Certificate #6613.01

FCC TEST REPORT

(PART 22)

Applicant:	u-blox AG
Address:	Zuercherstrasse 68, 8800 Thalwil, Switzerland

Manufacturer or Supplier:	u-blox AG
Address:	Zuercherstrasse 68, 8800 Thalwil, Switzerland
Product:	LENA-R8001
Brand Name:	u-blox
Model Name:	LENA-R8001
FCC ID:	XPYUBX22EL01
Date of tests:	Jun. 06, 2022 ~ Nov.17, 2022

The tests have been carried out according to the requirements of the following standard:

☒ **FCC PART 22, Subpart H** ☒ **FCC Part 2**
☒ **ANSI/TIA/EIA-603-D** ☒ **ANSI C63.26-2015**
☒ **ANSI/TIA/EIA-603-E**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Chao Wu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
Chao Wu Date: Nov.17, 2022	Sun Peibo Date: Nov.17, 2022

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2204290110RF01	Original release	Nov.17, 2022

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**Test lab***
§2.1046	Conducted Output Power	Compliance	B
§22.913 (a)(5)	Effective Radiated Power	Compliance	B
§2.1055 §22.355	Frequency Stability	Compliance	B
§2.1049	Occupied Bandwidth	Compliance	B
§22.913 (d)	Peak to average ratio*	Compliance	B
§22.917(a)	Band Edge Measurements	Compliance	B
§2.1051 §22.917(a)	Conducted Spurious Emissions	Compliance	B
§2.1053 §22.917(a)	Radiated Spurious Emissions	Compliance	A

* Refer to KDB 971168 D01 Power Meas License Digital Systems v03r01.

***Test Lab Information Reference**

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

Lab B:

BV 7Layers Communications Technology (Shenzhen) Co. Ltd

Lab Address:

No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China

Accredited Test Lab Cert 3939.01

The FCC Site Registration No. is 525120; The Designation No. is CN1171.

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
Maximum Peak Output Power	±2.06dB
Frequency Stability	±76.97Hz
Radiated emissions (30MHz~1GMHz)	±4.98dB
Radiated emissions (1GMHz ~6GMHz)	±4.70dB
Radiated emissions (6GMHz ~18GMHz)	±4.60dB
Radiated emissions (18GMHz ~40GMHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Band Edge Measurements	±4.70dB
Peak to average ratio	±0.76dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 18,22	Feb. 17,23
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,22	May.14,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.05,21	Sep.04,22
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.04,22	Sep.03,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 06,22	Mar. 05,23
Horn Antenna	ETS-LINDGREN	3117	00168692	Mar. 06,22	Mar. 05,23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 24, 22	Aug. 23, 23
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 15,22	Feb. 14,23
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 21,22	Feb.20,23
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120	3.1.36	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	May. 07,22	May. 06,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 22,22	Feb. 21,23
Power Sensor	Anritsu	MA2411B	1339352	May. 07,22	May. 06,23
Temperature Chamber	ESPEC	SH-242	93000855	May. 12,22	May. 11,23
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 18,22	Feb. 17,23
Base station R&S CMW500	Rohde&Schwarz	CMW500	153085	May.12,22	May.11,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 25,21	Aug. 24,22
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,22	Aug. 23,23

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date
Pre-Amplifier	R&S	SCU18F1	100815	Sep.21.20	Sep.20.22
Pre-Amplifier	R&S	SCU18F1	100815	Sep.20.22	Sep.19.23
Pre-Amplifier	R&S	SCU08F1	101110	Dec.13.21	Dec.12.23
Signal Generator	R&S	SMB100A	182185	Dec.13.21	Dec.12.23
3m Semi-anechoic Chamber	TDK	9m*6m*6m	N/A	Nov.13.20	Nov.12.22
3m Semi-anechoic Chamber	TDK	9m*6m*6m	N/A	Nov.12.22	Nov.11.23
EMI TEST Receiver	R&S	ESW44	101973	Feb.25.22	Feb.24.23
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28.22	Feb.27.23
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.23.21	Aug.22.22
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22.22	Aug.21.23
Biconical Antenna	SCHWARZ	VUBA 9117	69250	Nov.15.20	Nov.14.22
Biconical Antenna	SCHWARZ	VUBA 9117	69250	Nov.14.22	Nov.13.23
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23.22	Feb.22.23
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	N/A	N/A
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	N/A	N/A
Horn Antenna	SCHWARZ	BBHA 9120D	2341	Jul.30.20	Jul.29.22
Horn Antenna	SCHWARZ	BBHA 9120D	2341	Jul.29.22	Jul.28.23
Horn Antenna	SCHWARZ	BBHA 9170	1025	Jul.30.20	Jul.29.22
Horn Antenna	SCHWARZ	BBHA 9170	1025	Jul.29.22	Jul.28.23
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.28.21	Jun.27.22
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27.22	Jun.26.23
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
OSP	R&S	OSP-B157W8	100836	Sep.25.21	Sep.24.22
OSP	R&S	OSP-B157W8	100836	Sep.24.22	Sep.23.23
Switch Unit	R&S	OSP-B155G	101967	Oct.02.21	Oct.01.23
Open Switch and Control Unit	R&S	OSP220	101964	Oct.02.21	Oct.01.22
Open Switch and Control Unit	R&S	OSP220	101964	Oct.01.22	Sep.30.23
DC Source	AMETEK	ACS 500N6	P2028242390	Jul.31.21	Jul.30.22
DC Source	AMETEK	ACS 500N6	P2028242390	Jul.30.22	Jul.29.23
Hygrothermograph	DELI	20210528	SZ014	N/A	N/A
PC	LENOVO	E14	HRSW0024	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months or 24 months or 36months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	LENA-R8001	
BRAND NAME	u-blox	
MODEL NAME	LENA-R8001	
NOMINAL VOLTAGE	EUT 3.8V	
MODULATION TYPE	**GSM/GPRS**	GMSK
	LTE	QPSK, 16QAM
FREQUENCY RANGE	**GSM/GPRS**	824.2MHz ~ 848.8MHz
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
MAX. ERP POWER	**GSM/GPRS**	755.09mW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	86.30mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	90.99mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	85.11mW
	LTE Band 5 (Channel Bandwidth: 10MHz)	73.62mW
EMISSION DESIGNATORGOGN	**GSM/GPRS**	239KGXW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	QPSK: 1M09G7D
		16QAM: 1M09W7D
	LTE Band 5 (Channel Bandwidth: 3MHz)	QPSK: 2M68G7D
		16QAM: 2M68W7D
	LTE Band 5 (Channel Bandwidth: 5MHz)	QPSK: 4M48G7D
		16QAM: 4M48W7D
	LTE Band 5 (Channel Bandwidth: 10MHz)	QPSK: 8M94G7D
		16QAM: 4M93W7D
ANTENNA TYPE	Fixed External Antenna with -1.53dBi gain for GSM850/LTE B5	
HW VERSION	UBX-R80A00	
SW VERSION	02.00	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	

EXTREME TEMPERATURE	-20-65 ℃
EXTREME VOLTAGE	EUT 3.4V - EUT 4.2V

NOTE:

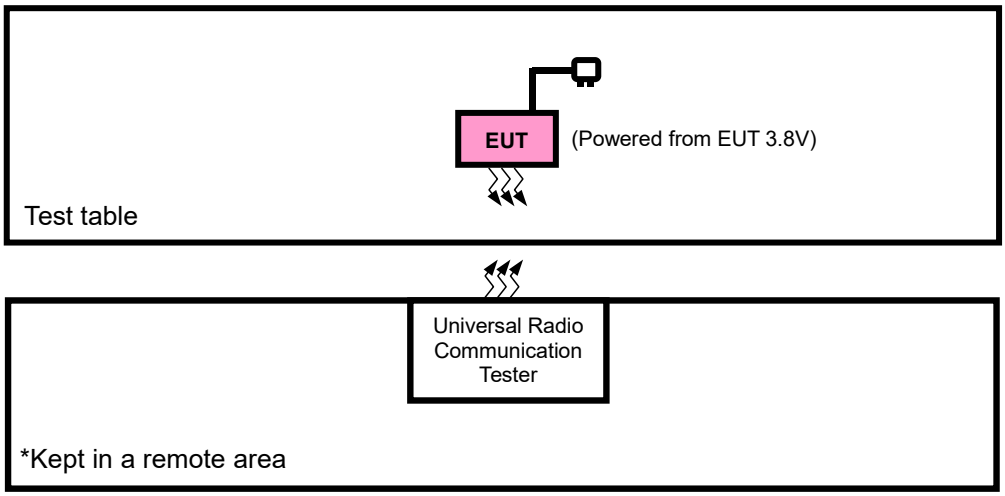
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
GSM/GPRS	1TX/1RX
LTE	1TX/1RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION



2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Adapter	N/A	N/A	N/A	N/A
2	Earphone	N/A	N/A	N/A	N/A
3	DC source	Kikusui/JP	PMX18-5A	0000001	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

2.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports The worst case in ERP and radiated emission was found when positioned on X-plane for GSM / LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with GSM or LTE link
B	EUT + DC source with GSM or LTE link

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	ERP	128 to 251	128, 190, 251	GSM
B	FREQUENCY STABILITY	128 to 251	128, 190, 251	GSM
A	OCCUPIED BANDWIDTH	128 to 251	128, 190, 251	GSM
A	BAND EDGE	128 to 251	128, 251	GSM
A	CONDCUDETED EMISSION	128 to 251	128, 190, 251	GSM
A	RADIATED EMISSION	128 to 251	128, 190, 251	GSM
A	PEAK TO AVERAGE RATIO	128 to 251	128, 190, 251	GSM

LTE BAND 5 MODE

EUT CONFIGURE MODE	TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
A	ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	Full RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	Full RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	Full RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	Full RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	Full RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	Full RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	Full RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	Full RB / 0 RB Offset
A	BAND EDGE	20407 to 20643	20407	1.4 MHz	QPSK,16QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20407 to 20643	20643	1.4 MHz	QPSK,16QAM	1 RB / 5 RB Offset
						Full RB / 0 RB Offset
		20415 to 20635	20415	3 MHz	QPSK,16QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20415 to 20635	20635	3 MHz	QPSK,16QAM	1 RB / 14 RB Offset
						Full RB / 0 RB Offset
		20425 to 20625	20425	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20425 to 20625	20625	5MHz	QPSK,16QAM	1 RB / 24 RB Offset
						Full RB / 0 RB Offset
		20450 to 20600	20450	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20450 to 20600	20600	10MHz	QPSK,16QAM	1 RB / 49 RB Offset
						Full RB / 0 RB Offset

A	CONDCUDETED EMISSION	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	20407 to 20643	20525	1.4MHz	QPSK	1 RB / 0 RB Offset
		20415 to 20635	20525	3MHz	QPSK	1 RB / 0 RB Offset
		20425 to 20625	20425,20525, 20625	5MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20525	10MHz	QPSK	1 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	EUT 3.8V	Walker Ye
FREQUENCY STABILITY	23deg. C, 70%RH	EUT 3.8V	Walker Ye
OCCUPIED BANDWIDTH	23deg. C, 70%RH	EUT 3.8V	Walker Ye
BAND EDGE	23deg. C, 70%RH	EUT 3.8V	Walker Ye
CONDCUDETED EMISSION	23deg. C, 70%RH	EUT 3.8V	Walker Ye
RADIATED EMISSION	23deg. C, 70%RH	EUT 3.8V	Chao Wu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	EUT 3.8V	Walker Ye

2.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 22

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

NOTE: All test items have been performed and recorded as per the above standards.

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile / Portable station are limited to 7 watts e.r.p.

3.1.2 TEST PROCEDURES

EIRP / ERP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determing the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

ERP or EIRP = $P_{Meas} + G_T – L_C$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

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

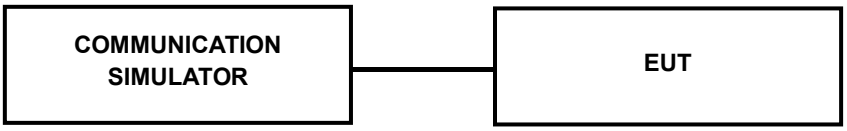
CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with GSM/LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GSM850			Max. Tune-up Power
Channel	128	190	251	
Frequency	824.2	836.6	848.8	
GSM (GMSK, 1Tx-slot)	32.42	32.35	32.43	33.0
GPRS (GMSK, 1Tx-slot)	**32.46**	32.39	32.45	33.0
GPRS (GMSK, 2Tx-slot)	30.00	30.52	30.52	31.0
GPRS (GMSK, 3Tx-slot)	27.98	28.53	28.47	29.0
GPRS (GMSK, 4Tx-slot)	25.79	26.34	26.24	26.5

LTE Band 5

Band/BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643	MPR
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz	
5/ 1.4	QPSK	1	0	21.91	22.43	21.79	0
		1	2	22.49	22.88	22.12	0
		1	5	21.95	22.46	21.69	0
		3	0	22.00	22.78	22.15	0
		3	1	21.99	22.78	22.13	0
		3	3	21.98	22.78	22.12	0
		6	0	21.30	21.87	21.10	1
	16QAM	1	0	21.91	22.53	21.77	1
		1	2	22.56	23.04	22.27	1
		1	5	22.03	22.51	21.78	1
		3	0	21.87	22.65	22.01	1
		3	1	21.88	22.66	21.99	1
		3	3	21.87	22.64	21.98	1
		6	0	21.33	21.74	21.15	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20415	Mid CH 20525	High CH 20635	MPR
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz	
5/ 3	QPSK	1	0	21.77	22.30	22.12	0
		1	7	22.95	23.23	22.56	0
		1	14	22.15	22.39	21.61	0
		8	0	21.54	21.98	21.47	1
		8	3	21.54	22.00	21.47	1
		8	7	21.56	22.00	21.47	1
		15	0	21.59	21.93	21.39	1
	16QAM	1	0	22.00	22.43	22.19	1
		1	7	23.06	23.27	22.67	1
		1	14	22.34	22.45	21.75	1
		8	0	21.60	21.97	21.51	2
		8	3	21.60	21.98	21.52	2
		8	7	21.60	21.97	21.51	2
		15	0	21.60	21.84	21.41	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20425	Mid CH 20525	High CH 20625	MPR
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz	
5/ 5	QPSK	1	0	21.81	22.54	22.55	0
		1	12	22.62	22.77	22.33	0
		1	24	22.68	22.88	21.86	0
		12	0	21.17	21.44	21.44	1
		12	6	21.18	21.46	21.45	1
		12	13	21.18	21.46	21.46	1
		25	0	21.74	21.85	21.43	1
	16QAM	1	0	21.87	22.65	22.50	1
		1	12	22.54	22.88	22.29	1
		1	24	22.57	22.98	21.78	1
		12	0	21.14	21.48	21.43	2
		12	6	21.17	21.48	21.41	2
		12	13	21.16	21.49	21.43	2
		25	0	21.62	21.80	21.43	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20450	Mid CH 20525	High CH 20600	MPR
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz	
5/ 10	QPSK	1	0	21.52	21.94	20.93	0
		1	24	21.85	**22.20**	21.68	0
		1	49	20.98	22.05	20.77	0
		25	0	20.72	20.99	20.32	1
		25	12	20.92	20.91	20.17	1
		25	25	20.28	21.32	20.44	1
		50	0	20.87	21.06	20.69	1
	16QAM	1	0	21.75	22.10	21.13	1
		1	24	22.07	22.35	21.89	1
		1	49	21.21	22.24	20.99	1
		12	0	21.44	21.87	21.30	2
		12	18	21.80	21.80	21.13	2
		12	37	21.24	22.04	21.23	2
		27	0	20.73	20.96	20.31	2

ERP POWER (dBm)

GSM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	32.46	-1.53	28.78	755.09	7
190	836.6	32.39	-1.53	28.71	743.02	7
251	848.8	32.45	-1.53	28.77	753.36	7

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

LTE BAND 5
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.49	-1.53	18.81	76.03	7
20525	836.5	22.88	-1.53	19.20	83.18	7
20643	848.3	22.15	-1.53	18.47	70.31	7

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.56	-1.53	18.88	77.27	7
20525	836.5	23.04	-1.53	19.36	86.30	7
20643	848.3	22.27	-1.53	18.59	72.28	7

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	22.95	-1.53	19.27	84.53	7
20525	836.5	23.23	-1.53	19.55	90.16	7
20635	847.5	22.56	-1.53	18.88	77.27	7

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	23.06	-1.53	19.38	86.70	7
20525	836.5	23.27	-1.53	19.59	90.99	7
20635	847.5	22.67	-1.53	18.99	79.25	7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.68	-1.53	19.00	79.43	7
20525	836.5	22.88	-1.53	19.20	83.18	7
20625	846.5	22.55	-1.53	18.87	77.09	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.57	-1.53	18.89	77.45	7
20525	836.5	22.98	-1.53	19.30	85.11	7
20625	846.5	22.5	-1.53	18.82	76.21	7

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	21.85	-1.53	18.17	65.61	7
20525	836.5	22.2	-1.53	18.52	71.12	7
20600	844.0	21.68	-1.53	18.00	63.10	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	22.07	-1.53	18.39	69.02	7
20525	836.5	22.35	-1.53	18.67	73.62	7
20600	844.0	21.89	-1.53	18.21	66.22	7

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

3.2.2 TEST PROCEDURE

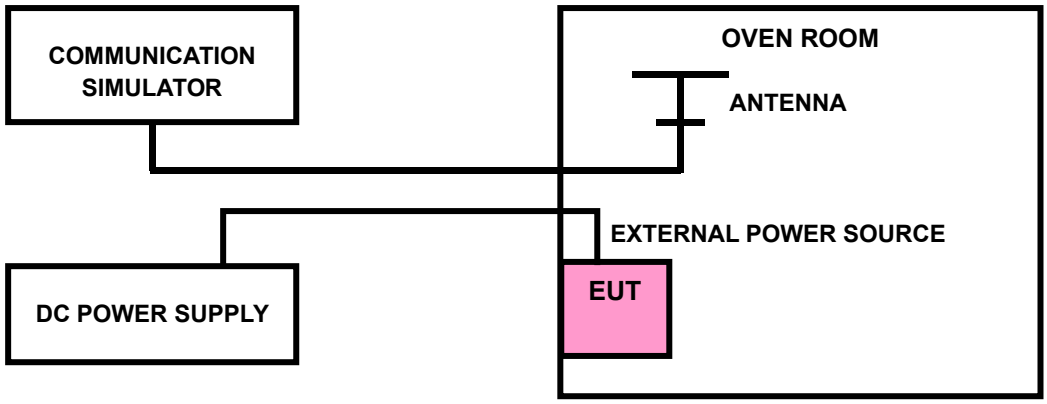
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

3.2.3 TEST SETUP



3.2.4 TEST RESULTS

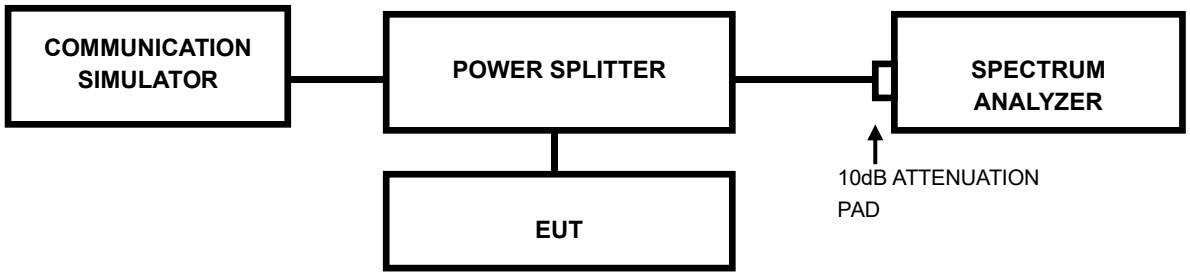
Please Refer to Appendix A Of this test report.

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. 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.

3.3.2 TEST SETUP



3.3.3 TEST RESULTS

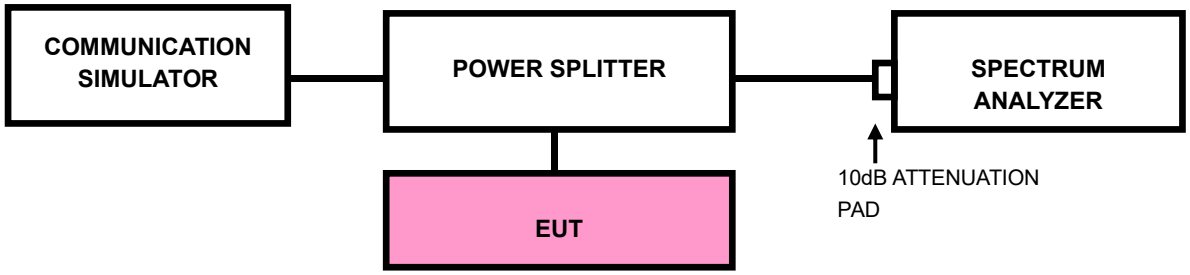
Please Refer to Appendix A Of this test report.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

a. All measurements were done at low and high operational frequency range.

b. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (GSM/GPRS/ EDGE/LTE bandwidth for (1.4M/3M/5M/10M/15M/20M)1RB/0RB&1RB/MAXRB).

c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).

d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is ⩾1%*EBW kHz and VBW of the spectrum is 3*RBW kHz. (LTE bandwidth 1.4M/3M/5M/10M/15M/20MHz).

