

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. 11, 2021

Issued Date : Nov. 25, 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
01	Nov. 19, 2021	Update chapter 1.1 (P.5~P.7) Update Test Results (P.50)	Snow Wang
02	Nov. 25, 2021	Update chapter 1.1 (P.5~P.7) Update Test Results (P.28)	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)

TABLE OF CONTENTS

1	General Information	5
1.1.	EUT Description	5
1.2.	Mode of Operation.....	8
1.3.	EUT Test Step	9
1.4.	Configuration of Test System Details.....	9
1.5.	Test Instruments	10
1.6.	Test Site Environment	14
1.7.	Measurement Uncertainty	14
1.8.	Summary of Test Result	15
2	Measurement Procedure	16
2.1.	Conducted Output Average Power Test	16
2.2.	Effective Radiated Power / Equivalent Isotropic Radiated Power Test.....	17
2.3.	Frequency Stability Test.....	20
2.4.	Emission Bandwidth & Occupied Bandwidth Test	21
2.5.	Peak to Average Ratio Test	22
2.6.	Band Edge Test	23
2.7.	Conducted Spurious Emission Test.....	24
2.8.	Radiated Emission Test.....	26
3	Test Results.....	28
3.1.	Equivalent Isotropic Radiated Power / Equivalent Radiated Power	28
3.2.	Radiated Emission	29

Appendix A: Conducted Test Results

1. Average Output Power Data
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
NR n5	UL: 824 ~ 849	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	5 MHz, 10 MHz, 15 MHz, 20 MHz
	DL: 869 ~ 894	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	
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)
NR n5	5 MHz	DFT-s Pi/2 BPSK	22.89	0.195
NR n5	5 MHz	DFT-s QPSK	22.47	0.177
NR n5	5 MHz	DFT-s 16QAM	21.64	0.146
NR n5	5 MHz	DFT-s 64QAM	20.66	0.116
NR n5	5 MHz	DFT-s 256QAM	19.72	0.094
NR n5	10 MHz	DFT-s Pi/2 BPSK	22.80	0.191
NR n5	10 MHz	DFT-s QPSK	22.32	0.171
NR n5	10 MHz	DFT-s 16QAM	21.57	0.144
NR n5	10 MHz	DFT-s 64QAM	20.62	0.115
NR n5	10 MHz	DFT-s 256QAM	19.54	0.090
NR n5	15 MHz	DFT-s Pi/2 BPSK	22.82	0.191
NR n5	15 MHz	DFT-s QPSK	22.41	0.174
NR n5	15 MHz	DFT-s 16QAM	21.60	0.145
NR n5	15 MHz	DFT-s 64QAM	20.61	0.115
NR n5	15 MHz	DFT-s 256QAM	19.66	0.092
NR n5	20 MHz	DFT-s Pi/2 BPSK	22.87	0.194
NR n5	20 MHz	DFT-s QPSK	22.27	0.169
NR n5	20 MHz	DFT-s 16QAM	21.54	0.143
NR n5	20 MHz	DFT-s 64QAM	20.67	0.117
NR n5	20 MHz	DFT-s 256QAM	19.58	0.091

Band	Channel Bandwidth	Modulation	Occupied Bandwidth (MHz)	Emission Designator
NR n5	5 MHz	DFT-s Pi/2 BPSK	4.4841	4M48G7D
NR n5	5 MHz	DFT-s QPSK	4.4785	4M48G7D
NR n5	5 MHz	DFT-s 16QAM	4.4690	4M47W7D
NR n5	5 MHz	DFT-s 64QAM	4.4811	4M48W7D
NR n5	5 MHz	DFT-s 256QAM	4.4848	4M48W7D
NR n5	10 MHz	DFT-s Pi/2 BPSK	8.9133	8M91G7D
NR n5	10 MHz	DFT-s QPSK	8.9245	8M92G7D
NR n5	10 MHz	DFT-s 16QAM	8.9148	8M91W7D
NR n5	10 MHz	DFT-s 64QAM	8.9038	8M90W7D
NR n5	10 MHz	DFT-s 256QAM	8.9451	8M95W7D
NR n5	15 MHz	DFT-s Pi/2 BPSK	13.4180	13M4G7D
NR n5	15 MHz	DFT-s QPSK	13.3940	13M4G7D
NR n5	15 MHz	DFT-s 16QAM	13.3820	13M4W7D
NR n5	15 MHz	DFT-s 64QAM	13.3980	13M4W7D
NR n5	15 MHz	DFT-s 256QAM	13.4380	13M4W7D
NR n5	20 MHz	DFT-s Pi/2 BPSK	17.8700	17M9G7D
NR n5	20 MHz	DFT-s QPSK	17.8580	17M9G7D
NR n5	20 MHz	DFT-s 16QAM	17.8230	17M8W7D
NR n5	20 MHz	DFT-s 64QAM	17.8610	17M9W7D
NR n5	20 MHz	DFT-s 256QAM	17.8570	17M9W7D

1.2. Mode of Operation

Three channels had been tested for each channel bandwidth.

NR n5				
Channel Bandwidth	5 MHz		10 MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	165300	826.5	165800	829.0
Middle CH	167300	836.5	167300	836.5
High CH	169300	846.5	168800	844.0
Channel Bandwidth	15 MHz		20 MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	166300	831.5	166800	834.0
Middle CH	167300	836.5	167300	836.5
High CH	168300	841.5	167800	839.0

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.

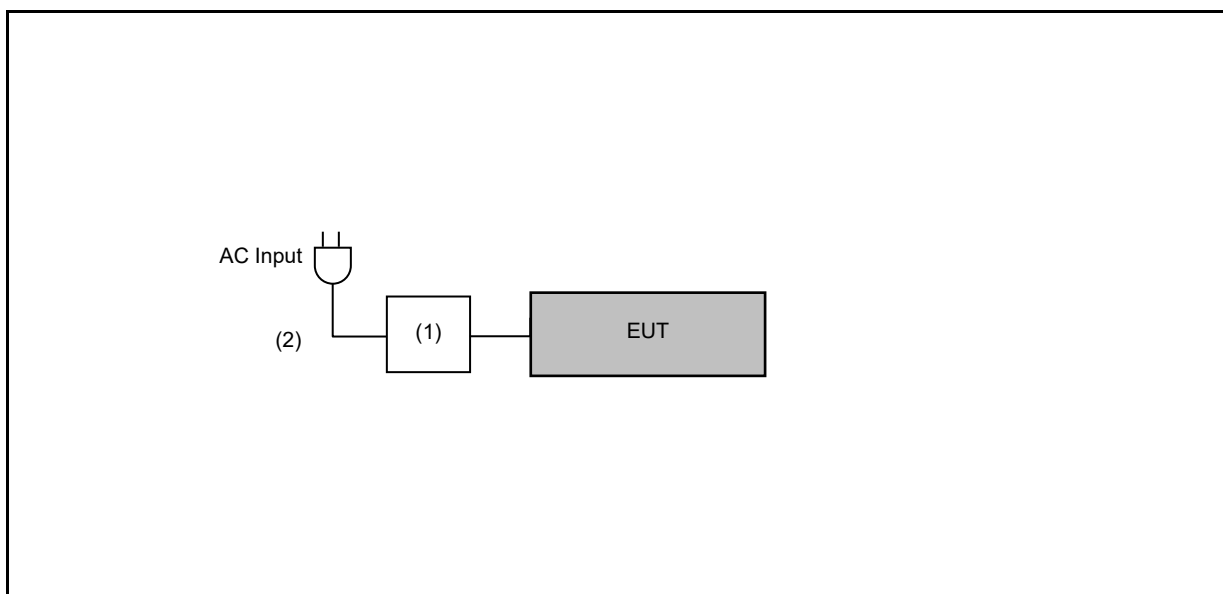
Band	Channel Bandwidth	Test Modes	
NR n5	5 MHz	☒ (RB Size 1, RB Offset 0) Link ☐ (RB Size 1, RB Offset 12) Link ☐ (RB Size 1, RB Offset 24) Link ☐ (RB Size 12, RB Offset 0) Link ☐ (RB Size 12, RB Offset 6) Link ☐ (RB Size 12, RB Offset 13) Link ☐ (RB Size 25, RB Offset 0) Link	DFT-s Pi/2 BPSK
	10 MHz	☒ (RB Size 1, RB Offset 0) Link ☐ (RB Size 1, RB Offset 26) Link ☐ (RB Size 1, RB Offset 51) Link ☐ (RB Size 25, RB Offset 0) Link ☐ (RB Size 25, RB Offset 12) Link ☐ (RB Size 25, RB Offset 25) Link ☐ (RB Size 50, RB Offset 0) Link	DFT-s Pi/2 BPSK
	15 MHz	☒ (RB Size 1, RB Offset 0) Link ☐ (RB Size 1, RB Offset 39) Link ☐ (RB Size 1, RB Offset 78) Link ☐ (RB Size 36, RB Offset 0) Link ☐ (RB Size 36, RB Offset 18) Link ☐ (RB Size 36, RB Offset 37) Link ☐ (RB Size 75, RB Offset 0) Link	DFT-s Pi/2 BPSK
	20 MHz	☒ (RB Size 1, RB Offset 0) Link ☐ (RB Size 1, RB Offset 53) Link ☐ (RB Size 1, RB Offset 105) Link ☐ (RB Size 50, RB Offset 0) Link ☐ (RB Size 50, RB Offset 25) Link ☐ (RB Size 50, RB Offset 50) Link ☐ (RB Size 100, RB Offset 0) Link	DFT-s Pi/2 BPSK

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

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

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

Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Microwave Cable	EMCI	EMC104-SM-SM-13000	170814	02/19/2021	1 year
☐	Microwave Cable	EMCI	EMC102-KM-KM-14000	151001	02/19/2021	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A100	J11005	08/06/2021	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A900	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

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 (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
☐	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 ~ Oct. 30, 2021

Testing Engineer: Eric Ou yang, Nat Wu

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Divider	Warison	WDIV-2I0.5-26.5S2 0	WR222AM2B1	03/12/2021	1 year
☒	Divider	Warison	WDIV-2I0.5-26.5S2 0	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

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

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Radio Communication Analyzer	Anritsu	MT8000A	6262166824	09/18/2020	1 year
☐	Signalling Tester	Anritsu	MD8475A	6201357755	03/29/2021	1 year
☐	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

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

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	$1.2 \times 10^{-7} \times f_c$ (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
§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.

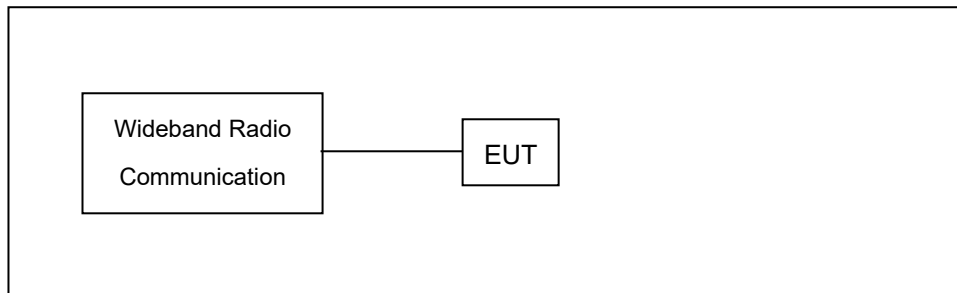
2 Measurement Procedure

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.

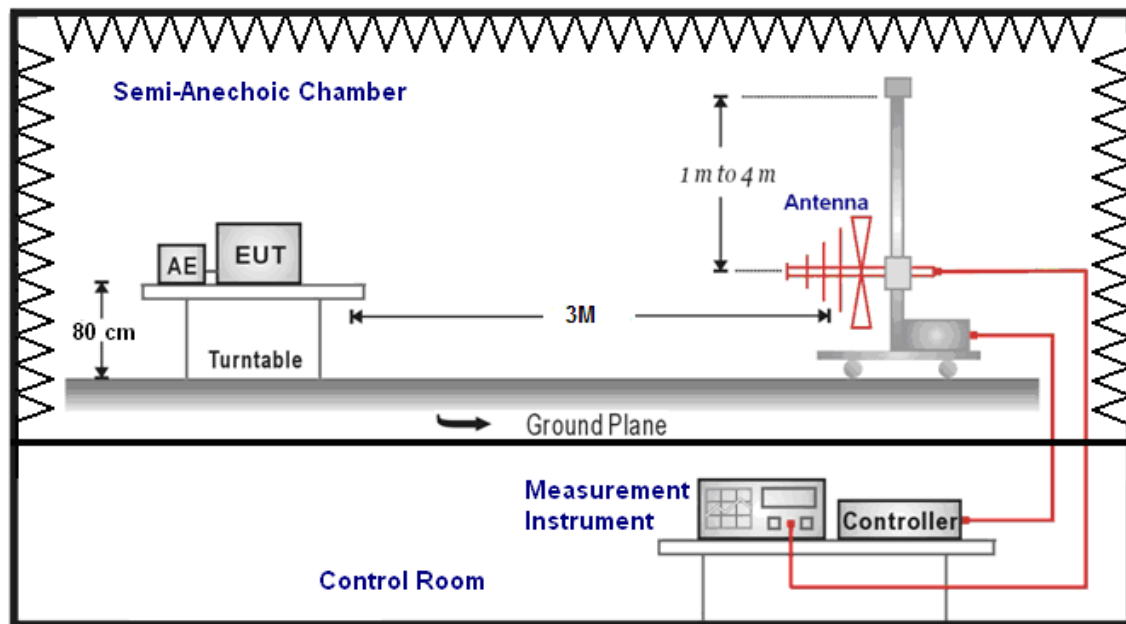
2.2. Effective Radiated Power / Equivalent Isotropic Radiated Power Test

■ Limit

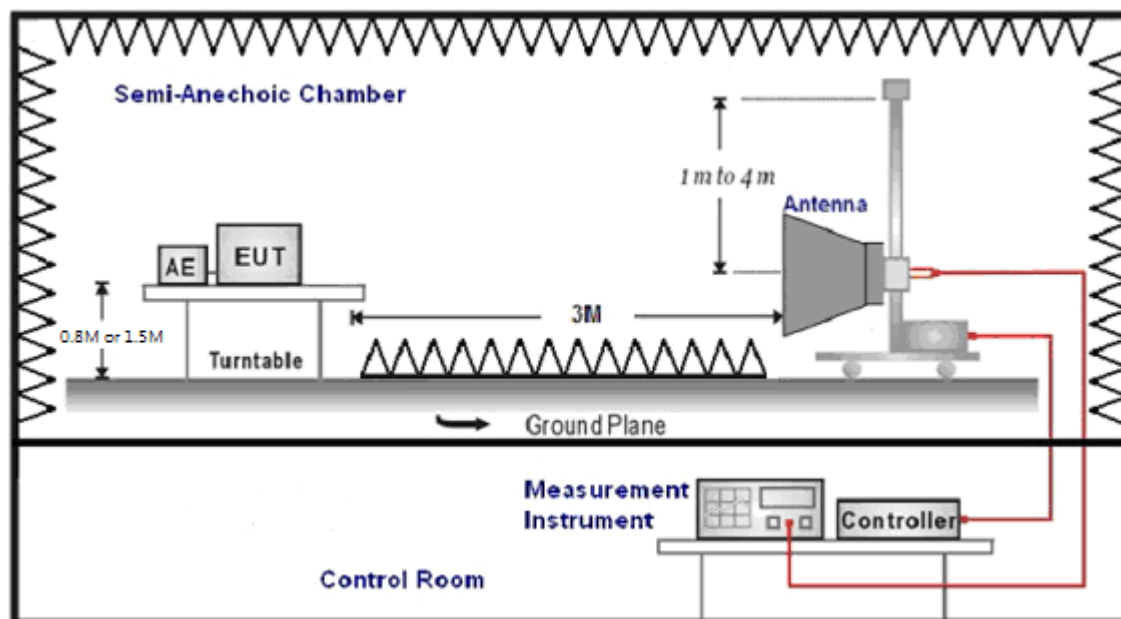
For FCC Part 22.913(a)(5): The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

■ Test Setup

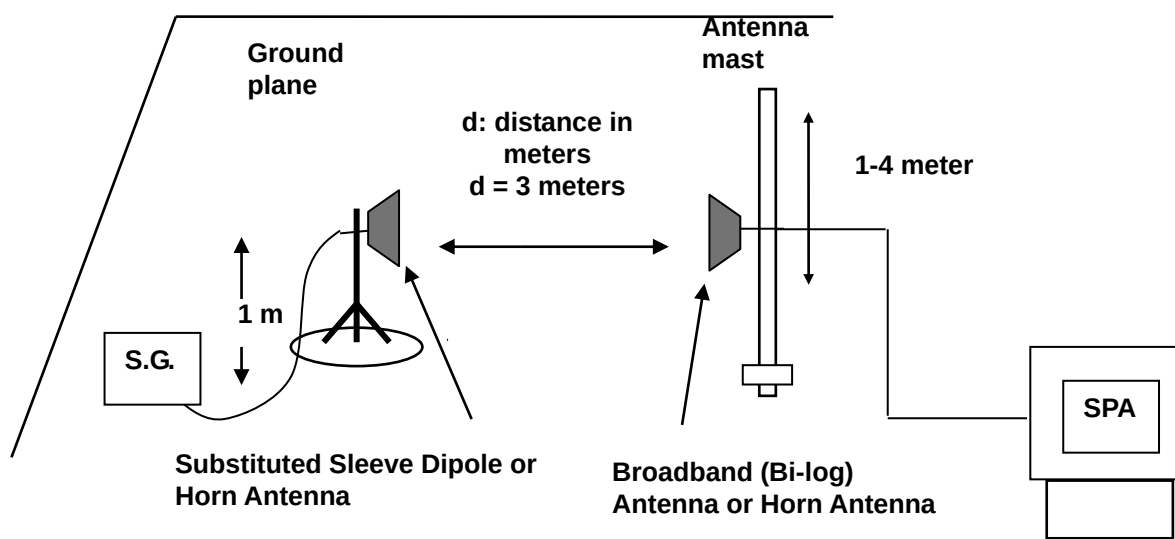
Below 1 GHz



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. $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e. $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$

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

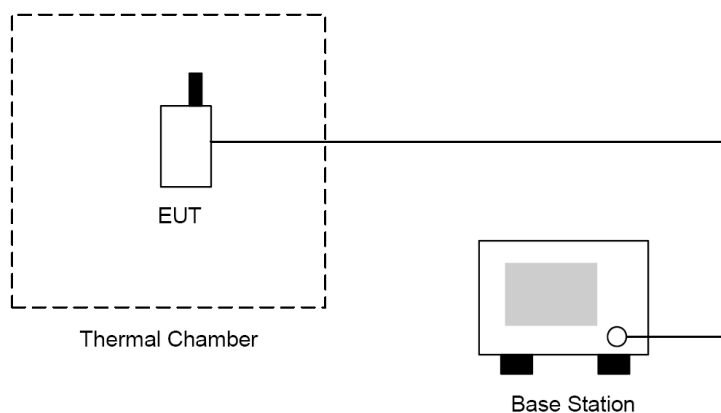
2. Above 1 GHz Substituted Method Test : Horn antenna to Horn Antenna

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.

