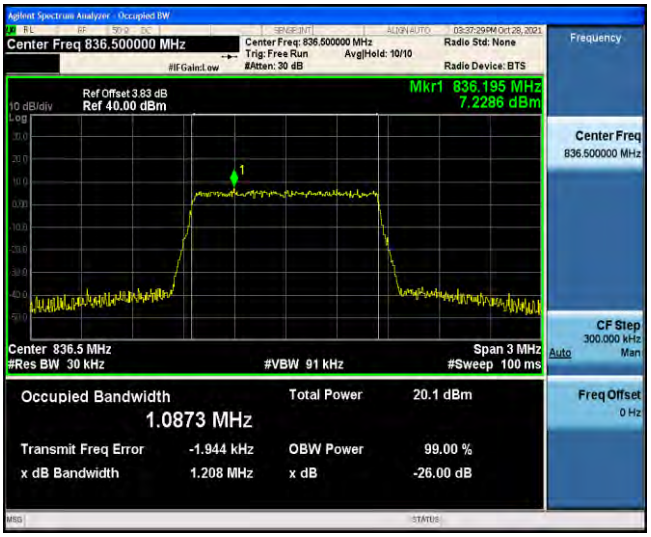

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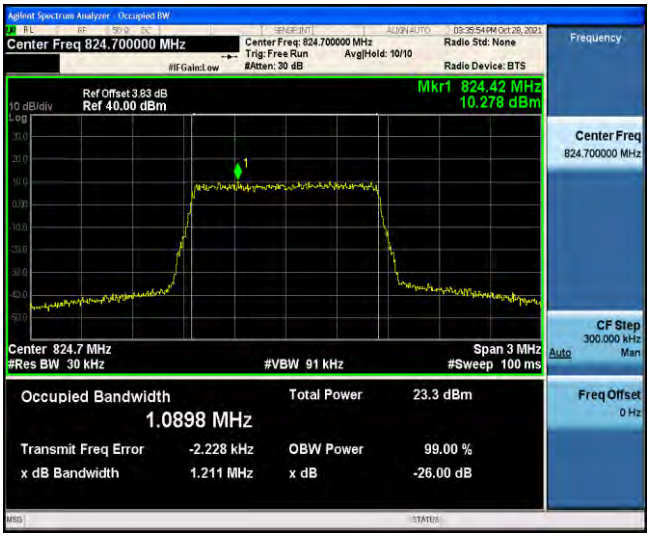
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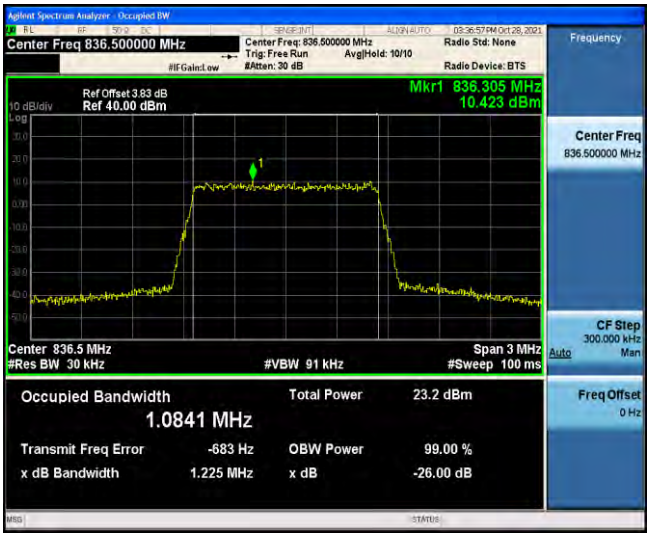

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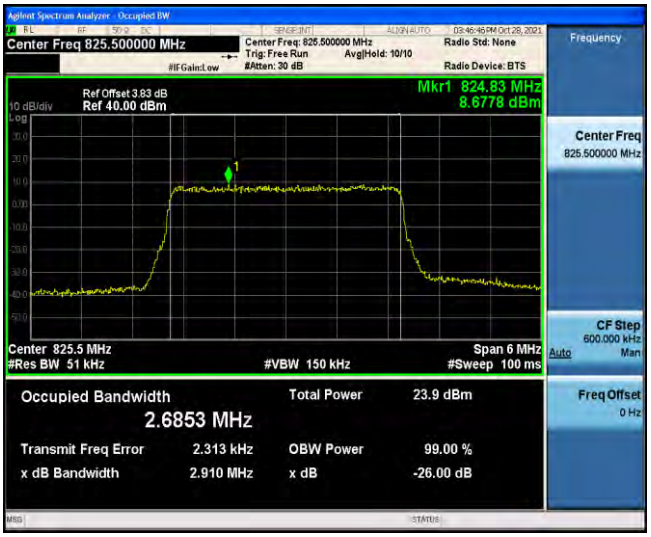
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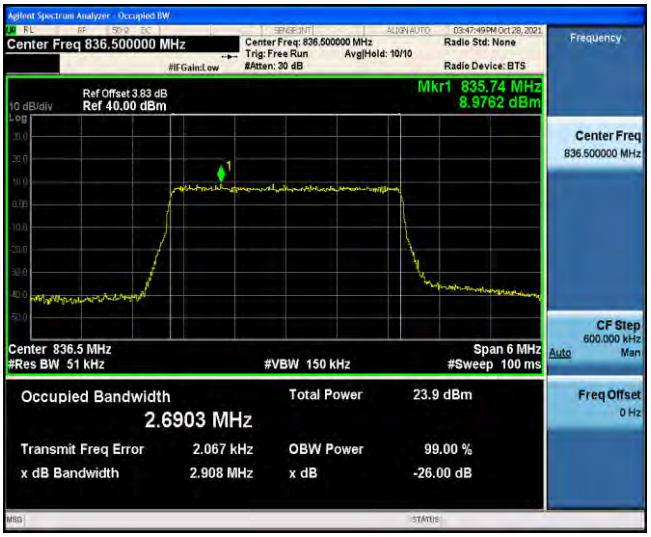

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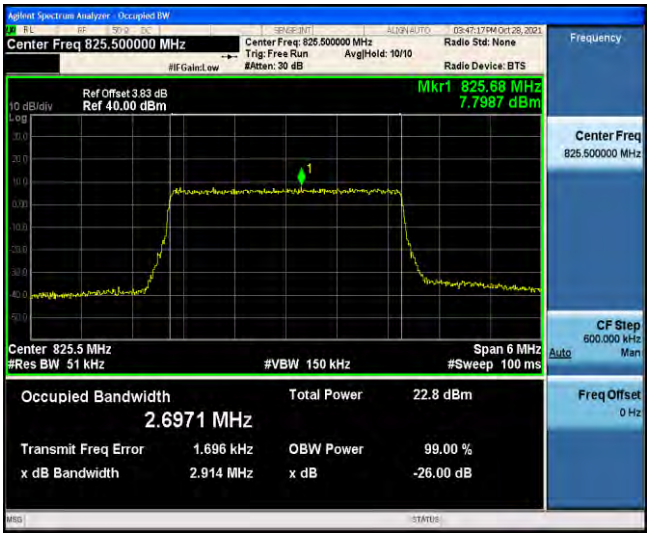
Band5-3MHz-64QAM-20415-15RB#0-2.6971


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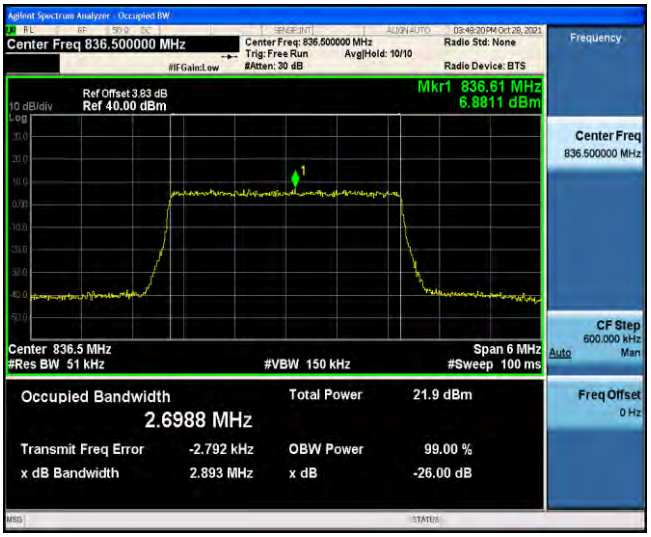