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

3.4.4 TEST RESULTS

Please Refer to Appendix A Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

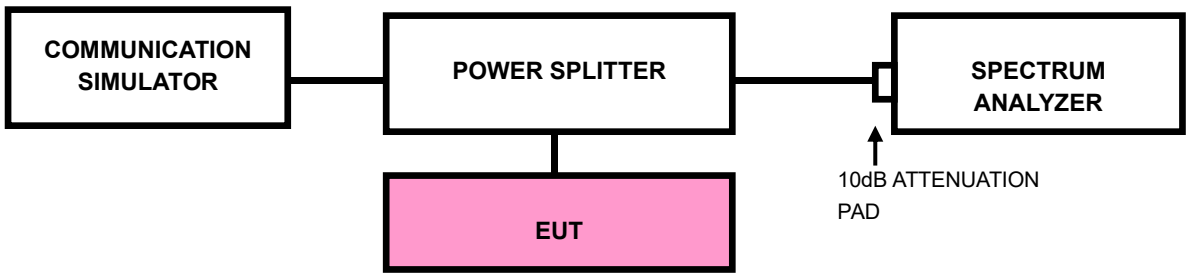
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

3.5.2 TEST PROCEDURE

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

b. Measuring frequency range is from 9kHz up to a frequency including its 10^{th} harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

NOTE ： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Please Refer to Appendix A Of this test report.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

3.6.2 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m 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 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

b. The substitution horn antenna 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

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

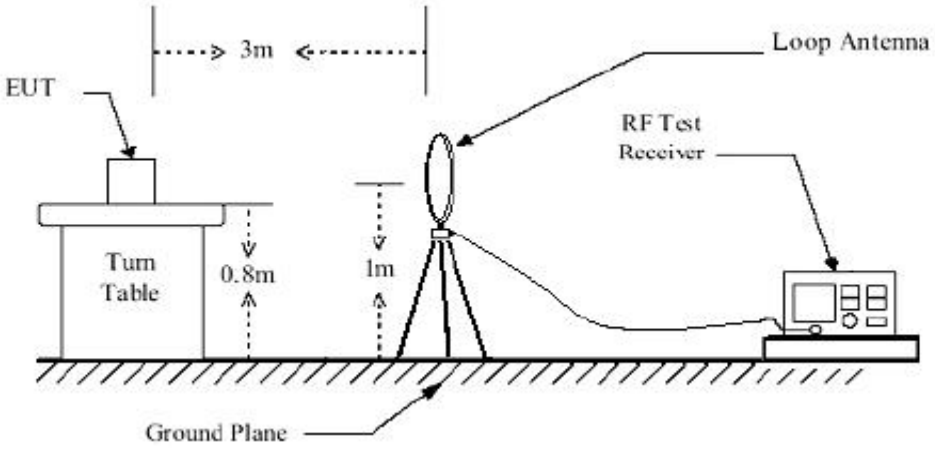
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

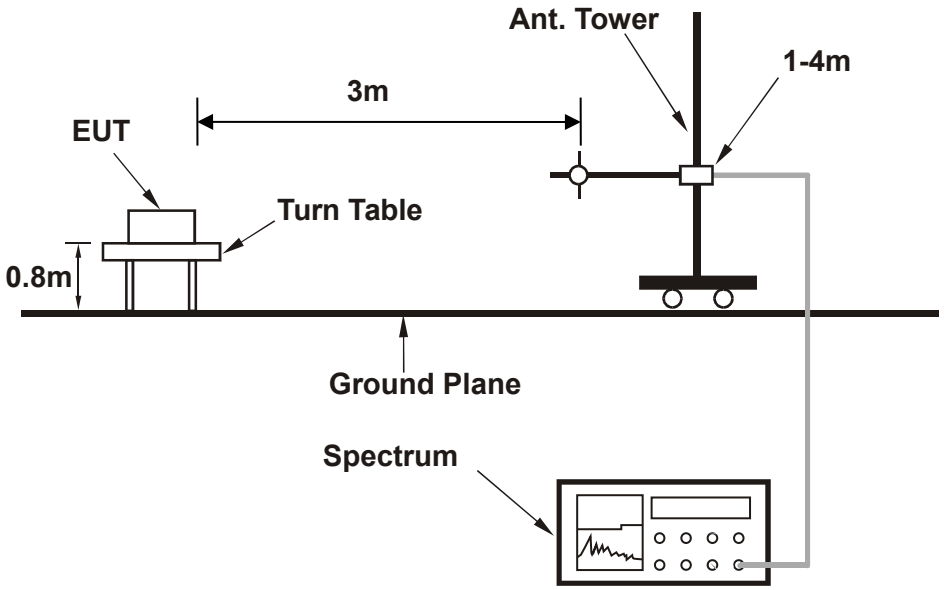
No deviation

3.6.4 TEST SETUP

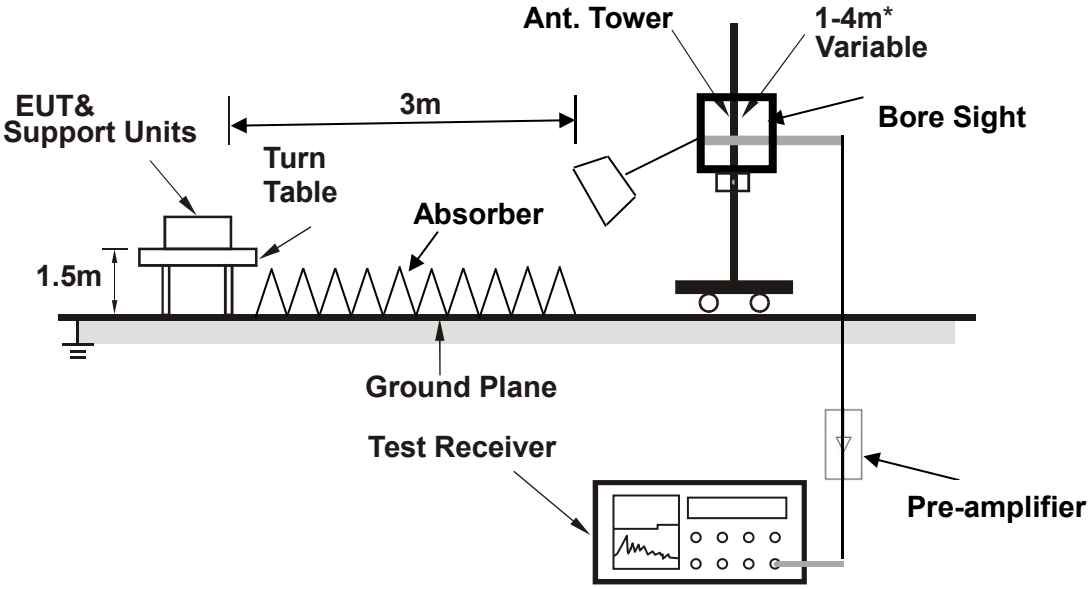
< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.6.5 TEST RESULTS

NOTE： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

BELOW 1GHz WORST-CASE DATA

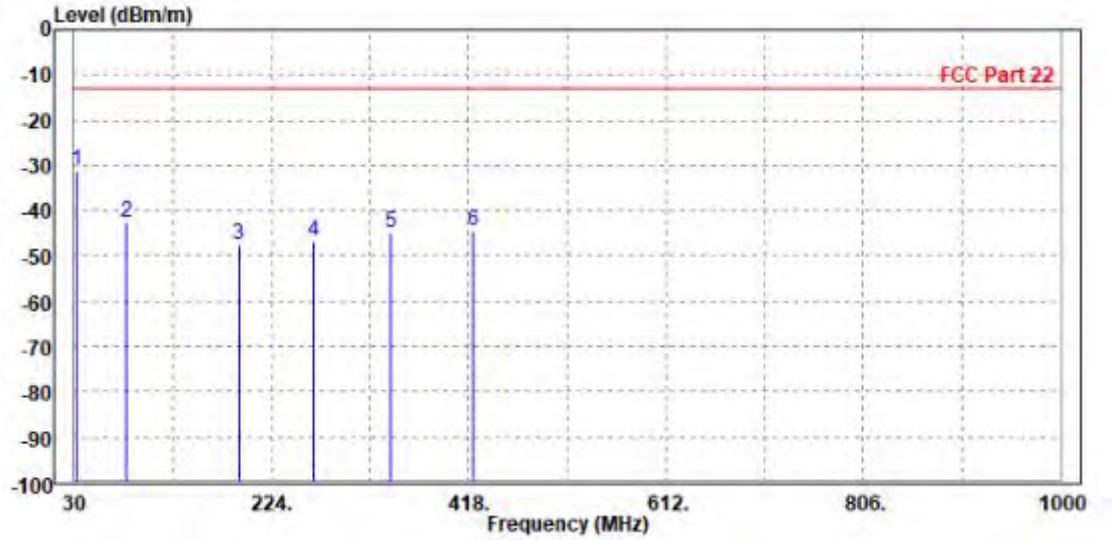
30 MHz – 1GHz data:

GSM 850

CHANNEL BANDWIDTH: 128 ~ 251

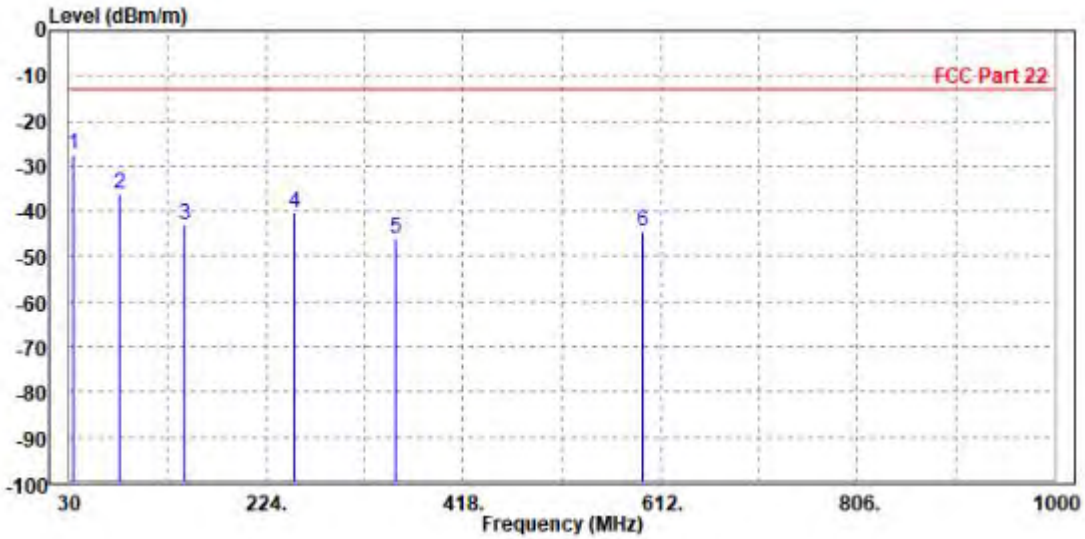
MODE	TX channel 128	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	32.910	-31.01	-50.49	-13.00	-18.01	19.48	Peak	Horizontal
2	81.410	-42.54	-50.41	-13.00	-29.54	7.87	Peak	Horizontal
3	191.990	-47.61	-58.95	-13.00	-34.61	11.34	Peak	Horizontal
4	265.710	-46.90	-60.56	-13.00	-33.90	13.66	Peak	Horizontal
5	341.370	-45.05	-59.96	-13.00	-32.05	14.91	Peak	Horizontal
6	422.850	-44.56	-61.19	-13.00	-31.56	16.63	Peak	Horizontal



MODE	TX channel 128	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	33.880	-27.47	-45.83	-13.00	-14.47	18.36	Peak	Vertical
2	80.440	-35.98	-43.62	-13.00	-22.98	7.64	Peak	Vertical
3	143.490	-43.00	-52.46	-13.00	-30.00	9.46	Peak	Vertical
4	251.160	-40.30	-52.93	-13.00	-27.30	12.63	Peak	Vertical
5	351.070	-46.05	-61.22	-13.00	-33.05	15.17	Peak	Vertical
6	594.540	-44.35	-63.84	-13.00	-31.35	19.49	Peak	Vertical



ABOVE 1GHz DATA

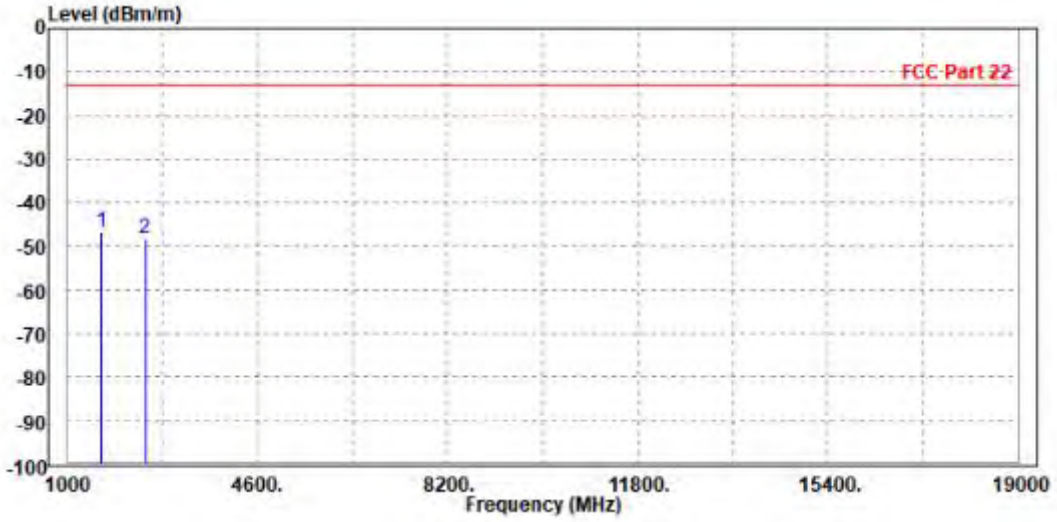
Note: For higher frequency, the emission is too low to be detected.

GSM 850

CH 128:

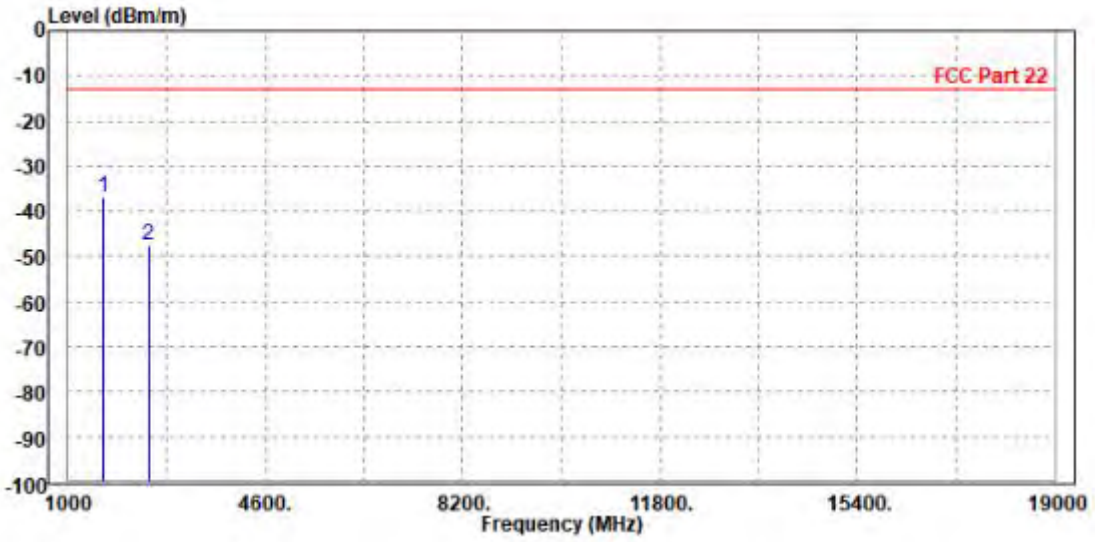
MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1648.000	-46.73	-49.98	-13.00	-33.73	3.25	Peak	Horizontal
2	2472.600	-48.17	-56.19	-13.00	-35.17	8.02	Peak	Horizontal



MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

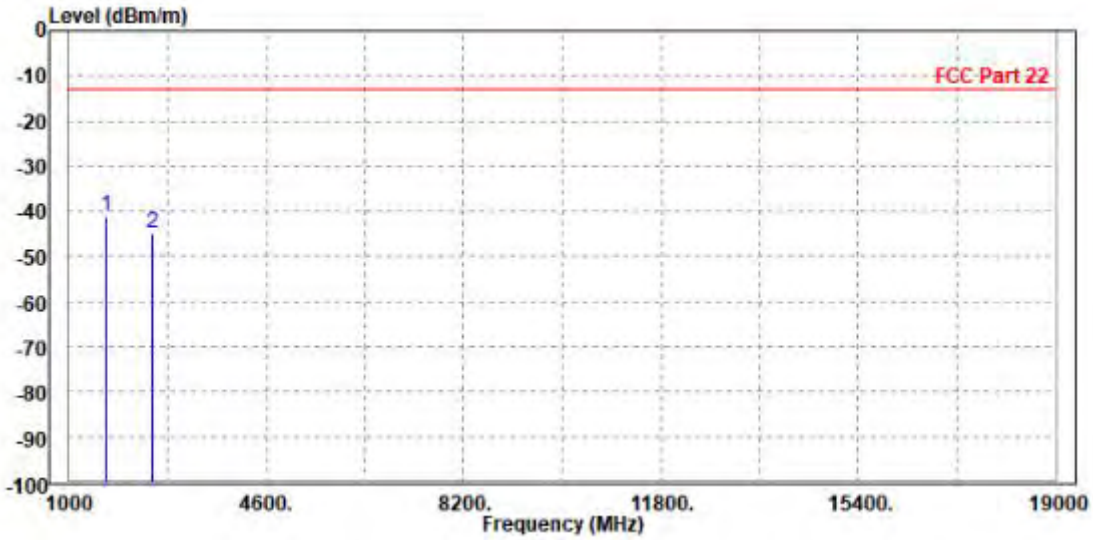
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1648.000	-36.69	-40.07	-13.00	-23.69	3.38	Peak	Vertical
2	2472.600	-47.56	-54.60	-13.00	-34.56	7.04	Peak	Vertical



CH 190:

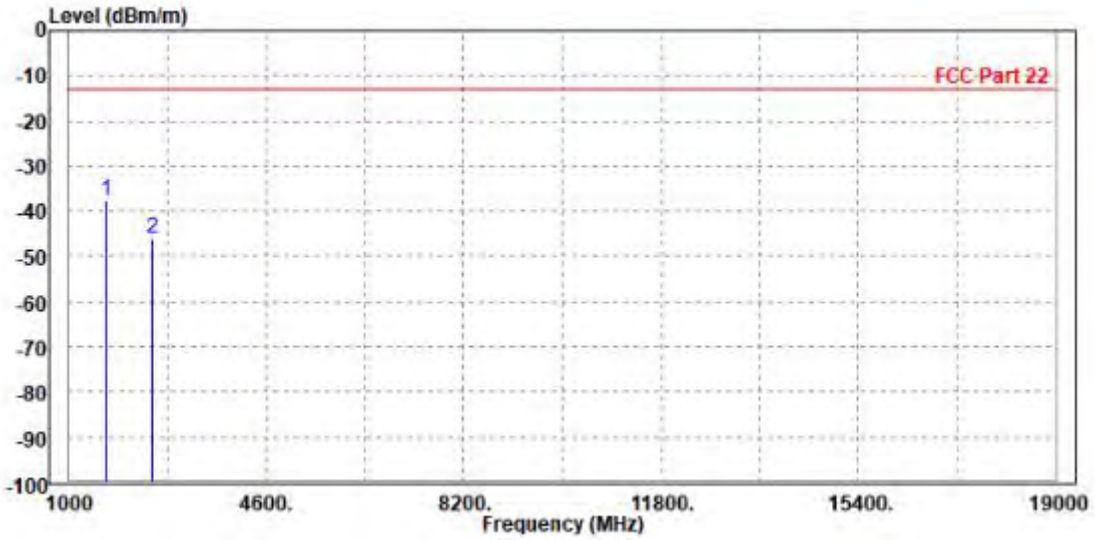
MODE	TX channel 190	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1666.000	-40.99	-44.46	-13.00	-27.99	3.47	Peak	Horizontal
2	2509.200	-45.04	-53.10	-13.00	-32.04	8.06	Peak	Horizontal



MODE	TX channel 190	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

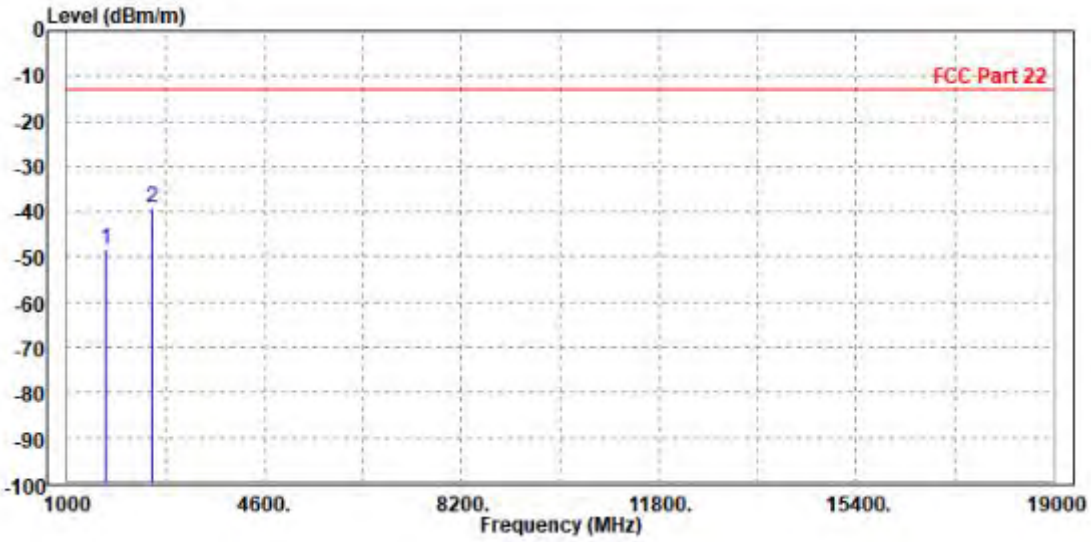
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1666.000	-37.60	-41.14	-13.00	-24.60	3.54	Peak	Vertical
2	2509.200	-46.05	-53.15	-13.00	-33.05	7.10	Peak	Vertical



CH 251:

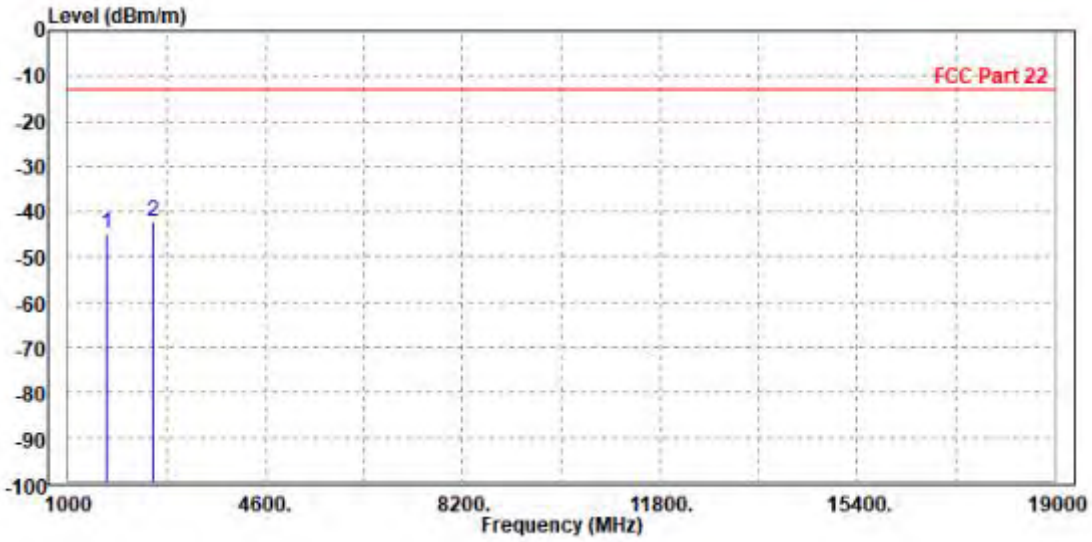
MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1702.000	-48.17	-52.08	-13.00	-35.17	3.91	Peak	Horizontal
2 PP	2546.400	-39.04	-47.15	-13.00	-26.04	8.11	Peak	Horizontal



MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1702.000	-45.04	-48.91	-13.00	-32.04	3.87	Peak	Vertical
2 PP	2546.400	-42.08	-49.30	-13.00	-29.08	7.22	Peak	Vertical

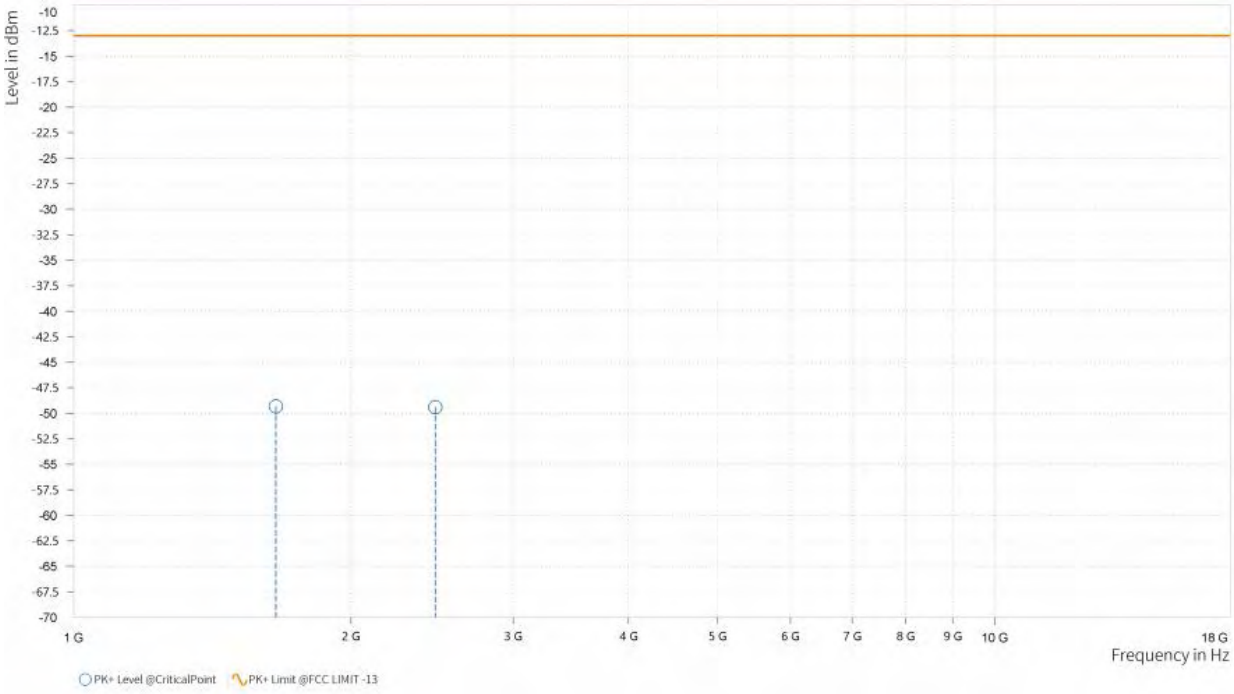


LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK

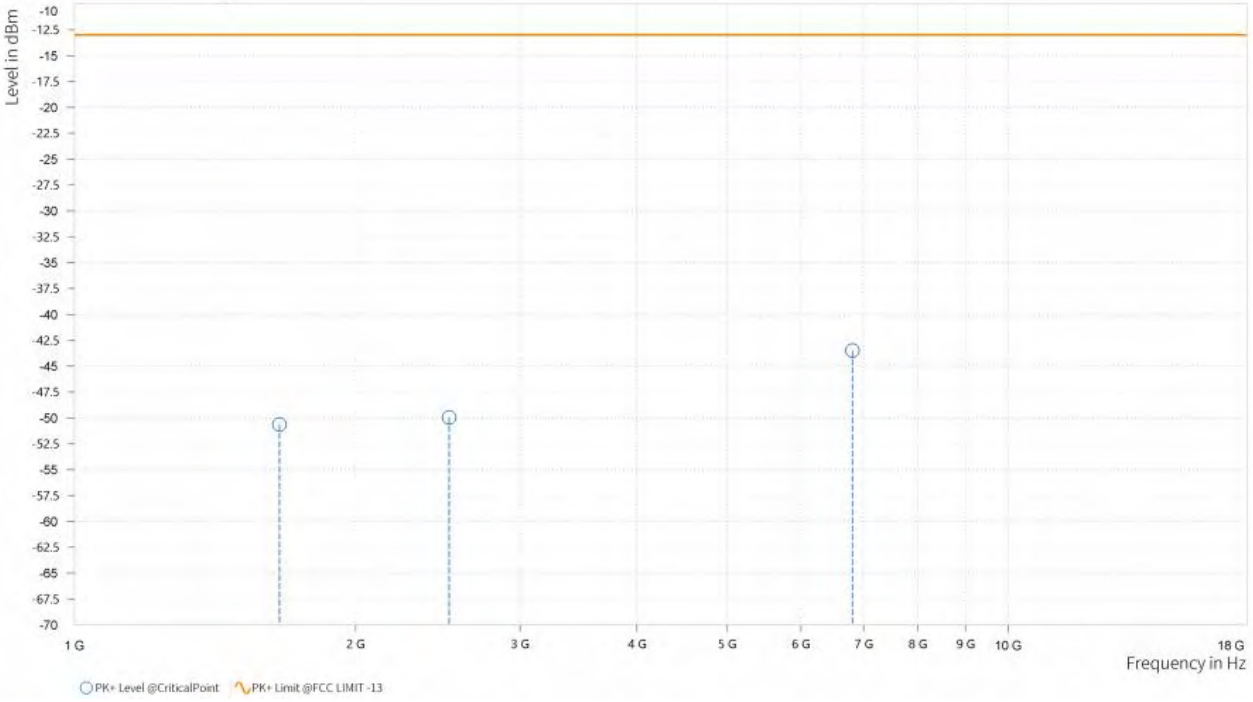
MODE	TX channel 20525	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,658.000	-49.34	-13.00	36.34	16.66	H	295.7	2
3	2,469.000	-49.42	-13.00	36.42	22.40	H	0	2



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

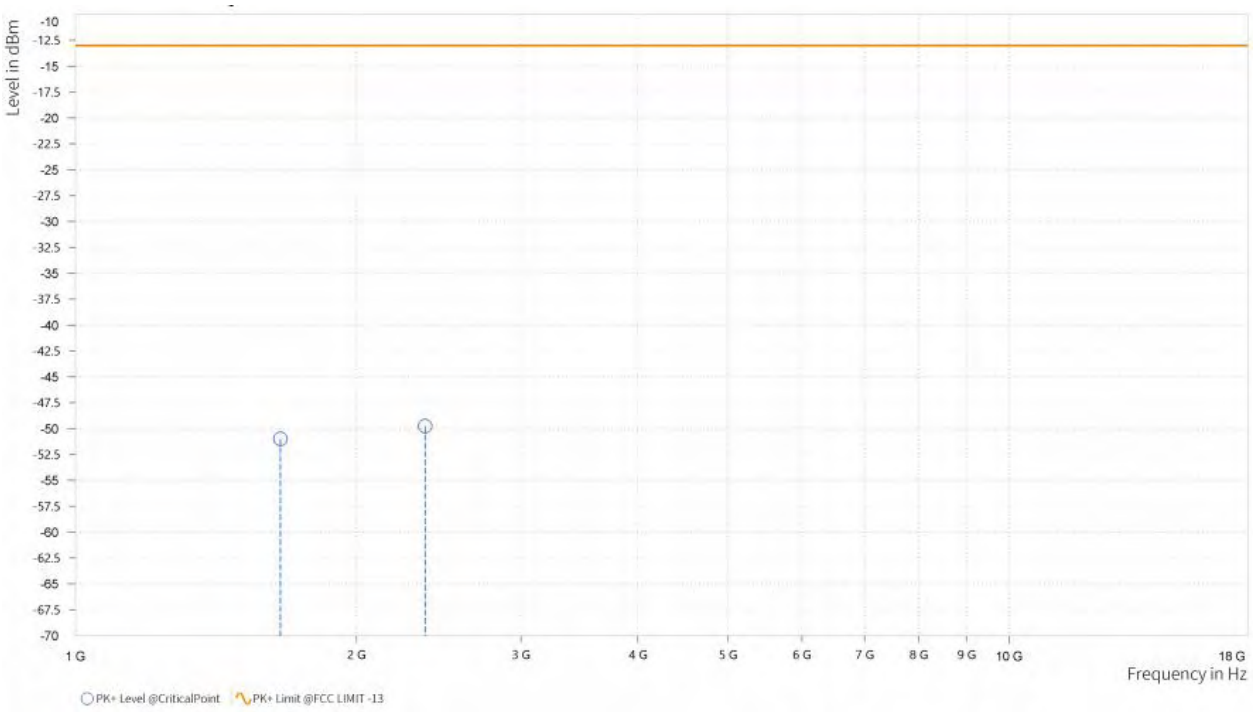
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,657.500	-50.63	-13.00	37.63	15.73	V	296.8	2
3	2,520.000	-49.95	-13.00	36.95	22.97	V	360	2
5	6,808.000	-43.47	-13.00	30.47	32.73	V	272.3	1



CHANNEL BANDWIDTH: 3MHz / QPSK

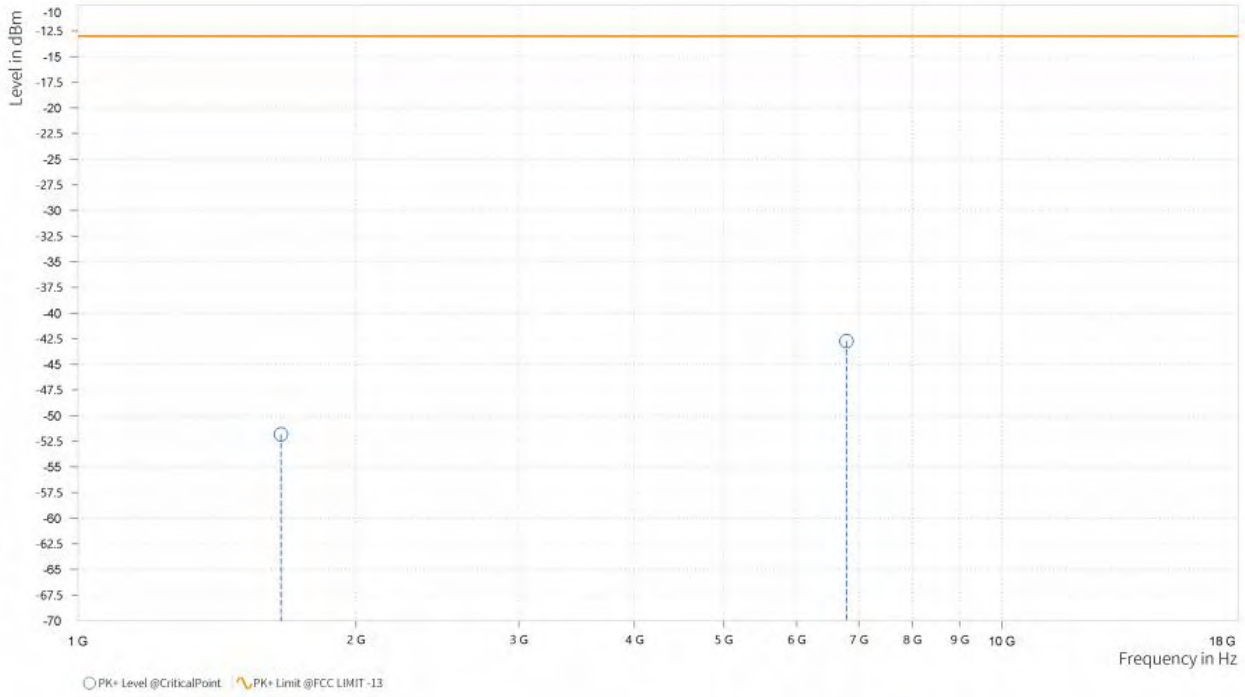
MODE	TX channel 20525	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,658.000	-50.98	-13.00	37.98	16.66	H	296.8	2
3	2,368.500	-49.75	-13.00	36.75	22.66	H	360	1



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,659.000	-51.82	-13.00	38.82	15.72	V	296.8	2
5	6,788.500	-42.72	-13.00	29.72	32.74	V	78.1	2

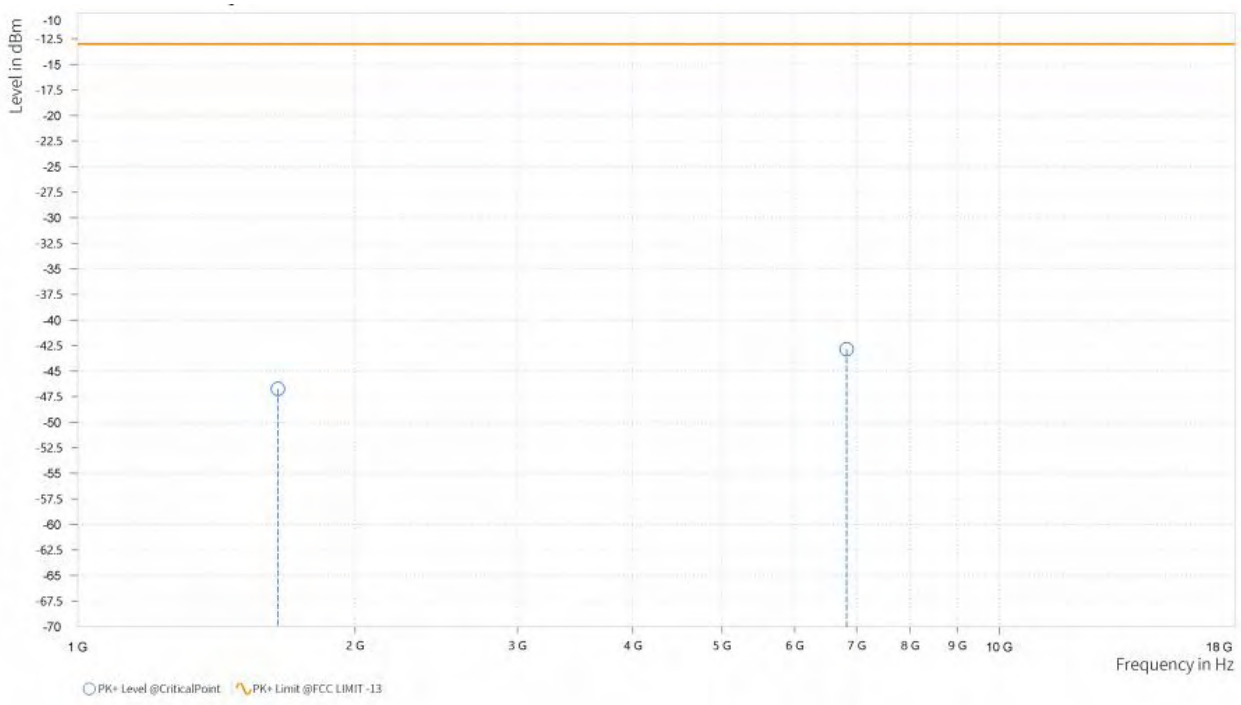


CHANNEL BANDWIDTH: 5MHz / QPSK

CH 20425

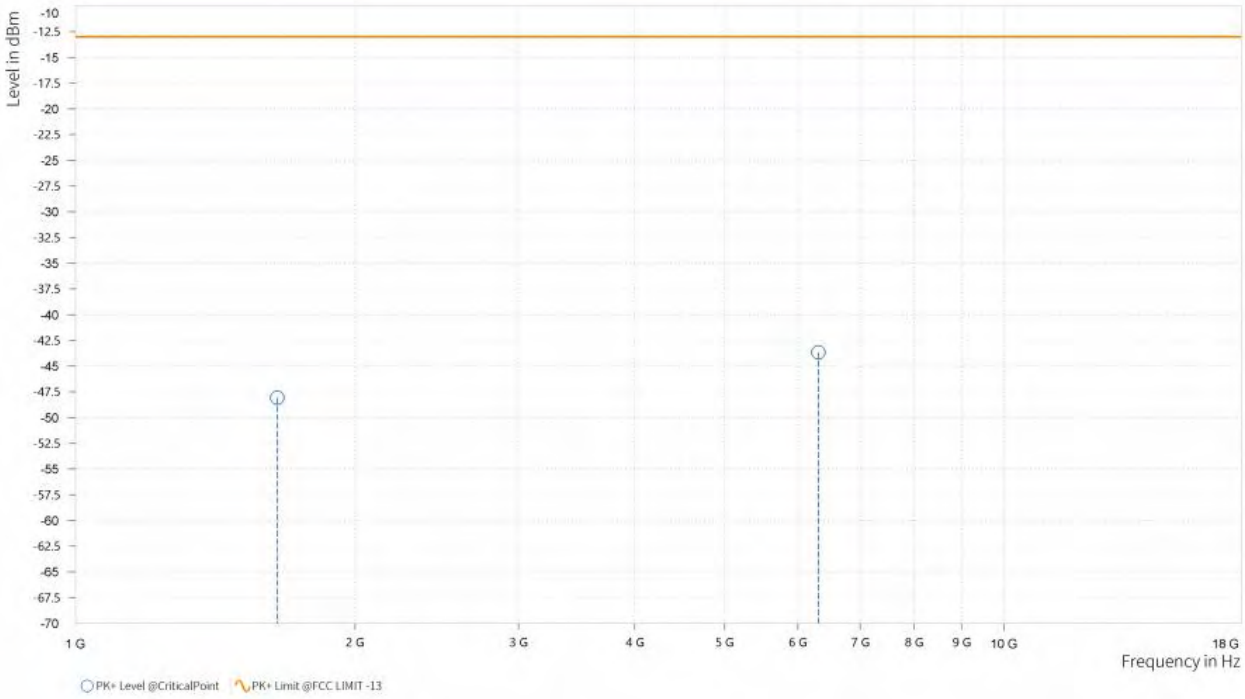
MODE	TX channel 20425	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,649.000	-46.73	-13.00	33.73	16.09	H	297.9	2
5	6,825.500	-42.86	-13.00	29.86	32.94	H	0	1



MODE	TX channel 20425	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

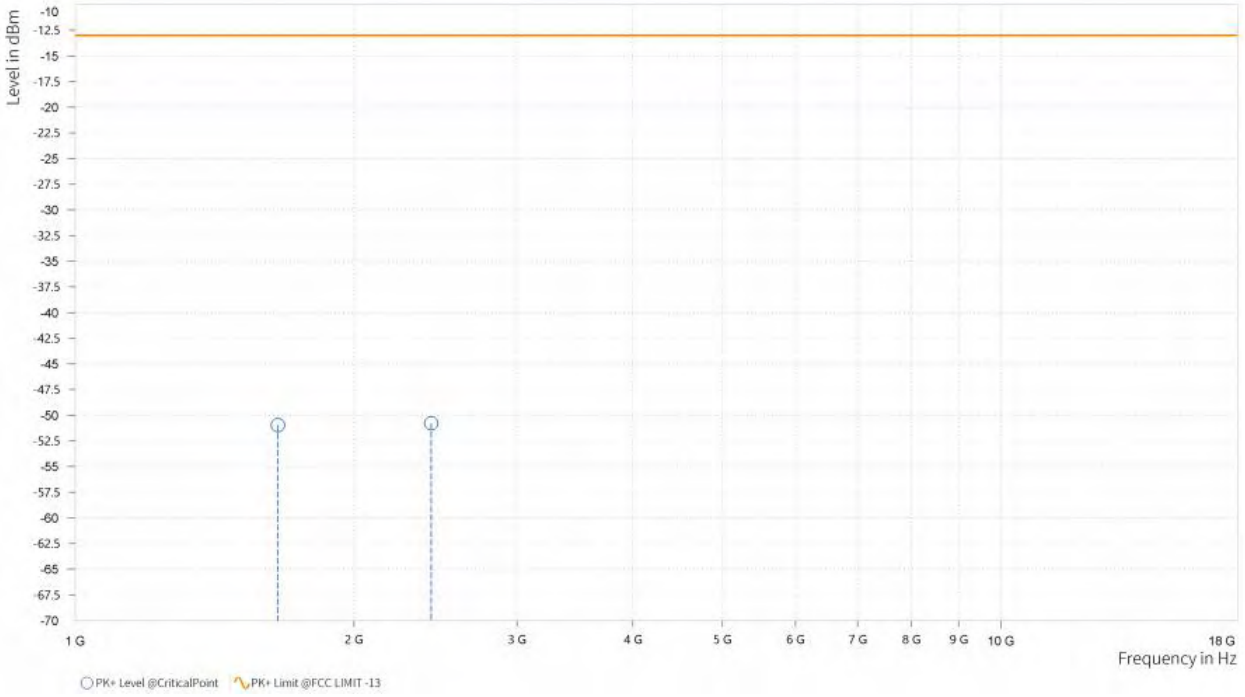
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,649.000	-48.07	-13.00	35.07	15.60	V	298	2
5	6,308.500	-43.66	-13.00	30.66	33.19	V	0	2