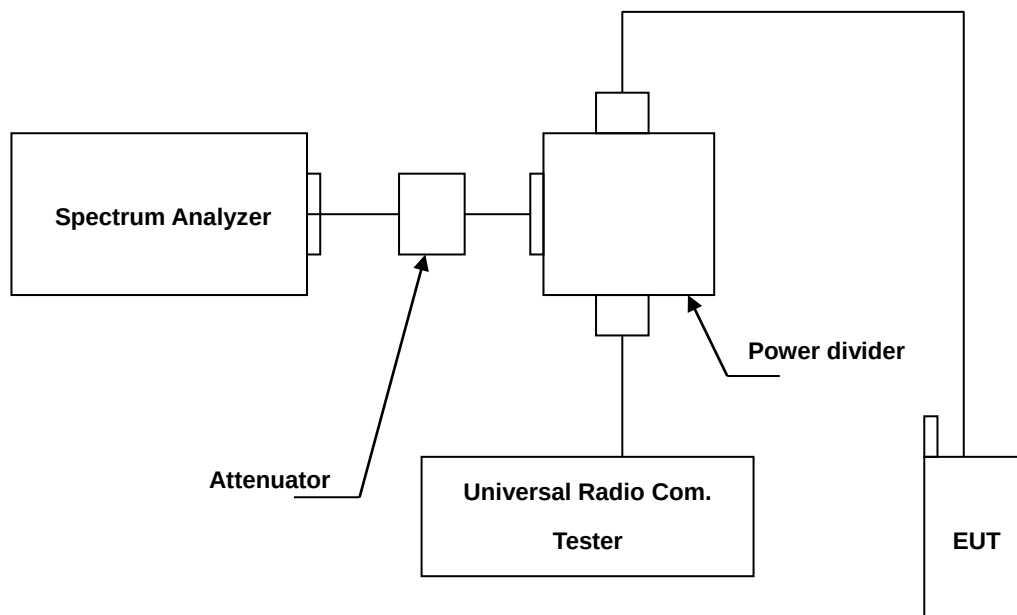
2.4. Emission Bandwidth & Occupied Bandwidth Test

■ 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

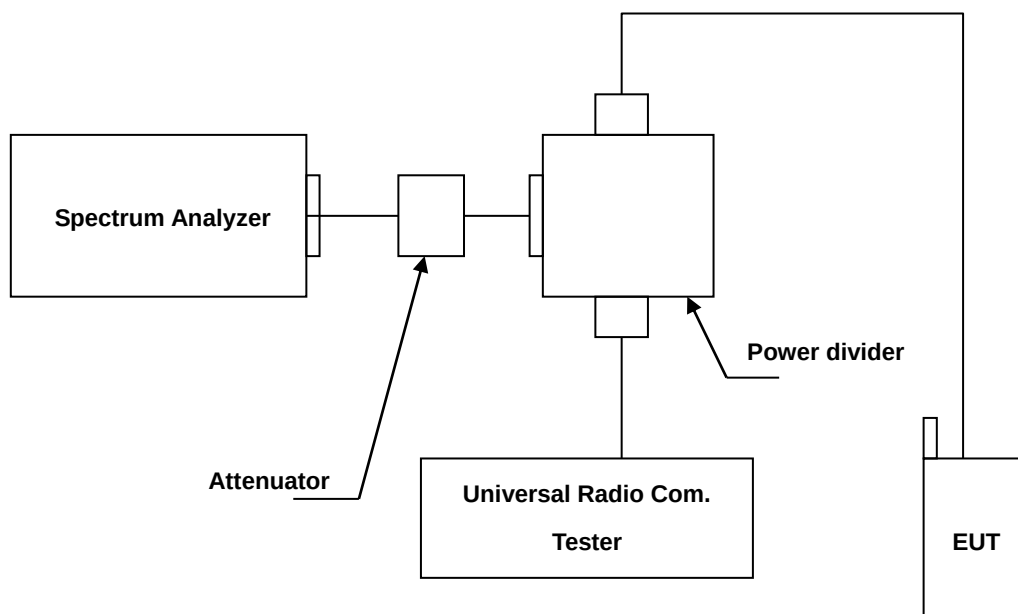
- The EUT makes a phone call to the communication simulator. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels. (low, middle and high operational frequency range.)
- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- 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

- Set resolution/measurement bandwidth signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1 %.

2.6. Band Edge Test

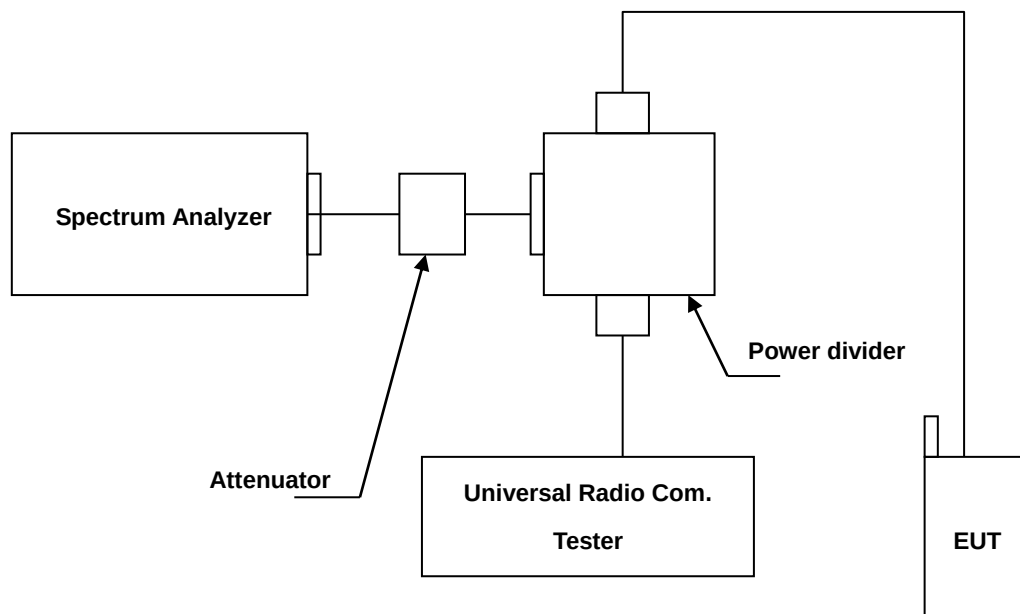
■ Limit

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

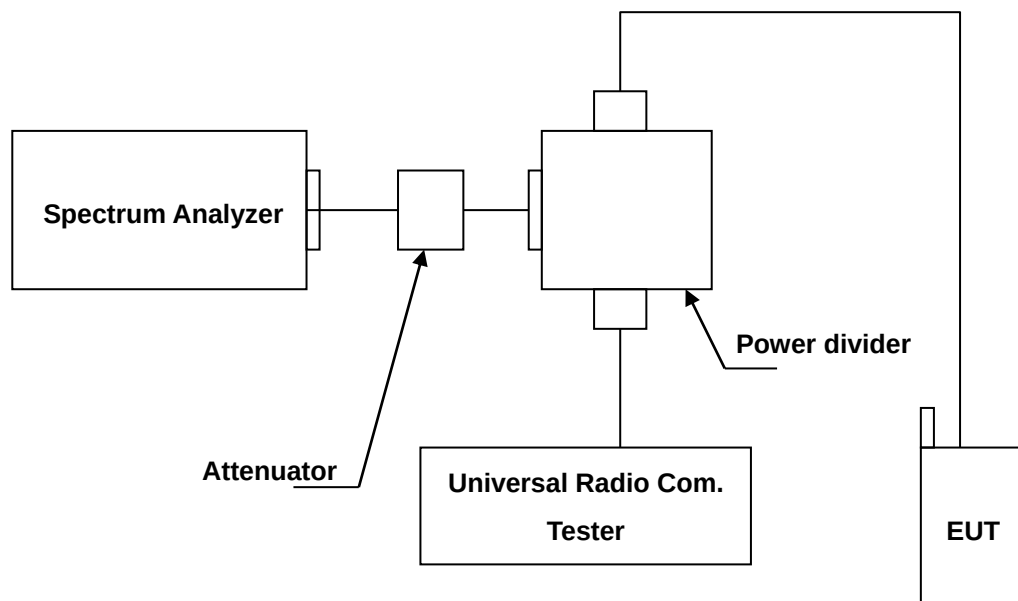
- The EUT was set up for the maximum peak power with WWAN link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.)
- The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss in the transmitted path track.
- The center frequency of spectrum is the band edge frequency and span is 2 MHz. RB of the resolution bandwidth of at least one percent of the emission bandwidth.
- 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



■ 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 10th harmonic. The spectrum set RB=1 MHz, VB=3 MHz.

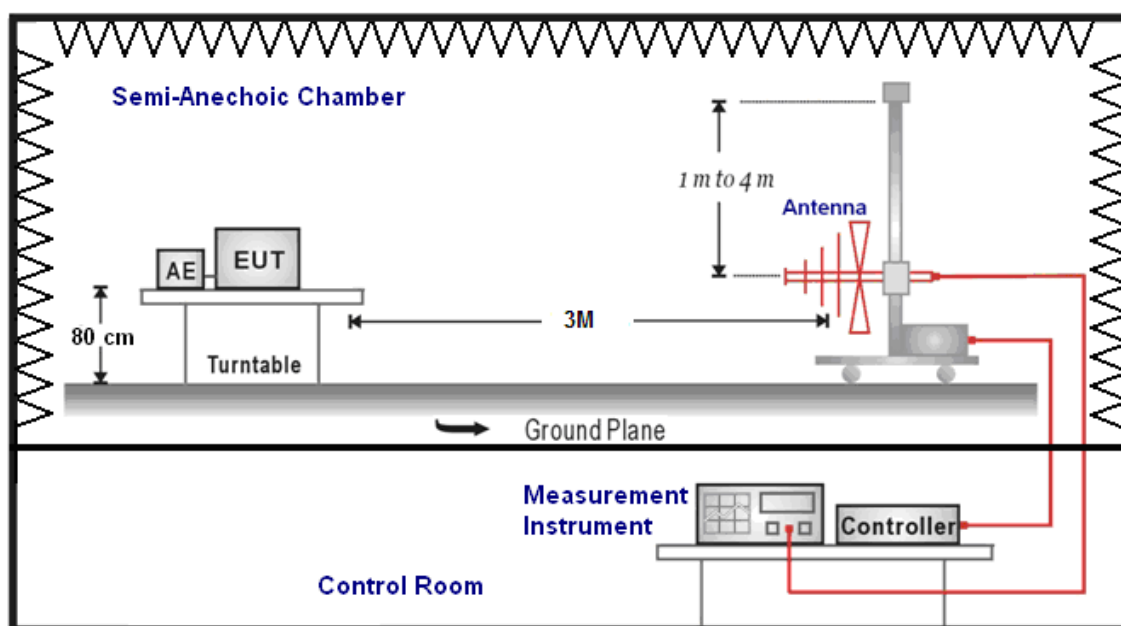
2.8. Radiated Emission Test

■ Limit

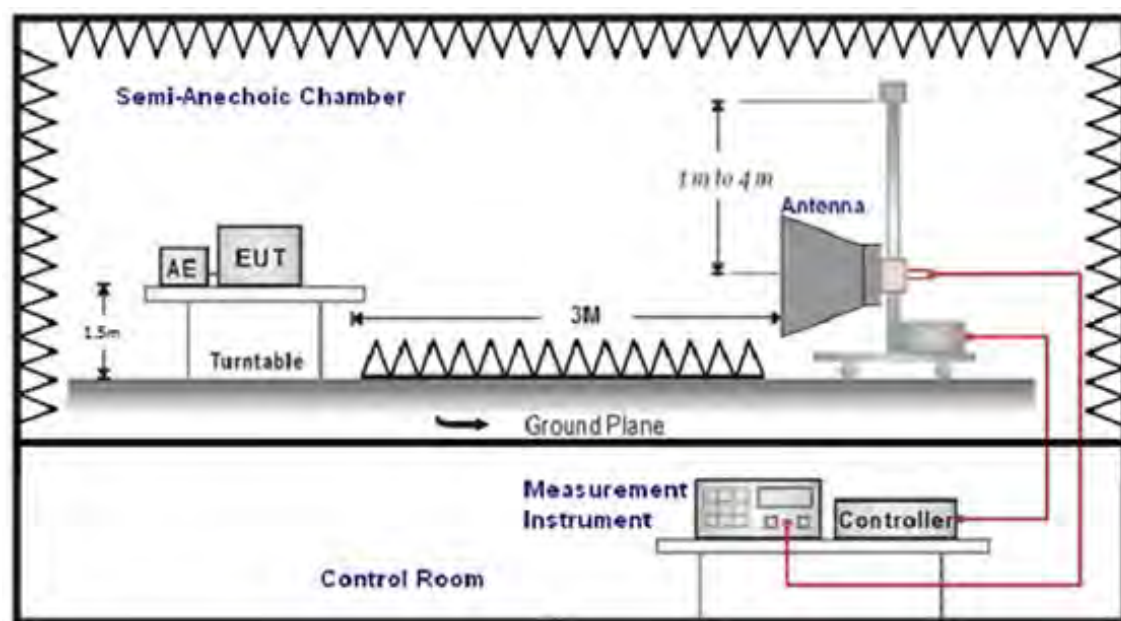
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13 dBm

■ Setup

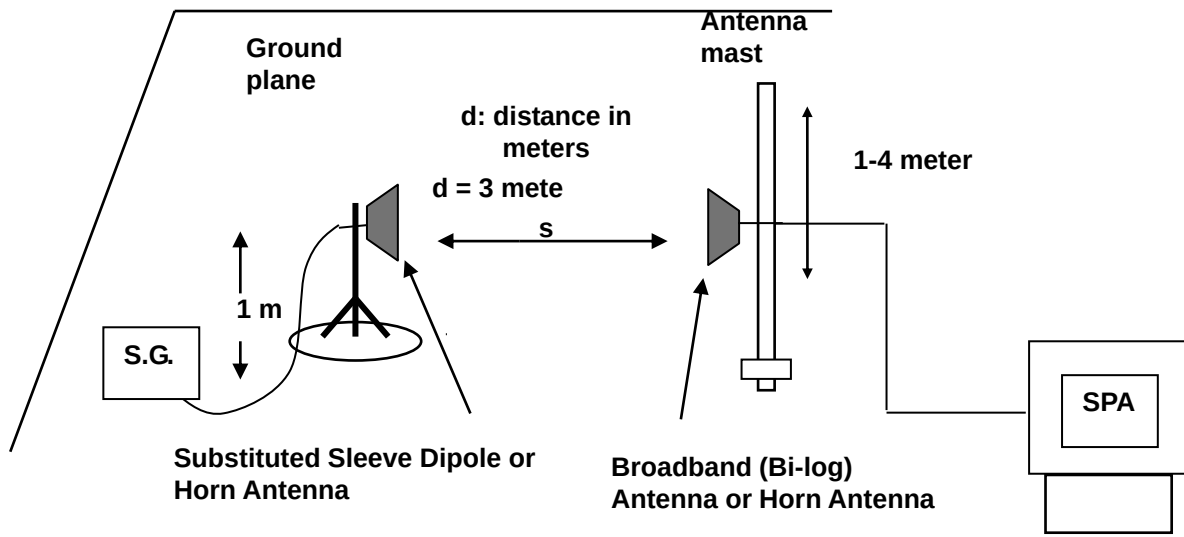
Below 1 GHz



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. $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e. $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$
- 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. Equivalent Isotropic Radiated Power / Equivalent Radiated Power

NR n5											
Channel Bandwidth	Modulation	SCS (kHz)	CH	Frequency (MHz)	RB Configuration		Average Power (dBm)	Antenna Gain (dBi)	E.R.P.		Limit (W)
					Size	Offset			(dBm)	(W)	
5M	DFT-s Pi/2 BPSK	15	165300	826.5	1	0	23.26	1.78	22.89	0.195	< 2
	DFT-s QPSK	15	165300	826.5	1	0	22.84	1.78	22.47	0.177	< 2
	DFT-s 16QAM	15	167300	836.5	1	0	22.01	1.78	21.64	0.146	< 2
	DFT-s 64QAM	15	169300	846.5	1	0	21.03	1.78	20.66	0.116	< 2
	DFT-s 256QAM	15	167300	836.5	1	0	20.09	1.78	19.72	0.094	< 2
10 MHz	DFT-s Pi/2 BPSK	15	168800	844.0	1	0	23.17	1.78	22.80	0.191	< 2
	DFT-s QPSK	15	168800	844.0	1	0	22.69	1.78	22.32	0.171	< 2
	DFT-s 16QAM	15	168800	844.0	1	0	21.94	1.78	21.57	0.144	< 2
	DFT-s 64QAM	15	168800	844.0	1	0	20.99	1.78	20.62	0.115	< 2
	DFT-s 256QAM	15	167300	836.5	1	0	19.91	1.78	19.54	0.090	< 2
15 MHz	DFT-s Pi/2 BPSK	15	166300	831.5	1	0	23.19	1.78	22.82	0.191	< 2
	DFT-s QPSK	15	167300	836.5	1	0	22.78	1.78	22.41	0.174	< 2
	DFT-s 16QAM	15	168300	841.5	1	0	21.97	1.78	21.60	0.145	< 2
	DFT-s 64QAM	15	168300	841.5	1	0	20.98	1.78	20.61	0.115	< 2
	DFT-s 256QAM	15	167300	836.5	1	0	20.03	1.78	19.66	0.092	< 2
20 MHz	DFT-s Pi/2 BPSK	15	166800	834.0	1	0	23.24	1.78	22.87	0.194	< 2
	DFT-s QPSK	15	167300	836.5	1	0	22.64	1.78	22.27	0.169	< 2
	DFT-s 16QAM	15	166800	834.0	1	0	21.91	1.78	21.54	0.143	< 2
	DFT-s 64QAM	15	167800	839.0	1	0	21.04	1.78	20.67	0.117	< 2
	DFT-s 256QAM	15	167300	836.5	1	0	19.95	1.78	19.58	0.091	< 2