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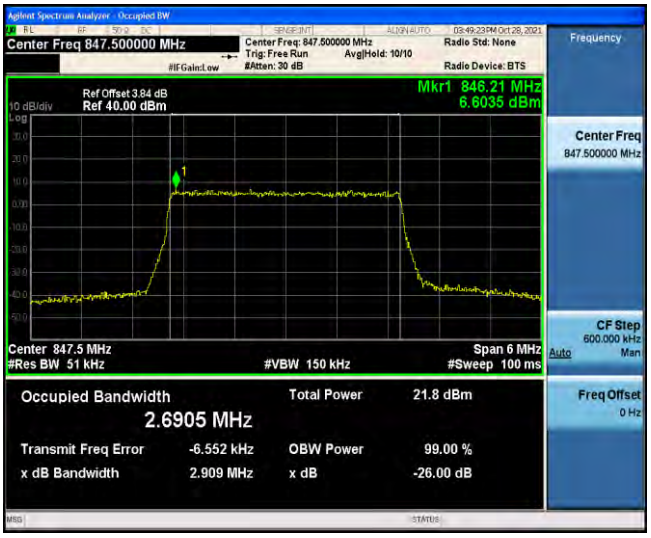
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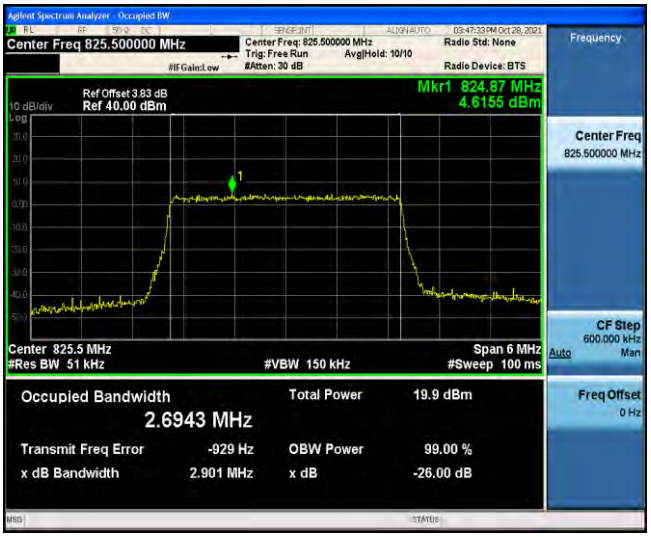
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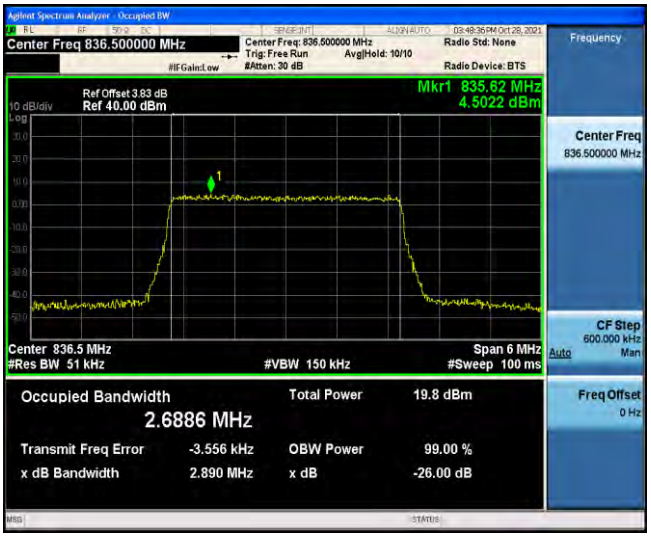

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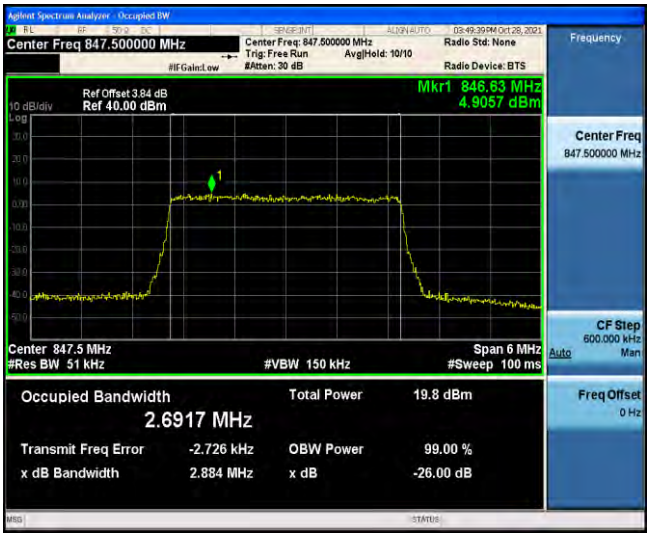
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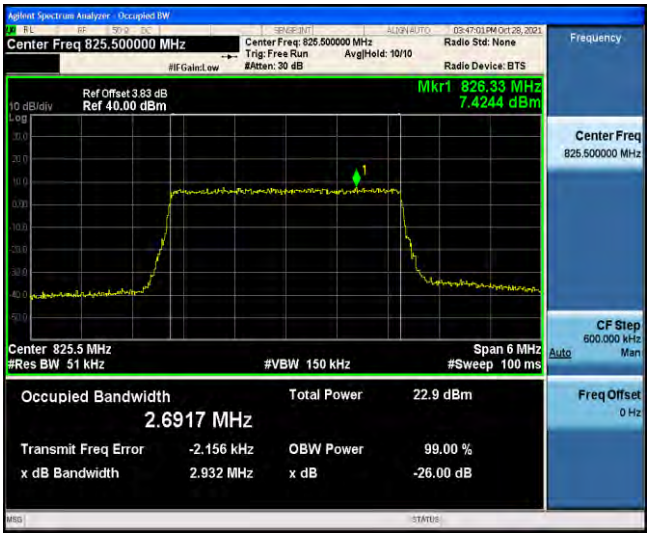
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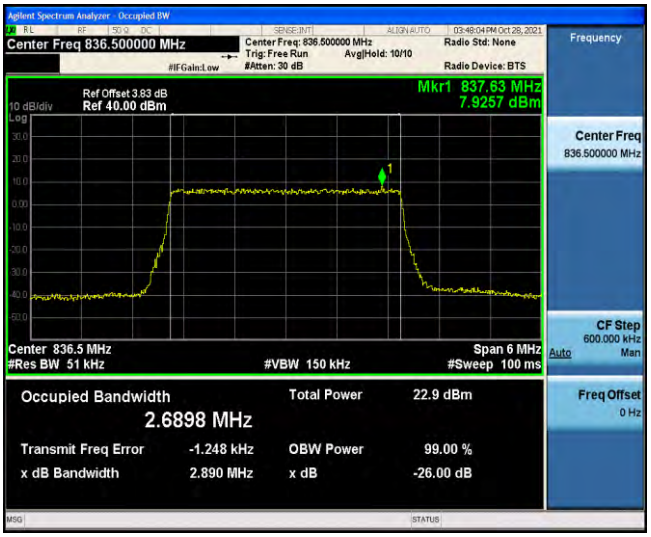

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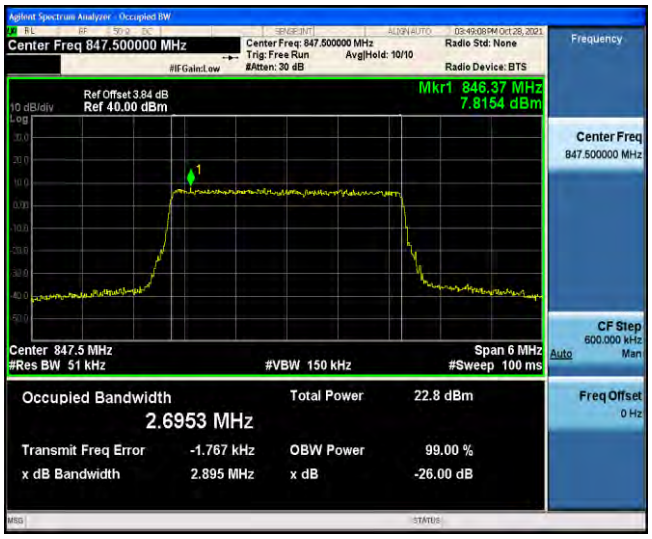
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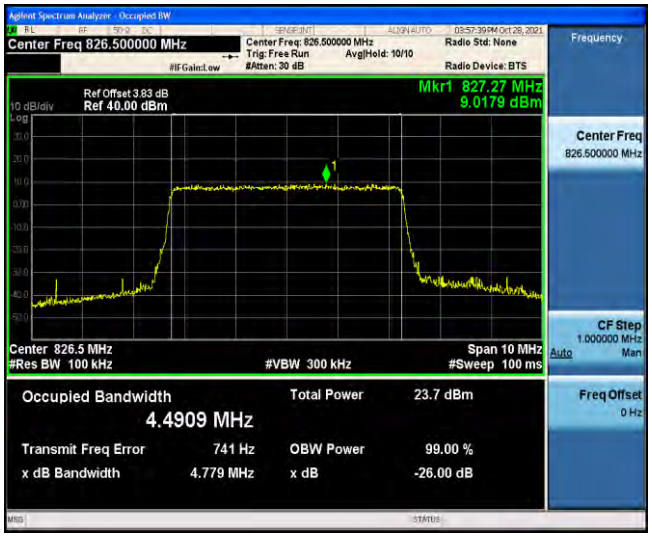
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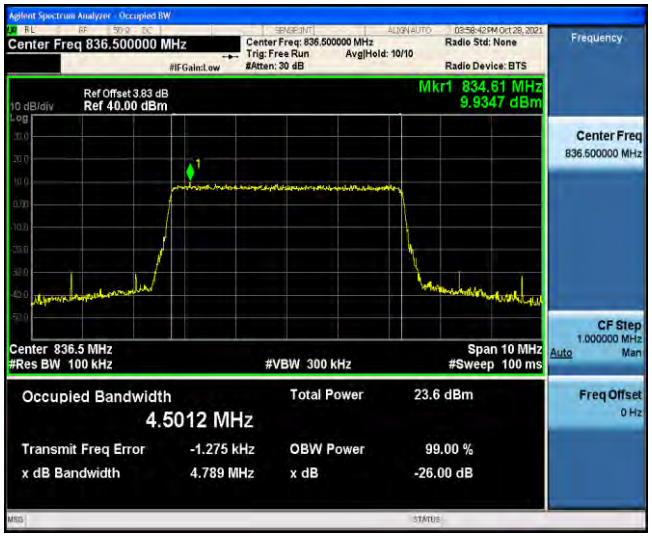