CH 20525

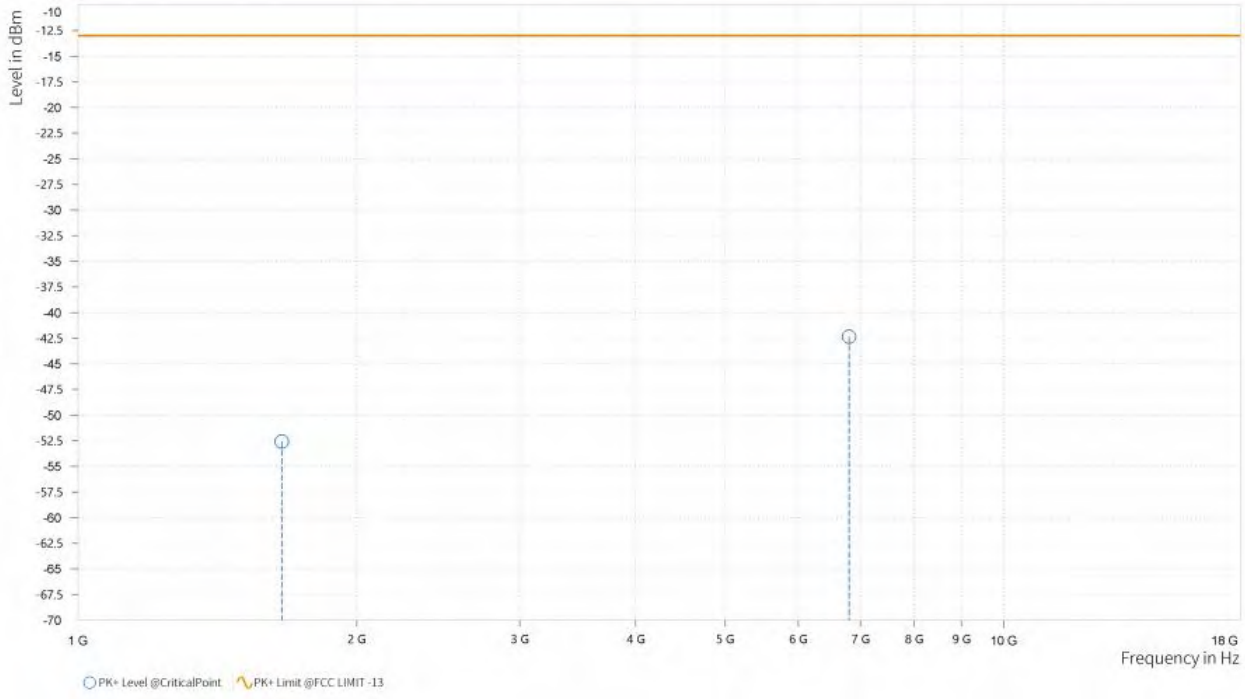
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,656.000	-50.96	-13.00	37.96	16.56	H	296.8	2
3	2,424.000	-50.79	-13.00	37.79	22.59	H	234.6	2



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

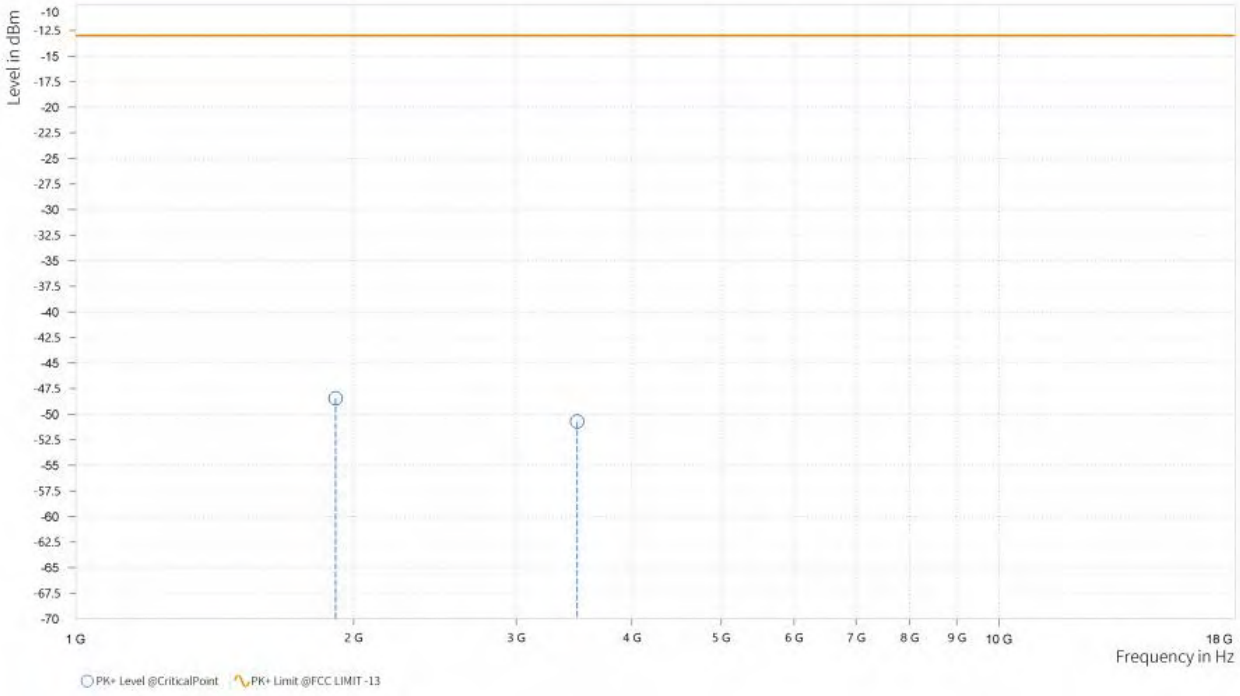
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,660.500	-52.57	-13.00	39.57	15.73	V	296.8	2
5	6,804.500	-42.36	-13.00	29.36	32.74	V	278.2	1



CH 20625

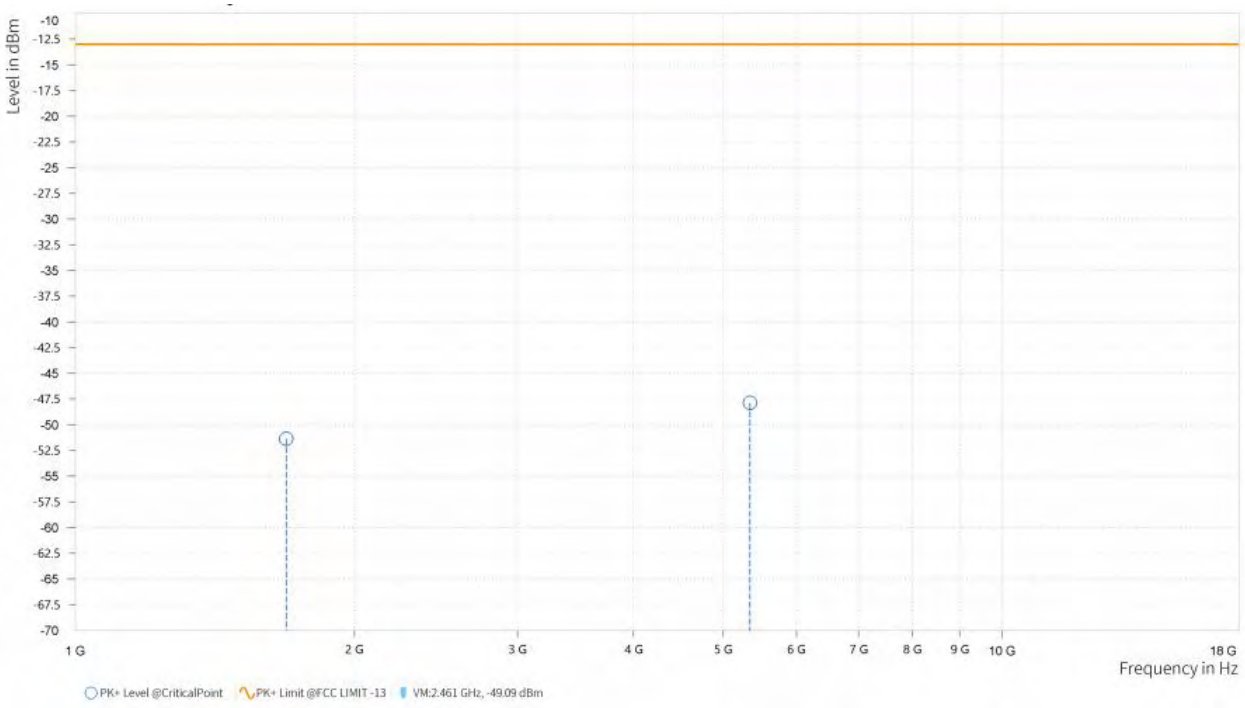
MODE	TX channel 20625	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,912.000	-48.44	-13.00	35.44	23.40	H	61.9	1
4	3,492.000	-50.71	-13.00	37.71	22.54	H	360	2



MODE	TX channel 20625	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,688.500	-51.36	-13.00	38.36	16.85	V	299.2	2
4	5,345.000	-47.86	-13.00	34.86	28.16	V	0	2

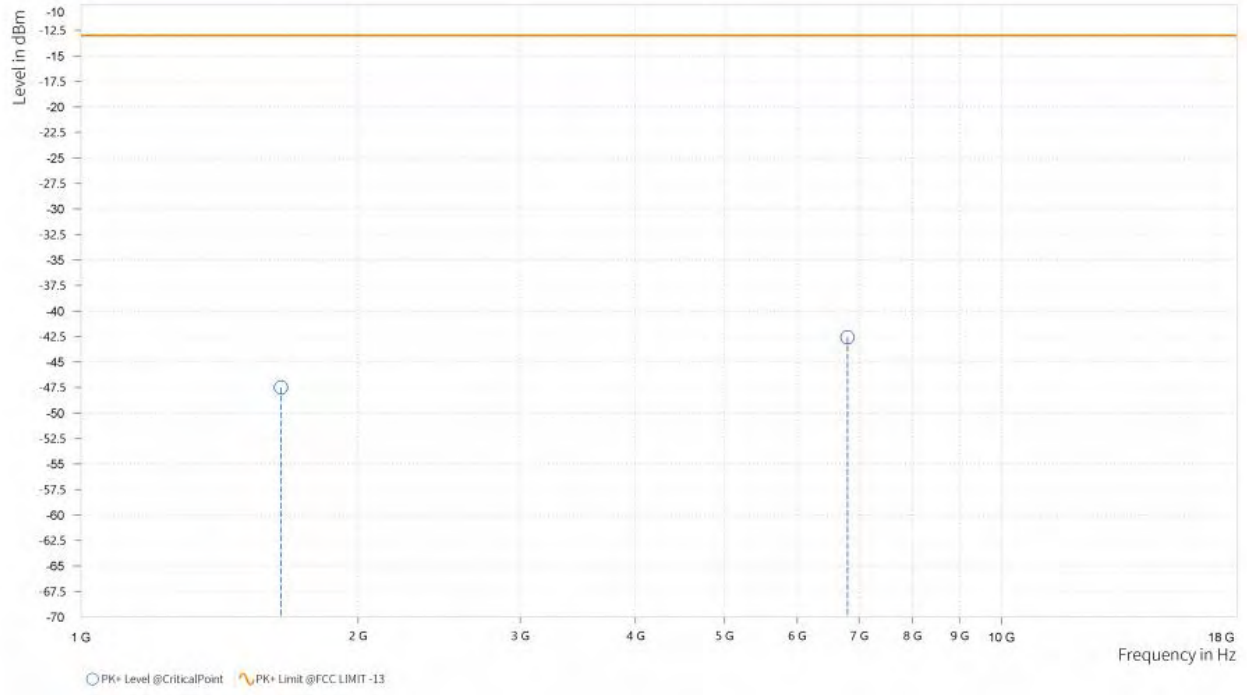


CHANNEL BANDWIDTH: 10MHz / QPSK

CH 20525

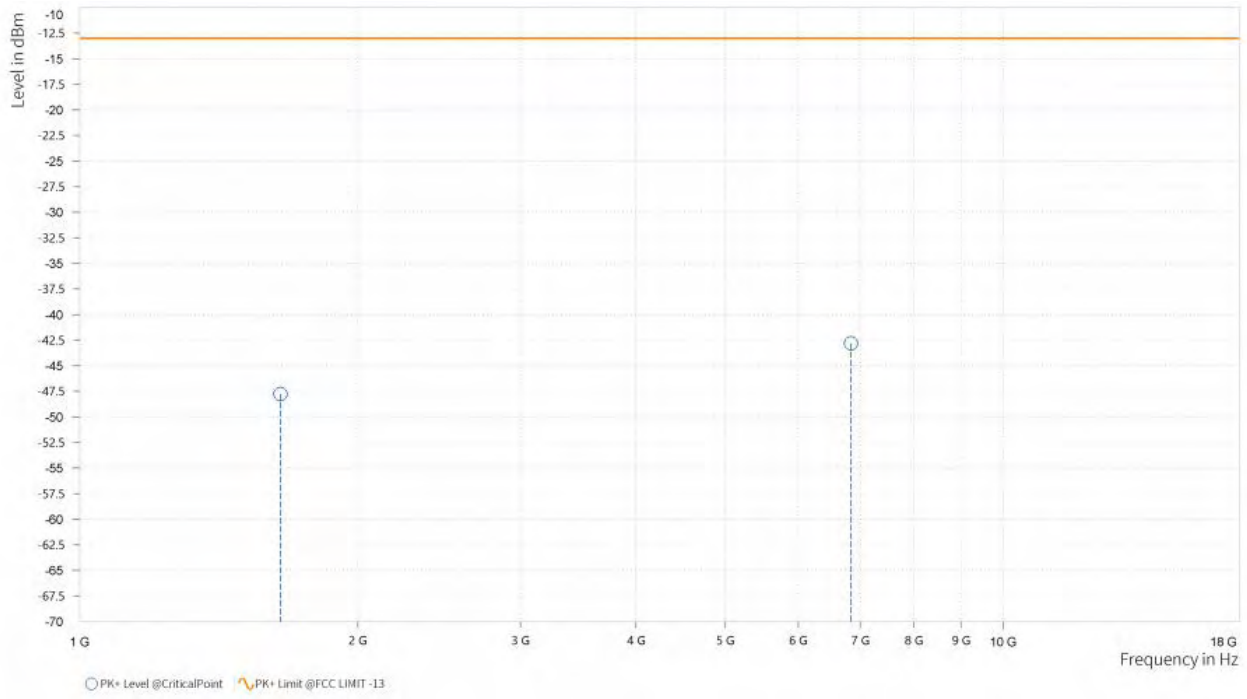
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,649.000	-47.50	-13.00	34.50	16.09	H	296.7	2
5	6,801.000	-42.59	-13.00	29.59	32.87	H	271.1	1



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,649.000	-47.76	-13.00	34.76	15.60	V	296.8	2
5	6,839.500	-42.81	-13.00	29.81	32.66	V	0	1

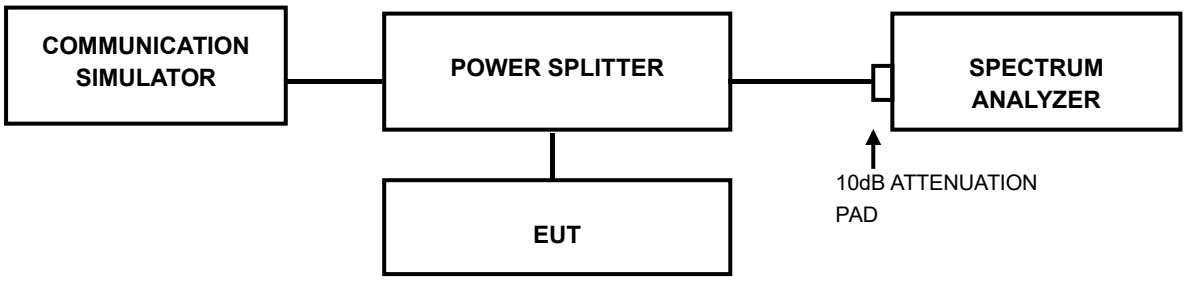


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

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

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

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

3.7.4 TEST RESULTS

Please Refer to Appendix A Of this test report.

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

5 INFORMATION ON THE TESTING LABORATORIES

We, Huarui 7layers High Technology (Suzhou) Co., Ltd. ,were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Suzhou EMC/RF Lab:
Tel: +86 (0557) 368 1008

6 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

7 APPENDIX A:

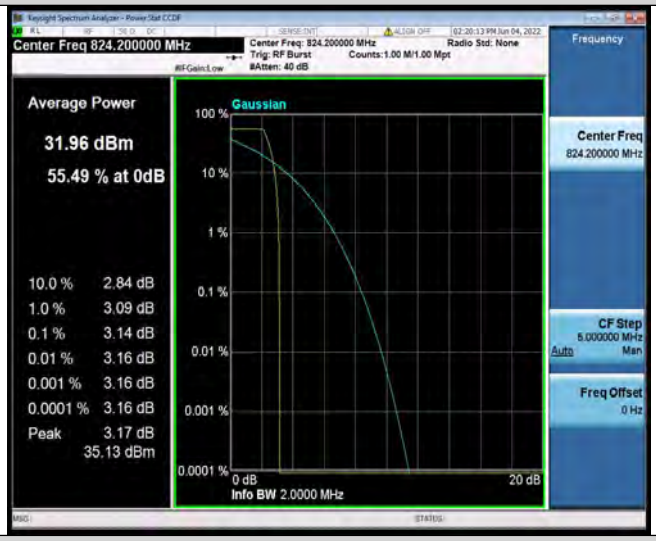
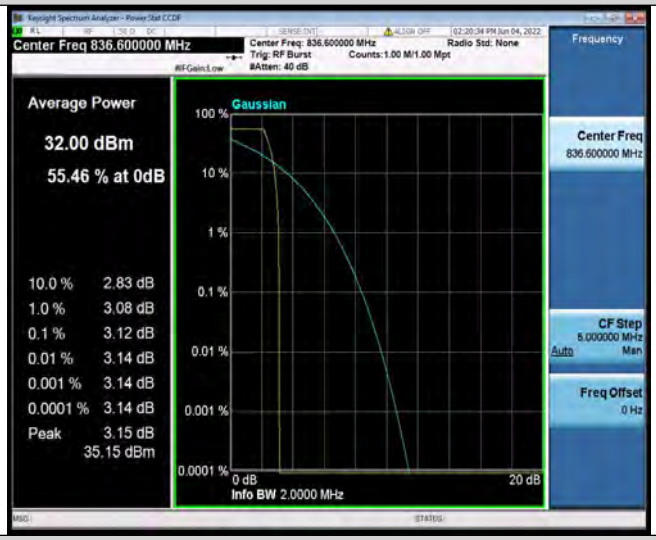
GSM850

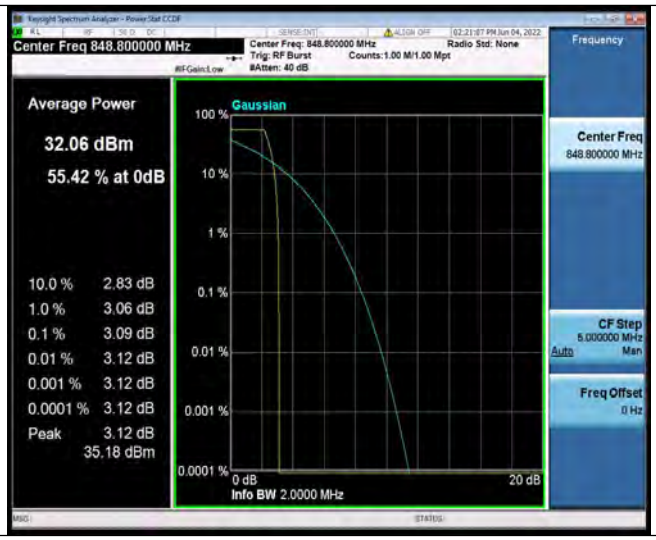
PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM850	128	3.14	13	PASS
GSM850	190	3.12	13	PASS
GSM850	251	3.09	13	PASS

Test Graphs

GSM850-128

GSM850-190

GSM850-251


Center Freq 848.800000 MHz
Center Freq: 848.800000 MHz
Trig: RF Burst
#Atten: 40 dB
Counts: 1.00 M/1.00 Mpt
Radio Std: None
Frequency
Average Power
32.06 dBm
55.42 % at 0dB
10.0 % 2.83 dB
1.0 % 3.06 dB
0.1 % 3.09 dB
0.01 % 3.12 dB
0.001 % 3.12 dB
0.0001 % 3.12 dB
Peak 3.12 dB
35.18 dBm
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0 dB
20 dB
Info BW 2.0000 MHz
Center Freq
848.800000 MHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz

26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM850	128	0.23870	0.3124	---	PASS
GSM850	190	0.23675	0.3104	---	PASS
GSM850	251	0.23710	0.3054	---	PASS

Test Graphs

GSM850-128

GSM850-190

GSM850-251


Center Freq 848.800000 MHz
Center Freq: 848.800000 MHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Ref Offset 12.03 dB
10 dB/div
Ref 30.00 dBm
Log
Center 848.8 MHz
#Res BW 5.1 kHz
#VBW 15 kHz
Span 1 MHz
#Sweep 100 ms
Occupied Bandwidth
237.10 kHz
Total Power
36.2 dBm
Transmit Freq Error
-256 Hz
OBW Power
99.00 %
x dB Bandwidth
305.4 kHz
x dB
-26.00 dB
Frequency
Center Freq
848.800000 MHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz

BAND EDGE

Test Result

Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM850	128	823.99	-22.21	-13	PASS
GSM850	251	849.01	-23.08	-13	PASS