3.2. Radiated Emission

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s Pi/2 BPSK_CH165300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.64	-1.26	-68.90	-13.00	-55.90	peak
2	235.6400	-75.82	-2.29	-78.11	-13.00	-65.11	peak
3	428.6700	-78.90	1.58	-77.32	-13.00	-64.32	peak
4	538.2800	-77.84	3.34	-74.50	-13.00	-61.50	peak
5	649.8300	-77.86	5.68	-72.18	-13.00	-59.18	peak
6	810.8500	-78.43	8.25	-70.18	-13.00	-57.18	peak
7	1653.000	-61.02	2.16	-58.86	-13.00	-45.86	peak
8	2479.500	-61.37	4.85	-56.52	-13.00	-43.52	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s Pi/2 BPSK_CH165300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.75	-0.39	-68.14	-13.00	-55.14	peak
2	295.7800	-74.31	-0.64	-74.95	-13.00	-61.95	peak
3	490.7500	-78.50	2.52	-75.98	-13.00	-62.98	peak
4	590.6600	-78.17	4.49	-73.68	-13.00	-60.68	peak
5	770.1100	-77.87	7.60	-70.27	-13.00	-57.27	peak
6	925.3100	-79.00	9.90	-69.10	-13.00	-56.10	peak
7	1653.000	-59.94	2.16	-57.78	-13.00	-44.78	peak
8	2479.500	-60.81	4.85	-55.96	-13.00	-42.96	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.73	-1.26	-68.99	-13.00	-55.99	peak
2	235.6400	-77.74	-2.29	-80.03	-13.00	-67.03	peak
3	416.0600	-78.71	1.36	-77.35	-13.00	-64.35	peak
4	568.3500	-78.44	3.98	-74.46	-13.00	-61.46	peak
5	668.2600	-78.10	6.03	-72.07	-13.00	-59.07	peak
6	816.6700	-78.79	8.33	-70.46	-13.00	-57.46	peak
7	1673.000	-59.22	2.20	-57.02	-13.00	-44.02	peak
8	2509.500	-60.41	4.97	-55.44	-13.00	-42.44	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.24	-0.39	-67.63	-13.00	-54.63	peak
2	248.2500	-76.06	-1.96	-78.02	-13.00	-65.02	peak
3	295.7800	-73.68	-0.64	-74.32	-13.00	-61.32	peak
4	494.6300	-73.16	2.58	-70.58	-13.00	-57.58	peak
5	634.3100	-77.10	5.38	-71.72	-13.00	-58.72	peak
6	755.5600	-77.40	7.35	-70.05	-13.00	-57.05	peak
7	1673.000	-59.91	2.20	-57.71	-13.00	-44.71	peak
8	2509.500	-60.84	4.97	-55.87	-13.00	-42.87	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s Pi/2 BPSK_CH169300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.26	-1.26	-68.52	-13.00	-55.52	peak
2	235.6400	-76.65	-2.29	-78.94	-13.00	-65.94	peak
3	382.1100	-78.59	0.77	-77.82	-13.00	-64.82	peak
4	533.4300	-78.18	3.24	-74.94	-13.00	-61.94	peak
5	641.1000	-77.64	5.51	-72.13	-13.00	-59.13	peak
6	773.0200	-77.20	7.64	-69.56	-13.00	-56.56	peak
7	1693.000	-59.23	2.23	-57.00	-13.00	-44.00	peak
8	2539.500	-60.12	5.05	-55.07	-13.00	-42.07	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s Pi/2 BPSK_CH169300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-67.70	-0.39	-68.09	-13.00	-55.09	peak
2	250.1900	-76.89	-1.92	-78.81	-13.00	-65.81	peak
3	295.7800	-71.87	-0.64	-72.51	-13.00	-59.51	peak
4	494.6300	-76.80	2.58	-74.22	-13.00	-61.22	peak
5	625.5800	-77.62	5.22	-72.40	-13.00	-59.40	peak
6	801.1500	-78.29	8.12	-70.17	-13.00	-57.17	peak
7	1693.000	-59.99	2.23	-57.76	-13.00	-44.76	peak
8	2539.500	-60.83	5.05	-55.78	-13.00	-42.78	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s QPSK_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.32	-1.26	-69.58	-13.00	-56.58	peak
2	224.0000	-77.31	-2.87	-80.18	-13.00	-67.18	peak
3	314.2100	-78.39	-0.31	-78.70	-13.00	-65.70	peak
4	597.4500	-79.32	4.64	-74.68	-13.00	-61.68	peak
5	708.0300	-78.23	6.70	-71.53	-13.00	-58.53	peak
6	833.1600	-78.42	8.53	-69.89	-13.00	-56.89	peak
7	1673.000	-64.27	2.20	-62.07	-13.00	-49.07	peak
8	2509.500	-66.94	4.97	-61.97	-13.00	-48.97	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s QPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-69.49	-0.08	-69.57	-13.00	-56.57	peak
2	246.3100	-76.13	-2.01	-78.14	-13.00	-65.14	peak
3	295.7800	-72.90	-0.64	-73.54	-13.00	-60.54	peak
4	470.3800	-78.27	2.24	-76.03	-13.00	-63.03	peak
5	617.8200	-77.11	5.06	-72.05	-13.00	-59.05	peak
6	795.3300	-78.51	8.03	-70.48	-13.00	-57.48	peak
7	1673.000	-64.28	2.20	-62.08	-13.00	-49.08	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		
Mode:	n5_5M-DFT-s 16QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.80	-1.26	-70.06	-13.00	-57.06	peak
2	231.7600	-76.18	-2.41	-78.59	-13.00	-65.59	peak
3	357.8600	-77.72	0.34	-77.38	-13.00	-64.38	peak
4	428.6700	-78.22	1.58	-76.64	-13.00	-63.64	peak
5	596.4800	-77.78	4.62	-73.16	-13.00	-60.16	peak
6	705.1200	-78.19	6.67	-71.52	-13.00	-58.52	peak
7	1673.000	-64.81	2.20	-62.61	-13.00	-49.61	peak
8	2509.500	-66.91	4.97	-61.94	-13.00	-48.94	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s 16QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-70.74	-0.08	-70.82	-13.00	-57.82	peak
2	245.3400	-76.53	-2.03	-78.56	-13.00	-65.56	peak
3	295.7800	-72.36	-0.64	-73.00	-13.00	-60.00	peak
4	376.2900	-77.91	0.66	-77.25	-13.00	-64.25	peak
5	491.7200	-75.96	2.53	-73.43	-13.00	-60.43	peak
6	675.0500	-77.39	6.15	-71.24	-13.00	-58.24	peak
7	1673.000	-64.11	2.20	-61.91	-13.00	-48.91	peak
8	2509.500	-67.38	4.97	-62.41	-13.00	-49.41	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s 64QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.84	-1.26	-69.10	-13.00	-56.10	peak
2	236.6100	-77.55	-2.25	-79.80	-13.00	-66.80	peak
3	364.6500	-79.02	0.46	-78.56	-13.00	-65.56	peak
4	459.7100	-77.64	2.09	-75.55	-13.00	-62.55	peak
5	634.3100	-79.04	5.38	-73.66	-13.00	-60.66	peak
6	766.2300	-77.45	7.53	-69.92	-13.00	-56.92	peak
7	1673.000	-63.30	2.20	-61.10	-13.00	-48.10	peak
8	2509.500	-66.66	4.97	-61.69	-13.00	-48.69	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s 64QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-64.92	-2.33	-67.25	-13.00	-54.25	peak
2	250.1900	-75.99	-1.92	-77.91	-13.00	-64.91	peak
3	295.7800	-73.84	-0.64	-74.48	-13.00	-61.48	peak
4	424.7900	-77.78	1.52	-76.26	-13.00	-63.26	peak
5	641.1000	-77.45	5.51	-71.94	-13.00	-58.94	peak
6	805.0300	-76.95	8.18	-68.77	-13.00	-55.77	peak
7	1673.000	-63.88	2.20	-61.68	-13.00	-48.68	peak
8	2509.500	-66.53	4.97	-61.56	-13.00	-48.56	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.62	-1.26	-69.88	-13.00	-56.88	peak
2	231.7600	-77.70	-2.41	-80.11	-13.00	-67.11	peak
3	418.0000	-77.98	1.40	-76.58	-13.00	-63.58	peak
4	557.6800	-77.73	3.72	-74.01	-13.00	-61.01	peak
5	681.8400	-78.03	6.26	-71.77	-13.00	-58.77	peak
6	779.8100	-78.64	7.76	-70.88	-13.00	-57.88	peak
7	1673.000	-64.99	2.20	-62.79	-13.00	-49.79	peak
8	2509.500	-66.36	4.97	-61.39	-13.00	-48.39	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_5M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-69.84	-0.08	-69.92	-13.00	-56.92	peak
2	295.7800	-73.95	-0.64	-74.59	-13.00	-61.59	peak
3	378.2300	-78.10	0.70	-77.40	-13.00	-64.40	peak
4	507.2400	-78.24	2.77	-75.47	-13.00	-62.47	peak
5	676.0200	-77.95	6.16	-71.79	-13.00	-58.79	peak
6	864.2000	-79.10	8.97	-70.13	-13.00	-57.13	peak
7	1673.000	-63.11	2.20	-60.91	-13.00	-47.91	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		
Mode:	n5_10M-DFT-s Pi/2 BPSK_CH165800		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.21	-1.26	-69.47	-13.00	-56.47	peak
2	231.7600	-77.09	-2.41	-79.50	-13.00	-66.50	peak
3	313.2400	-79.08	-0.31	-79.39	-13.00	-66.39	peak
4	455.8300	-78.74	2.04	-76.70	-13.00	-63.70	peak
5	607.1500	-78.58	4.84	-73.74	-13.00	-60.74	peak
6	804.0600	-78.33	8.15	-70.18	-13.00	-57.18	peak
7	1658.000	-60.53	2.16	-58.37	-13.00	-45.37	peak
8	2487.000	-59.70	4.88	-54.82	-13.00	-41.82	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s Pi/2 BPSK_CH165800		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-70.09	-0.08	-70.17	-13.00	-57.17	peak
2	252.1300	-77.55	-1.89	-79.44	-13.00	-66.44	peak
3	295.7800	-73.68	-0.64	-74.32	-13.00	-61.32	peak
4	429.6400	-78.73	1.60	-77.13	-13.00	-64.13	peak
5	604.2400	-77.72	4.79	-72.93	-13.00	-59.93	peak
6	788.5400	-78.02	7.91	-70.11	-13.00	-57.11	peak
7	1658.000	-59.14	2.16	-56.98	-13.00	-43.98	peak
8	2487.000	-60.76	4.88	-55.88	-13.00	-42.88	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.39	-1.26	-69.65	-13.00	-56.65	peak
2	235.6400	-77.33	-2.29	-79.62	-13.00	-66.62	peak
3	407.3300	-78.15	1.19	-76.96	-13.00	-63.96	peak
4	503.3600	-78.26	2.70	-75.56	-13.00	-62.56	peak
5	682.8100	-78.32	6.29	-72.03	-13.00	-59.03	peak
6	811.8200	-79.08	8.27	-70.81	-13.00	-57.81	peak
7	1673.000	-57.59	2.20	-55.39	-13.00	-42.39	peak
8	2509.500	-60.74	4.97	-55.77	-13.00	-42.77	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-71.21	-0.08	-71.29	-13.00	-58.29	peak
2	246.3100	-77.00	-2.01	-79.01	-13.00	-66.01	peak
3	295.7800	-73.64	-0.64	-74.28	-13.00	-61.28	peak
4	480.0800	-78.67	2.38	-76.29	-13.00	-63.29	peak
5	576.1100	-77.22	4.14	-73.08	-13.00	-60.08	peak
6	795.3300	-77.66	8.03	-69.63	-13.00	-56.63	peak
7	1673.000	-58.67	2.20	-56.47	-13.00	-43.47	peak
8	2509.500	-61.42	4.97	-56.45	-13.00	-43.45	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s Pi/2 BPSK_CH168800		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.99	-1.26	-70.25	-13.00	-57.25	peak
2	236.6100	-77.86	-2.25	-80.11	-13.00	-67.11	peak
3	341.3700	-79.12	0.07	-79.05	-13.00	-66.05	peak
4	520.8200	-77.51	3.01	-74.50	-13.00	-61.50	peak
5	676.0200	-76.96	6.16	-70.80	-13.00	-57.80	peak
6	835.1000	-77.84	8.56	-69.28	-13.00	-56.28	peak
7	1688.000	-60.18	2.23	-57.95	-13.00	-44.95	peak
8	2532.000	-62.09	5.02	-57.07	-13.00	-44.07	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s Pi/2 BPSK_CH168800		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-65.07	-2.33	-67.40	-13.00	-54.40	peak
2	250.1900	-76.80	-1.92	-78.72	-13.00	-65.72	peak
3	295.7800	-74.07	-0.64	-74.71	-13.00	-61.71	peak
4	538.2800	-78.38	3.34	-75.04	-13.00	-62.04	peak
5	658.5600	-78.63	5.84	-72.79	-13.00	-59.79	peak
6	830.2500	-79.10	8.51	-70.59	-13.00	-57.59	peak
7	1688.000	-58.64	2.23	-56.41	-13.00	-43.41	peak
8	2532.000	-62.05	5.02	-57.03	-13.00	-44.03	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s QPSK_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.30	-1.26	-68.56	-13.00	-55.56	peak
2	234.6700	-77.47	-2.33	-79.80	-13.00	-66.80	peak
3	330.7000	-78.65	-0.07	-78.72	-13.00	-65.72	peak
4	487.8400	-78.60	2.48	-76.12	-13.00	-63.12	peak
5	608.1200	-78.18	4.85	-73.33	-13.00	-60.33	peak
6	767.2000	-78.22	7.55	-70.67	-13.00	-57.67	peak
7	1673.000	-63.74	2.20	-61.54	-13.00	-48.54	peak
8	2509.500	-65.49	4.97	-60.52	-13.00	-47.52	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s QPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-65.10	-2.33	-67.43	-13.00	-55.16	peak
2	295.7800	-74.07	-0.64	-74.71	-13.00	-65.48	peak
3	402.4800	-78.17	1.10	-77.07	-13.00	-60.01	peak
4	499.4800	-77.84	2.63	-75.21	-13.00	-64.04	peak
5	644.0100	-78.46	5.57	-72.89	-13.00	-59.81	peak
6	795.3300	-78.62	8.03	-70.59	-13.00	-59.57	peak
7	1673.000	-65.15	2.20	-62.95	-13.00	-47.63	peak
8	2509.500	-67.12	4.97	-62.15	-13.00	-48.63	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s 16QAM_CH167300		
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	224.0000	-77.42	-2.87	-80.29	-13.00	-67.29	peak
3	334.5800	-79.57	-0.01	-79.58	-13.00	-66.58	peak
4	428.6700	-78.45	1.58	-76.87	-13.00	-63.87	peak
5	596.4800	-77.72	4.62	-73.10	-13.00	-60.10	peak
6	795.3300	-78.96	8.03	-70.93	-13.00	-57.93	peak
7	1673.000	-63.78	2.20	-61.58	-13.00	-48.58	peak
8	2509.500	-65.05	4.97	-60.08	-13.00	-47.08	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s 16QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-68.36	-0.39	-68.75	-13.00	-55.75	peak
2	295.7800	-73.35	-0.64	-73.99	-13.00	-60.99	peak
3	433.5200	-78.58	1.67	-76.91	-13.00	-63.91	peak
4	589.6900	-77.33	4.46	-72.87	-13.00	-59.87	peak
5	670.2000	-78.12	6.06	-72.06	-13.00	-59.06	peak
6	831.2200	-78.79	8.51	-70.28	-13.00	-57.28	peak
7	1673.000	-62.74	2.20	-60.54	-13.00	-47.54	peak
8	2509.500	-67.05	4.97	-62.08	-13.00	-49.08	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s 64QAM_CH167300		
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	-75.28	-2.33	-77.61	-13.00	-64.61	peak
3	318.0900	-79.28	-0.24	-79.52	-13.00	-66.52	peak
4	431.5800	-78.36	1.63	-76.73	-13.00	-63.73	peak
5	619.7600	-78.05	5.10	-72.95	-13.00	-59.95	peak
6	769.1400	-78.00	7.58	-70.42	-13.00	-57.42	peak
7	1673.000	-63.53	2.20	-61.33	-13.00	-48.33	peak
8	2509.500	-66.88	4.97	-61.91	-13.00	-48.91	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s 64QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	120.2100	-64.42	-2.33	-66.75	-13.00	-53.75	peak
2	245.3400	-77.14	-2.03	-79.17	-13.00	-66.17	peak
3	295.7800	-74.07	-0.64	-74.71	-13.00	-61.71	peak
4	425.7600	-78.38	1.54	-76.84	-13.00	-63.84	peak
5	547.0100	-78.09	3.49	-74.60	-13.00	-61.60	peak
6	782.7200	-78.56	7.81	-70.75	-13.00	-57.75	peak
7	1673.000	-65.01	2.20	-62.81	-13.00	-49.81	peak
8	2509.500	-65.65	4.97	-60.68	-13.00	-47.68	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	156.1000	-73.92	-0.09	-74.01	-13.00	-61.01	peak
2	234.6700	-77.58	-2.33	-79.91	-13.00	-66.91	peak
3	405.3900	-77.79	1.16	-76.63	-13.00	-63.63	peak
4	502.3900	-78.35	2.68	-75.67	-13.00	-62.67	peak
5	638.1900	-78.28	5.46	-72.82	-13.00	-59.82	peak
6	769.1400	-78.21	7.58	-70.63	-13.00	-57.63	peak
7	1673.000	-64.69	2.20	-62.49	-13.00	-49.49	peak
8	2509.500	-66.61	4.97	-61.64	-13.00	-48.64	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_10M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-71.04	-0.08	-71.12	-13.00	-58.12	peak
2	246.3100	-76.79	-2.01	-78.80	-13.00	-65.80	peak
3	295.7800	-72.52	-0.64	-73.16	-13.00	-60.16	peak
4	451.9500	-77.99	1.98	-76.01	-13.00	-63.01	peak
5	576.1100	-78.46	4.14	-74.32	-13.00	-61.32	peak
6	709.0000	-78.48	6.72	-71.76	-13.00	-58.76	peak
7	1673.000	-65.12	2.20	-62.92	-13.00	-49.92	peak
8	2509.500	-65.63	4.97	-60.66	-13.00	-47.66	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s Pi/2 BPSK_CH166300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	134.7600	-68.40	-1.34	-69.74	-13.00	-56.74	peak
2	235.6400	-77.23	-2.29	-79.52	-13.00	-66.52	peak
3	422.8500	-78.31	1.49	-76.82	-13.00	-63.82	peak
4	519.8500	-77.69	3.00	-74.69	-13.00	-61.69	peak
5	646.9200	-77.94	5.62	-72.32	-13.00	-59.32	peak
6	815.7000	-79.47	8.30	-71.17	-13.00	-58.17	peak
7	1663.000	-59.32	2.18	-57.14	-13.00	-44.14	peak
8	2494.500	-60.92	4.91	-56.01	-13.00	-43.01	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s Pi/2 BPSK_CH166300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-71.10	-0.08	-71.18	-13.00	-58.18	peak
2	250.1900	-76.32	-1.92	-78.24	-13.00	-65.24	peak
3	316.1500	-77.28	-0.27	-77.55	-13.00	-64.55	peak
4	496.5700	-78.02	2.60	-75.42	-13.00	-62.42	peak
5	618.7900	-77.72	5.07	-72.65	-13.00	-59.65	peak
6	775.9300	-78.42	7.70	-70.72	-13.00	-57.72	peak
7	1663.000	-59.68	2.18	-57.50	-13.00	-44.50	peak
8	2494.500	-60.68	4.91	-55.77	-13.00	-42.77	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-70.88	-0.08	-70.96	-13.00	-57.96	peak
2	245.3400	-77.26	-2.03	-79.29	-13.00	-66.29	peak
3	295.7800	-75.58	-0.64	-76.22	-13.00	-63.22	peak
4	493.6600	-77.25	2.56	-74.69	-13.00	-61.69	peak
5	678.9300	-77.51	6.22	-71.29	-13.00	-58.29	peak
6	768.1700	-78.06	7.56	-70.50	-13.00	-57.50	peak
7	1673.000	-57.02	2.20	-54.82	-13.00	-41.82	peak
8	2509.500	-61.37	4.97	-56.40	-13.00	-43.40	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-68.86	-0.39	-69.25	-13.00	-56.25	peak
2	247.2800	-76.87	-1.98	-78.85	-13.00	-65.85	peak
3	295.7800	-75.20	-0.64	-75.84	-13.00	-62.84	peak
4	498.5100	-78.15	2.62	-75.53	-13.00	-62.53	peak
5	667.2900	-78.62	6.00	-72.62	-13.00	-59.62	peak
6	793.3900	-78.59	8.00	-70.59	-13.00	-57.59	peak
7	1673.000	-59.22	2.20	-57.02	-13.00	-44.02	peak
8	2509.500	-60.60	4.97	-55.63	-13.00	-42.63	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s Pi/2 BPSK_CH168300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-71.42	-0.08	-71.50	-13.00	-58.50	peak
2	247.2800	-76.99	-1.98	-78.97	-13.00	-65.97	peak
3	295.7800	-75.53	-0.64	-76.17	-13.00	-63.17	peak
4	497.5400	-78.69	2.61	-76.08	-13.00	-63.08	peak
5	637.2200	-77.73	5.45	-72.28	-13.00	-59.28	peak
6	831.2200	-78.19	8.51	-69.68	-13.00	-56.68	peak
7	1683.000	-59.39	2.21	-57.18	-13.00	-44.18	peak
8	2524.500	-60.48	5.01	-55.47	-13.00	-42.47	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s Pi/2 BPSK_CH168300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	134.7600	-68.39	-1.34	-69.73	-13.00	-56.73	peak
2	231.7600	-77.85	-2.41	-80.26	-13.00	-67.26	peak
3	392.7800	-79.30	0.94	-78.36	-13.00	-65.36	peak
4	572.2300	-78.04	4.05	-73.99	-13.00	-60.99	peak
5	684.7500	-78.83	6.33	-72.50	-13.00	-59.50	peak
6	777.8700	-78.96	7.73	-71.23	-13.00	-58.23	peak
7	1683.000	-59.32	2.21	-57.11	-13.00	-44.11	peak
8	2524.500	-60.88	5.01	-55.87	-13.00	-42.87	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s QPSK_CH167300		
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	231.7600	-77.13	-2.41	-79.54	-13.00	-66.54	peak
3	365.6200	-79.33	0.47	-78.86	-13.00	-65.86	peak
4	456.8000	-78.72	2.05	-76.67	-13.00	-63.67	peak
5	604.2400	-77.90	4.79	-73.11	-13.00	-60.11	peak
6	798.2400	-78.44	8.07	-70.37	-13.00	-57.37	peak
7	1673.000	-64.60	2.20	-62.40	-13.00	-49.40	peak
8	2509.500	-67.01	4.97	-62.04	-13.00	-49.04	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s QPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-75.25	-0.08	-75.33	-13.00	-62.33	peak
2	234.6700	-77.49	-2.33	-79.82	-13.00	-66.82	peak
3	466.5000	-78.05	2.18	-75.87	-13.00	-62.87	peak
4	554.7700	-78.77	3.66	-75.11	-13.00	-62.11	peak
5	680.8700	-78.82	6.26	-72.56	-13.00	-59.56	peak
6	819.5800	-78.16	8.37	-69.79	-13.00	-56.79	peak
7	1673.000	-64.13	2.20	-61.93	-13.00	-48.93	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		
Mode:	n5_15M-DFT-s 16QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-74.84	-0.08	-74.92	-13.00	-61.92	peak
2	235.6400	-76.94	-2.29	-79.23	-13.00	-66.23	peak
3	387.9300	-78.92	0.86	-78.06	-13.00	-65.06	peak
4	523.7300	-78.27	3.07	-75.20	-13.00	-62.20	peak
5	651.7700	-76.95	5.71	-71.24	-13.00	-58.24	peak
6	798.2400	-78.40	8.07	-70.33	-13.00	-57.33	peak
7	1673.000	-64.39	2.20	-62.19	-13.00	-49.19	peak
8	2509.500	-66.45	4.97	-61.48	-13.00	-48.48	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s 16QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	159.0100	-70.80	-0.07	-70.87	-13.00	-57.87	peak
2	247.2800	-76.07	-1.98	-78.05	-13.00	-65.05	peak
3	374.3500	-78.71	0.63	-78.08	-13.00	-65.08	peak
4	468.4400	-78.61	2.22	-76.39	-13.00	-63.39	peak
5	583.8700	-78.12	4.32	-73.80	-13.00	-60.80	peak
6	720.6400	-77.81	6.87	-70.94	-13.00	-57.94	peak
7	1673.000	-63.75	2.20	-61.55	-13.00	-48.55	peak
8	2509.500	-66.36	4.97	-61.39	-13.00	-48.39	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s 64QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.48	-1.26	-69.74	-13.00	-56.74	peak
2	231.7600	-77.83	-2.41	-80.24	-13.00	-67.24	peak
3	386.9600	-78.80	0.84	-77.96	-13.00	-64.96	peak
4	484.9300	-78.23	2.44	-75.79	-13.00	-62.79	peak
5	582.9000	-77.59	4.31	-73.28	-13.00	-60.28	peak
6	851.5900	-78.55	8.76	-69.79	-13.00	-56.79	peak
7	1673.000	-63.63	2.20	-61.43	-13.00	-48.43	peak
8	2509.500	-65.80	4.97	-60.83	-13.00	-47.83	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s 64QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-68.08	-0.39	-68.47	-13.00	-55.47	peak
2	248.2500	-76.22	-1.96	-78.18	-13.00	-65.18	peak
3	295.7800	-75.46	-0.64	-76.10	-13.00	-63.10	peak
4	446.1300	-79.18	1.88	-77.30	-13.00	-64.30	peak
5	567.3800	-77.80	3.94	-73.86	-13.00	-60.86	peak
6	744.8900	-77.88	7.18	-70.70	-13.00	-57.70	peak
7	1673.000	-63.97	2.20	-61.77	-13.00	-48.77	peak
8	2509.500	-65.78	4.97	-60.81	-13.00	-47.81	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_15M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.31	-1.26	-69.57	-13.00	-56.57	peak
2	235.6400	-77.56	-2.29	-79.85	-13.00	-66.85	peak
3	360.7700	-79.43	0.39	-79.04	-13.00	-66.04	peak
4	487.8400	-78.09	2.48	-75.61	-13.00	-62.61	peak
5	644.0100	-77.70	5.57	-72.13	-13.00	-59.13	peak
6	769.1400	-77.98	7.58	-70.40	-13.00	-57.40	peak
7	1673.000	-63.28	2.20	-61.08	-13.00	-48.08	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		
Mode:	n5_15M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	147.3700	-68.59	-0.39	-68.98	-13.00	-55.98	peak
2	246.3100	-75.72	-2.01	-77.73	-13.00	-64.73	peak
3	295.7800	-76.77	-0.64	-77.41	-13.00	-64.41	peak
4	464.5600	-78.12	2.16	-75.96	-13.00	-62.96	peak
5	674.0800	-78.71	6.13	-72.58	-13.00	-59.58	peak
6	828.3100	-78.38	8.47	-69.91	-13.00	-56.91	peak
7	1673.000	-63.58	2.20	-61.38	-13.00	-48.38	peak
8	2509.500	-66.99	4.97	-62.02	-13.00	-49.02	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s Pi/2 BPSK_CH166800		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.96	-1.26	-69.22	-13.00	-56.22	peak
2	234.6700	-77.18	-2.33	-79.51	-13.00	-66.51	peak
3	338.4600	-78.90	0.04	-78.86	-13.00	-65.86	peak
4	411.2100	-78.30	1.27	-77.03	-13.00	-64.03	peak
5	520.8200	-77.52	3.01	-74.51	-13.00	-61.51	peak
6	680.8700	-78.06	6.26	-71.80	-13.00	-58.80	peak
7	1668.000	-58.40	2.18	-56.22	-13.00	-43.22	peak
8	2502.000	-61.63	4.95	-56.68	-13.00	-43.68	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s Pi/2 BPSK_CH166800		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	159.9800	-71.59	-0.06	-71.65	-13.00	-58.65	peak
2	247.2800	-76.28	-1.98	-78.26	-13.00	-65.26	peak
3	295.7800	-73.02	-0.64	-73.66	-13.00	-60.66	peak
4	431.5800	-78.71	1.63	-77.08	-13.00	-64.08	peak
5	546.0400	-77.64	3.48	-74.16	-13.00	-61.16	peak
6	778.8400	-78.03	7.76	-70.27	-13.00	-57.27	peak
7	1668.000	-59.41	2.18	-57.23	-13.00	-44.23	peak
8	2502.000	-62.32	4.95	-57.37	-13.00	-44.37	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.82	-1.26	-69.08	-13.00	-56.08	peak
2	234.6700	-76.85	-2.33	-79.18	-13.00	-66.18	peak
3	367.5600	-79.03	0.52	-78.51	-13.00	-65.51	peak
4	529.5500	-78.22	3.18	-75.04	-13.00	-62.04	peak
5	638.1900	-77.80	5.46	-72.34	-13.00	-59.34	peak
6	779.8100	-77.03	7.76	-69.27	-13.00	-56.27	peak
7	1673.000	-58.75	2.20	-56.55	-13.00	-43.55	peak
8	2509.500	-60.56	4.97	-55.59	-13.00	-42.59	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s Pi/2 BPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-71.41	-0.08	-71.49	-13.00	-58.49	peak
2	250.1900	-76.71	-1.92	-78.63	-13.00	-65.63	peak
3	295.7800	-75.89	-0.64	-76.53	-13.00	-63.53	peak
4	393.7500	-77.94	0.95	-76.99	-13.00	-63.99	peak
5	514.0300	-76.22	2.90	-73.32	-13.00	-60.32	peak
6	670.2000	-77.78	6.06	-71.72	-13.00	-58.72	peak
7	1673.000	-58.47	2.20	-56.27	-13.00	-43.27	peak
8	2509.500	-61.37	4.97	-56.40	-13.00	-43.40	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s Pi/2 BPSK_CH167800		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.72	-1.26	-68.98	-13.00	-55.98	peak
2	235.6400	-77.41	-2.29	-79.70	-13.00	-66.70	peak
3	310.3300	-78.73	-0.36	-79.09	-13.00	-66.09	peak
4	459.7100	-78.43	2.09	-76.34	-13.00	-63.34	peak
5	587.7500	-77.88	4.42	-73.46	-13.00	-60.46	peak
6	771.0800	-78.16	7.61	-70.55	-13.00	-57.55	peak
7	1678.000	-58.28	2.21	-56.07	-13.00	-43.07	peak
8	2517.000	-62.34	4.98	-57.36	-13.00	-44.36	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s Pi/2 BPSK_CH167800		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-71.61	-0.08	-71.69	-13.00	-58.69	peak
2	247.2800	-76.29	-1.98	-78.27	-13.00	-65.27	peak
3	314.2100	-77.30	-0.31	-77.61	-13.00	-64.61	peak
4	492.6900	-77.68	2.55	-75.13	-13.00	-62.13	peak
5	688.6300	-78.20	6.39	-71.81	-13.00	-58.81	peak
6	898.1500	-78.08	9.56	-68.52	-13.00	-55.52	peak
7	1678.000	-58.91	2.21	-56.70	-13.00	-43.70	peak
8	2517.000	-61.26	4.98	-56.28	-13.00	-43.28	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s QPSK_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-67.69	-1.26	-68.95	-13.00	-55.95	peak
2	235.6400	-77.36	-2.29	-79.65	-13.00	-66.65	peak
3	315.1800	-77.95	-0.29	-78.24	-13.00	-65.24	peak
4	398.6000	-77.66	1.04	-76.62	-13.00	-63.62	peak
5	572.2300	-77.81	4.05	-73.76	-13.00	-60.76	peak
6	711.9100	-77.98	6.77	-71.21	-13.00	-58.21	peak
7	1673.000	-64.84	2.20	-62.64	-13.00	-49.64	peak
8	2509.500	-65.89	4.97	-60.92	-13.00	-47.92	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s QPSK_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-71.38	-0.08	-71.46	-13.00	-58.46	peak
2	251.1600	-76.81	-1.91	-78.72	-13.00	-65.72	peak
3	316.1500	-77.08	-0.27	-77.35	-13.00	-64.35	peak
4	490.7500	-78.66	2.52	-76.14	-13.00	-63.14	peak
5	640.1300	-78.31	5.49	-72.82	-13.00	-59.82	peak
6	801.1500	-78.68	8.12	-70.56	-13.00	-57.56	peak
7	1673.000	-65.03	2.20	-62.83	-13.00	-49.83	peak
8	2509.500	-65.57	4.97	-60.60	-13.00	-47.60	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s 16QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	158.0400	-74.69	-0.08	-74.77	-13.00	-61.77	peak
2	235.6400	-77.51	-2.29	-79.80	-13.00	-66.80	peak
3	317.1200	-78.76	-0.26	-79.02	-13.00	-66.02	peak
4	385.9900	-78.32	0.83	-77.49	-13.00	-64.49	peak
5	480.0800	-77.55	2.38	-75.17	-13.00	-62.17	peak
6	611.0300	-77.88	4.92	-72.96	-13.00	-59.96	peak
7	1673.000	-64.50	2.20	-62.30	-13.00	-49.30	peak
8	2509.500	-66.18	4.97	-61.21	-13.00	-48.21	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s 16QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	156.1000	-71.35	-0.09	-71.44	-13.00	-58.44	peak
2	250.1900	-76.87	-1.92	-78.79	-13.00	-65.79	peak
3	318.0900	-77.31	-0.24	-77.55	-13.00	-64.55	peak
4	491.7200	-74.12	2.53	-71.59	-13.00	-58.59	peak
5	677.9600	-76.90	6.21	-70.69	-13.00	-57.69	peak
6	865.1700	-78.72	8.99	-69.73	-13.00	-56.73	peak
7	1673.000	-63.37	2.20	-61.17	-13.00	-48.17	peak
8	2509.500	-66.95	4.97	-61.98	-13.00	-48.98	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s 64QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	157.0700	-74.14	-0.08	-74.22	-13.00	-61.22	peak
2	235.6400	-77.64	-2.29	-79.93	-13.00	-66.93	peak
3	416.0600	-78.38	1.36	-77.02	-13.00	-64.02	peak
4	499.4800	-78.06	2.63	-75.43	-13.00	-62.43	peak
5	640.1300	-77.86	5.49	-72.37	-13.00	-59.37	peak
6	785.6300	-78.30	7.87	-70.43	-13.00	-57.43	peak
7	1673.000	-63.19	2.20	-60.99	-13.00	-47.99	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		
Mode:	n5_20M-DFT-s 64QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	159.9800	-70.79	-0.06	-70.85	-13.00	-57.85	peak
2	250.1900	-75.55	-1.92	-77.47	-13.00	-64.47	peak
3	332.6400	-77.35	-0.03	-77.38	-13.00	-64.38	peak
4	425.7600	-78.03	1.54	-76.49	-13.00	-63.49	peak
5	522.7600	-76.20	3.06	-73.14	-13.00	-60.14	peak
6	646.9200	-77.65	5.62	-72.03	-13.00	-59.03	peak
7	1673.000	-63.50	2.20	-61.30	-13.00	-48.30	peak
8	2509.500	-65.75	4.97	-60.78	-13.00	-47.78	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	135.7300	-68.34	-1.26	-69.60	-13.00	-56.60	peak
2	235.6400	-76.21	-2.29	-78.50	-13.00	-65.50	peak
3	356.8900	-79.08	0.32	-78.76	-13.00	-65.76	peak
4	520.8200	-78.32	3.01	-75.31	-13.00	-62.31	peak
5	651.7700	-77.99	5.71	-72.28	-13.00	-59.28	peak
6	773.9900	-77.47	7.66	-69.81	-13.00	-56.81	peak
7	1673.000	-64.69	2.20	-62.49	-13.00	-49.49	peak
8	2509.500	-67.11	4.97	-62.14	-13.00	-49.14	peak