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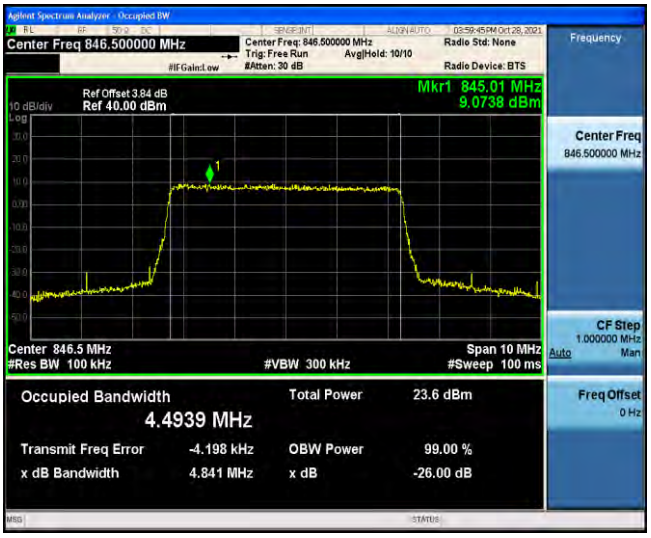
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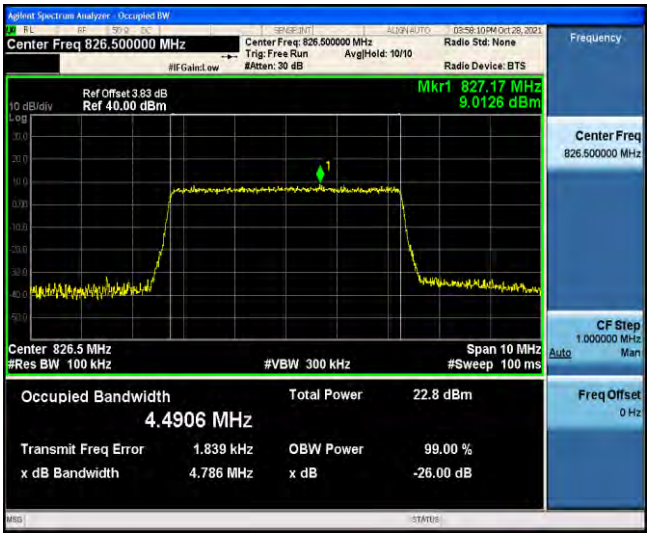
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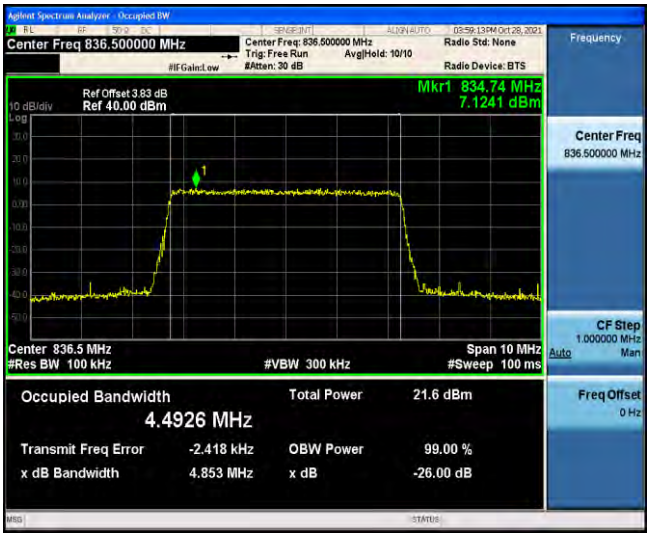
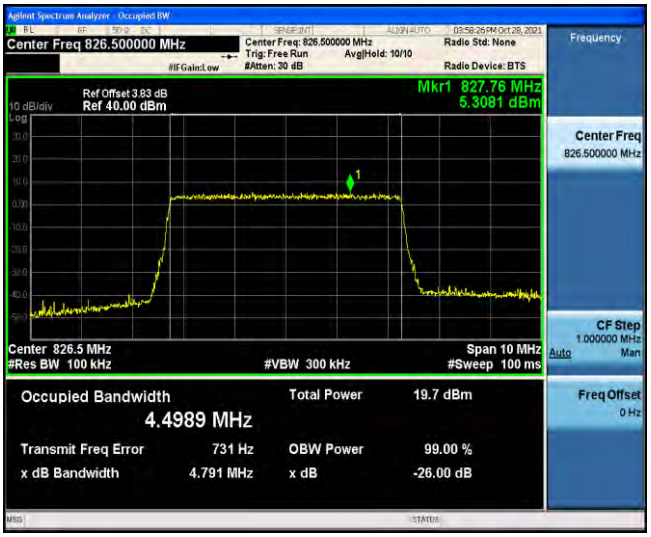
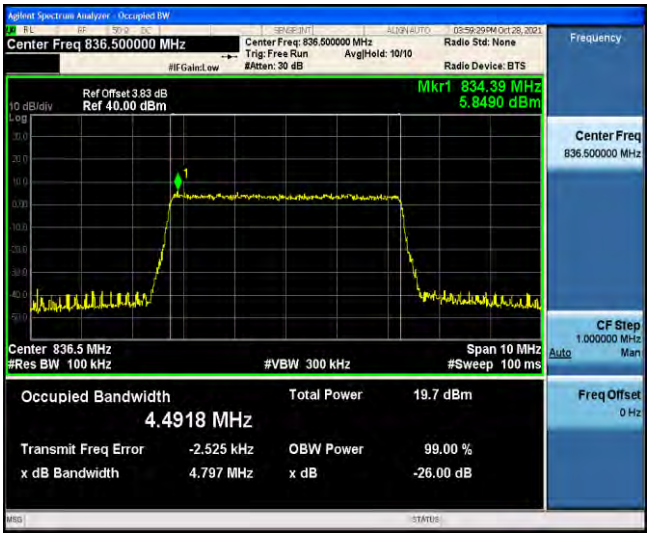
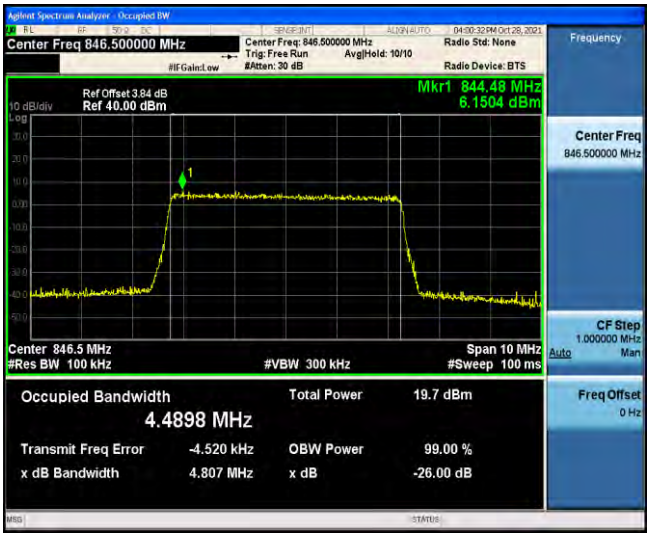