Test Graphs

GSM850-128

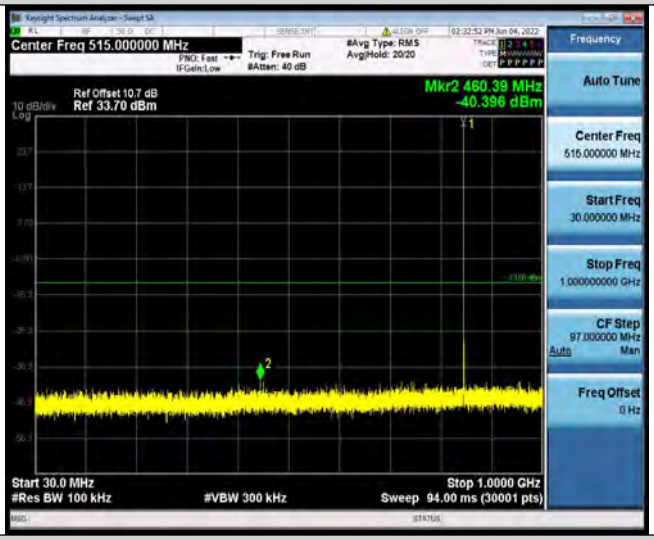
GSM850-251


CONDUCTED SPURIOUS EMISSION

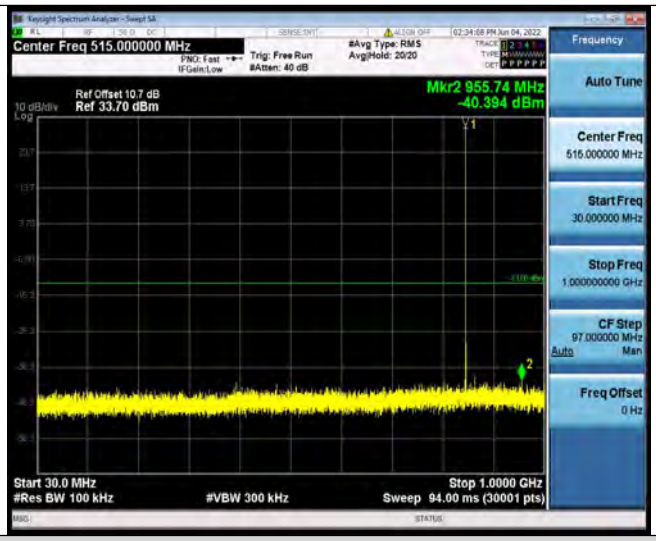
Test Result

Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GSM850	128	30~1000MHz	460.39	-40.4	-13	PASS
GSM850	128	1000~10000MHz	2546.2	-29.91	-13	PASS
GSM850	190	30~1000MHz	955.74	-40.39	-13	PASS
GSM850	190	1000~10000MHz	2546.5	-29.73	-13	PASS
GSM850	251	30~1000MHz	962.62	-39.97	-13	PASS
GSM850	251	1000~10000MHz	2546.5	-30.28	-13	PASS

Test Graphs

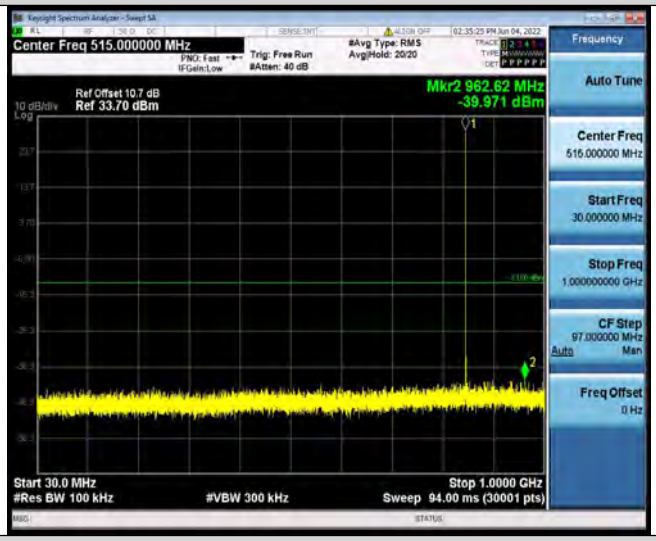
GSM850-128-30~1000MHz

GSM850-128-1000~10000MHz

GSM850-190-30~1000MHz



GSM850-190-1000~10000MHz

GSM850-251-30~1000MHz



GSM850-251-1000~10000MHz


Center Freq 5.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 20/20
Ref Offset 12.14 dB
10 dB/div
Ref 30.00 dBm
Mkr1 2.546 5 GHz
-30.282 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 10.000 GHz
#Sweep 3.000 s (30001 pts)
Frequency
Auto Tune
Center Freq
5.500000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
10.000000000 GHz
CF Step
900.000000 MHz
Auto
Man
Freq Offset
0 Hz

FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VL	NT	7.81	0.009476	±2.5	PASS
GSM850	128	VN	NT	9.52	0.011551	±2.5	PASS
GSM850	128	VH	NT	8.10	0.009828	±2.5	PASS
GSM850	190	VL	NT	10.14	0.012120	±2.5	PASS
GSM850	190	VN	NT	9.49	0.011344	±2.5	PASS
GSM850	190	VH	NT	9.88	0.011810	±2.5	PASS
GSM850	251	VL	NT	7.36	0.008671	±2.5	PASS
GSM850	251	VN	NT	7.75	0.009131	±2.5	PASS
GSM850	251	VH	NT	8.52	0.010038	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	NV	-30	9.33	0.011320	±2.5	PASS
GSM850	128	NV	-20	8.52	0.010337	±2.5	PASS
GSM850	128	NV	-10	8.43	0.010228	±2.5	PASS
GSM850	128	NV	0	8.98	0.010895	±2.5	PASS
GSM850	128	NV	10	10.59	0.012849	±2.5	PASS
GSM850	128	NV	20	9.27	0.011247	±2.5	PASS
GSM850	128	NV	30	9.69	0.011757	±2.5	PASS
GSM850	128	NV	40	8.59	0.010422	±2.5	PASS
GSM850	128	NV	50	9.17	0.011126	±2.5	PASS
GSM850	190	NV	-30	8.75	0.010459	±2.5	PASS
GSM850	190	NV	-20	11.27	0.013471	±2.5	PASS
GSM850	190	NV	-10	11.27	0.013471	±2.5	PASS
GSM850	190	NV	0	10.36	0.012383	±2.5	PASS
GSM850	190	NV	10	8.68	0.010375	±2.5	PASS
GSM850	190	NV	20	8.59	0.010268	±2.5	PASS
GSM850	190	NV	30	7.72	0.009228	±2.5	PASS
GSM850	190	NV	40	10.56	0.012623	±2.5	PASS
GSM850	190	NV	50	9.69	0.011583	±2.5	PASS
GSM850	251	NV	-30	7.94	0.009354	±2.5	PASS
GSM850	251	NV	-20	7.43	0.008754	±2.5	PASS
GSM850	251	NV	-10	8.94	0.010533	±2.5	PASS
GSM850	251	NV	0	7.07	0.008329	±2.5	PASS
GSM850	251	NV	10	6.68	0.007870	±2.5	PASS
GSM850	251	NV	20	8.75	0.010309	±2.5	PASS
GSM850	251	NV	30	7.78	0.009166	±2.5	PASS
GSM850	251	NV	40	7.68	0.009048	±2.5	PASS
GSM850	251	NV	50	6.91	0.008141	±2.5	PASS

LTE BAND5

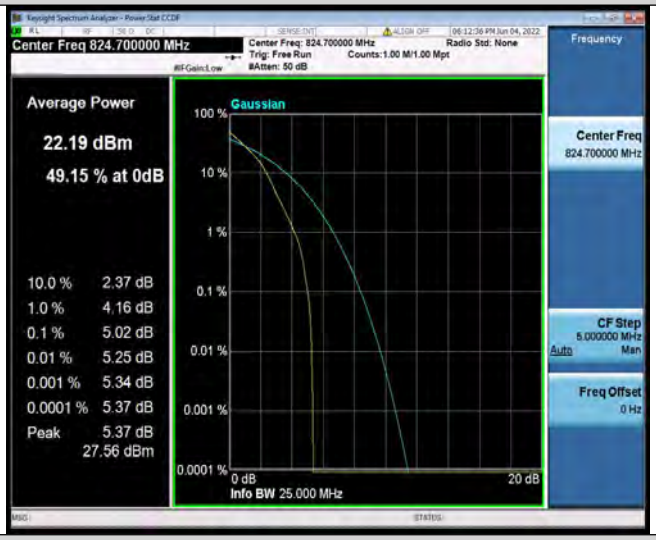
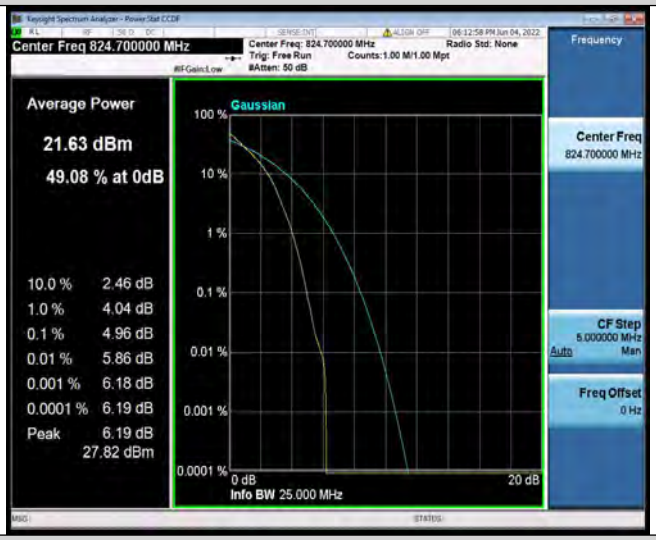
PEAK-TO-AVERAGE RATIO(CCDF)

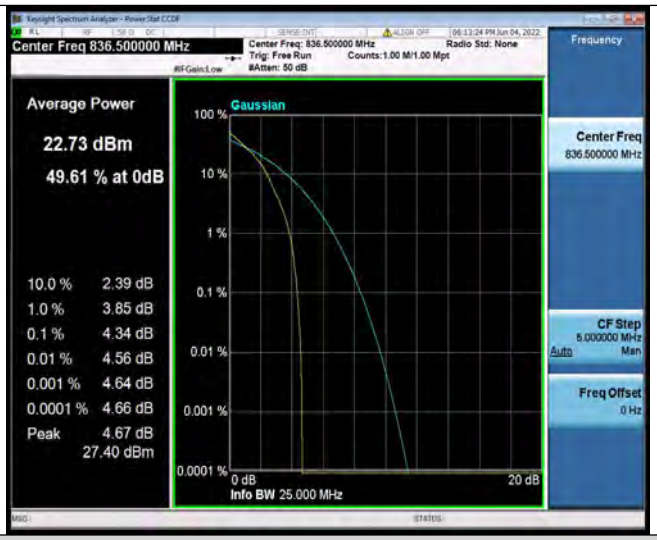
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	5.02	13	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	4.96	13	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	4.34	13	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	4.77	13	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	4.83	13	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	4.95	13	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	5.30	13	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	5.59	13	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	4.60	13	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	5.23	13	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	5.06	13	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	5.39	13	PASS
Band5	3MHz	QPSK	20415	1RB#0	4.93	13	PASS
Band5	3MHz	QPSK	20415	15RB#0	4.85	13	PASS
Band5	3MHz	QPSK	20525	1RB#0	4.42	13	PASS
Band5	3MHz	QPSK	20525	15RB#0	4.60	13	PASS
Band5	3MHz	QPSK	20635	1RB#0	4.89	13	PASS
Band5	3MHz	QPSK	20635	15RB#0	4.82	13	PASS
Band5	3MHz	16QAM	20415	1RB#0	5.11	13	PASS
Band5	3MHz	16QAM	20415	15RB#0	5.45	13	PASS
Band5	3MHz	16QAM	20525	1RB#0	4.68	13	PASS
Band5	3MHz	16QAM	20525	15RB#0	5.08	13	PASS
Band5	3MHz	16QAM	20635	1RB#0	4.93	13	PASS
Band5	3MHz	16QAM	20635	15RB#0	5.43	13	PASS
Band5	5MHz	QPSK	20425	1RB#0	5.11	13	PASS
Band5	5MHz	QPSK	20425	25RB#0	4.96	13	PASS
Band5	5MHz	QPSK	20525	1RB#0	4.52	13	PASS
Band5	5MHz	QPSK	20525	25RB#0	4.69	13	PASS
Band5	5MHz	QPSK	20625	1RB#0	4.83	13	PASS
Band5	5MHz	QPSK	20625	25RB#0	5.00	13	PASS
Band5	5MHz	16QAM	20425	1RB#0	5.13	13	PASS
Band5	5MHz	16QAM	20425	25RB#0	5.41	13	PASS
Band5	5MHz	16QAM	20525	1RB#0	4.55	13	PASS
Band5	5MHz	16QAM	20525	25RB#0	5.15	13	PASS
Band5	5MHz	16QAM	20625	1RB#0	4.83	13	PASS
Band5	5MHz	16QAM	20625	25RB#0	5.41	13	PASS
Band5	10MHz	QPSK	20450	1RB#0	4.57	13	PASS
Band5	10MHz	QPSK	20450	50RB#0	4.86	13	PASS
Band5	10MHz	QPSK	20525	1RB#0	4.26	13	PASS
Band5	10MHz	QPSK	20525	50RB#0	4.70	13	PASS
Band5	10MHz	QPSK	20600	1RB#0	4.73	13	PASS
Band5	10MHz	QPSK	20600	50RB#0	4.93	13	PASS

Band5	10MHz	16QAM	20450	1RB#0	4.74	13	PASS
Band5	10MHz	16QAM	20450	27RB#0	5.37	13	PASS
Band5	10MHz	16QAM	20525	1RB#0	4.58	13	PASS
Band5	10MHz	16QAM	20525	27RB#0	5.13	13	PASS
Band5	10MHz	16QAM	20600	1RB#0	5.11	13	PASS
Band5	10MHz	16QAM	20600	27RB#0	5.58	13	PASS

Test Graphs

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

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

Band5-1.4MHz-QPSK-20525-1RB#0



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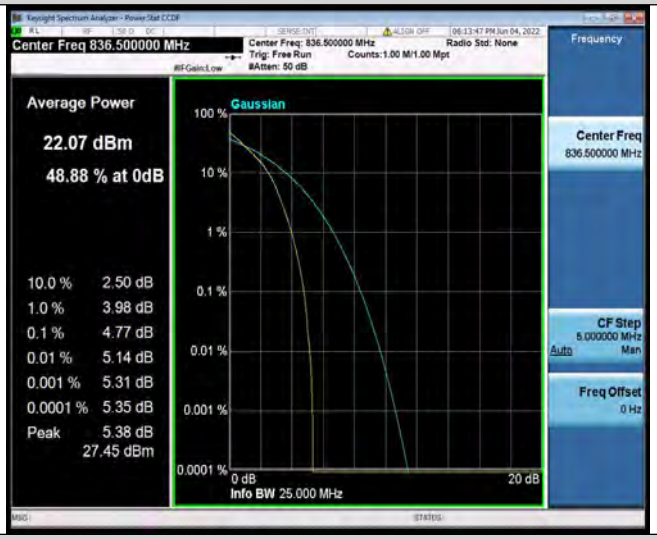
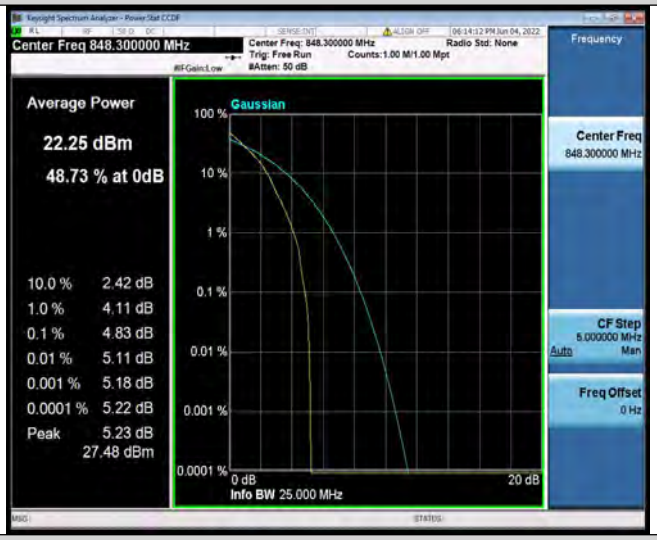


Band5-1.4MHz-QPSK-20643-1RB#0



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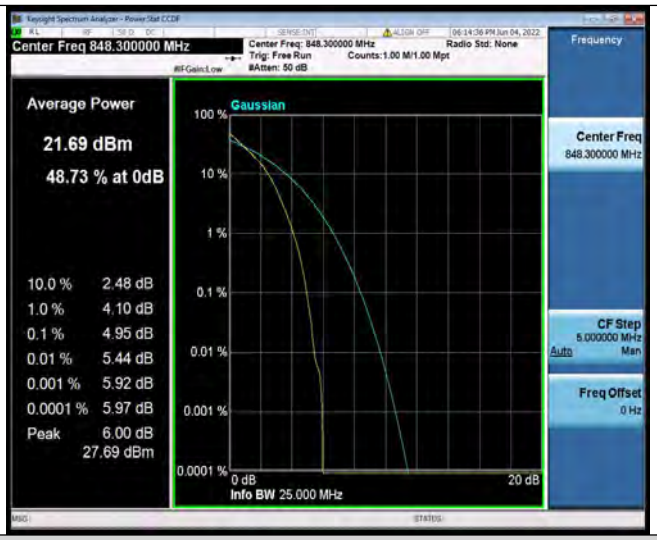
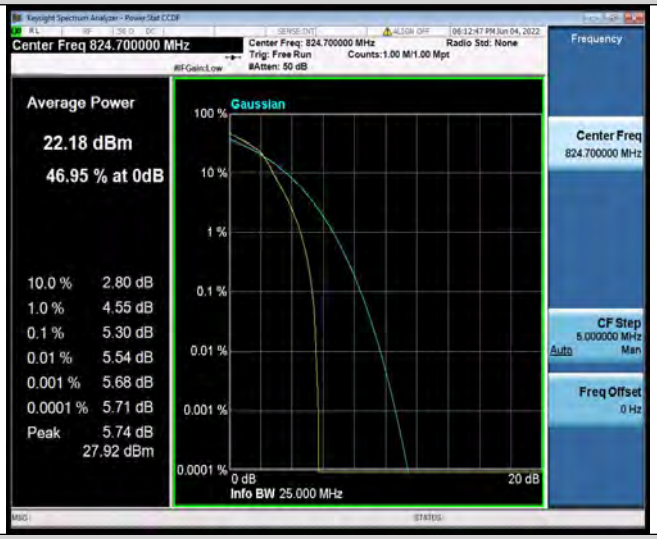


Band5-1.4MHz-16QAM-20407-1RB#0



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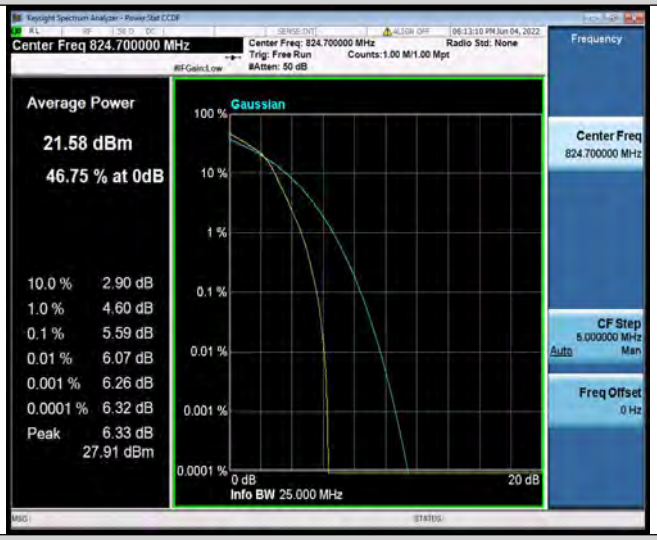

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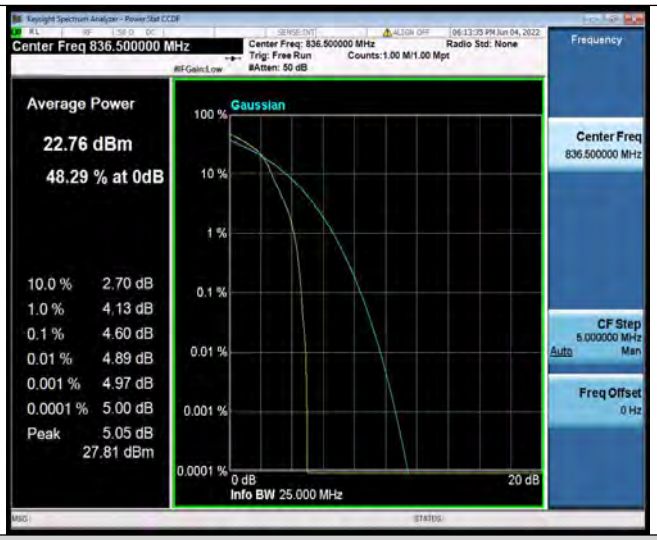

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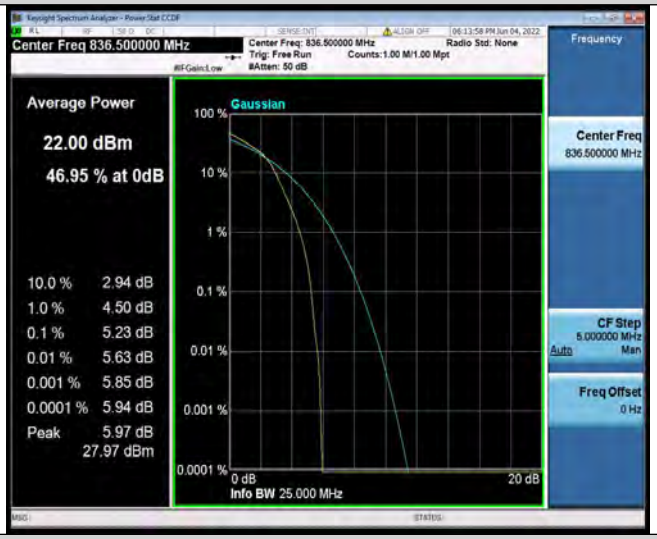