Standard:	FCC Part 22	Test Distance:	3 m
Test item:	Harmonic		
Mode:	n5_20M-DFT-s 256QAM_CH167300		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	159.9800	-70.13	-0.06	-70.19	-13.00	-57.19	peak
2	246.3100	-75.92	-2.01	-77.93	-13.00	-64.93	peak
3	295.7800	-74.69	-0.64	-75.33	-13.00	-62.33	peak
4	433.5200	-78.35	1.67	-76.68	-13.00	-63.68	peak
5	515.9700	-72.85	2.94	-69.91	-13.00	-56.91	peak
6	646.9200	-76.95	5.62	-71.33	-13.00	-58.33	peak
7	1673.000	-65.50	2.20	-63.30	-13.00	-50.30	peak
8	2509.500	-66.43	4.97	-61.46	-13.00	-48.46	peak

--- END---

Appendix A: Conducted Test Results

1. Average Output Power Data

Test Result

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s Pi/2 BPSK	LCH	1	0	23.26	PASS
		1	12	23.24	PASS
		1	24	23.14	PASS
		12	0	22.17	PASS
		12	6	22.06	PASS
		12	13	21.98	PASS
		25	0	21.95	PASS
	MCH	1	0	23.14	PASS
		1	12	23.13	PASS
		1	24	23.05	PASS
		12	0	22.78	PASS
		12	6	22.43	PASS
		12	13	22.30	PASS
		25	0	22.19	PASS
	HCH	1	0	23.21	PASS
		1	12	23.16	PASS
		1	24	23.12	PASS
		12	0	22.07	PASS
		12	6	21.80	PASS
		12	13	21.61	PASS
		25	0	21.63	PASS

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s QPSK	LCH	1	0	22.84	PASS
		1	12	22.73	PASS
		1	24	22.66	PASS
		12	0	22.62	PASS
		12	6	22.40	PASS
		12	13	22.51	PASS
		25	0	22.51	PASS
	MCH	1	0	22.74	PASS
		1	12	22.62	PASS
		1	24	22.68	PASS
		12	0	22.54	PASS
		12	6	22.23	PASS
		12	13	22.60	PASS
		25	0	22.45	PASS
	HCH	1	0	22.75	PASS
		1	12	22.56	PASS
		1	24	22.42	PASS
		12	0	22.74	PASS
		12	6	22.59	PASS
		12	13	22.56	PASS
		25	0	22.56	PASS

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 16QAM	LCH	1	0	21.98	PASS
		1	12	21.94	PASS
		1	24	21.91	PASS
		12	0	21.89	PASS
		12	6	21.85	PASS
		12	13	21.79	PASS
		25	0	21.89	PASS
	MCH	1	0	22.01	PASS
		1	12	21.88	PASS
		1	24	21.98	PASS
		12	0	21.87	PASS
		12	6	21.79	PASS
		12	13	21.75	PASS
		25	0	21.91	PASS
	HCH	1	0	21.99	PASS
		1	12	21.86	PASS
		1	24	21.97	PASS
		12	0	21.92	PASS
		12	6	21.95	PASS
		12	13	21.90	PASS
		25	0	21.91	PASS

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 64QAM	LCH	1	0	20.90	PASS
		1	12	20.88	PASS
		1	24	20.84	PASS
		12	0	20.74	PASS
		12	6	20.71	PASS
		12	13	20.82	PASS
		25	0	20.77	PASS
	MCH	1	0	20.88	PASS
		1	12	20.74	PASS
		1	24	20.75	PASS
		12	0	20.67	PASS
		12	6	20.71	PASS
		12	13	20.82	PASS
		25	0	20.81	PASS
	HCH	1	0	21.03	PASS
		1	12	21.00	PASS
		1	24	20.97	PASS
		12	0	20.95	PASS
		12	6	20.94	PASS
		12	13	20.86	PASS
		25	0	20.89	PASS

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 256QAM	LCH	1	0	20.06	PASS
		1	12	19.82	PASS
		1	24	19.54	PASS
		12	0	19.55	PASS
		12	6	19.62	PASS
		12	13	19.78	PASS
		25	0	19.61	PASS
	MCH	1	0	20.09	PASS
		1	12	20.07	PASS
		1	24	19.60	PASS
		12	0	19.66	PASS
		12	6	19.85	PASS
		12	13	19.67	PASS
		25	0	19.66	PASS
	HCH	1	0	19.89	PASS
		1	12	19.52	PASS
		1	24	19.61	PASS
		12	0	19.49	PASS
		12	6	19.74	PASS
		12	13	19.78	PASS
		25	0	19.74	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s Pi/2 BPSK	LCH	1	0	23.15	PASS
		1	26	23.09	PASS
		1	51	23.08	PASS
		25	0	22.08	PASS
		25	12	21.87	PASS
		25	25	21.83	PASS
		50	0	21.77	PASS
	MCH	1	0	23.08	PASS
		1	26	22.96	PASS
		1	51	22.96	PASS
		25	0	22.71	PASS
		25	12	22.34	PASS
		25	25	22.13	PASS
		50	0	22.06	PASS
	HCH	1	0	23.17	PASS
		1	26	23.00	PASS
		1	51	22.98	PASS
		25	0	22.02	PASS
		25	12	21.62	PASS
		25	25	21.51	PASS
		50	0	21.42	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s QPSK	LCH	1	0	22.63	PASS
		1	26	22.51	PASS
		1	51	22.53	PASS
		25	0	22.47	PASS
		25	12	22.19	PASS
		25	25	22.38	PASS
		50	0	22.39	PASS
	MCH	1	0	22.64	PASS
		1	26	22.59	PASS
		1	51	22.55	PASS
		25	0	22.41	PASS
		25	12	22.08	PASS
		25	25	22.48	PASS
		50	0	22.24	PASS
	HCH	1	0	22.69	PASS
		1	26	22.41	PASS
		1	51	22.24	PASS
		25	0	22.54	PASS
		25	12	22.53	PASS
		25	25	22.47	PASS
		50	0	22.42	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 16QAM	LCH	1	0	21.82	PASS
		1	26	21.76	PASS
		1	51	21.79	PASS
		25	0	21.74	PASS
		25	12	21.77	PASS
		25	25	21.60	PASS
		50	0	21.73	PASS
	MCH	1	0	21.86	PASS
		1	26	21.70	PASS
		1	51	21.85	PASS
		25	0	21.66	PASS
		25	12	21.64	PASS
		25	25	21.58	PASS
		50	0	21.73	PASS
	HCH	1	0	21.94	PASS
		1	26	21.66	PASS
		1	51	21.82	PASS
		25	0	21.83	PASS
		25	12	21.82	PASS
		25	25	21.71	PASS
		50	0	21.83	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 64QAM	LCH	1	0	20.82	PASS
		1	26	20.80	PASS
		1	51	20.68	PASS
		25	0	20.62	PASS
		25	12	20.54	PASS
		25	25	20.60	PASS
		50	0	20.54	PASS
	MCH	1	0	20.78	PASS
		1	26	20.60	PASS
		1	51	20.70	PASS
		25	0	20.54	PASS
		25	12	20.51	PASS
		25	25	20.71	PASS
		50	0	20.56	PASS
	HCH	1	0	20.99	PASS
		1	26	20.96	PASS
		1	51	20.77	PASS
		25	0	20.91	PASS
		25	12	20.76	PASS
		25	25	20.75	PASS
		50	0	20.73	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 256QAM	LCH	1	0	19.89	PASS
		1	26	19.62	PASS
		1	51	19.37	PASS
		25	0	19.38	PASS
		25	12	19.57	PASS
		25	25	19.74	PASS
		50	0	19.42	PASS
	MCH	1	0	19.91	PASS
		1	26	19.90	PASS
		1	51	19.44	PASS
		25	0	19.46	PASS
		25	12	19.71	PASS
		25	25	19.60	PASS
		50	0	19.51	PASS
	HCH	1	0	19.68	PASS
		1	26	19.43	PASS
		1	51	19.45	PASS
		25	0	19.45	PASS
		25	12	19.60	PASS
		25	25	19.63	PASS
		50	0	19.52	PASS

Channel Bandwidth: 15 MHz

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s Pi/2 BPSK	LCH	1	0	23.19	PASS
		1	39	23.10	PASS
		1	78	22.97	PASS
		36	0	22.03	PASS
		36	18	21.87	PASS
		36	37	22.00	PASS
		75	0	21.81	PASS
	MCH	1	0	23.15	PASS
		1	39	22.92	PASS
		1	78	22.84	PASS
		36	0	22.50	PASS
		36	18	22.16	PASS
		36	37	22.11	PASS
		75	0	22.06	PASS
	HCH	1	0	23.10	PASS
		1	39	23.01	PASS
		1	78	23.03	PASS
		36	0	21.82	PASS
		36	18	21.71	PASS
		36	37	21.56	PASS
		75	0	21.51	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s QPSK	LCH	1	0	22.69	PASS
		1	39	22.54	PASS
		1	78	22.49	PASS
		36	0	22.49	PASS
		36	18	22.33	PASS
		36	37	22.49	PASS
		75	0	22.29	PASS
	MCH	1	0	22.78	PASS
		1	39	22.49	PASS
		1	78	22.55	PASS
		36	0	22.42	PASS
		36	18	22.14	PASS
		36	37	22.49	PASS
		75	0	22.28	PASS
	HCH	1	0	22.72	PASS
		1	39	22.47	PASS
		1	78	22.34	PASS
		36	0	22.66	PASS
		36	18	22.46	PASS
		36	37	22.53	PASS
		75	0	22.53	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 16QAM	LCH	1	0	21.92	PASS
		1	39	21.84	PASS
		1	78	21.81	PASS
		36	0	21.68	PASS
		36	18	21.77	PASS
		36	37	21.61	PASS
		75	0	21.91	PASS
	MCH	1	0	21.92	PASS
		1	39	21.80	PASS
		1	78	21.88	PASS
		36	0	21.68	PASS
		36	18	21.72	PASS
		36	37	21.63	PASS
		75	0	21.79	PASS
	HCH	1	0	21.97	PASS
		1	39	21.76	PASS
		1	78	21.85	PASS
		36	0	21.85	PASS
		36	18	21.74	PASS
		36	37	21.71	PASS
		75	0	21.79	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 64QAM	LCH	1	0	20.87	PASS
		1	39	20.86	PASS
		1	78	20.83	PASS
		36	0	20.52	PASS
		36	18	20.65	PASS
		36	37	20.72	PASS
		75	0	20.61	PASS
	MCH	1	0	20.76	PASS
		1	39	20.69	PASS
		1	78	20.68	PASS
		36	0	20.48	PASS
		36	18	20.63	PASS
		36	37	20.72	PASS
		75	0	20.70	PASS
	HCH	1	0	20.98	PASS
		1	39	20.82	PASS
		1	78	20.71	PASS
		36	0	20.96	PASS
		36	18	20.92	PASS
		36	37	20.71	PASS
		75	0	20.69	PASS