Band5-5MHz-64QAM-20625-25RB#0-4.4993

Band5-5MHz-256QAM-20425-25RB#0-4.4989

Band5-5MHz-256QAM-20525-25RB#0-4.4918


Band5-5MHz-256QAM-20625-25RB#0-4.4898

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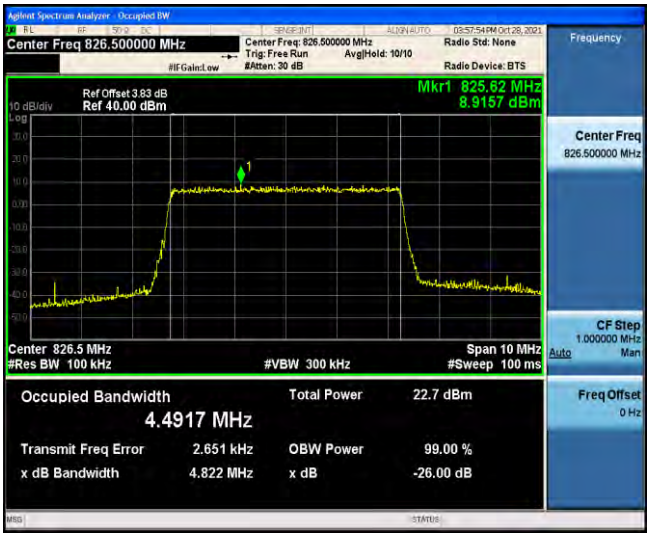
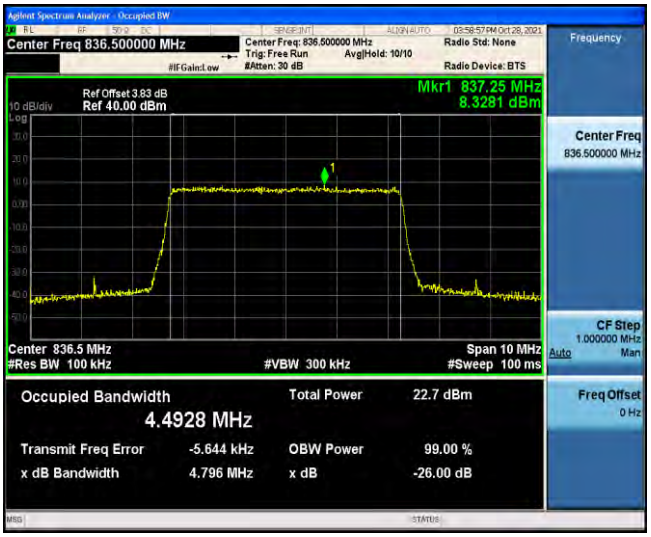
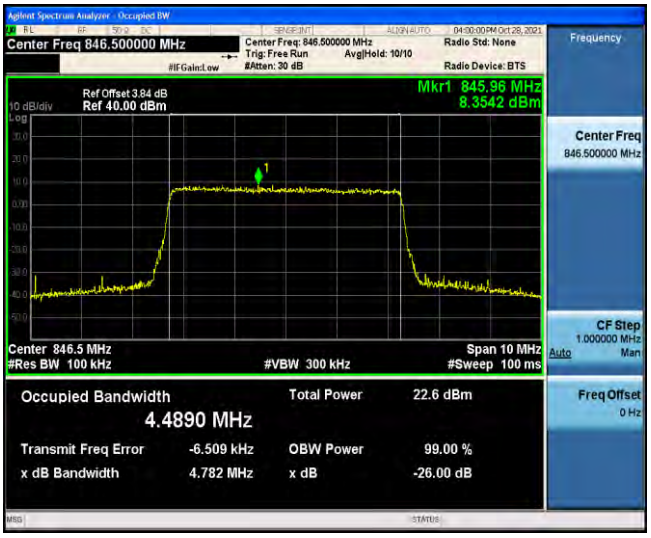
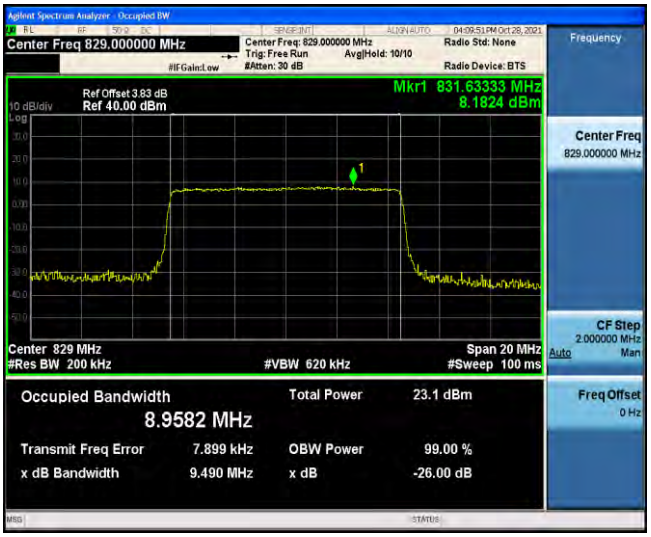
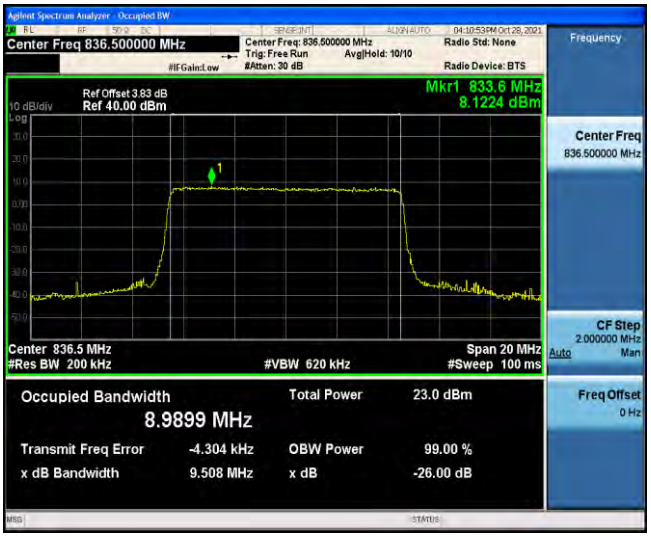
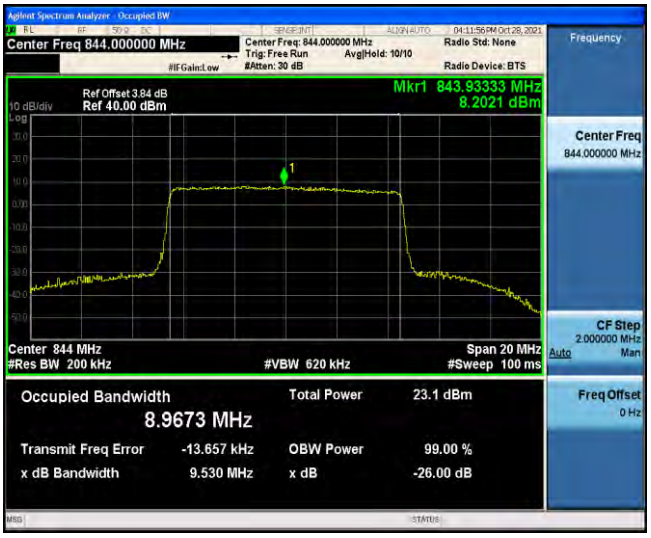
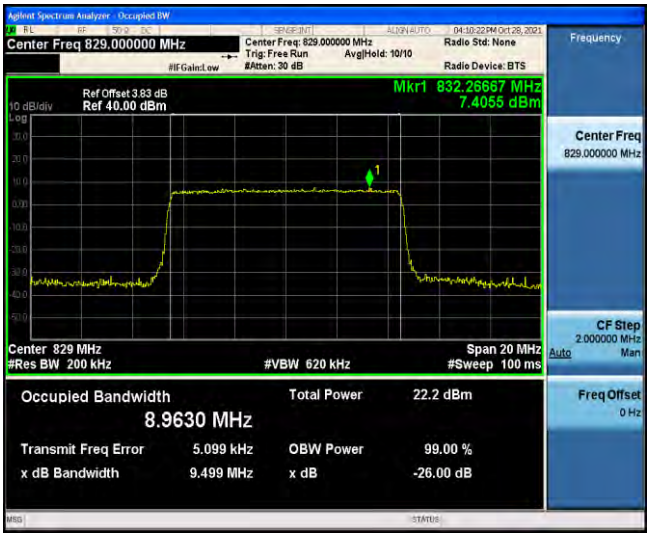
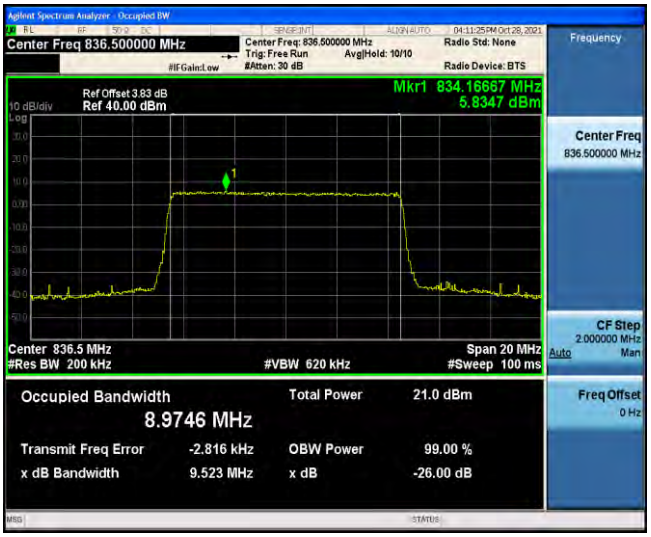
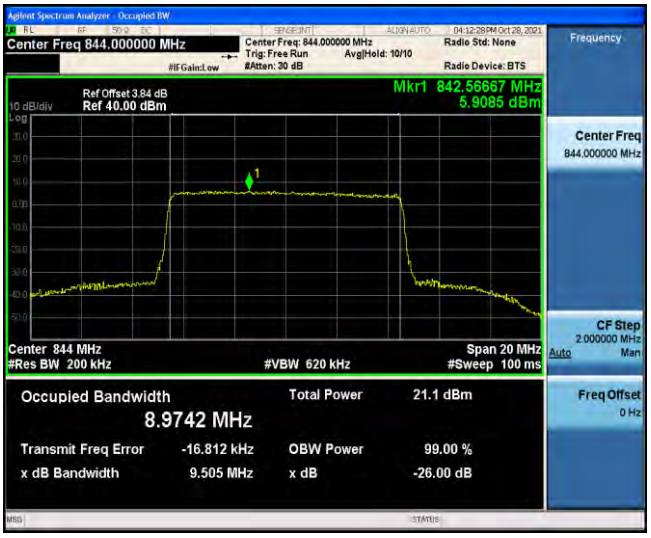
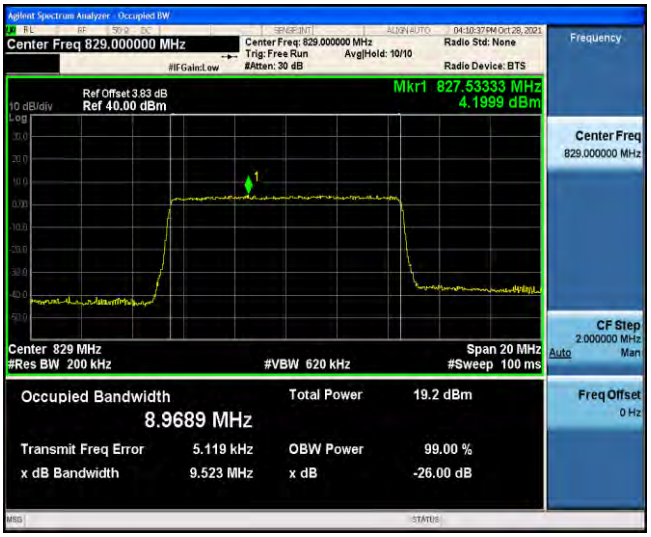
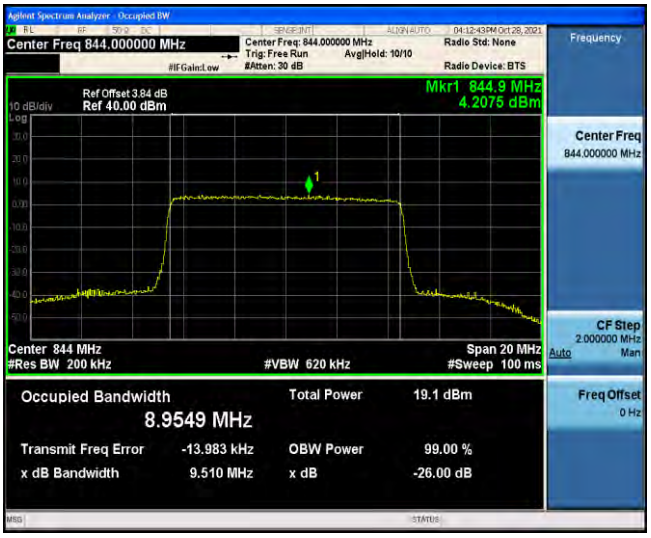
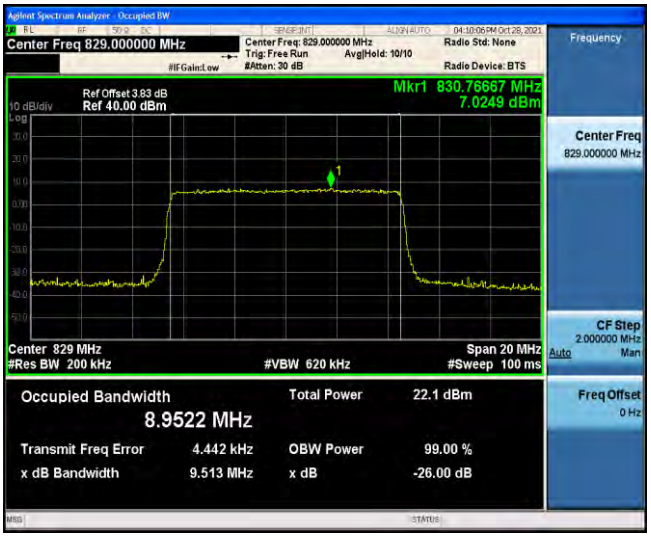