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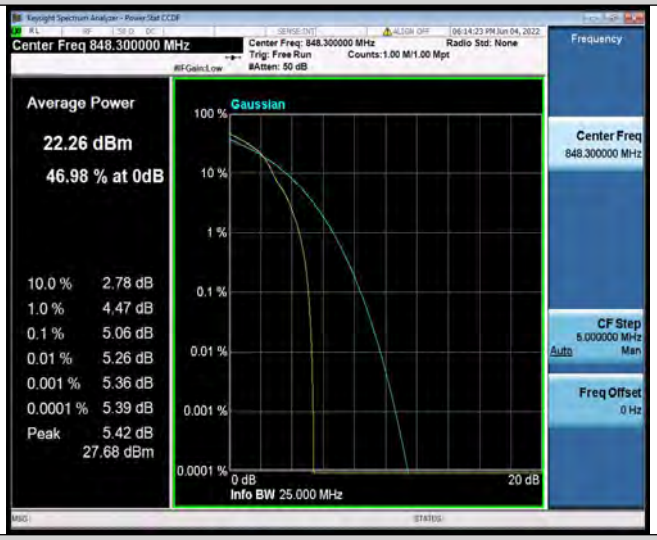

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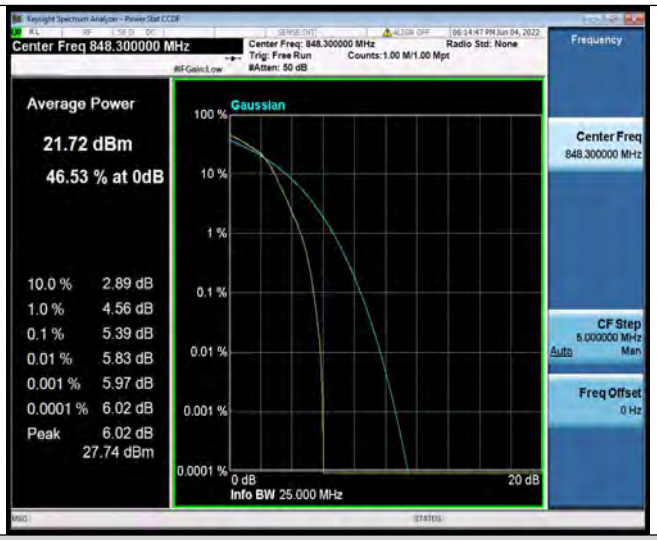
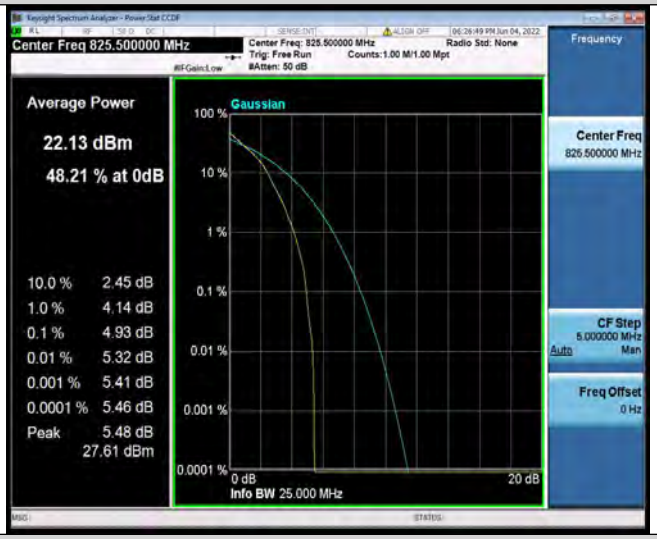
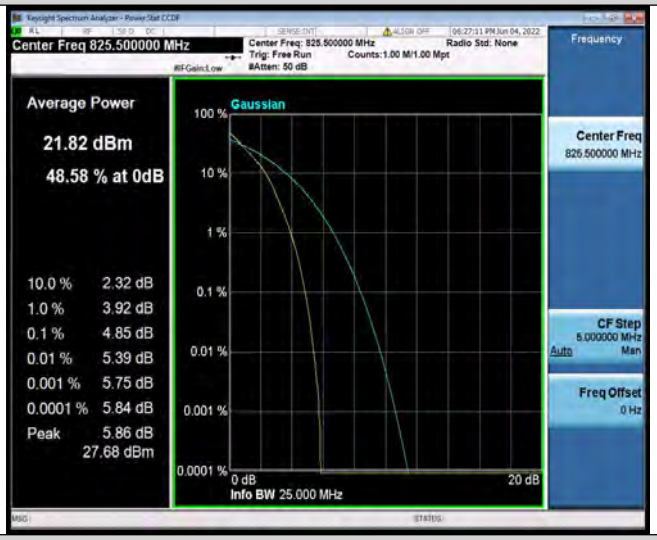


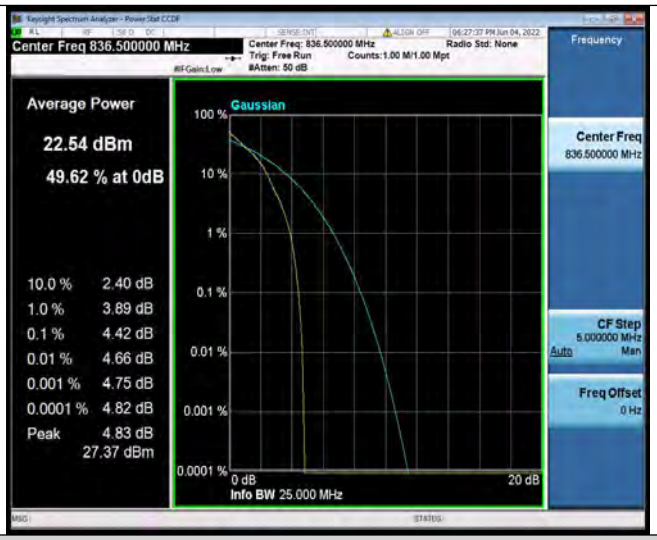
Band5-3MHz-QPSK-20415-1RB#0



Band5-3MHz-QPSK-20415-15RB#0



Band5-3MHz-QPSK-20525-1RB#0



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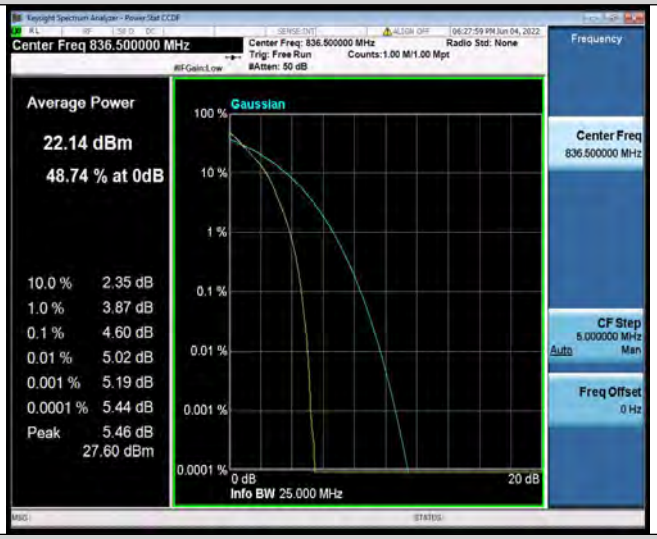

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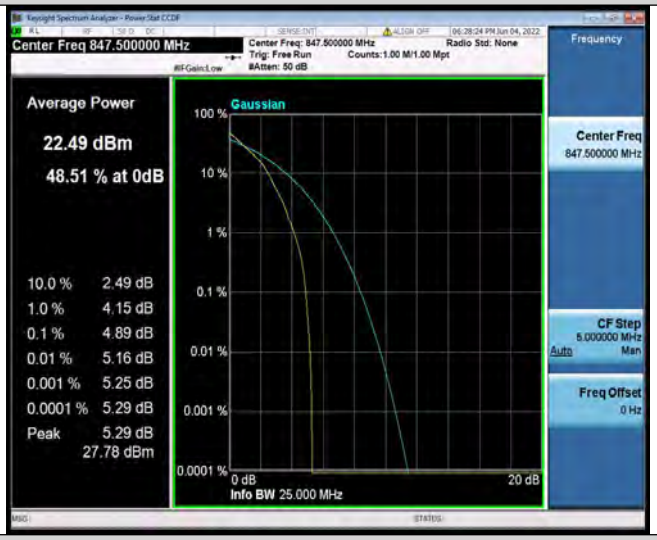

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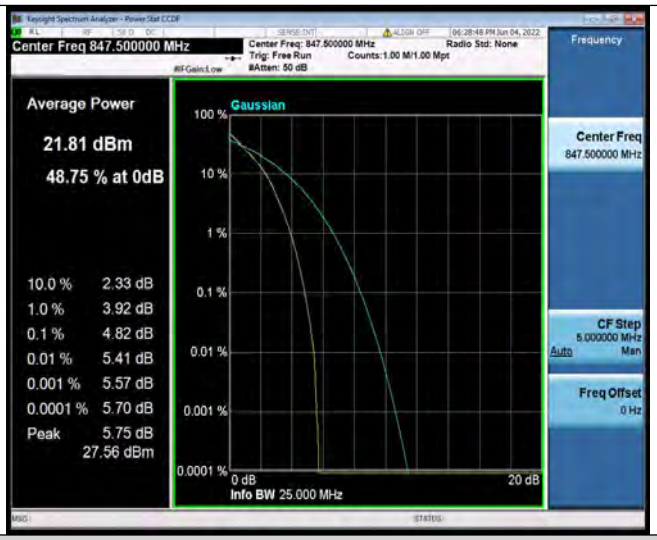

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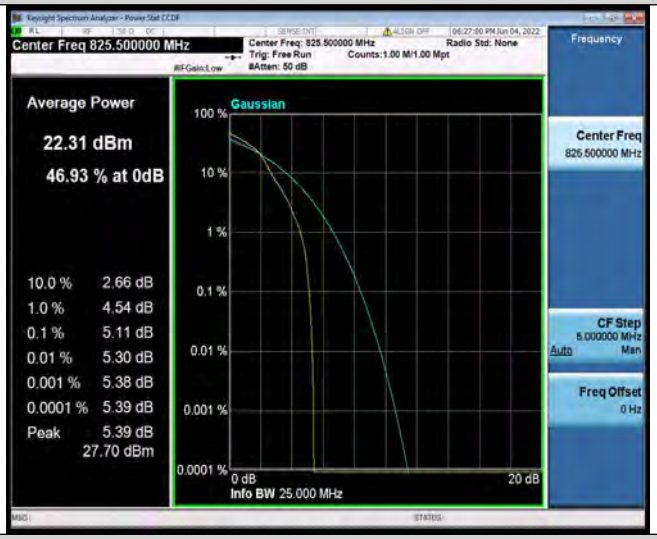

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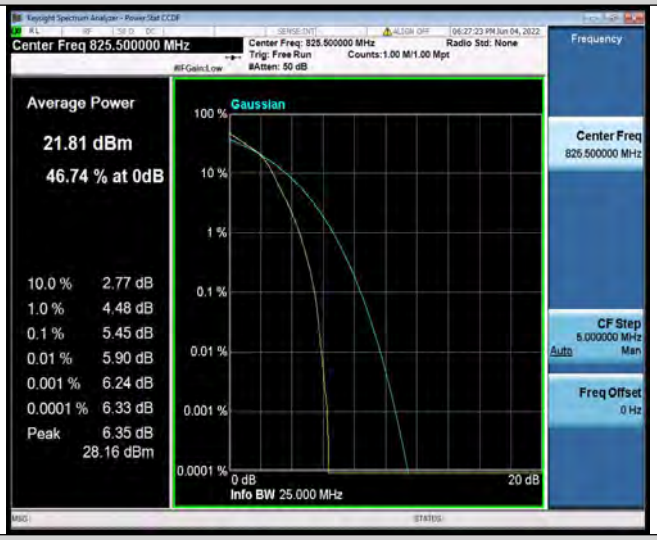

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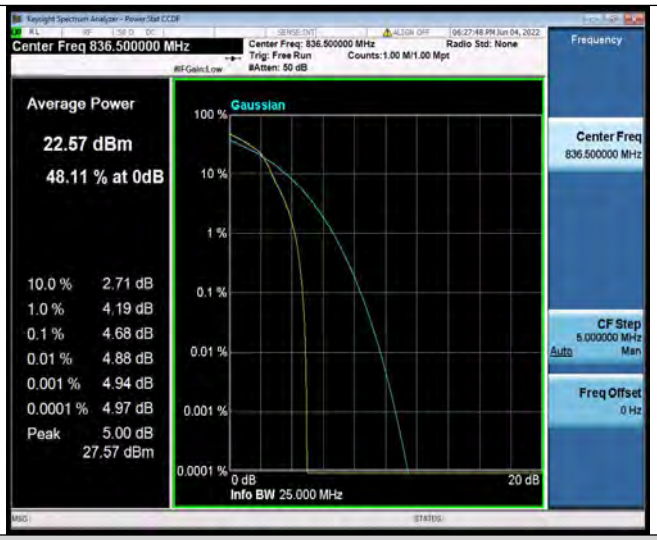

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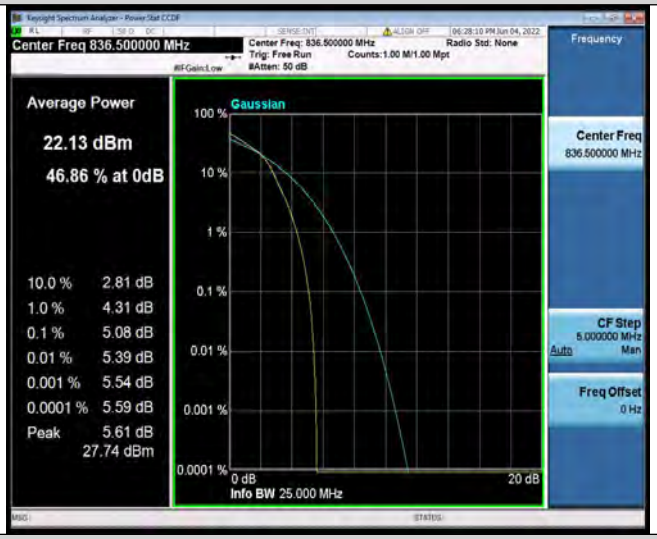

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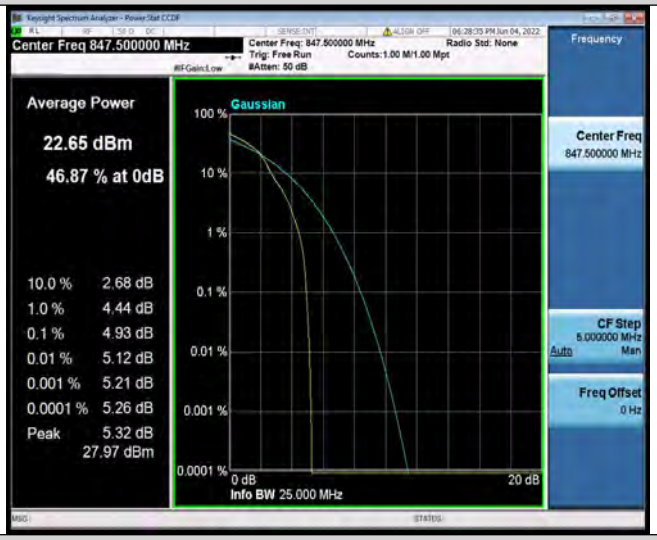

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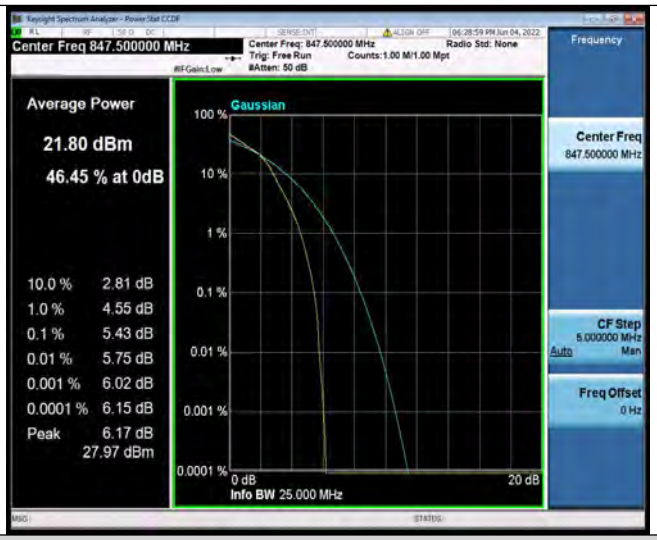

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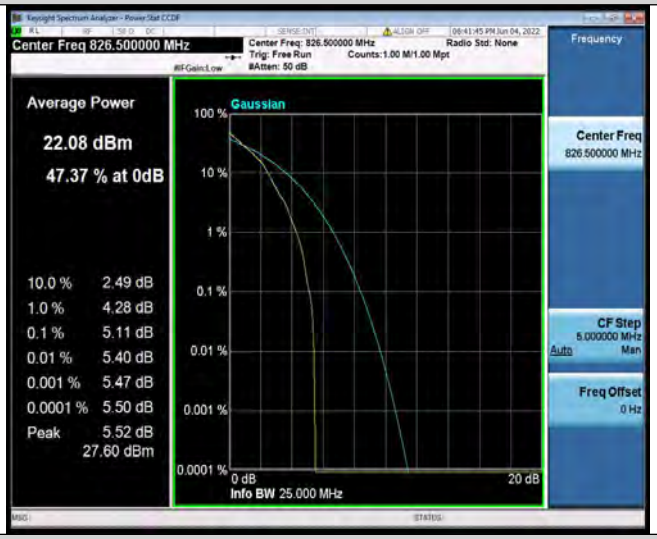

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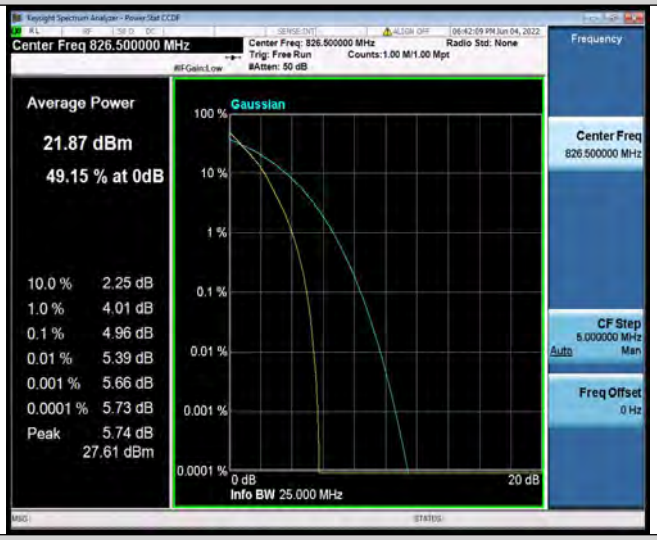

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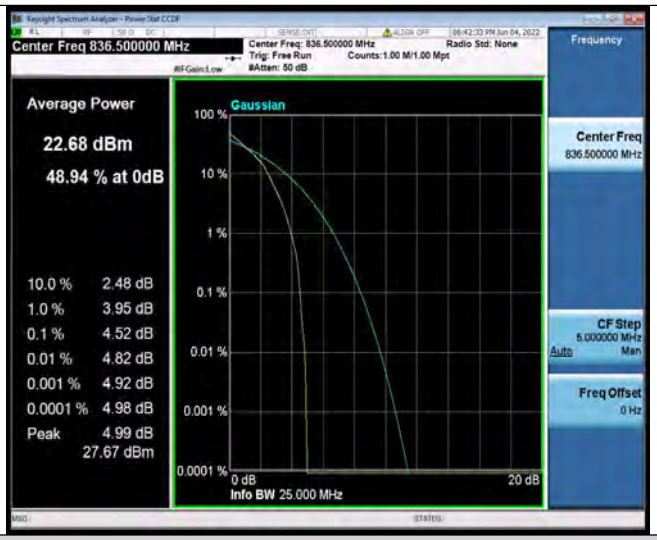

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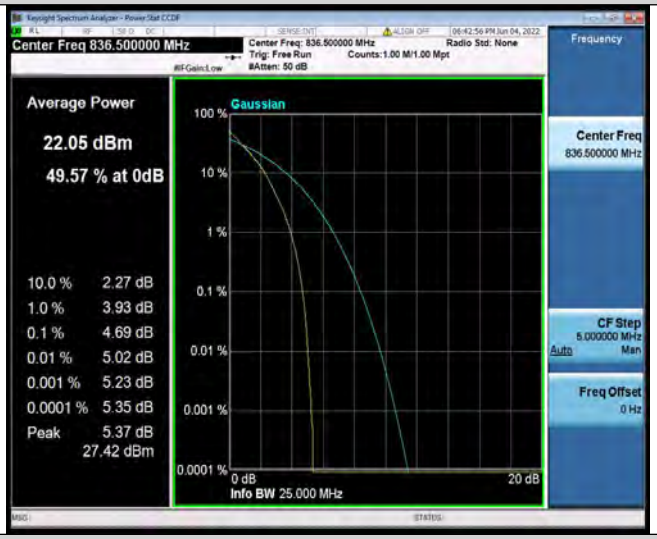