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 256QAM	LCH	1	0	19.79	PASS
		1	39	19.65	PASS
		1	78	19.41	PASS
		36	0	19.41	PASS
		36	18	19.55	PASS
		36	37	19.66	PASS
		75	0	19.62	PASS
	MCH	1	0	20.03	PASS
		1	39	19.94	PASS
		1	78	19.34	PASS
		36	0	19.40	PASS
		36	18	19.63	PASS
		36	37	19.44	PASS
		75	0	19.57	PASS
	HCH	1	0	19.74	PASS
		1	39	19.41	PASS
		1	78	19.52	PASS
		36	0	19.41	PASS
		36	18	19.53	PASS
		36	37	19.66	PASS
		75	0	19.64	PASS

Channel Bandwidth: 20 MHz

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s Pi/2 BPSK	LCH	1	0	23.24	PASS
		1	53	23.16	PASS
		1	105	23.02	PASS
		50	0	22.11	PASS
		50	25	21.87	PASS
		50	50	21.77	PASS
		100	0	21.63	PASS
	MCH	1	0	23.06	PASS
		1	53	22.90	PASS
		1	105	22.84	PASS
		50	0	22.58	PASS
		50	25	22.38	PASS
		50	50	21.92	PASS
		100	0	22.25	PASS
	HCH	1	0	23.14	PASS
		1	53	22.93	PASS
		1	105	22.95	PASS
		50	0	21.95	PASS
		50	25	21.54	PASS
		50	50	21.57	PASS
		100	0	21.57	PASS

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s QPSK	LCH	1	0	22.62	PASS
		1	53	22.59	PASS
		1	105	22.51	PASS
		50	0	22.47	PASS
		50	25	22.15	PASS
		50	50	22.55	PASS
		100	0	22.34	PASS
	MCH	1	0	22.64	PASS
		1	53	22.36	PASS
		1	105	22.37	PASS
		50	0	22.27	PASS
		50	25	22.10	PASS
		50	50	22.61	PASS
		100	0	22.28	PASS
	HCH	1	0	22.63	PASS
		1	53	22.50	PASS
		1	105	22.08	PASS
		50	0	22.54	PASS
		50	25	22.32	PASS
		50	50	22.46	PASS
		100	0	22.48	PASS

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 16QAM	LCH	1	0	21.91	PASS
		1	53	21.83	PASS
		1	105	21.84	PASS
		50	0	21.55	PASS
		50	25	21.64	PASS
		50	50	21.82	PASS
		100	0	21.67	PASS
	MCH	1	0	21.84	PASS
		1	53	21.63	PASS
		1	105	21.55	PASS
		50	0	21.66	PASS
		50	25	21.59	PASS
		50	50	21.66	PASS
		100	0	21.70	PASS
	HCH	1	0	21.90	PASS
		1	53	21.74	PASS
		1	105	21.77	PASS
		50	0	21.83	PASS
		50	25	21.77	PASS
		50	50	21.88	PASS
		100	0	21.76	PASS

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 64QAM	LCH	1	0	20.88	PASS
		1	53	20.74	PASS
		1	105	20.69	PASS
		50	0	20.56	PASS
		50	25	20.53	PASS
		50	50	20.72	PASS
		100	0	20.74	PASS
	MCH	1	0	20.77	PASS
		1	53	20.66	PASS
		1	105	20.63	PASS
		50	0	20.60	PASS
		50	25	20.49	PASS
		50	50	20.76	PASS
		100	0	20.74	PASS
	HCH	1	0	21.04	PASS
		1	53	20.92	PASS
		1	105	21.01	PASS
		50	0	20.88	PASS
		50	25	20.91	PASS
		50	50	20.89	PASS
		100	0	20.71	PASS

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
DFT-s 256QAM	LCH	1	0	19.80	PASS
		1	53	19.68	PASS
		1	105	19.49	PASS
		50	0	19.41	PASS
		50	25	19.50	PASS
		50	50	19.47	PASS
		100	0	19.46	PASS
	MCH	1	0	19.95	PASS
		1	53	19.75	PASS
		1	105	19.34	PASS
		50	0	19.58	PASS
		50	25	19.66	PASS
		50	50	19.40	PASS
		100	0	19.60	PASS
	HCH	1	0	19.71	PASS
		1	53	19.26	PASS
		1	105	19.58	PASS
		50	0	19.50	PASS
		50	25	19.65	PASS
		50	50	19.65	PASS
		100	0	19.70	PASS

2. Peak-to-Average Ratio(CCDF)

Test Result

Band	Bandwidth h (MHz)	SCS (kHz)	Modulation	Channel	RB Configurat ion	Result(dB)	Limit(dB)	Verdict
n5	5	15	DFT-s Pi/2 BPSK	165300	1@0	4.08	13	PASS
n5	5	15	DFT-s Pi/2 BPSK	167300	1@0	4.05	13	PASS
n5	5	15	DFT-s Pi/2 BPSK	169300	1@0	4.05	13	PASS
n5	5	15	DFT-s QPSK	165300	1@0	5.46	13	PASS
n5	5	15	DFT-s QPSK	167300	1@0	5.45	13	PASS
n5	5	15	DFT-s QPSK	169300	1@0	5.46	13	PASS
n5	5	15	DFT-s 16QAM	165300	1@0	6.32	13	PASS
n5	5	15	DFT-s 16QAM	167300	1@0	6.27	13	PASS
n5	5	15	DFT-s 16QAM	169300	1@0	6.28	13	PASS
n5	5	15	DFT-s 64QAM	165300	1@0	6.27	13	PASS
n5	5	15	DFT-s 64QAM	167300	1@0	6.26	13	PASS
n5	5	15	DFT-s 64QAM	169300	1@0	6.27	13	PASS
n5	5	15	DFT-s 256QAM	165300	1@0	6.43	13	PASS
n5	5	15	DFT-s 256QAM	167300	1@0	6.45	13	PASS
n5	5	15	DFT-s 256QAM	169300	1@0	6.45	13	PASS

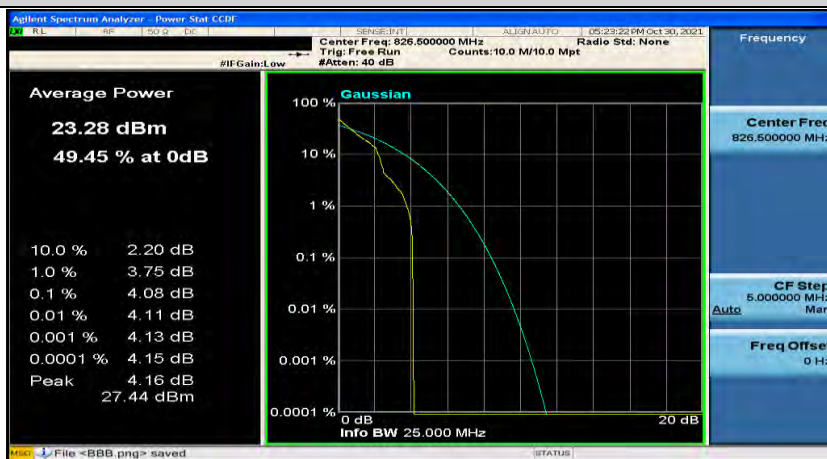
Band	Bandwidth (MHz)	SCS (kHz)	Modulation	Channel	RB Configurat ion	Result(dB)	Limit(dB)	Verdict
n5	10	15	DFT-s Pi/2 BPSK	165800	1@0	4.38	13	PASS
n5	10	15	DFT-s Pi/2 BPSK	167300	1@0	4.40	13	PASS
n5	10	15	DFT-s Pi/2 BPSK	168800	1@0	4.40	13	PASS
n5	10	15	DFT-s QPSK	165800	1@0	5.80	13	PASS
n5	10	15	DFT-s QPSK	167300	1@0	5.79	13	PASS
n5	10	15	DFT-s QPSK	168800	1@0	5.79	13	PASS
n5	10	15	DFT-s 16QAM	165800	1@0	6.58	13	PASS
n5	10	15	DFT-s 16QAM	167300	1@0	6.57	13	PASS
n5	10	15	DFT-s 16QAM	168800	1@0	6.56	13	PASS
n5	10	15	DFT-s 64QAM	165800	1@0	6.57	13	PASS
n5	10	15	DFT-s 64QAM	167300	1@0	6.55	13	PASS
n5	10	15	DFT-s 64QAM	168800	1@0	6.56	13	PASS
n5	10	15	DFT-s 256QAM	165800	1@0	6.8	13	PASS
n5	10	15	DFT-s 256QAM	167300	1@0	6.81	13	PASS
n5	10	15	DFT-s 256QAM	168800	1@0	6.82	13	PASS
n5	15	15	DFT-s Pi/2 BPSK	166300	1@0	4.40	13	PASS
n5	15	15	DFT-s Pi/2 BPSK	167300	1@0	4.40	13	PASS
n5	15	15	DFT-s Pi/2 BPSK	168300	1@0	4.39	13	PASS
n5	15	15	DFT-s QPSK	166300	1@0	5.38	13	PASS
n5	15	15	DFT-s QPSK	167300	1@0	5.38	13	PASS
n5	15	15	DFT-s QPSK	168300	1@0	5.38	13	PASS
n5	15	15	DFT-s 16QAM	166300	1@0	6.56	13	PASS
n5	15	15	DFT-s 16QAM	167300	1@0	6.57	13	PASS
n5	15	15	DFT-s 16QAM	168300	1@0	6.57	13	PASS
n5	15	15	DFT-s 64QAM	166300	1@0	6.55	13	PASS
n5	15	15	DFT-s 64QAM	167300	1@0	6.54	13	PASS
n5	15	15	DFT-s 64QAM	168300	1@0	6.54	13	PASS
n5	15	15	DFT-s 256QAM	166300	1@0	6.79	13	PASS
n5	15	15	DFT-s 256QAM	167300	1@0	6.79	13	PASS
n5	15	15	DFT-s 256QAM	168300	1@0	6.79	13	PASS

Band	Bandwidth (MHz)	SCS (kHz)	Modulation	Channel	RB Configurat ion	Result(dB)	Limit(dB)	Verdict
n5	10	15	DFT-s Pi/2 BPSK	165800	1@0	4.38	13	PASS
n5	10	15	DFT-s Pi/2 BPSK	167300	1@0	4.40	13	PASS
n5	10	15	DFT-s Pi/2 BPSK	168800	1@0	4.40	13	PASS
n5	10	15	DFT-s QPSK	165800	1@0	5.80	13	PASS
n5	10	15	DFT-s QPSK	167300	1@0	5.79	13	PASS
n5	10	15	DFT-s QPSK	168800	1@0	5.79	13	PASS
n5	10	15	DFT-s 16QAM	165800	1@0	6.58	13	PASS
n5	10	15	DFT-s 16QAM	167300	1@0	6.57	13	PASS
n5	10	15	DFT-s 16QAM	168800	1@0	6.56	13	PASS
n5	10	15	DFT-s 64QAM	165800	1@0	6.57	13	PASS
n5	10	15	DFT-s 64QAM	167300	1@0	6.55	13	PASS
n5	10	15	DFT-s 64QAM	168800	1@0	6.56	13	PASS
n5	10	15	DFT-s 256QAM	165800	1@0	6.8	13	PASS
n5	10	15	DFT-s 256QAM	167300	1@0	6.81	13	PASS
n5	10	15	DFT-s 256QAM	168800	1@0	6.82	13	PASS
n5	15	15	DFT-s Pi/2 BPSK	166300	1@0	4.40	13	PASS
n5	15	15	DFT-s Pi/2 BPSK	167300	1@0	4.40	13	PASS
n5	15	15	DFT-s Pi/2 BPSK	168300	1@0	4.39	13	PASS
n5	15	15	DFT-s QPSK	166300	1@0	5.38	13	PASS
n5	15	15	DFT-s QPSK	167300	1@0	5.38	13	PASS
n5	15	15	DFT-s QPSK	168300	1@0	5.38	13	PASS
n5	15	15	DFT-s 16QAM	166300	1@0	6.56	13	PASS
n5	15	15	DFT-s 16QAM	167300	1@0	6.57	13	PASS
n5	15	15	DFT-s 16QAM	168300	1@0	6.57	13	PASS
n5	15	15	DFT-s 64QAM	166300	1@0	6.55	13	PASS
n5	15	15	DFT-s 64QAM	167300	1@0	6.54	13	PASS
n5	15	15	DFT-s 64QAM	168300	1@0	6.54	13	PASS
n5	15	15	DFT-s 256QAM	166300	1@0	6.79	13	PASS
n5	15	15	DFT-s 256QAM	167300	1@0	6.79	13	PASS
n5	15	15	DFT-s 256QAM	168300	1@0	6.79	13	PASS

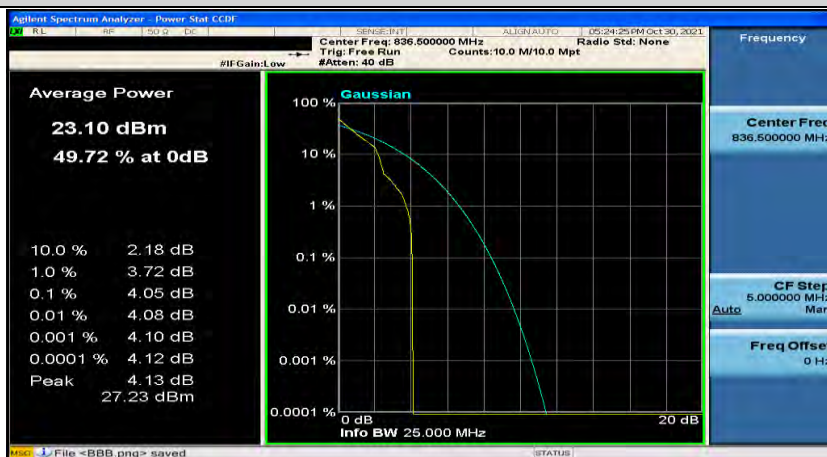
Band	Bandwidth (MHz)	SCS (kHz)	Modulation	Channel	RB Configurat ion	Result(dB)	Limit(dB)	Verdict
n5	20	15	DFT-s Pi/2 BPSK	166800	1@0	4.28	13	PASS
n5	20	15	DFT-s Pi/2 BPSK	167300	1@0	4.31	13	PASS
n5	20	15	DFT-s Pi/2 BPSK	167800	1@0	4.34	13	PASS
n5	20	15	DFT-s QPSK	166800	1@0	5.73	13	PASS
n5	20	15	DFT-s QPSK	167300	1@0	5.73	13	PASS
n5	20	15	DFT-s QPSK	167800	1@0	5.73	13	PASS
n5	20	15	DFT-s 16QAM	166800	1@0	6.43	13	PASS
n5	20	15	DFT-s 16QAM	167300	1@0	6.43	13	PASS
n5	20	15	DFT-s 16QAM	167800	1@0	6.43	13	PASS
n5	20	15	DFT-s 64QAM	166800	1@0	6.45	13	PASS
n5	20	15	DFT-s 64QAM	167300	1@0	6.43	13	PASS
n5	20	15	DFT-s 64QAM	167800	1@0	6.44	13	PASS
n5	20	15	DFT-s 256QAM	166800	1@0	6.64	13	PASS
n5	20	15	DFT-s 256QAM	167300	1@0	6.62	13	PASS
n5	20	15	DFT-s 256QAM	167800	1@0	6.63	13	PASS

Test Graphs

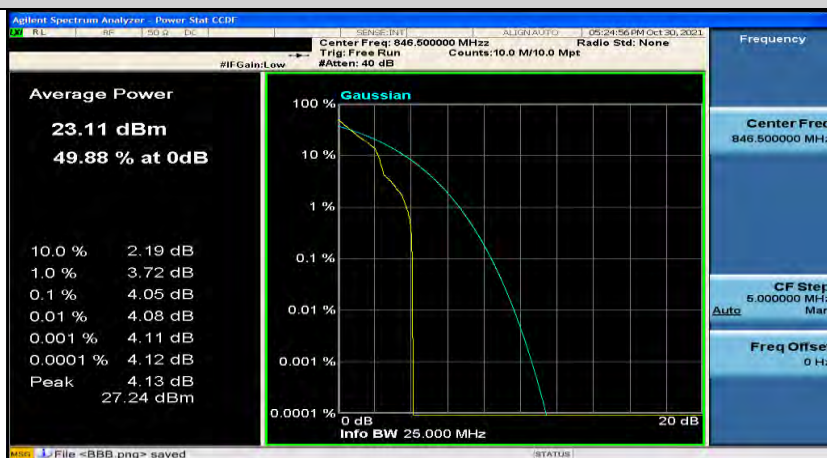
n5-5MHz-SCS 15kHz-DFT-s Pi/2 BPSK-165300-1RB#0



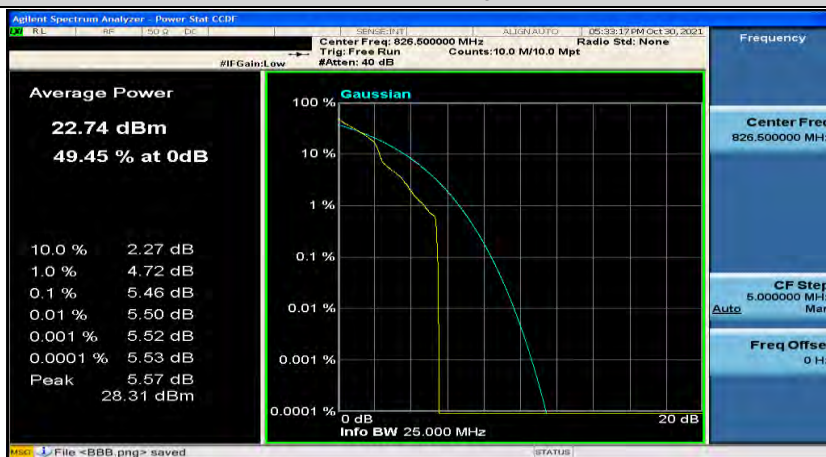
n5-5MHz-SCS 15kHz-DFT-s Pi/2 BPSK-167300-1RB#0



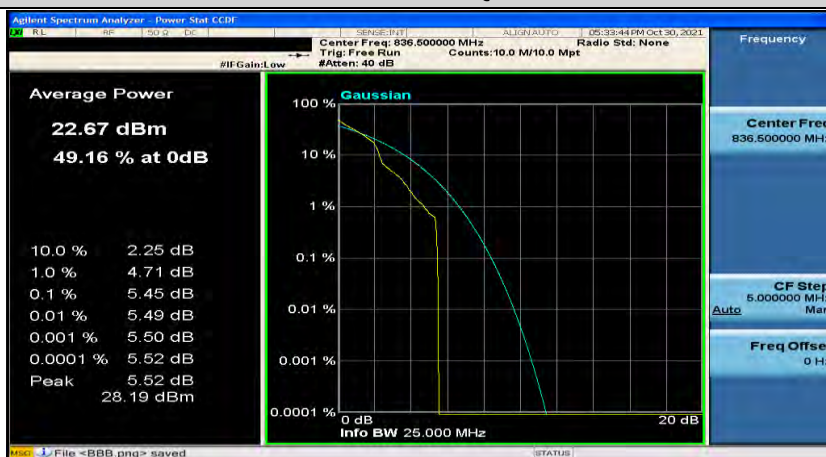
n5-5MHz-SCS 15kHz-DFT-s Pi/2 BPSK-169300-1RB#0



n5-5MHz-SCS 15kHz-DFT-s QPSK-165300-1RB#0



n5-5MHz-SCS 15kHz-DFT-s QPSK-167300-1RB#0



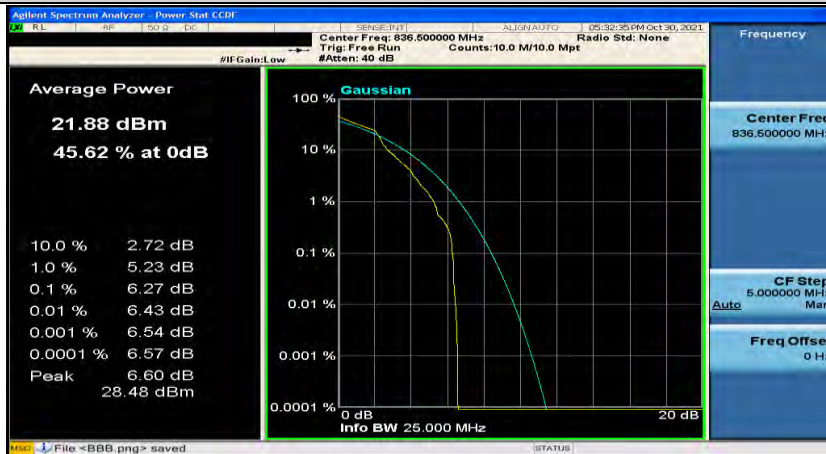
n5-5MHz-SCS 15kHz-DFT-s QPSK-169300-1RB#0