Band5-5MHz-16QAM-20525-25RB#0-4.4928


Band5-5MHz-16QAM-20625-25RB#0-4.4890

Band5-10MHz-QPSK-20450-50RB#0-8.9582

Band5-10MHz-QPSK-20525-50RB#0-8.9899


Band5-10MHz-QPSK-20600-50RB#0-8.9673

Band5-10MHz-64QAM-20450-50RB#0-8.9630

Band5-10MHz-64QAM-20525-50RB#0-8.9746


Band5-10MHz-64QAM-20600-50RB#0-8.9742

Band5-10MHz-256QAM-20450-50RB#0-8.9689

Band5-10MHz-256QAM-20525-50RB#0-8.9751


Band5-10MHz-256QAM-20600-50RB#0-8.9549

Band5-10MHz-16QAM-20450-50RB#0-8.9522

Band5-10MHz-16QAM-20525-50RB#0-8.9821


Band5-10MHz-16QAM-20600-50RB#0-8.9351


4. Band Edge

Test Graphs

Channel Bandwidth: 1.4 MHz

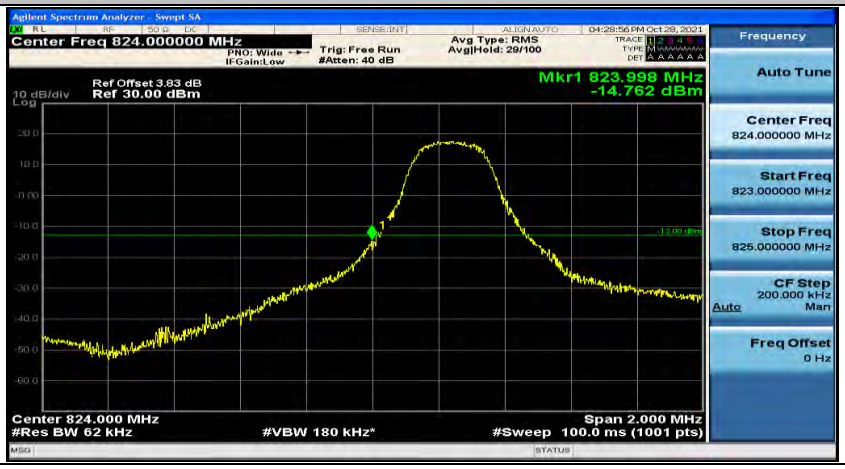
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0

(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#5

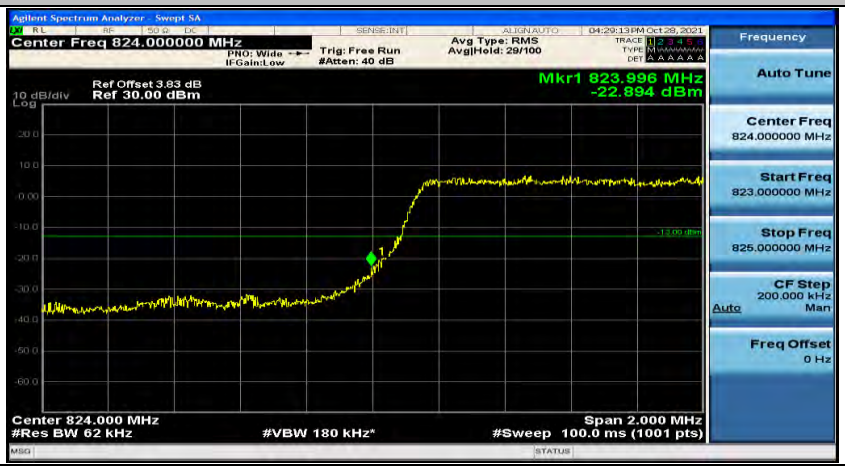
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_6RB#0


(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_6RB#0


Channel Bandwidth: 3 MHz

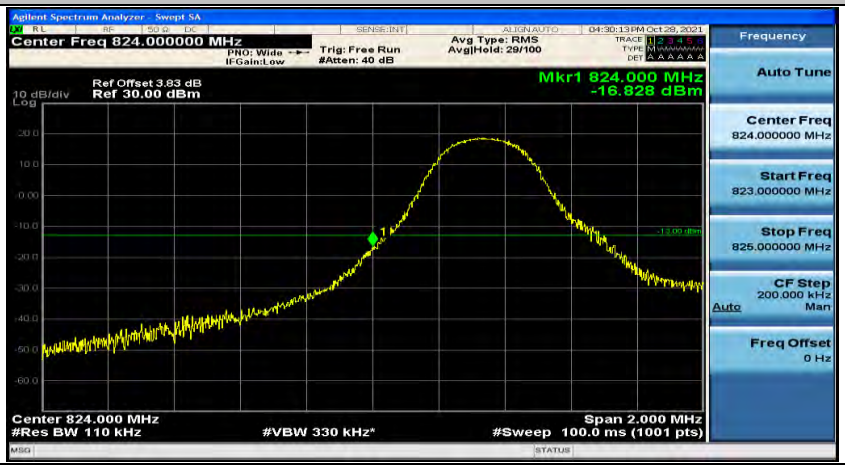
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0


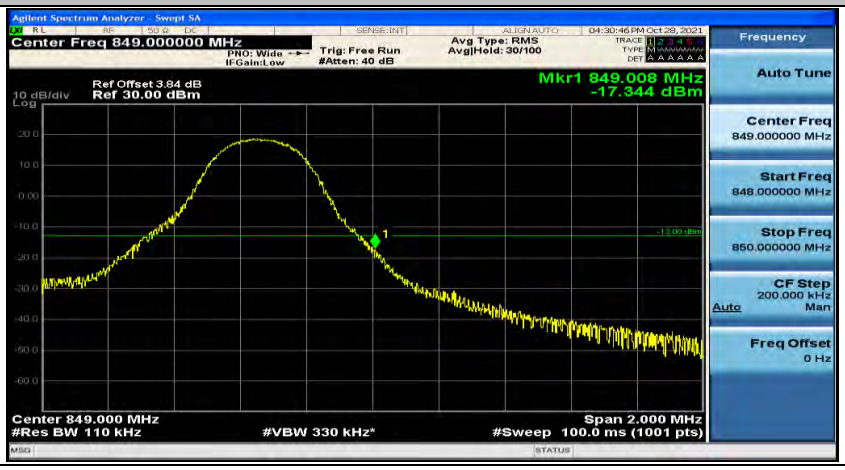
(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#14