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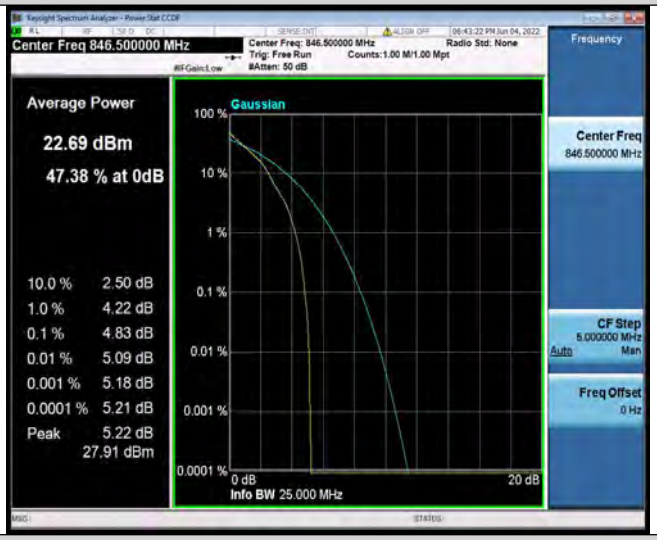
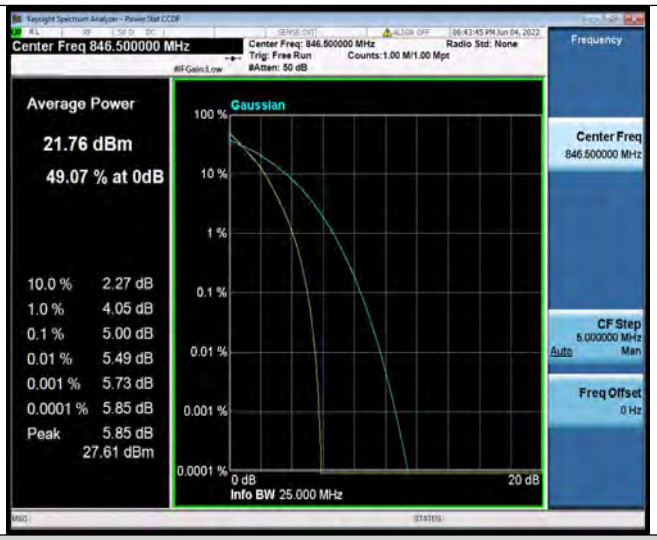
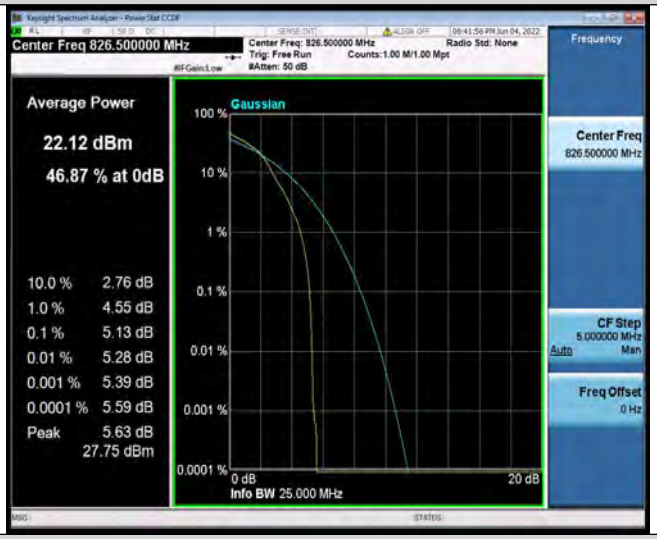


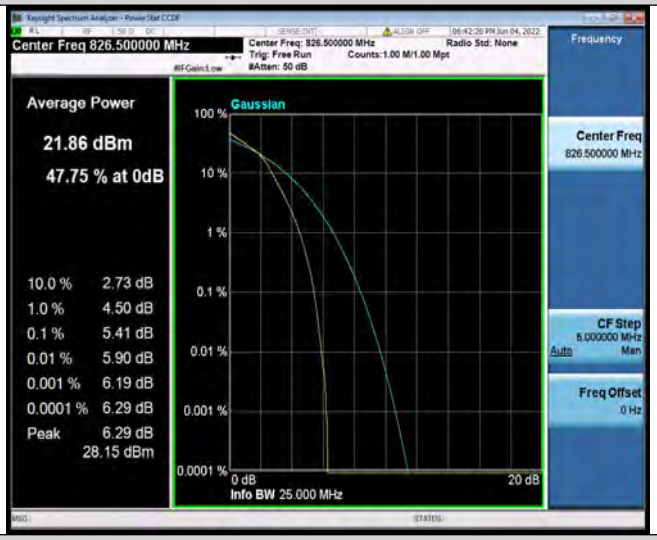
Band5-5MHz-QPSK-20625-25RB#0



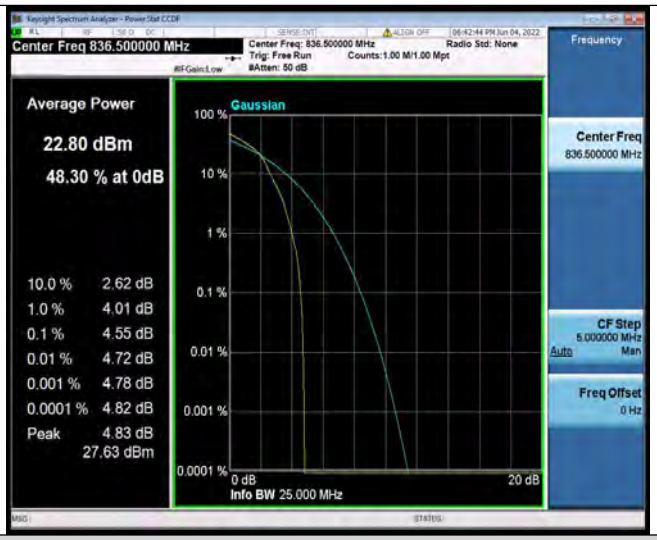
Band5-5MHz-16QAM-20425-1RB#0



Band5-5MHz-16QAM-20425-25RB#0



Band5-5MHz-16QAM-20525-1RB#0



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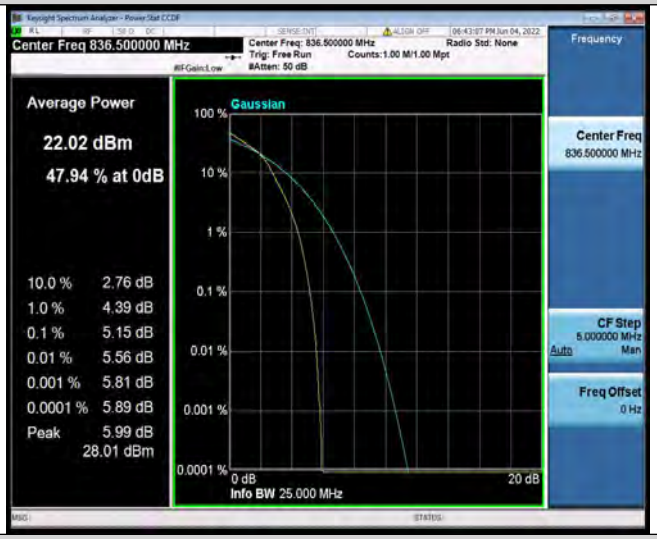

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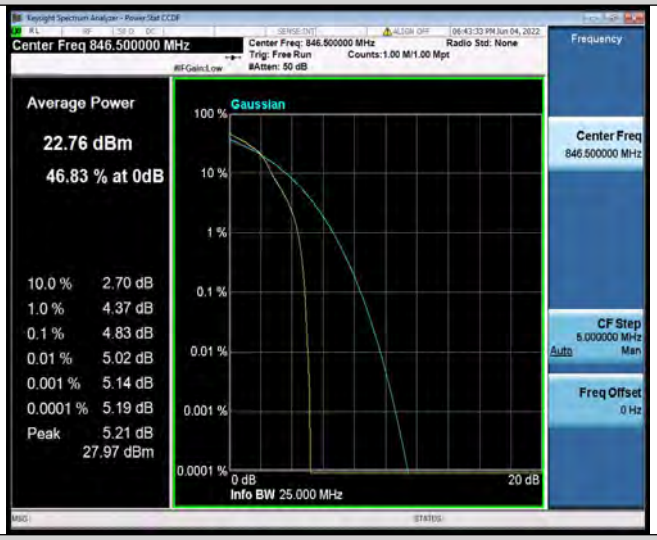

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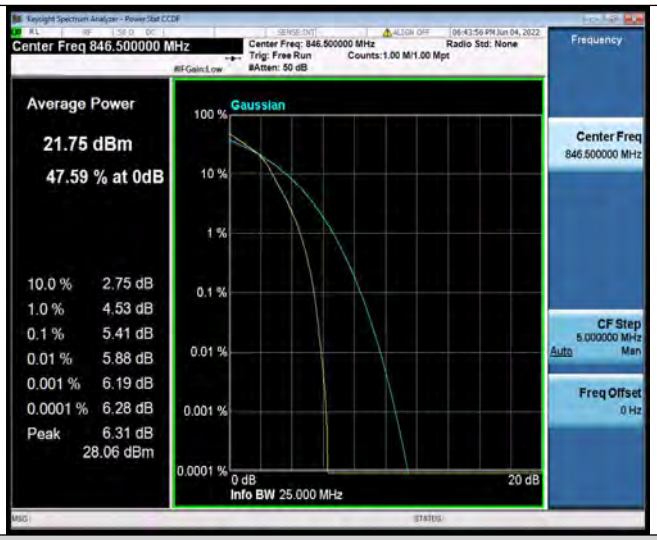
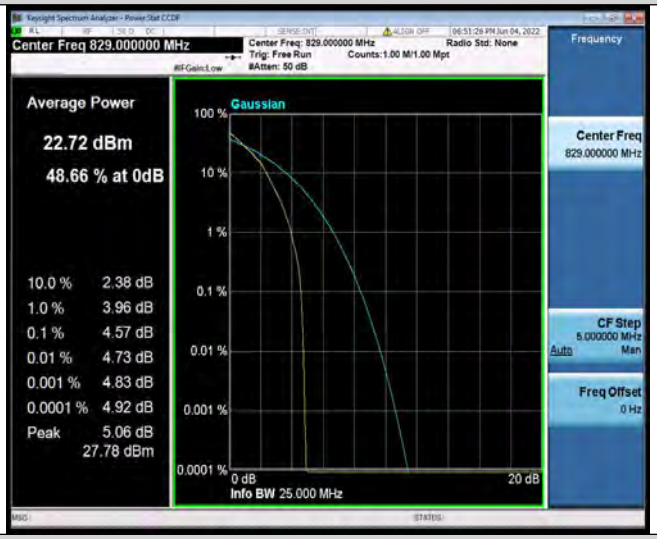
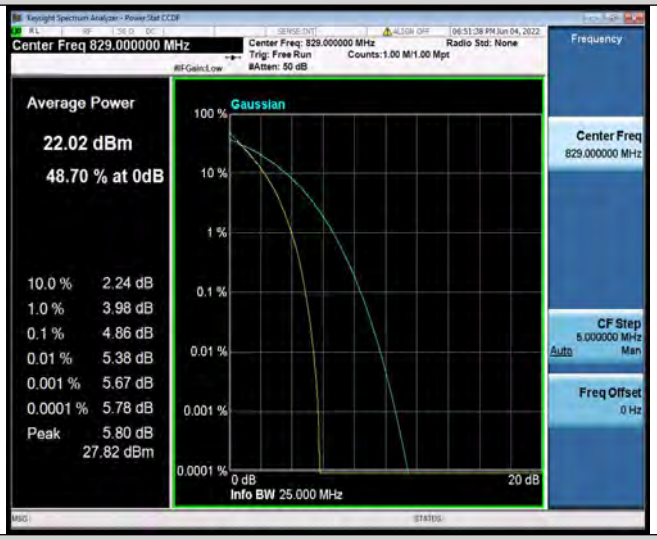


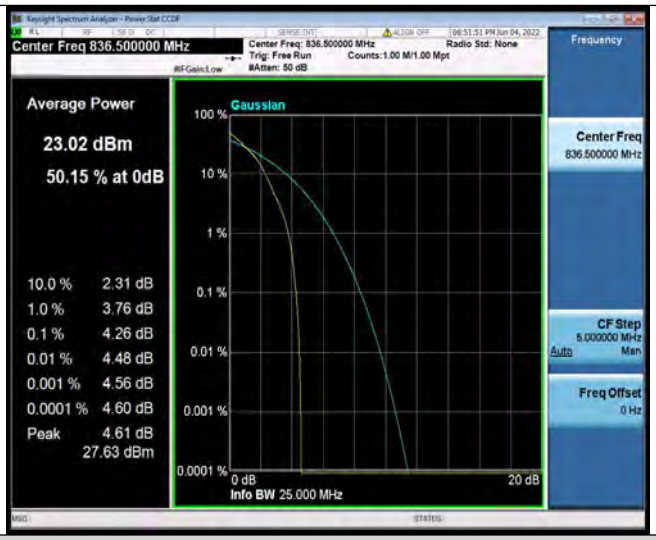
Band5-10MHz-QPSK-20450-1RB#0



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



Band5-10MHz-QPSK-20525-1RB#0



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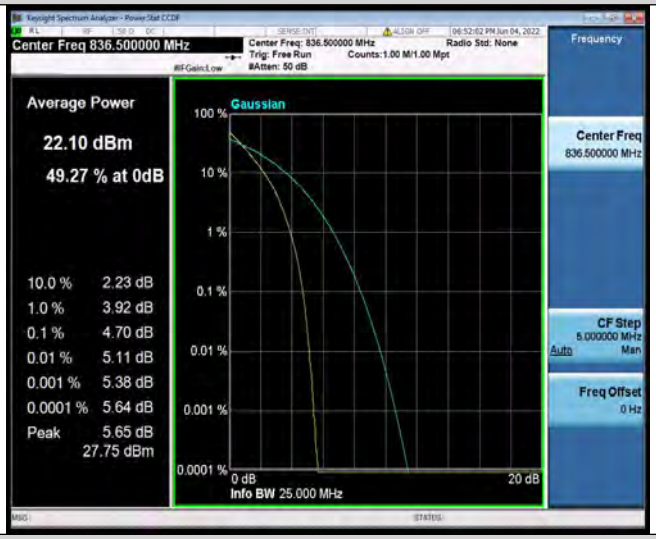

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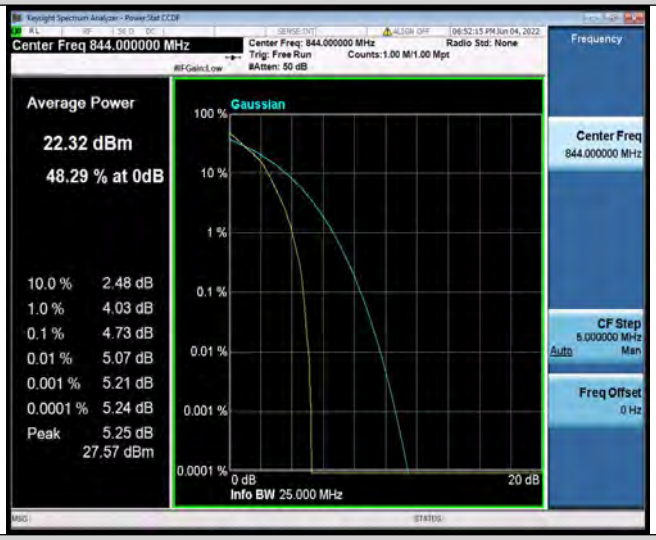

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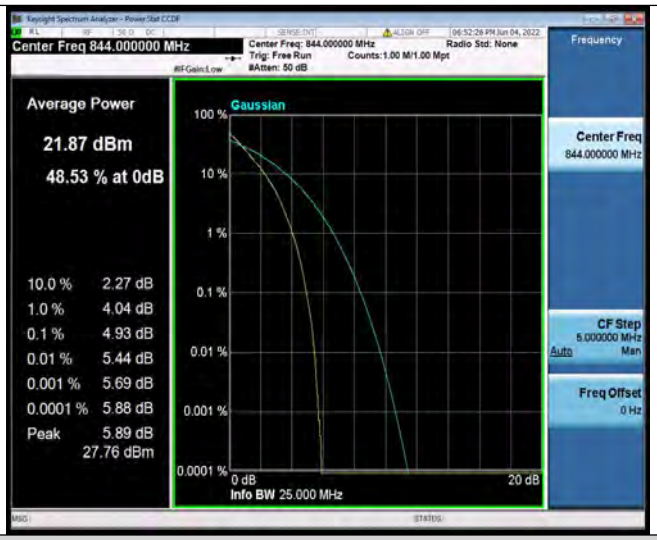

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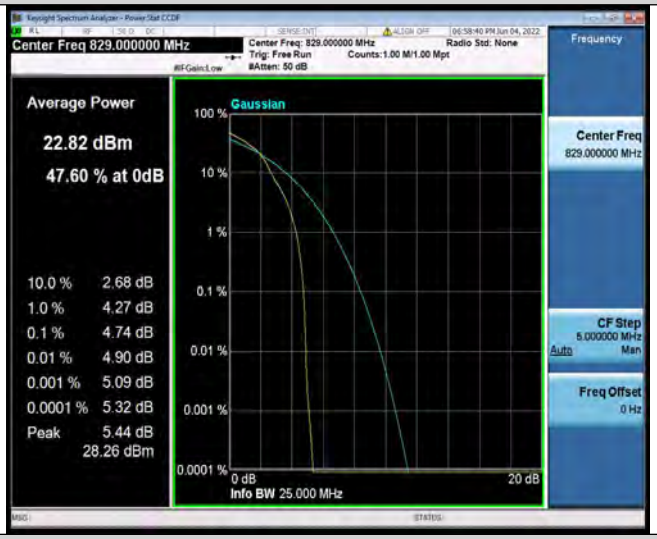

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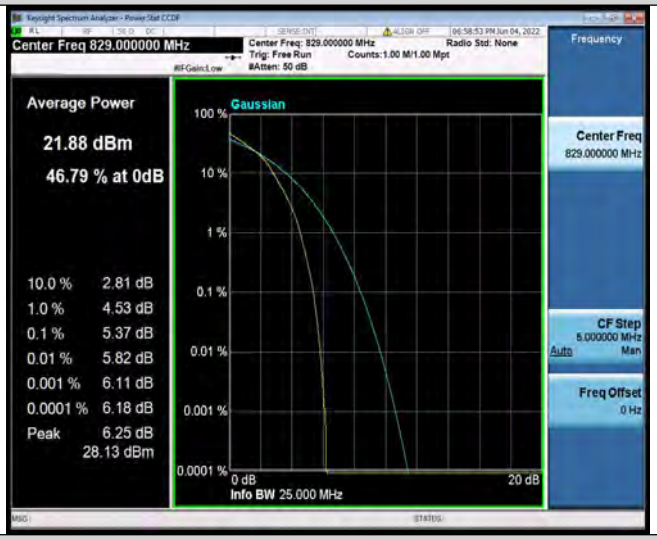
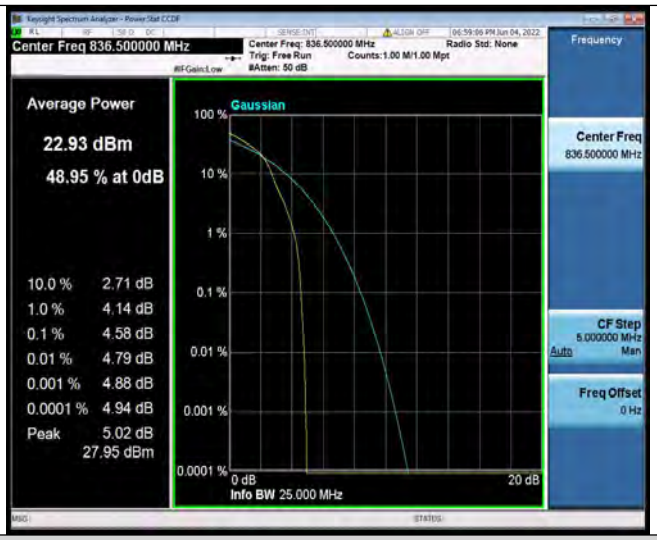
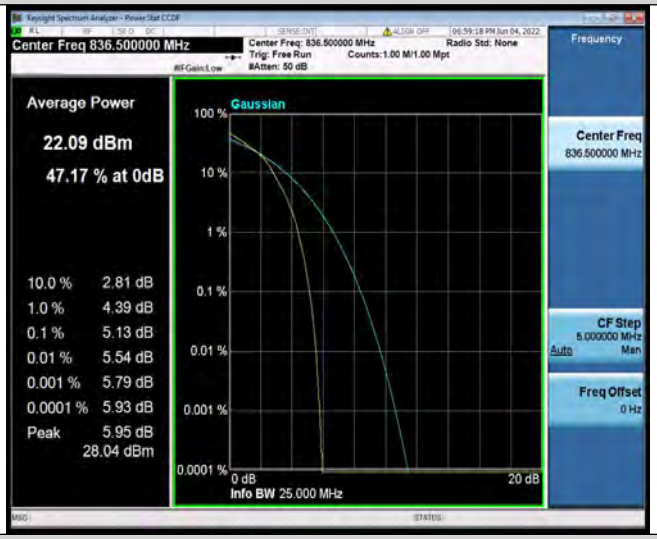


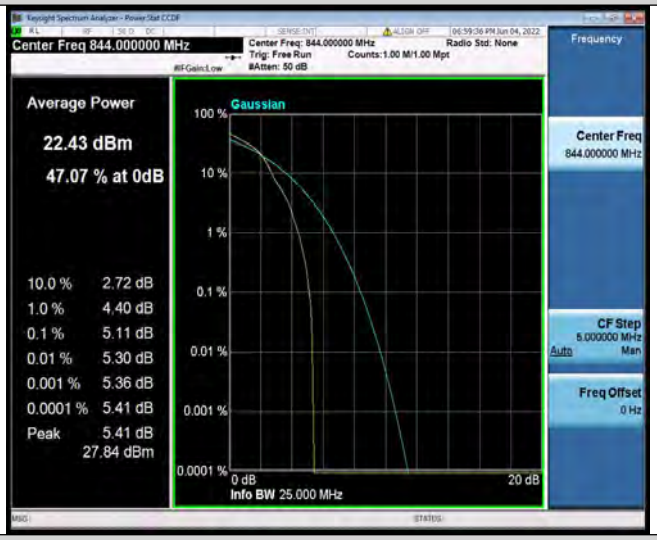
Band5-10MHz-16QAM-20525-1RB#0



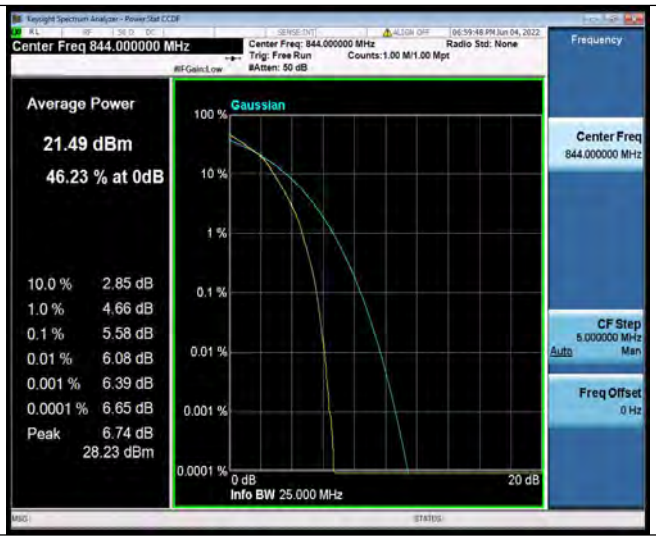
Band5-10MHz-16QAM-20525-27RB#0



Band5-10MHz-16QAM-20600-1RB#0



Band5-10MHz-16QAM-20600-27RB#0


Center Freq 844.000000 MHz
Center Freq: 844.000000 MHz
Trig: Free Run
#Atten: 50 dB
Radio Std: None
Counts: 1.00 M/1.00 Mpt
Frequency
Average Power
21.49 dBm
46.23 % at 0dB
10.0 % 2.85 dB
1.0 % 4.66 dB
0.1 % 5.58 dB
0.01 % 6.08 dB
0.001 % 6.39 dB
0.0001 % 6.65 dB
Peak 6.74 dB
28.23 dBm
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0 dB
20 dB
Info BW 25.000 MHz
Center Freq
844.000000 MHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz