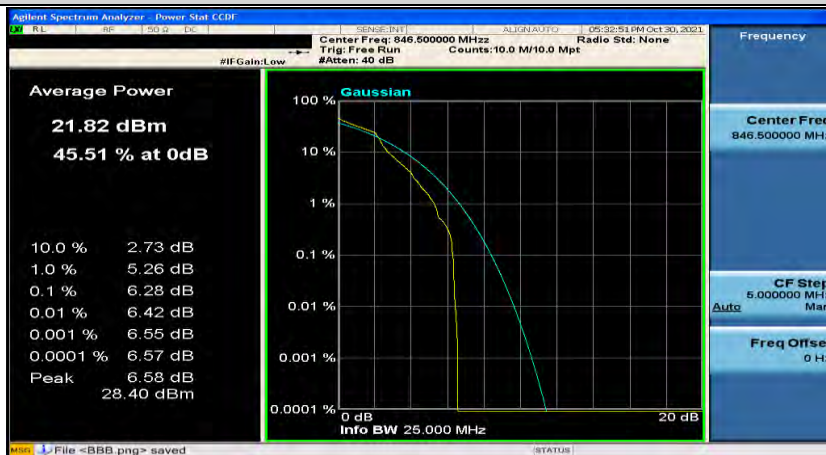
n5-5MHz-SCS 15kHz-DFT-s 16QAM-165300-1RB#0



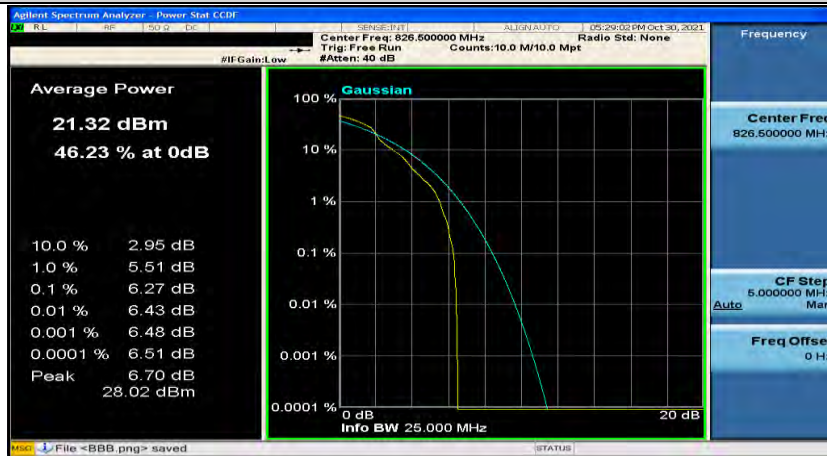
n5-5MHz-SCS 15kHz-DFT-s 16QAM-167300-1RB#0



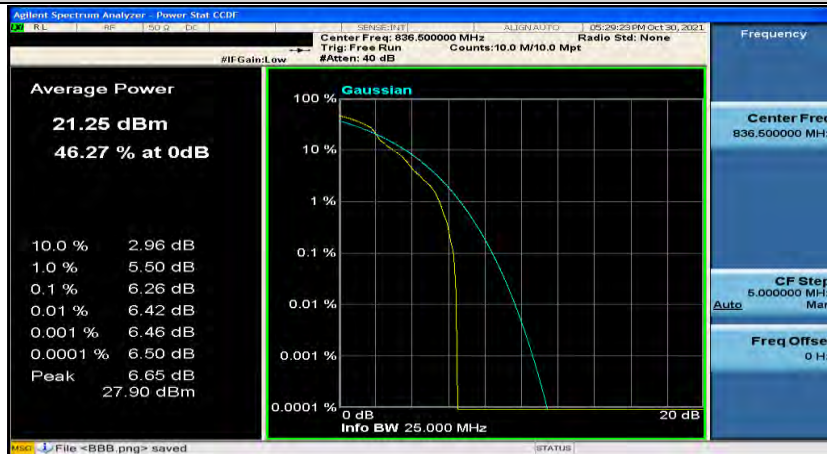
n5-5MHz-SCS 15kHz-DFT-s 16QAM-169300-1RB#0



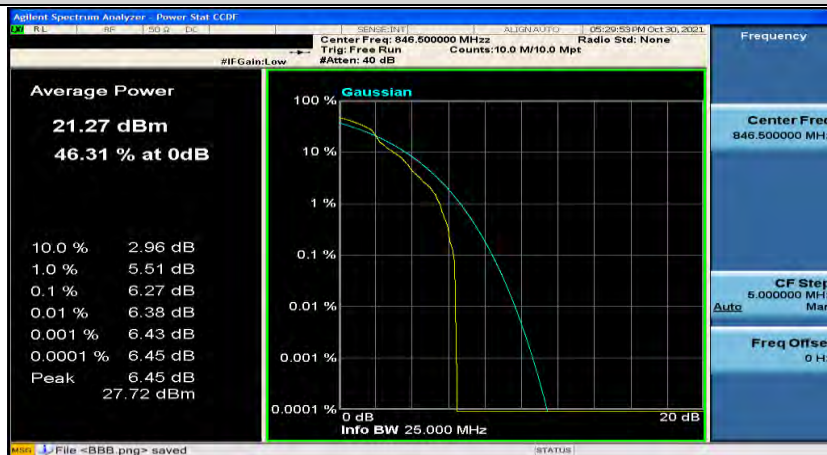
n5-5MHz-SCS 15kHz-DFT-s 64QAM-165300-1RB#0



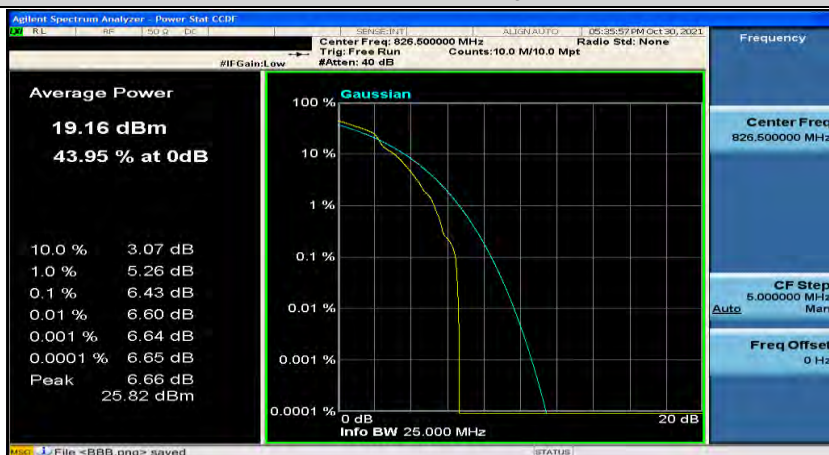
n5-5MHz-SCS 15kHz-DFT-s 64QAM-167300-1RB#0



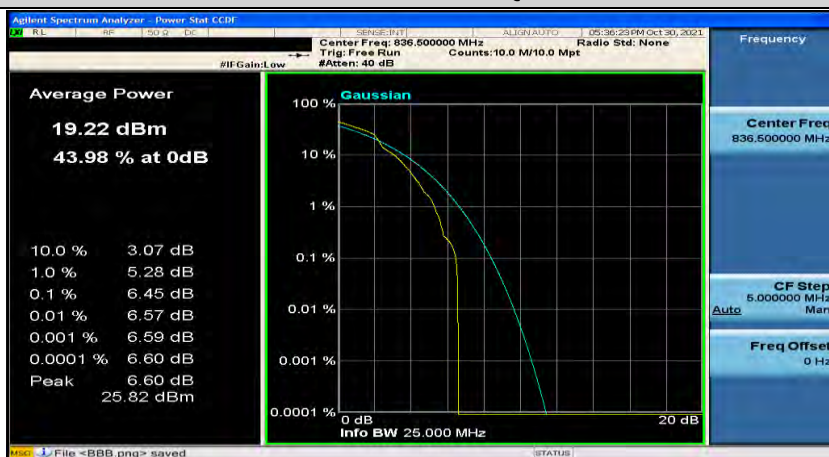
n5-5MHz-SCS 15kHz-DFT-s 64QAM-169300-1RB#0



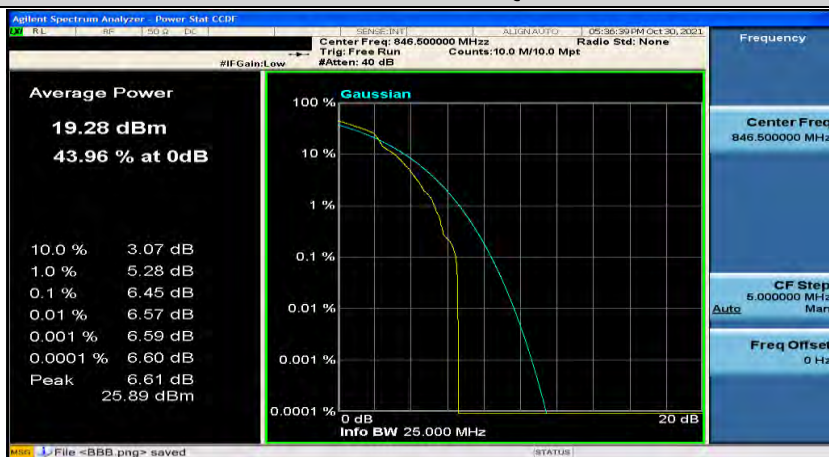
n5-5MHz-SCS 15kHz-DFT-s 256QAM-165300-1RB#0



n5-5MHz-SCS 15kHz-DFT-s 256QAM-167300-1RB#0



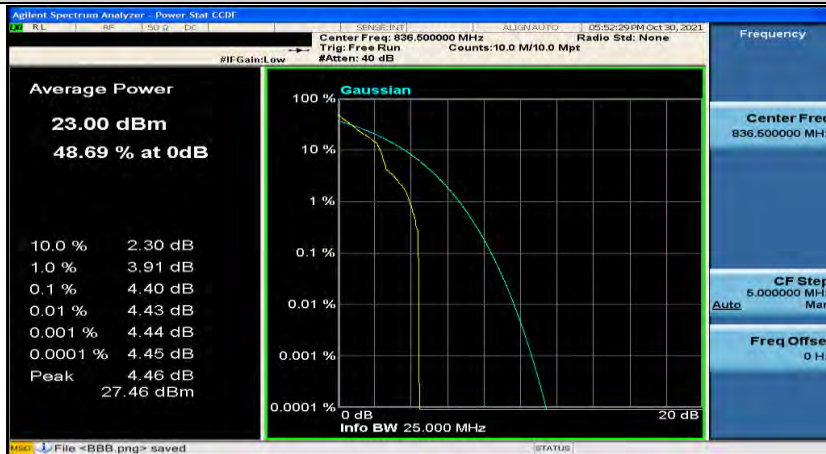
n5-5MHz-SCS 15kHz-DFT-s 256QAM-169300-1RB#0



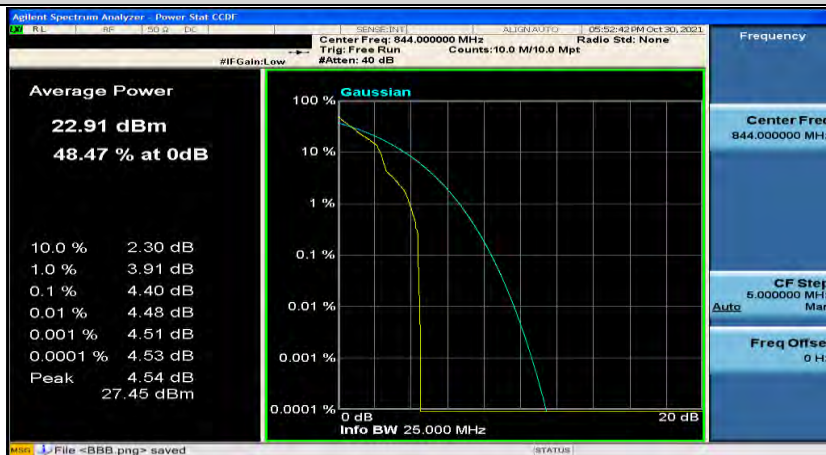
n5-10MHz-SCS 15kHz-DFT-s Pi/2 BPSK-165800-1RB#0



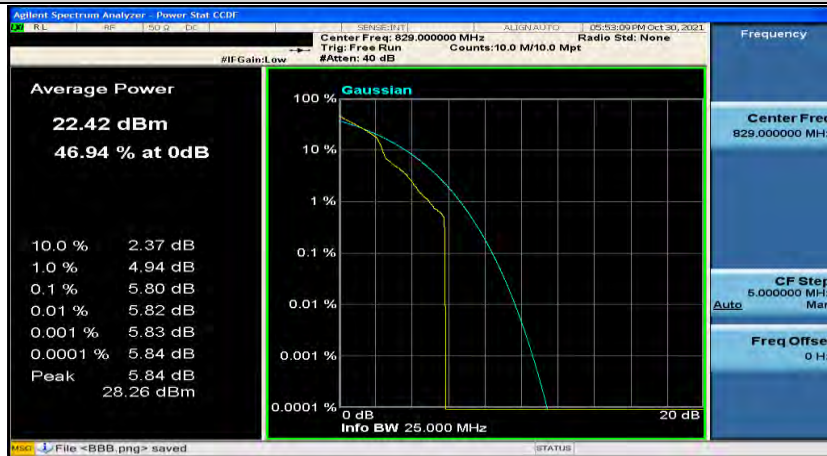
n5-10MHz-SCS 15kHz-DFT-s Pi/2 BPSK-167300-1RB#0



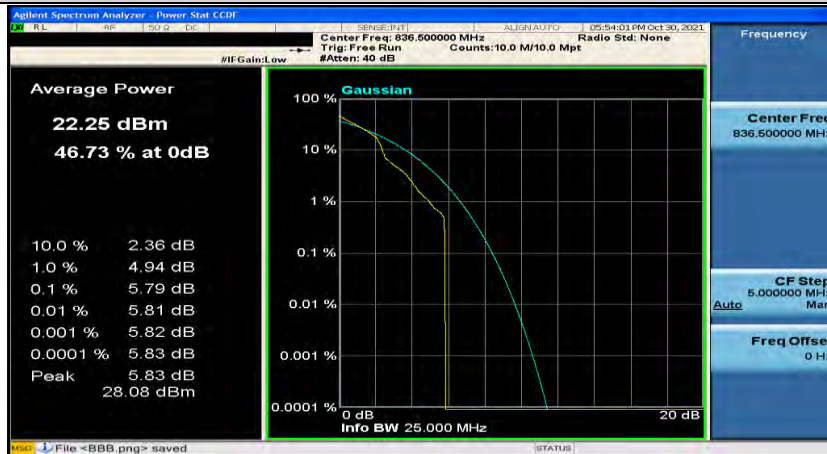
n5-10MHz-SCS 15kHz-DFT-s Pi/2 BPSK-168800-1RB#0



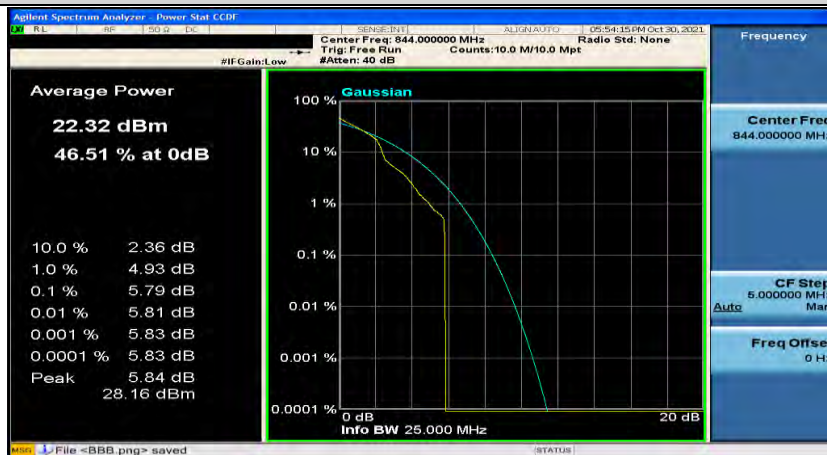
n5-10MHz-SCS 15kHz-DFT-s QPSK-165800-1RB#0



n5-10MHz-SCS 15kHz-DFT-s QPSK-167300-1RB#0



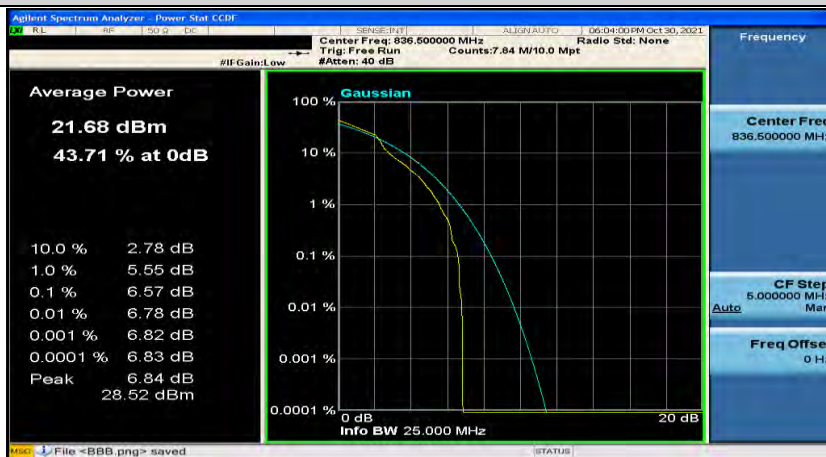
n5-10MHz-SCS 15kHz-DFT-s QPSK-168800-1RB#0



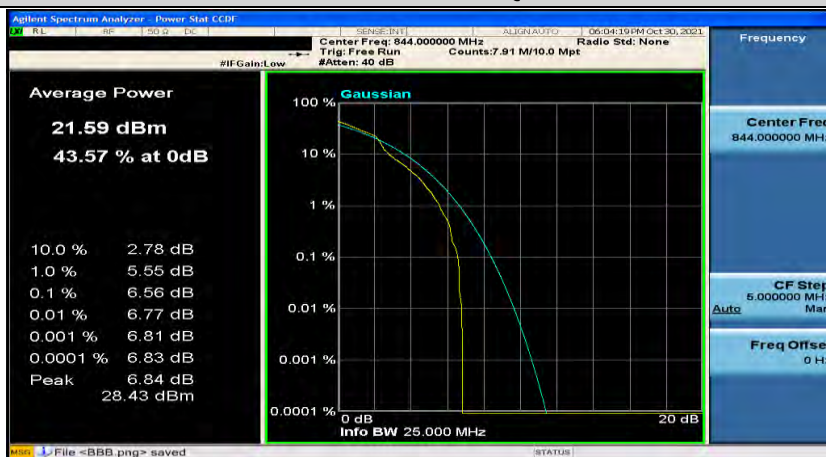
n5-10MHz-SCS 15kHz-DFT-s 16QAM-165800-1RB#0



n5-10MHz-SCS 15kHz-DFT-s 16QAM-167300-1RB#0



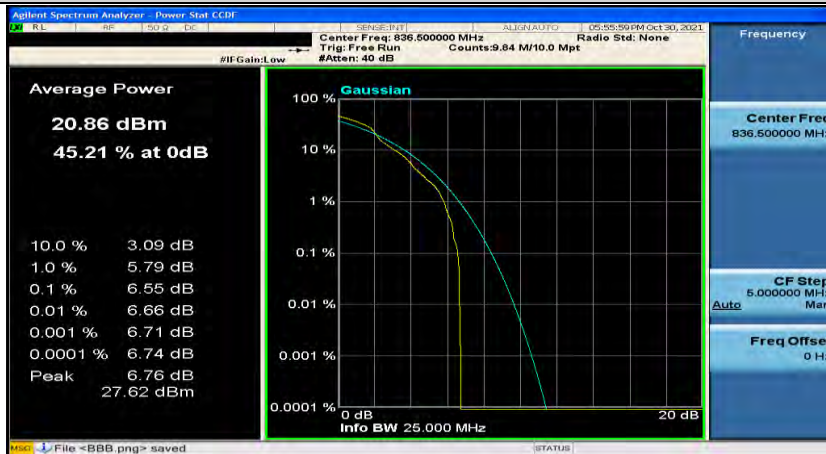
n5-10MHz-SCS 15kHz-DFT-s 16QAM-168800-1RB#0