(Channel Bandwidth: 3 MHz)_LCH_QPSK_15RB#0


(Channel Bandwidth: 3 MHz)_HCH_QPSK_15RB#0


Channel Bandwidth: 5 MHz

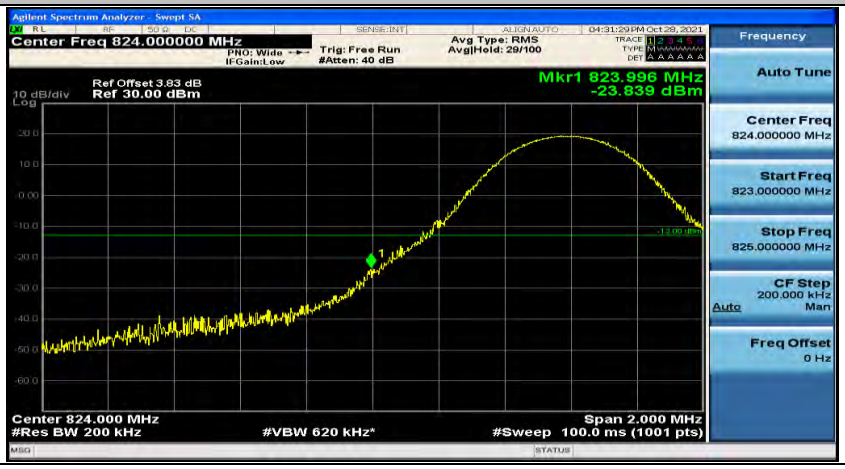
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0


(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#24


(Channel Bandwidth: 5 MHz)_LCH_QPSK_25RB#0


(Channel Bandwidth: 5 MHz)_HCH_QPSK_25RB#0


Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#0


Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49


(Channel Bandwidth: 10 MHz)_LCH_QPSK_50RB#0

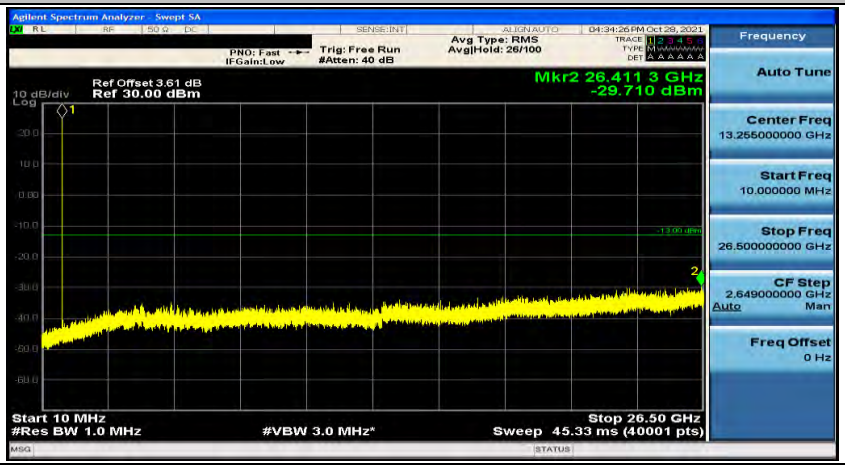

(Channel Bandwidth: 10 MHz)_HCH_QPSK_50RB#0


5. Conducted Spurious Emission

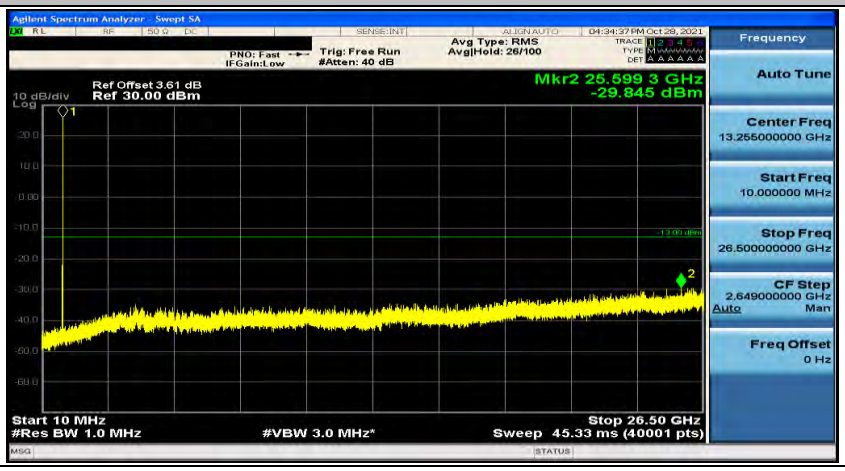
Test Graphs

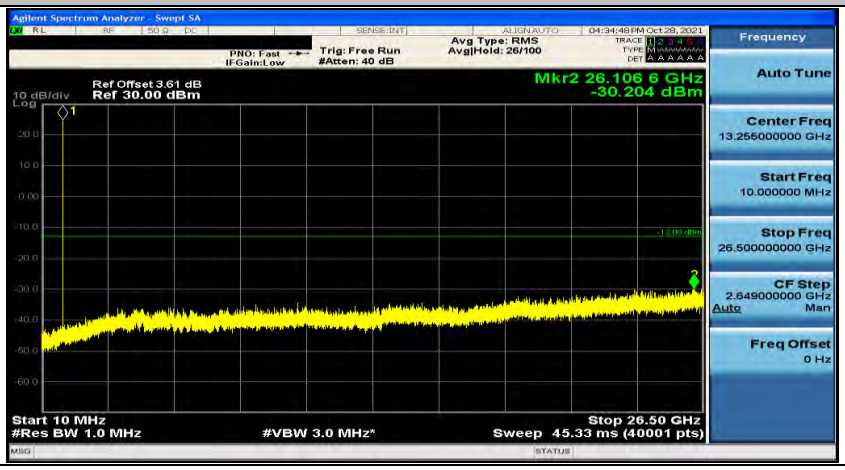
Channel Bandwidth: 1.4 MHz

(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0



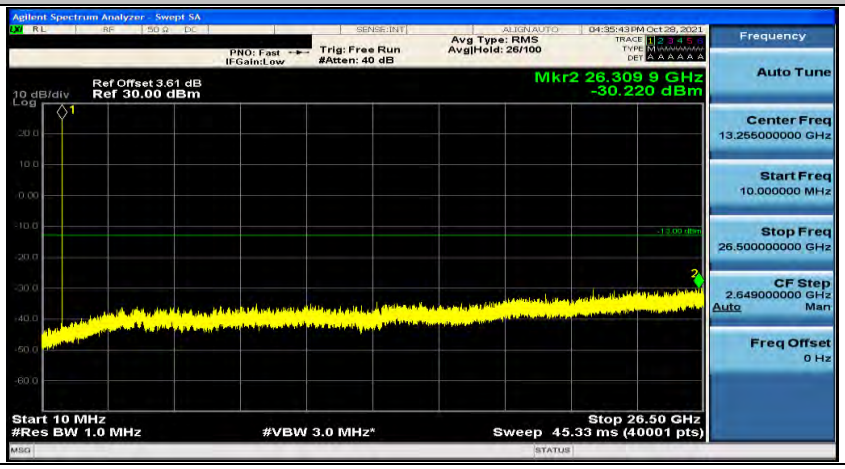
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#0



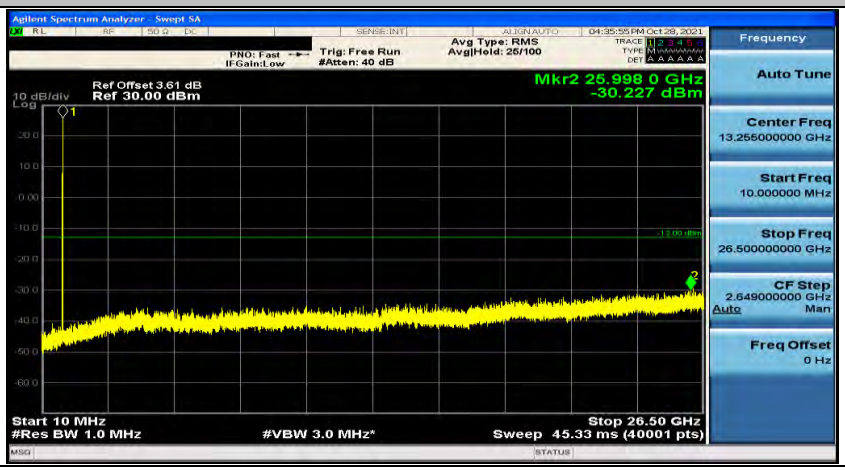
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#0