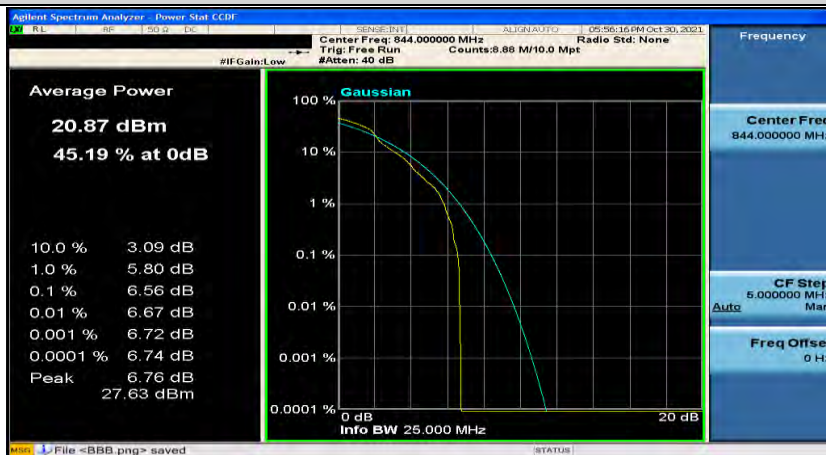
n5-10MHz-SCS 15kHz-DFT-s 64QAM-165800-1RB#0



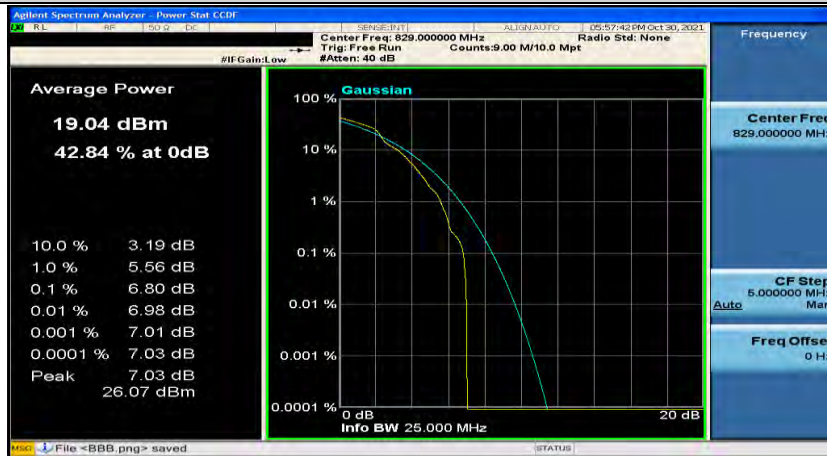
n5-10MHz-SCS 15kHz-DFT-s 64QAM-167300-1RB#0



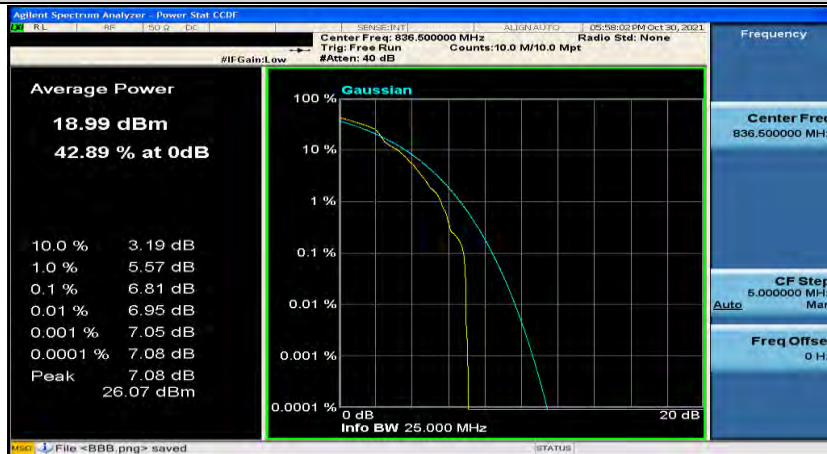
n5-10MHz-SCS 15kHz-DFT-s 64QAM-168800-1RB#0



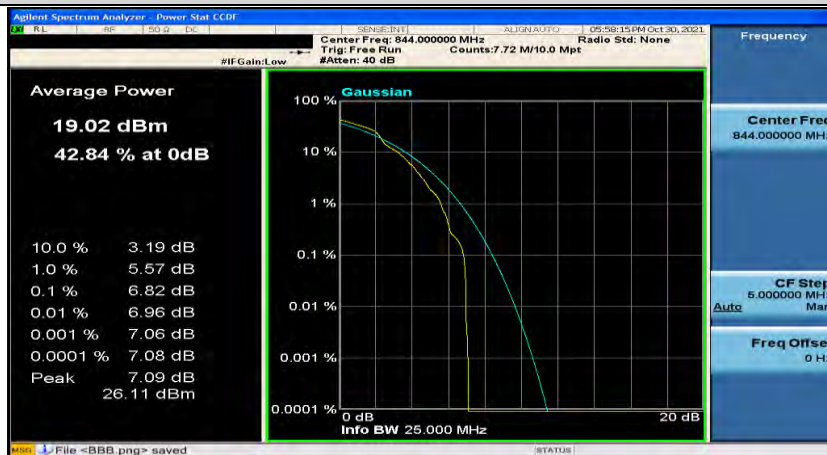
n5-10MHz-SCS 15kHz-DFT-s 256QAM-165800-1RB#0



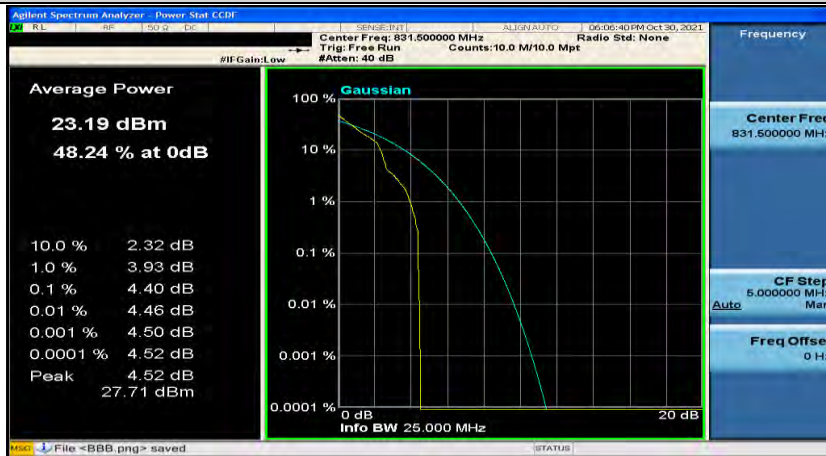
n5-10MHz-SCS 15kHz-DFT-s 256QAM-167300-1RB#0



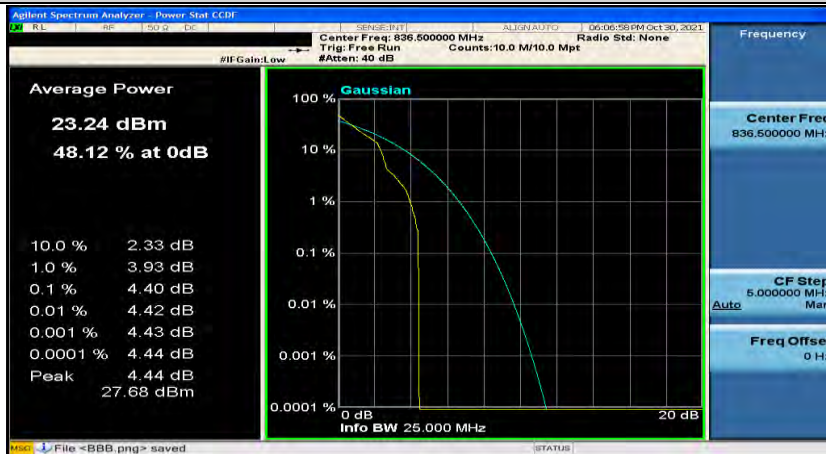
n5-10MHz-SCS 15kHz-DFT-s 256QAM-168800-1RB#0



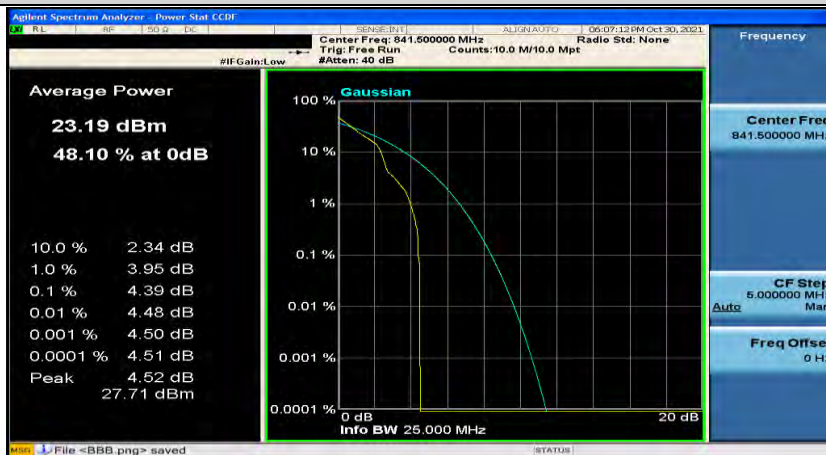
n5-15MHz-SCS 15kHz-DFT-s Pi/2 BPSK-166300-1RB#0



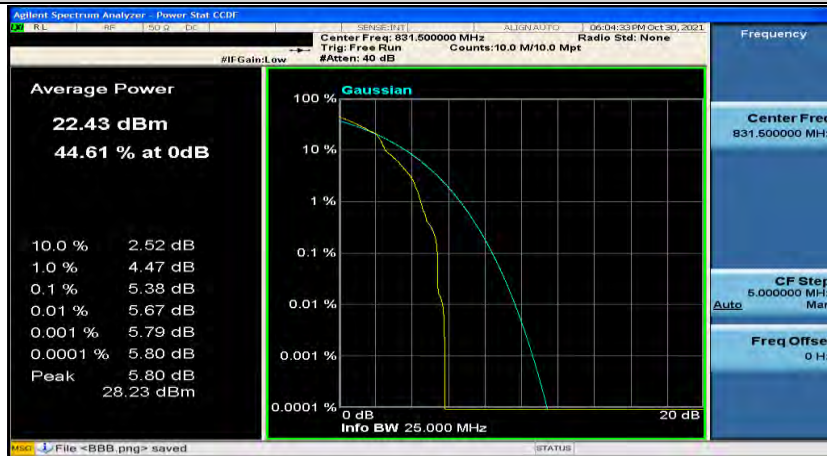
n5-15MHz-SCS 15kHz-DFT-s Pi/2 BPSK-167300-1RB#0



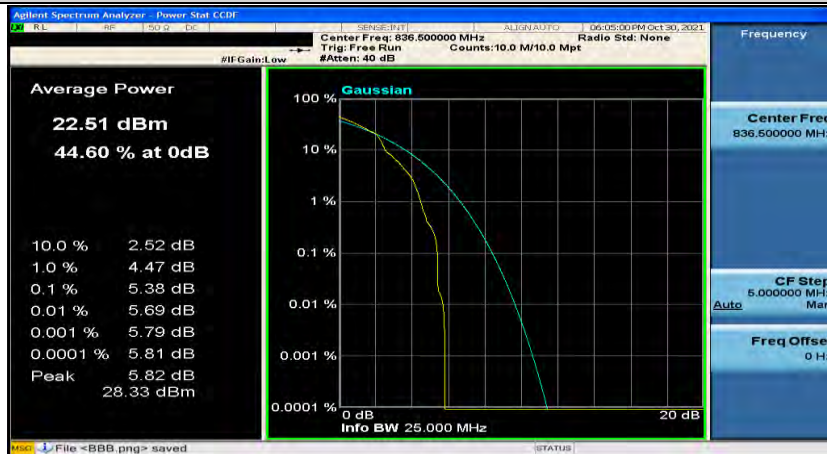
n5-15MHz-SCS 15kHz-DFT-s Pi/2 BPSK-168300-1RB#0



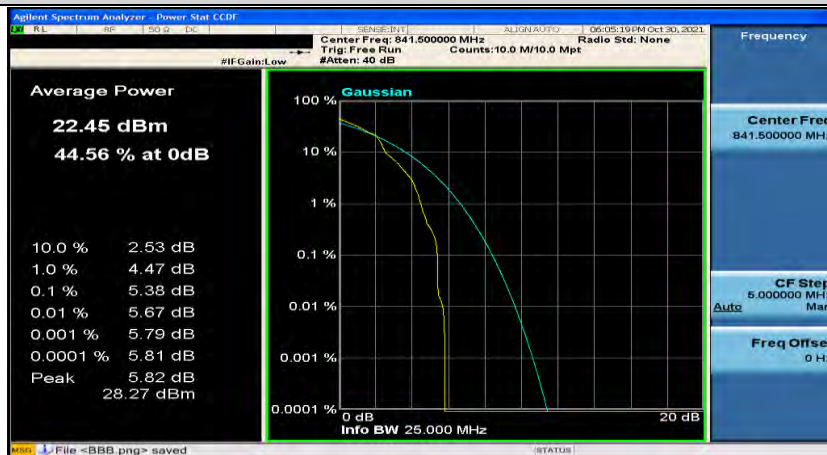
n5-15MHz-SCS 15kHz-DFT-s QPSK-166300-1RB#0



n5-15MHz-SCS 15kHz-DFT-s QPSK-167300-1RB#0



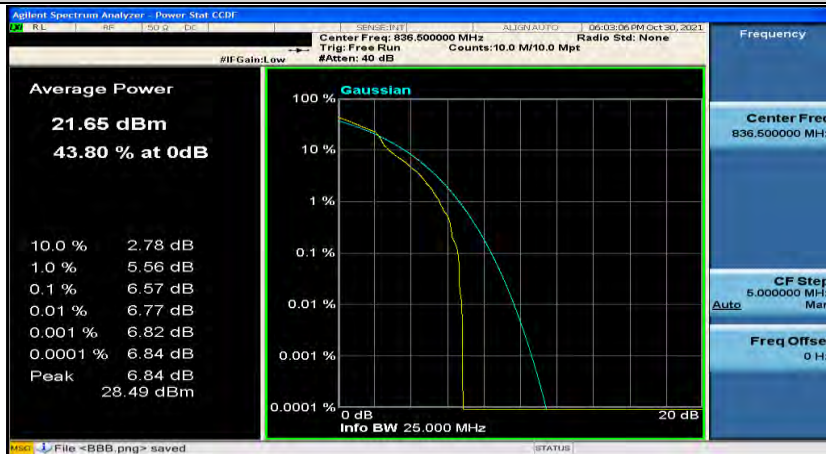
n5-15MHz-SCS 15kHz-DFT-s QPSK-168300-1RB#0



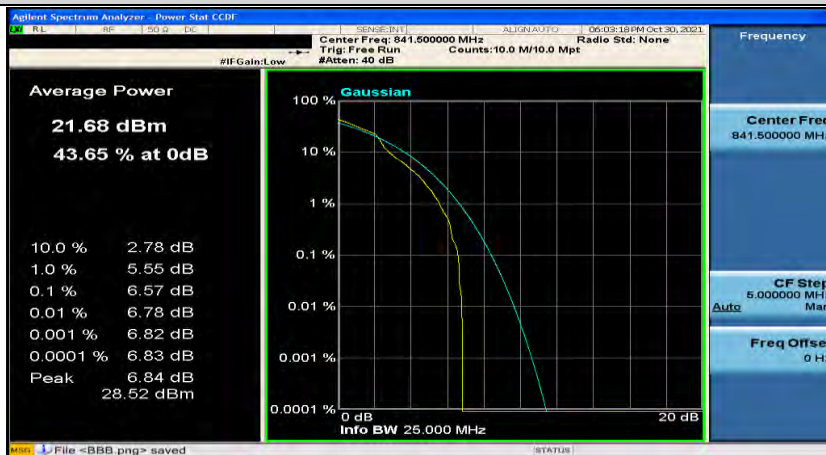
n5-15MHz-SCS 15kHz-DFT-s 16QAM-166300-1RB#0



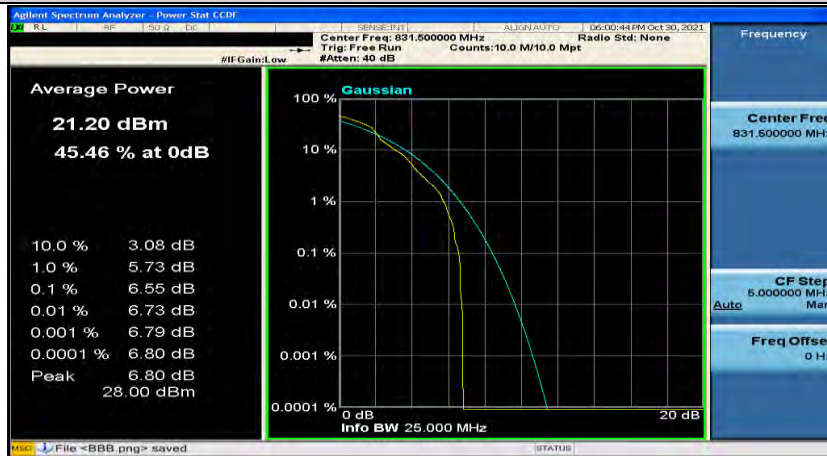
n5-15MHz-SCS 15kHz-DFT-s 16QAM-167300-1RB#0



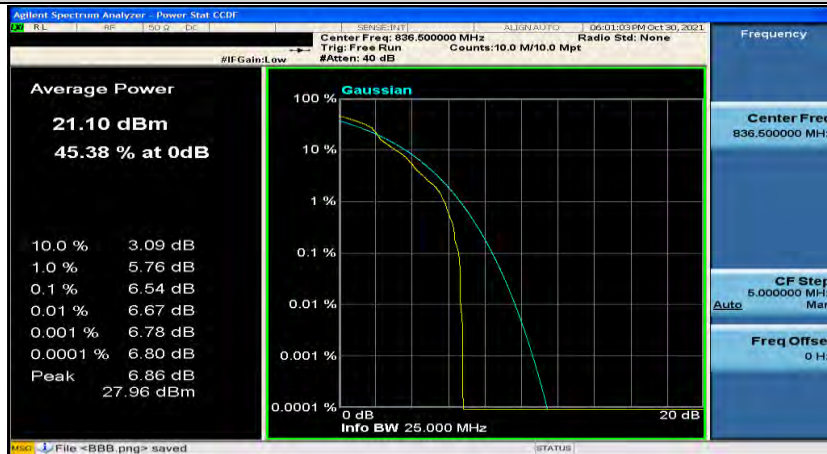
n5-15MHz-SCS 15kHz-DFT-s 16QAM-168300-1RB#0



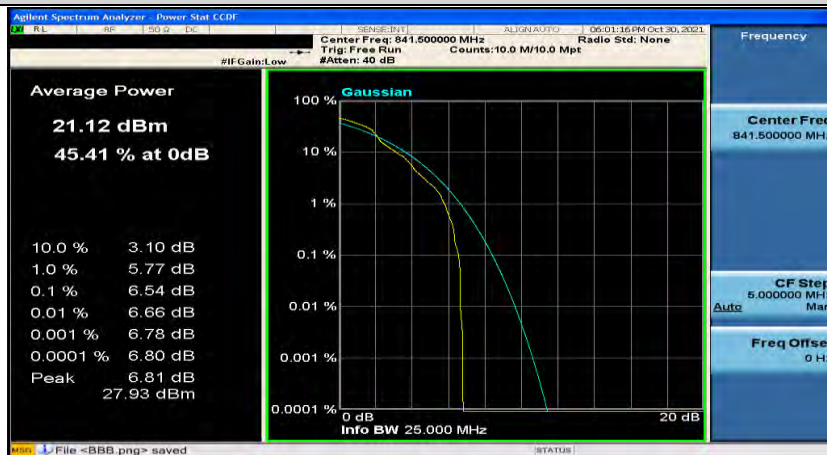
n5-15MHz-SCS 15kHz-DFT-s 64QAM-166300-1RB#0



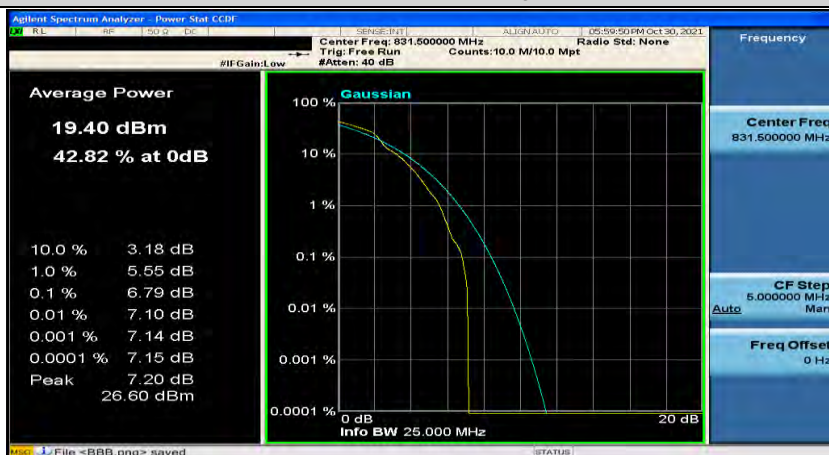
n5-15MHz-SCS 15kHz-DFT-s 64QAM-167300-1RB#0



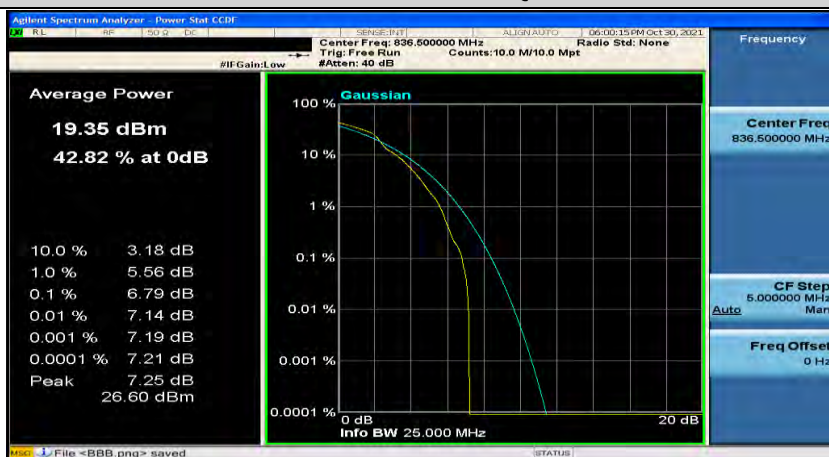
n5-15MHz-SCS 15kHz-DFT-s 64QAM-168300-1RB#0



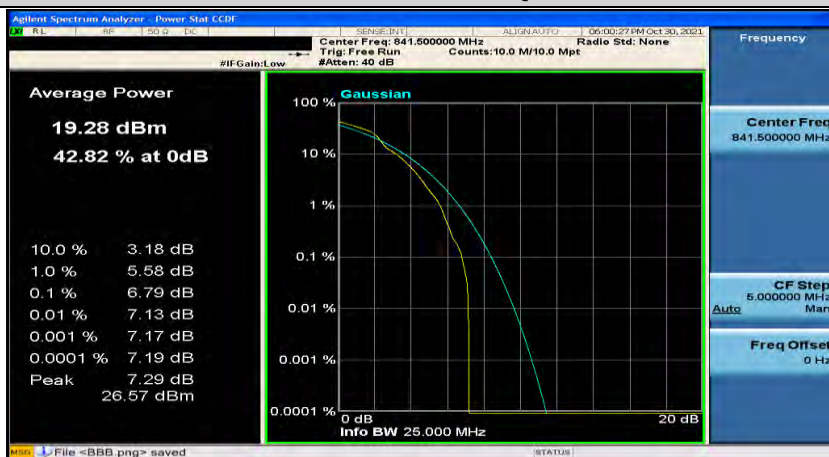
n5-15MHz-SCS 15kHz-DFT-s 256QAM-166300-1RB#0



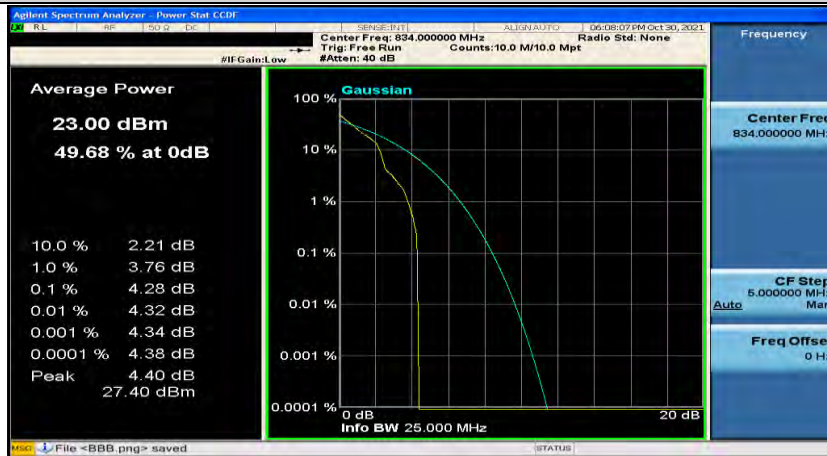
n5-15MHz-SCS 15kHz-DFT-s 256QAM-167300-1RB#0



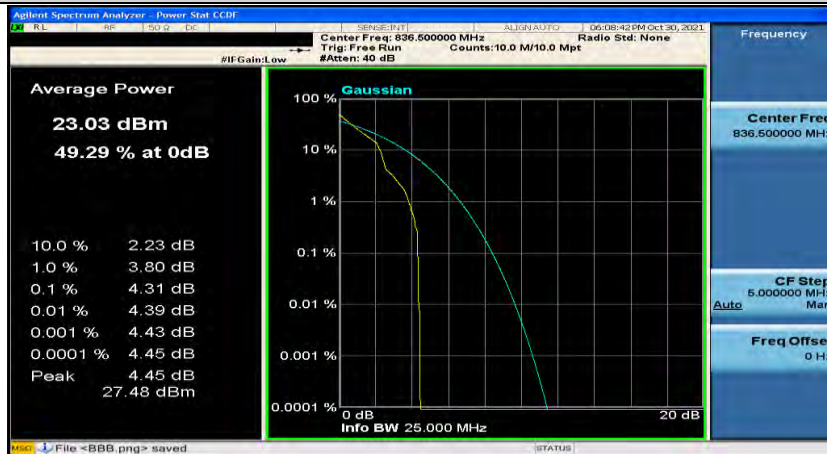
n5-15MHz-SCS 15kHz-DFT-s 256QAM-168300-1RB#0



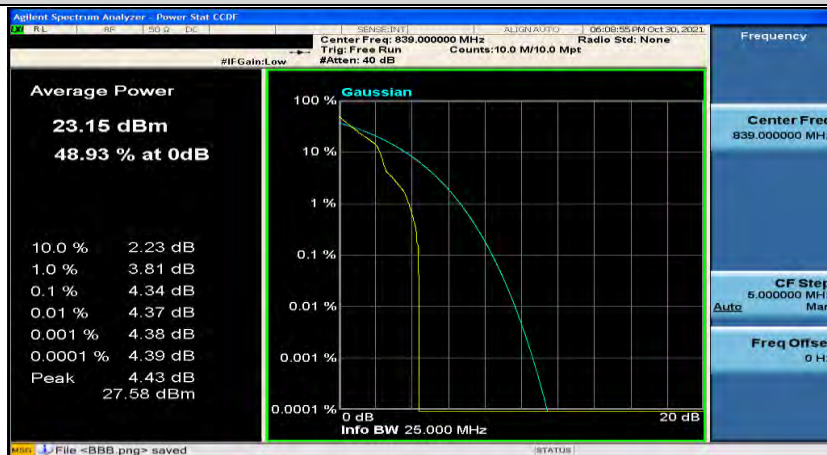
n5-20MHz-SCS 15kHz-DFT-s Pi/2 BPSK-166800-1RB#0



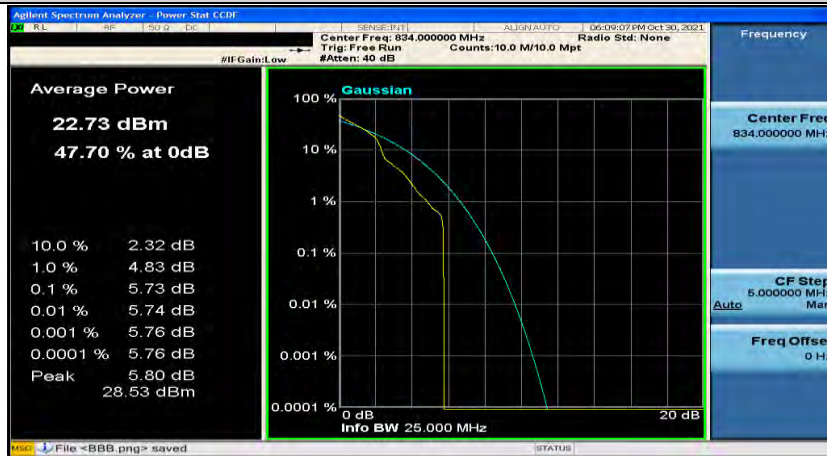
n5-20MHz-SCS 15kHz-DFT-s Pi/2 BPSK-167300-1RB#0



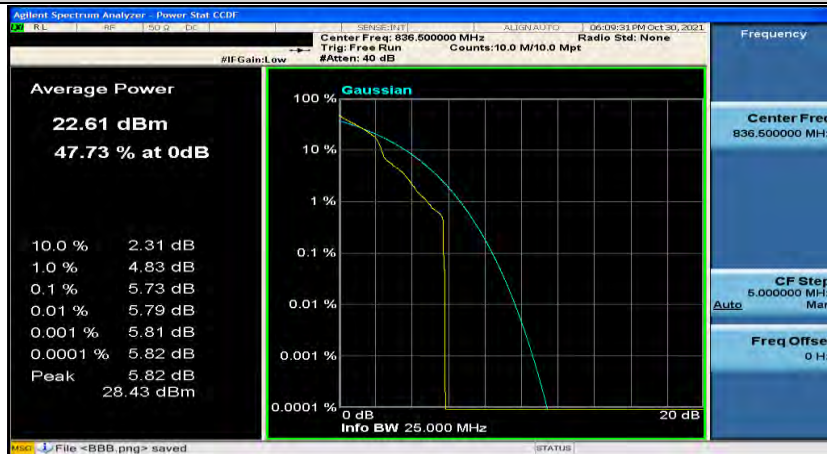
n5-20MHz-SCS 15kHz-DFT-s Pi/2 BPSK-167800-1RB#0



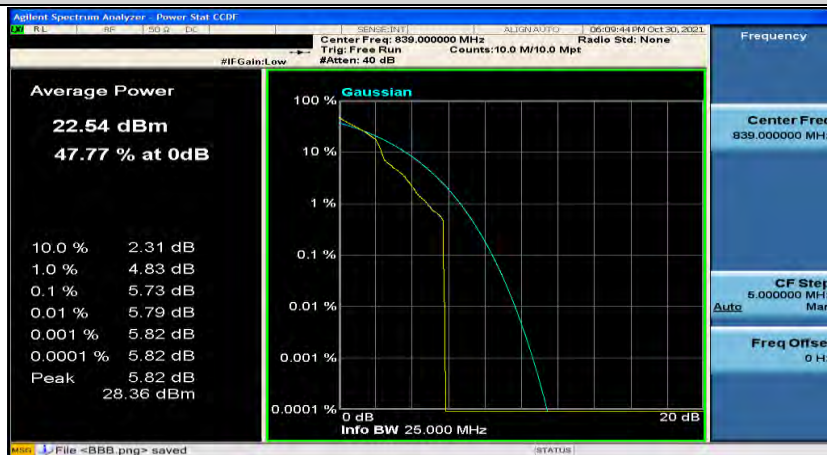
n5-20MHz-SCS 15kHz-DFT-s QPSK-166800-1RB#0



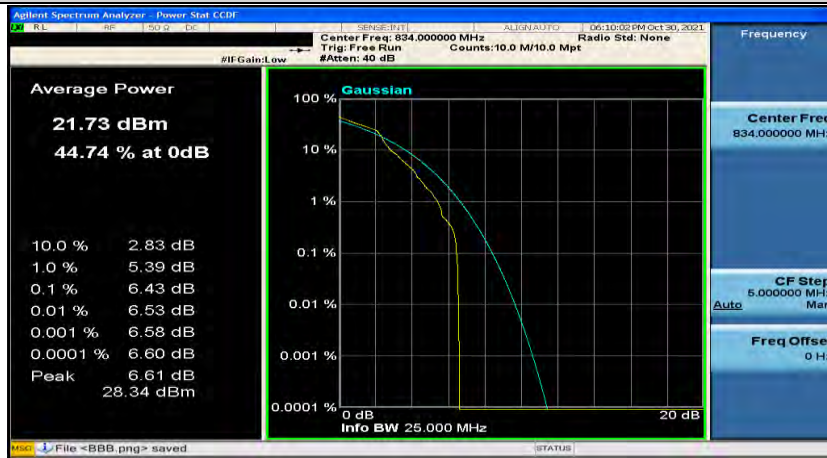
n5-20MHz-SCS 15kHz-DFT-s QPSK-167300-1RB#0



n5-20MHz-SCS 15kHz-DFT-s QPSK-167800-1RB#0



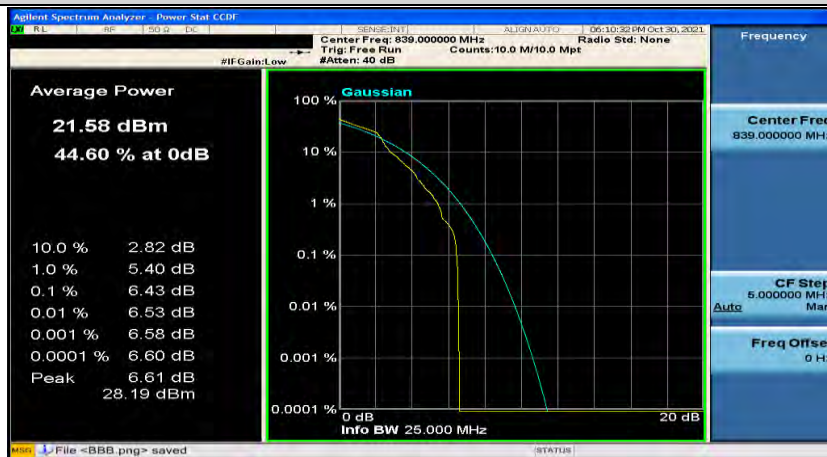
n5-20MHz-SCS 15kHz-DFT-s 16QAM-166800-1RB#0



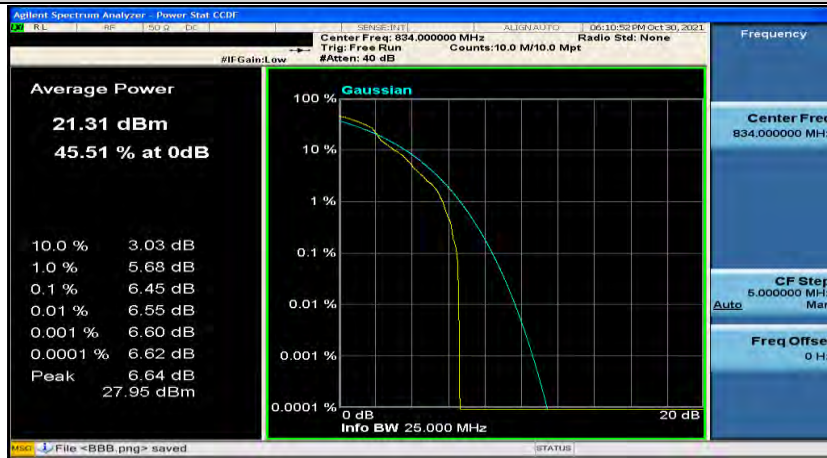
n5-20MHz-SCS 15kHz-DFT-s 16QAM-167300-1RB#0



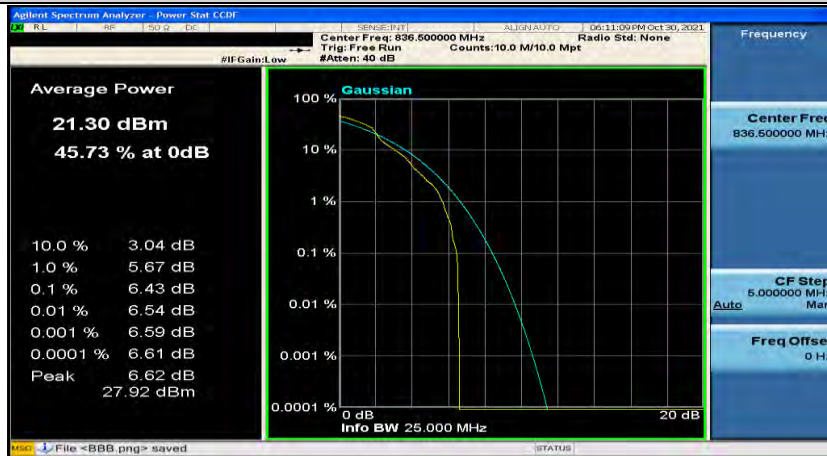
n5-20MHz-SCS 15kHz-DFT-s 16QAM-167800-1RB#0



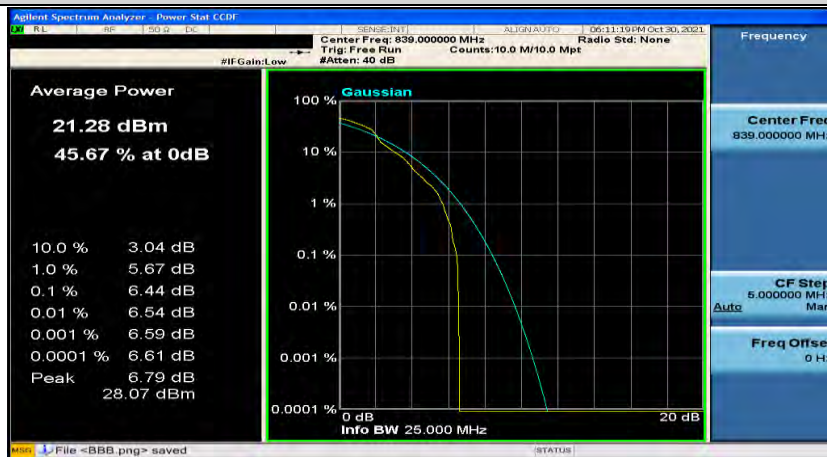
n5-20MHz-SCS 15kHz-DFT-s 64QAM-166800-1RB#0



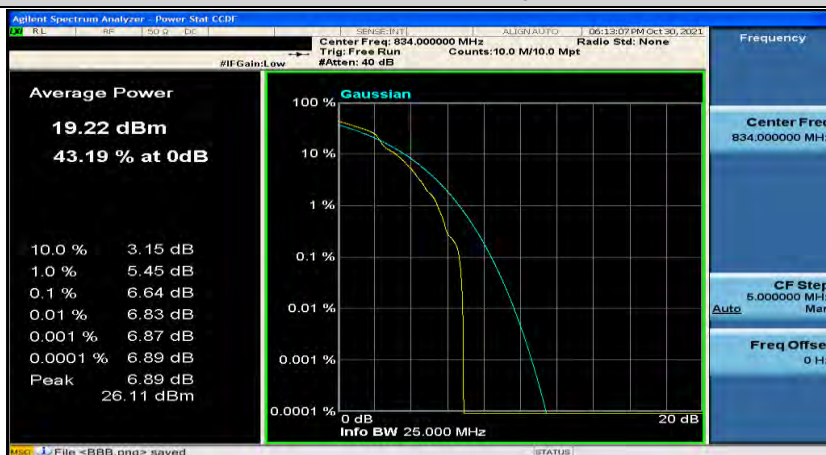
n5-20MHz-SCS 15kHz-DFT-s 64QAM-167300-1RB#0



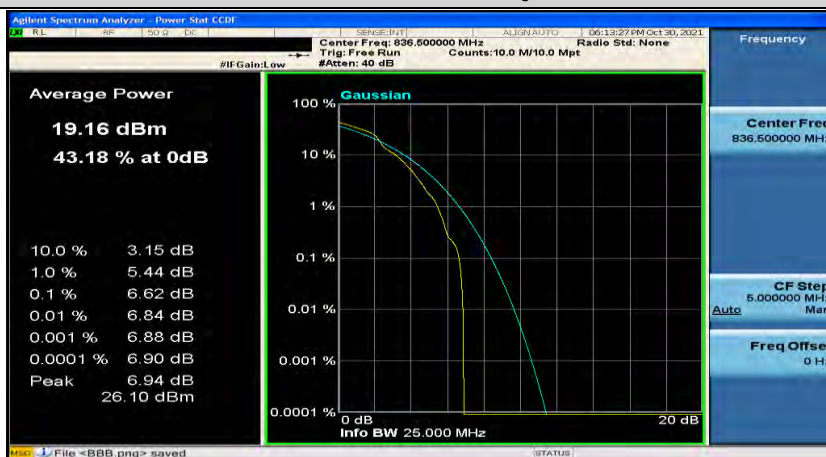
n5-20MHz-SCS 15kHz-DFT-s 64QAM-167800-1RB#0



n5-20MHz-SCS 15kHz-DFT-s 256QAM-166800-1RB#0



n5-20MHz-SCS 15kHz-DFT-s 256QAM-167300-1RB#0



n5-20MHz-SCS 15kHz-DFT-s 256QAM-167800-1RB#0