Channel Bandwidth: 3 MHz

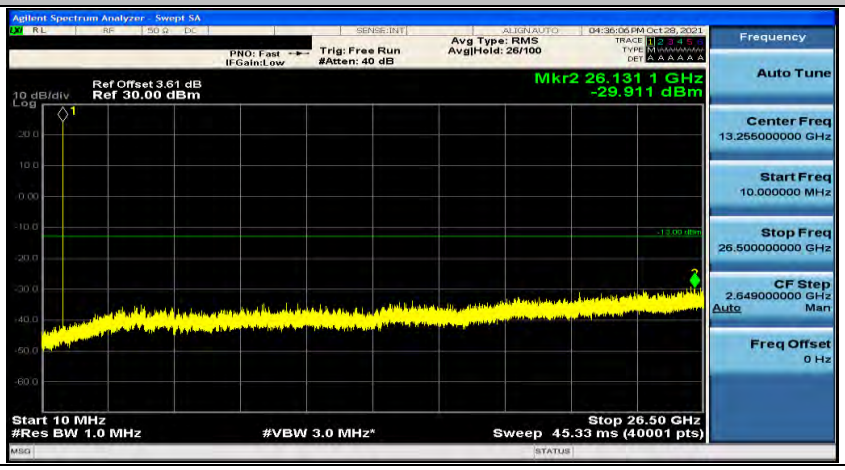
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#0

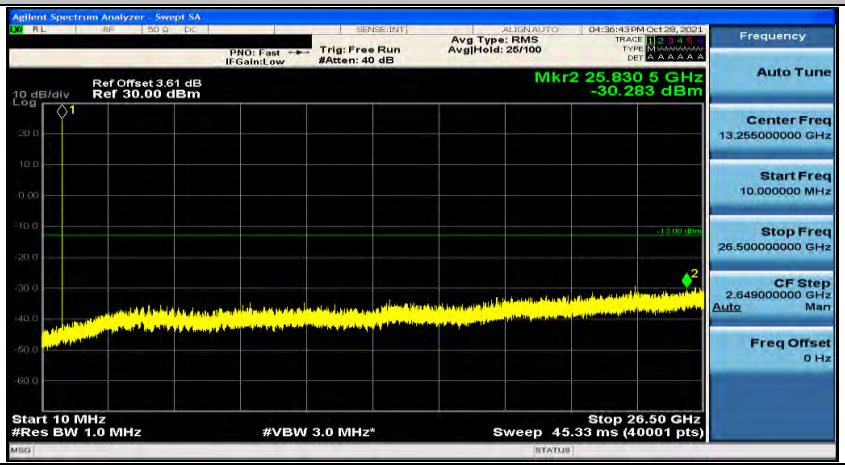


(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#0

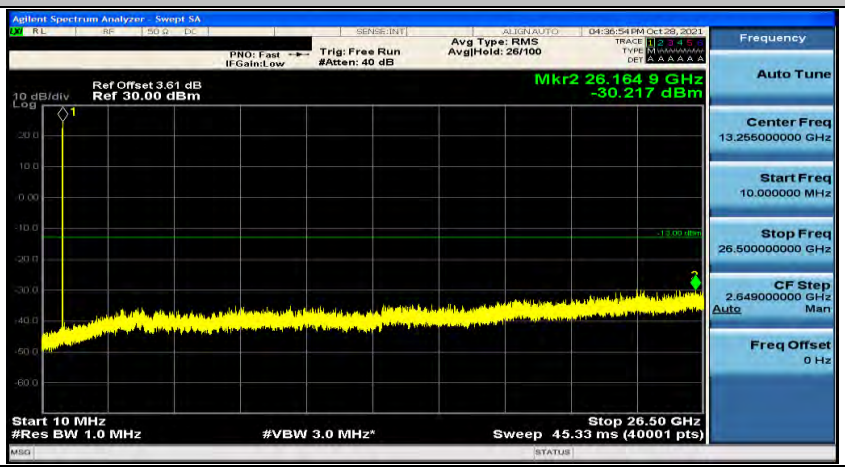


Channel Bandwidth: 5 MHz

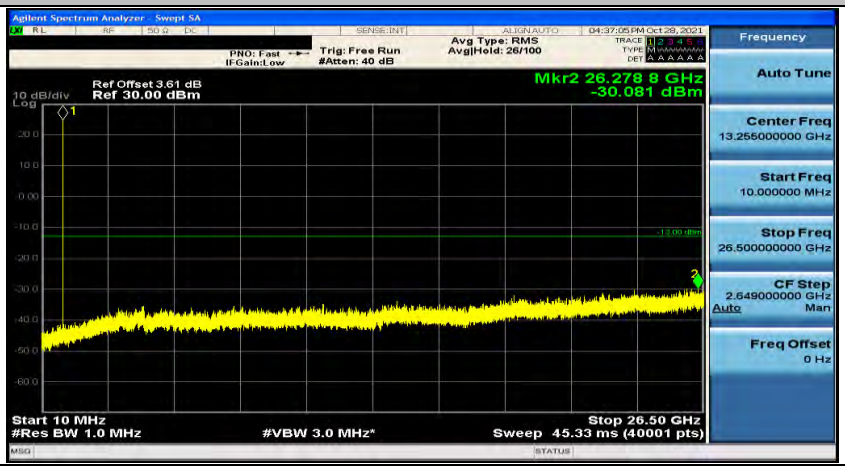
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#0

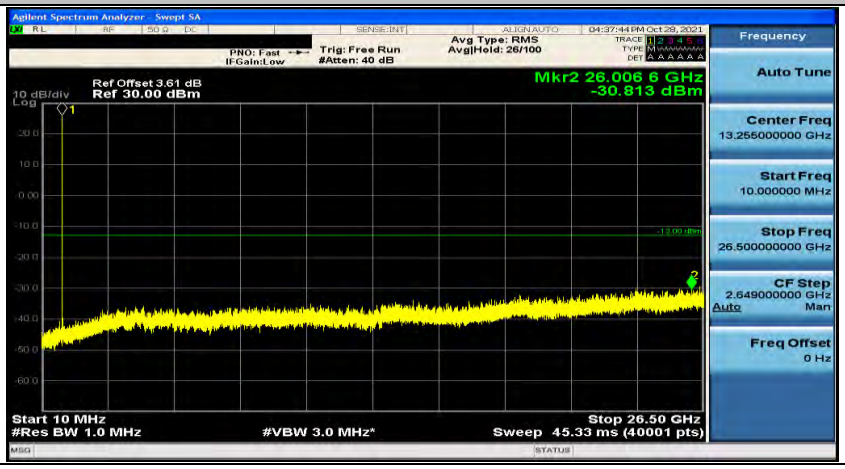


(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#0

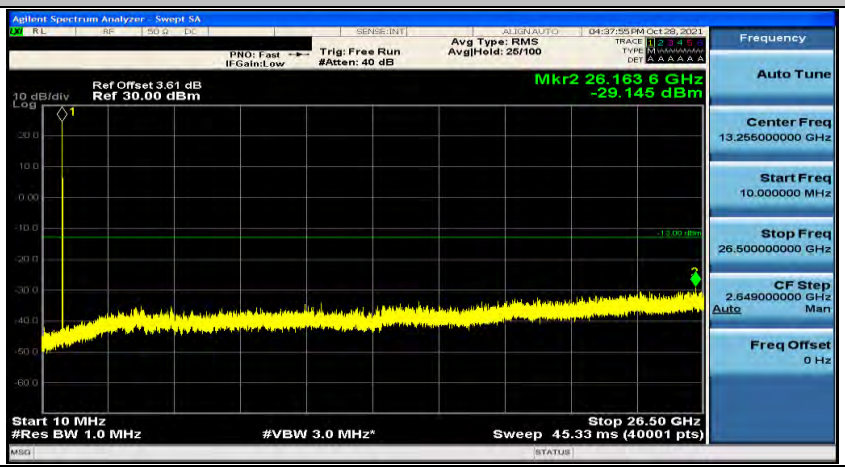


Channel Bandwidth: 10 MHz

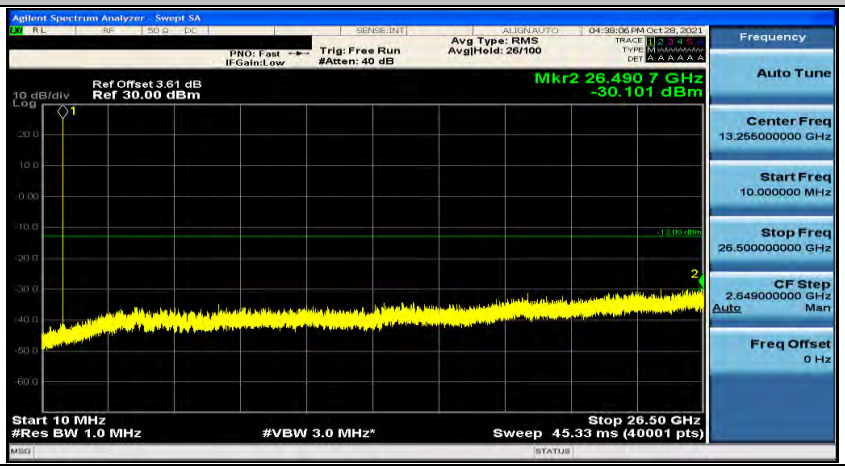
(Channel Bandwidth: 10 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 10 MHz)_MCH_QPSK_1RB#0



(Channel Bandwidth: 10 MHz)_HCH_QPSK_1RB#0



6. Frequency Stability

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz							
Voltage							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-0.50	-0.000606	± 2.5	PASS
		VN	TN	-2.10	-0.002546	± 2.5	PASS
		VH	TN	-2.40	-0.002910	± 2.5	PASS
	MCH	VL	TN	-0.50	-0.000598	± 2.5	PASS
		VN	TN	-1.80	-0.002152	± 2.5	PASS
		VH	TN	-1.00	-0.001195	± 2.5	PASS
	HCH	VL	TN	-0.80	-0.000943	± 2.5	PASS
		VN	TN	-2.10	-0.002476	± 2.5	PASS
		VH	TN	-1.30	-0.001532	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-1.40	-0.001698	± 2.5	PASS
		VN	-20	-1.30	-0.001576	± 2.5	PASS
		VN	-10	-2.80	-0.003395	± 2.5	PASS
		VN	0	-1.00	-0.001213	± 2.5	PASS
		VN	10	-1.10	-0.001334	± 2.5	PASS
		VN	20	-2.10	-0.002546	± 2.5	PASS
		VN	30	-1.20	-0.001455	± 2.5	PASS
		VN	40	-1.90	-0.002304	± 2.5	PASS
		VN	50	-2.40	-0.002910	± 2.5	PASS
	MCH	VN	-30	-0.80	-0.000956	± 2.5	PASS
		VN	-20	-0.50	-0.000598	± 2.5	PASS
		VN	-10	-0.90	-0.001076	± 2.5	PASS
		VN	0	-2.30	-0.002750	± 2.5	PASS
		VN	10	-0.10	-0.000120	± 2.5	PASS
		VN	20	0.30	0.000359	± 2.5	PASS
		VN	30	-2.40	-0.002869	± 2.5	PASS
		VN	40	-1.00	-0.001195	± 2.5	PASS
		VN	50	-0.60	-0.000717	± 2.5	PASS
	HCH	VN	-30	0.10	0.000118	± 2.5	PASS
		VN	-20	0.50	0.000589	± 2.5	PASS
		VN	-10	-0.20	-0.000236	± 2.5	PASS
		VN	0	-1.00	-0.001179	± 2.5	PASS
		VN	10	0.00	0.000000	± 2.5	PASS
		VN	20	-0.30	-0.000354	± 2.5	PASS
		VN	30	-0.40	-0.000472	± 2.5	PASS
		VN	40	-1.60	-0.001886	± 2.5	PASS
		VN	50	-1.20	-0.001415	± 2.5	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz+							
Voltage							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-0.30	-0.000363	± 2.5	PASS
		VN	TN	-1.10	-0.001333	± 2.5	PASS
		VH	TN	0.20	0.000242	± 2.5	PASS
	MCH	VL	TN	-0.80	-0.000956	± 2.5	PASS
		VN	TN	-1.10	-0.001315	± 2.5	PASS
		VH	TN	-2.50	-0.002989	± 2.5	PASS
	HCH	VL	TN	-1.00	-0.001180	± 2.5	PASS
		VN	TN	-2.90	-0.003422	± 2.5	PASS
		VH	TN	-2.00	-0.002360	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-0.30	-0.000363	± 2.5	PASS
		VN	-20	-0.60	-0.000727	± 2.5	PASS
		VN	-10	-0.10	-0.000121	± 2.5	PASS
		VN	0	0.00	0.000000	± 2.5	PASS
		VN	10	-0.40	-0.000485	± 2.5	PASS
		VN	20	0.30	0.000363	± 2.5	PASS
		VN	30	-2.40	-0.002907	± 2.5	PASS
		VN	40	-1.00	-0.001211	± 2.5	PASS
		VN	50	-2.40	-0.002907	± 2.5	PASS
	MCH	VN	-30	-0.60	-0.000717	± 2.5	PASS
		VN	-20	0.00	0.000000	± 2.5	PASS
		VN	-10	-0.90	-0.001076	± 2.5	PASS
		VN	0	-0.80	-0.000956	± 2.5	PASS
		VN	10	-0.30	-0.000359	± 2.5	PASS
		VN	20	-0.70	-0.000837	± 2.5	PASS
		VN	30	-2.00	-0.002391	± 2.5	PASS
		VN	40	-0.50	-0.000598	± 2.5	PASS
		VN	50	-2.00	-0.002391	± 2.5	PASS
	HCH	VN	-30	-2.00	-0.002360	± 2.5	PASS
		VN	-20	-2.10	-0.002478	± 2.5	PASS
		VN	-10	-1.80	-0.002124	± 2.5	PASS
		VN	0	-1.90	-0.002242	± 2.5	PASS
		VN	10	-2.10	-0.002478	± 2.5	PASS
		VN	20	-1.90	-0.002242	± 2.5	PASS
		VN	30	-2.00	-0.002360	± 2.5	PASS
		VN	40	-3.00	-0.003540	± 2.5	PASS
		VN	50	-2.00	-0.002360	± 2.5	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz							
Voltage							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-1.60	-0.001936	± 2.5	PASS
		VN	TN	-0.40	-0.000484	± 2.5	PASS
		VH	TN	-2.20	-0.002662	± 2.5	PASS
	MCH	VL	TN	-2.20	-0.002630	± 2.5	PASS
		VN	TN	-1.00	-0.001195	± 2.5	PASS
		VH	TN	-0.40	-0.000478	± 2.5	PASS
	HCH	VL	TN	-0.50	-0.000591	± 2.5	PASS
		VN	TN	-0.20	-0.000236	± 2.5	PASS
		VH	TN	-1.10	-0.001299	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-1.90	-0.002299	± 2.5	PASS
		VN	-20	-3.10	-0.003751	± 2.5	PASS
		VN	-10	-1.40	-0.001694	± 2.5	PASS
		VN	0	-2.00	-0.002420	± 2.5	PASS
		VN	10	-2.40	-0.002904	± 2.5	PASS
		VN	20	-1.60	-0.001936	± 2.5	PASS
		VN	30	-0.70	-0.000847	± 2.5	PASS
		VN	40	-2.80	-0.003388	± 2.5	PASS
		VN	50	-2.50	-0.003025	± 2.5	PASS
	MCH	VN	-30	-1.90	-0.002271	± 2.5	PASS
		VN	-20	0.10	0.000120	± 2.5	PASS
		VN	-10	-2.30	-0.002750	± 2.5	PASS
		VN	0	-0.90	-0.001076	± 2.5	PASS
		VN	10	-0.10	-0.000120	± 2.5	PASS
		VN	20	-0.40	-0.000478	± 2.5	PASS
		VN	30	-0.60	-0.000717	± 2.5	PASS
		VN	40	0.10	0.000120	± 2.5	PASS
		VN	50	-1.10	-0.001315	± 2.5	PASS
	HCH	VN	-30	0.40	0.000473	± 2.5	PASS
		VN	-20	-0.60	-0.000709	± 2.5	PASS
		VN	-10	-1.00	-0.001181	± 2.5	PASS
		VN	0	0.20	0.000236	± 2.5	PASS
		VN	10	0.20	0.000236	± 2.5	PASS
		VN	20	0.90	0.001063	± 2.5	PASS
		VN	30	-0.30	-0.000354	± 2.5	PASS
		VN	40	-0.50	-0.000591	± 2.5	PASS
		VN	50	-0.10	-0.000118	± 2.5	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz							
Voltage							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-0.70	-0.000844	± 2.5	PASS
		VN	TN	0.10	0.000121	± 2.5	PASS
		VH	TN	-0.30	-0.000362	± 2.5	PASS
	MCH	VL	TN	-1.40	-0.001674	± 2.5	PASS
		VN	TN	-0.60	-0.000717	± 2.5	PASS
		VH	TN	-1.00	-0.001195	± 2.5	PASS
	HCH	VL	TN	-1.50	-0.001777	± 2.5	PASS
		VN	TN	-0.60	-0.000711	± 2.5	PASS
		VH	TN	-0.50	-0.000592	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [AC]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-1.60	-0.001930	± 2.5	PASS
		VN	-20	-1.80	-0.002171	± 2.5	PASS
		VN	-10	-2.00	-0.002413	± 2.5	PASS
		VN	0	-1.00	-0.001206	± 2.5	PASS
		VN	10	-0.60	-0.000724	± 2.5	PASS
		VN	20	-0.40	-0.000483	± 2.5	PASS
		VN	30	-0.80	-0.000965	± 2.5	PASS
		VN	40	0.20	0.000241	± 2.5	PASS
		VN	50	-1.10	-0.001327	± 2.5	PASS
	MCH	VN	-30	0.00	0.000000	± 2.5	PASS
		VN	-20	-0.90	-0.001076	± 2.5	PASS
		VN	-10	0.10	0.000120	± 2.5	PASS
		VN	0	-0.20	-0.000239	± 2.5	PASS
		VN	10	-0.70	-0.000837	± 2.5	PASS
		VN	20	-0.50	-0.000598	± 2.5	PASS
		VN	30	-0.70	-0.000837	± 2.5	PASS
		VN	40	0.60	0.000717	± 2.5	PASS
		VN	50	-1.00	-0.001195	± 2.5	PASS
	HCH	VN	-30	0.10	0.000118	± 2.5	PASS
		VN	-20	-1.60	-0.001896	± 2.5	PASS
		VN	-10	-1.00	-0.001185	± 2.5	PASS
		VN	0	-1.50	-0.001777	± 2.5	PASS
		VN	10	0.10	0.000118	± 2.5	PASS
		VN	20	-0.60	-0.000711	± 2.5	PASS
		VN	30	-1.70	-0.002014	± 2.5	PASS
		VN	40	0.40	0.000474	± 2.5	PASS
		VN	50	-0.30	-0.000355	± 2.5	PASS