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	1.0854	1.344	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	1.0881	1.346	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	1.0855	1.338	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	1.0912	1.379	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	1.0841	1.373	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	1.0889	1.362	PASS
Band5	3MHz	QPSK	20415	15RB#0	2.6803	3.000	PASS
Band5	3MHz	QPSK	20525	15RB#0	2.6803	3.000	PASS
Band5	3MHz	QPSK	20635	15RB#0	2.6778	2.965	PASS
Band5	3MHz	16QAM	20415	15RB#0	2.6825	2.994	PASS
Band5	3MHz	16QAM	20525	15RB#0	2.6808	2.990	PASS
Band5	3MHz	16QAM	20635	15RB#0	2.6769	3.021	PASS
Band5	5MHz	QPSK	20425	25RB#0	4.4761	4.901	PASS
Band5	5MHz	QPSK	20525	25RB#0	4.4702	4.901	PASS
Band5	5MHz	QPSK	20625	25RB#0	4.4822	4.887	PASS
Band5	5MHz	16QAM	20425	25RB#0	4.4793	4.896	PASS
Band5	5MHz	16QAM	20525	25RB#0	4.4828	4.929	PASS
Band5	5MHz	16QAM	20625	25RB#0	4.4792	4.847	PASS
Band5	10MHz	QPSK	20450	50RB#0	8.9326	9.513	PASS
Band5	10MHz	QPSK	20525	50RB#0	8.9259	9.487	PASS
Band5	10MHz	QPSK	20600	50RB#0	8.9449	9.534	PASS
Band5	10MHz	16QAM	20450	27RB#0	4.9155	5.639	PASS
Band5	10MHz	16QAM	20525	27RB#0	4.9268	5.554	PASS
Band5	10MHz	16QAM	20600	27RB#0	4.9155	5.699	PASS

Test Graphs

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

Band5-1.4MHz-QPSK-20525-6RB#0

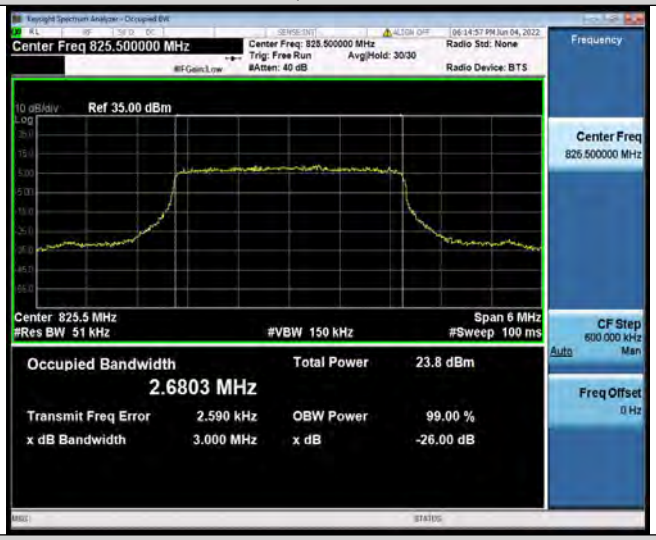
Band5-1.4MHz-QPSK-20643-6RB#0

Band5-1.4MHz-16QAM-20407-6RB#0

Band5-1.4MHz-16QAM-20525-6RB#0

Band5-1.4MHz-16QAM-20643-6RB#0

Band5-3MHz-QPSK-20415-15RB#0



Band5-3MHz-QPSK-20525-15RB#0

Band5-3MHz-QPSK-20635-15RB#0

Band5-3MHz-16QAM-20415-15RB#0

Band5-3MHz-16QAM-20525-15RB#0

Band5-3MHz-16QAM-20635-15RB#0

Band5-5MHz-QPSK-20425-25RB#0

Band5-5MHz-QPSK-20525-25RB#0

Band5-5MHz-QPSK-20625-25RB#0

Band5-5MHz-16QAM-20425-25RB#0

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

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

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

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

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

Band5-10MHz-16QAM-20450-27RB#0

Band5-10MHz-16QAM-20525-27RB#0

Band5-10MHz-16QAM-20600-27RB#0


Center Freq 844.000000 MHz
Center Freq: 844.000000 MHz
Trig: Free Run
Avg|Hold: 30/30
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 12.03 dB
10 dB/div
Ref 35.00 dBm
Log
Center Freq
844.000000 MHz
Center 844 MHz
#Res BW 200 kHz
#VBW 620 kHz
Span 20 MHz
#Sweep 100 ms
CF Step
2.000000 MHz
Auto
Man
Occupied Bandwidth
4.9155 MHz
Total Power
22.5 dBm
Transmit Freq Error
-2.0556 MHz
OBW Power
99.00 %
x dB Bandwidth
5.699 MHz
x dB
-26.00 dB
Freq Offset
0 Hz

BAND EDGE

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	-19.97	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	-20.89	PASS
Band5	1.4MHz	QPSK	20643	1RB#5	-20.31	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	-21.17	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	-19.35	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	-20.82	PASS
Band5	1.4MHz	16QAM	20643	1RB#5	-19.59	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	-20.69	PASS
Band5	3MHz	QPSK	20415	1RB#0	-18.52	PASS
Band5	3MHz	QPSK	20415	15RB#0	-21.28	PASS
Band5	3MHz	QPSK	20635	1RB#14	-18.34	PASS
Band5	3MHz	QPSK	20635	15RB#0	-21.56	PASS
Band5	3MHz	16QAM	20415	1RB#0	-18.38	PASS
Band5	3MHz	16QAM	20415	15RB#0	-21.11	PASS
Band5	3MHz	16QAM	20635	1RB#14	-17.95	PASS
Band5	3MHz	16QAM	20635	15RB#0	-20.71	PASS
Band5	5MHz	QPSK	20425	1RB#0	-24.43	PASS
Band5	5MHz	QPSK	20425	25RB#0	-23.98	PASS
Band5	5MHz	QPSK	20625	1RB#24	-23.87	PASS
Band5	5MHz	QPSK	20625	25RB#0	-24.66	PASS
Band5	5MHz	16QAM	20425	1RB#0	-23.95	PASS
Band5	5MHz	16QAM	20425	25RB#0	-23.16	PASS
Band5	5MHz	16QAM	20625	1RB#24	-23.52	PASS
Band5	5MHz	16QAM	20625	25RB#0	-24.42	PASS
Band5	10MHz	QPSK	20450	1RB#0	-40.28	PASS
Band5	10MHz	QPSK	20450	50RB#0	-29.33	PASS
Band5	10MHz	QPSK	20600	1RB#49	-41.55	PASS
Band5	10MHz	QPSK	20600	50RB#0	-30.32	PASS
Band5	10MHz	16QAM	20450	1RB#0	-40.38	PASS
Band5	10MHz	16QAM	20450	27RB#0	-25.80	PASS
Band5	10MHz	16QAM	20600	1RB#49	-40.85	PASS
Band5	10MHz	16QAM	20600	27RB#23	-27.02	PASS

Test Graphs

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

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

Band5-1.4MHz-QPSK-20643-1RB#5

Band5-1.4MHz-QPSK-20643-6RB#0

Band5-1.4MHz-16QAM-20407-1RB#0

Band5-1.4MHz-16QAM-20407-6RB#0

Band5-1.4MHz-16QAM-20643-1RB#5

Band5-1.4MHz-16QAM-20643-6RB#0

Band5-3MHz-QPSK-20415-1RB#0

Band5-3MHz-QPSK-20415-15RB#0

Band5-3MHz-QPSK-20635-1RB#14

Band5-3MHz-QPSK-20635-15RB#0

Band5-3MHz-16QAM-20415-1RB#0

Band5-3MHz-16QAM-20415-15RB#0

Band5-3MHz-16QAM-20635-1RB#14

Band5-3MHz-16QAM-20635-15RB#0

Band5-5MHz-QPSK-20425-1RB#0

Band5-5MHz-QPSK-20425-25RB#0

Band5-5MHz-QPSK-20625-1RB#24

Band5-5MHz-QPSK-20625-25RB#0

Band5-5MHz-16QAM-20425-1RB#0

Band5-5MHz-16QAM-20425-25RB#0

Band5-5MHz-16QAM-20625-1RB#24

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

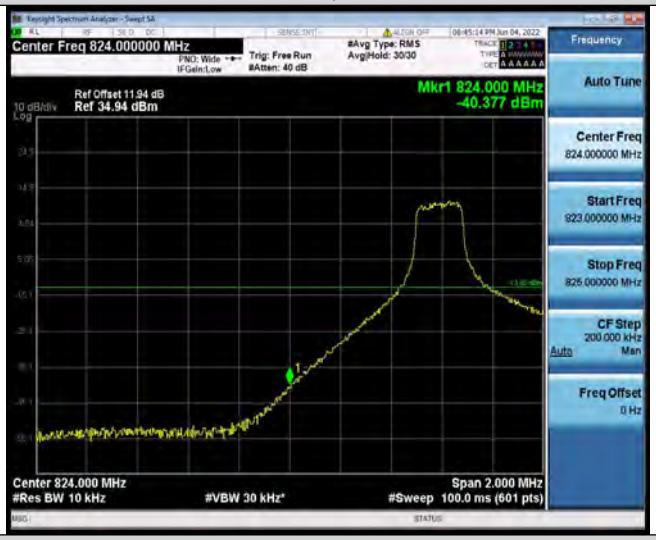
Band5-10MHz-QPSK-20450-1RB#0

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

Band5-10MHz-QPSK-20600-1RB#49

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

Band5-10MHz-16QAM-20450-1RB#0



Band5-10MHz-16QAM-20450-27RB#0

Band5-10MHz-16QAM-20600-1RB#49

Band5-10MHz-16QAM-20600-27RB#23

CONDUCTED SPURIOUS EMISSION

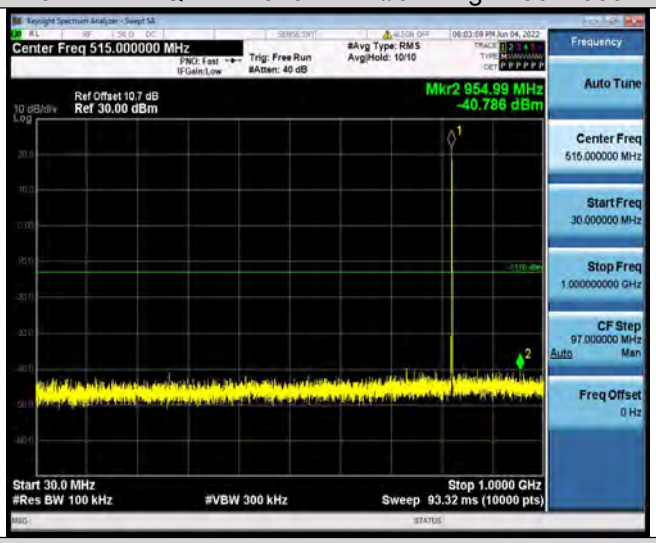
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	Range1:30~1000MHz	-40.79	PASS
Band5	1.4MHz	QPSK	20407	1RB#0	Range2:1000~10000MHz	-34.81	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	Range1:30~1000MHz	-40.21	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	Range2:1000~10000MHz	-35.08	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	Range1:30~1000MHz	-40.27	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	Range2:1000~10000MHz	-34.64	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	Range1:30~1000MHz	-40.58	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	Range2:1000~10000MHz	-34.78	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	Range1:30~1000MHz	-40.43	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	Range2:1000~10000MHz	-34.78	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	Range1:30~1000MHz	-40.46	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	Range2:1000~10000MHz	-34.53	PASS
Band5	3MHz	QPSK	20415	1RB#0	Range1:30~1000MHz	-40.87	PASS
Band5	3MHz	QPSK	20415	1RB#0	Range2:1000~10000MHz	-35.02	PASS
Band5	3MHz	QPSK	20525	1RB#0	Range1:30~1000MHz	-41.02	PASS
Band5	3MHz	QPSK	20525	1RB#0	Range2:1000~10000MHz	-34.46	PASS
Band5	3MHz	QPSK	20635	1RB#0	Range1:30~1000MHz	-40.19	PASS
Band5	3MHz	QPSK	20635	1RB#0	Range2:1000~10000MHz	-35.01	PASS
Band5	3MHz	16QAM	20415	1RB#0	Range1:30~1000MHz	-39.93	PASS
Band5	3MHz	16QAM	20415	1RB#0	Range2:1000~10000MHz	-34.27	PASS
Band5	3MHz	16QAM	20525	1RB#0	Range1:30~1000MHz	-41.33	PASS
Band5	3MHz	16QAM	20525	1RB#0	Range2:1000~10000MHz	-35.34	PASS
Band5	3MHz	16QAM	20635	1RB#0	Range1:30~1000MHz	-41.26	PASS
Band5	3MHz	16QAM	20635	1RB#0	Range2:1000~10000MHz	-35.09	PASS
Band5	5MHz	QPSK	20425	1RB#0	Range1:30~1000MHz	-41.37	PASS
Band5	5MHz	QPSK	20425	1RB#0	Range2:1000~10000MHz	-35.27	PASS
Band5	5MHz	QPSK	20525	1RB#0	Range1:30~1000MHz	-40.9	PASS
Band5	5MHz	QPSK	20525	1RB#0	Range2:1000~10000MHz	-33.11	PASS
Band5	5MHz	QPSK	20625	1RB#0	Range1:30~1000MHz	-40.2	PASS
Band5	5MHz	QPSK	20625	1RB#0	Range2:1000~10000MHz	-35.17	PASS
Band5	5MHz	16QAM	20425	1RB#0	Range1:30~1000MHz	-40	PASS
Band5	5MHz	16QAM	20425	1RB#0	Range2:1000~10000MHz	-34.36	PASS
Band5	5MHz	16QAM	20525	1RB#0	Range1:30~1000MHz	-39.35	PASS
Band5	5MHz	16QAM	20525	1RB#0	Range2:1000~10000MHz	-35.03	PASS
Band5	5MHz	16QAM	20625	1RB#0	Range1:30~1000MHz	-41.27	PASS
Band5	5MHz	16QAM	20625	1RB#0	Range2:1000~10000MHz	-34.54	PASS
Band5	10MHz	QPSK	20450	1RB#0	Range1:30~1000MHz	-40.42	PASS
Band5	10MHz	QPSK	20450	1RB#0	Range2:1000~10000MHz	-33.48	PASS
Band5	10MHz	QPSK	20525	1RB#0	Range1:30~1000MHz	-40.81	PASS
Band5	10MHz	QPSK	20525	1RB#0	Range2:1000~10000MHz	-35.23	PASS
Band5	10MHz	QPSK	20600	1RB#0	Range1:30~1000MHz	-40.6	PASS
Band5	10MHz	QPSK	20600	1RB#0	Range2:1000~10000MHz	-35.48	PASS
Band5	10MHz	16QAM	20450	1RB#0	Range1:30~1000MHz	-40.93	PASS
Band5	10MHz	16QAM	20450	1RB#0	Range2:1000~10000MHz	-34.26	PASS

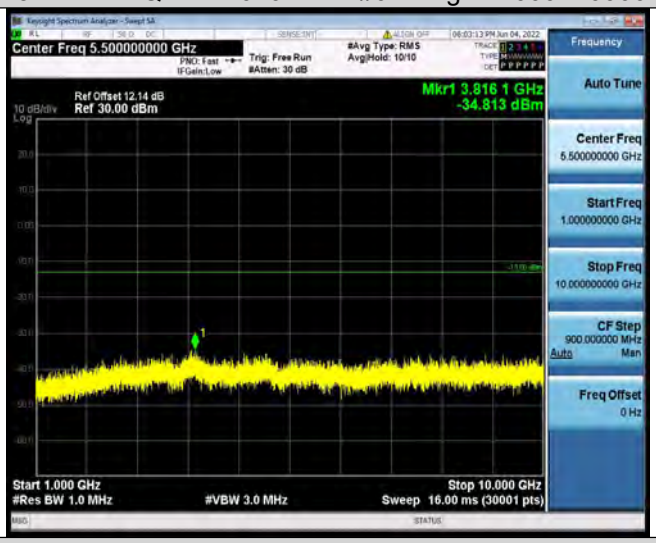
Band5	10MHz	16QAM	20525	1RB#0	Range1:30~1000MHz	-40.78	PASS
Band5	10MHz	16QAM	20525	1RB#0	Range2:1000~10000MHz	-34.64	PASS
Band5	10MHz	16QAM	20600	1RB#0	Range1:30~1000MHz	-41.06	PASS
Band5	10MHz	16QAM	20600	1RB#0	Range2:1000~10000MHz	-35.14	PASS

Test Graphs

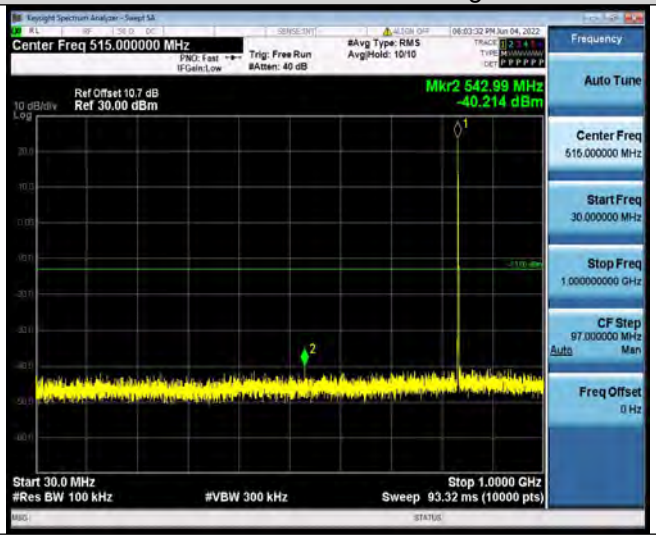
Band5-1.4MHz-QPSK-20407-1RB#0-Range1:30~1000MHz



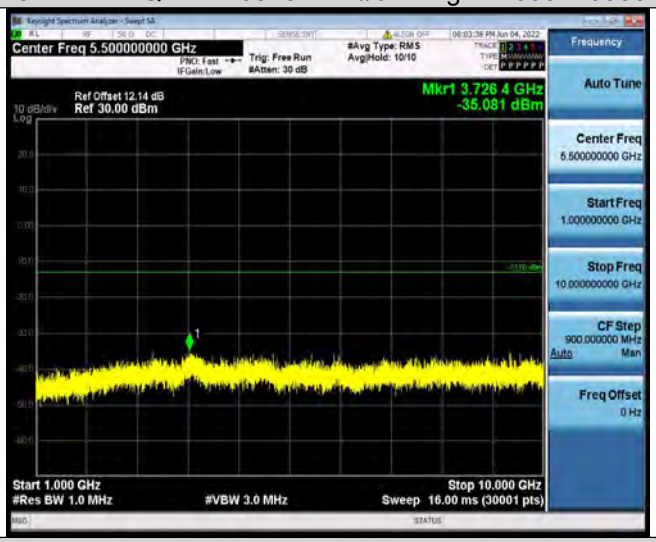
Band5-1.4MHz-QPSK-20407-1RB#0-Range2:1000~10000MHz



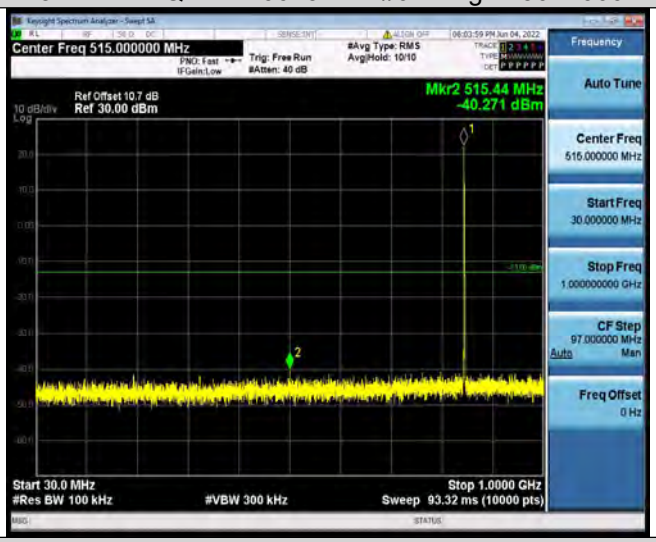
Band5-1.4MHz-QPSK-20525-1RB#0-Range1:30~1000MHz



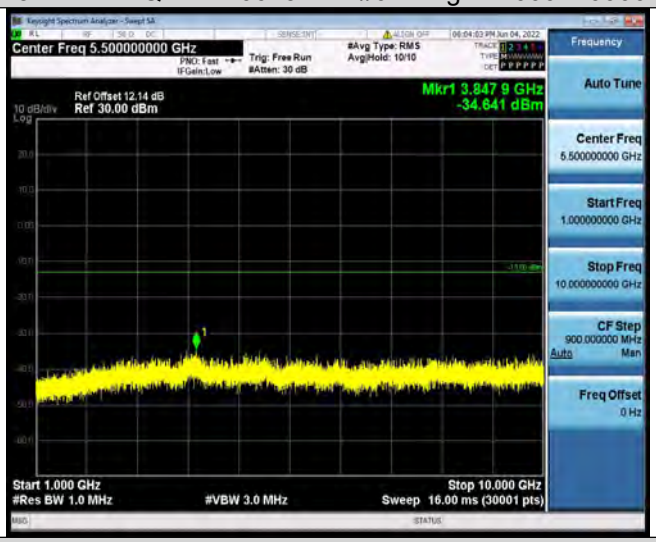
Band5-1.4MHz-QPSK-20525-1RB#0-Range2:1000~10000MHz



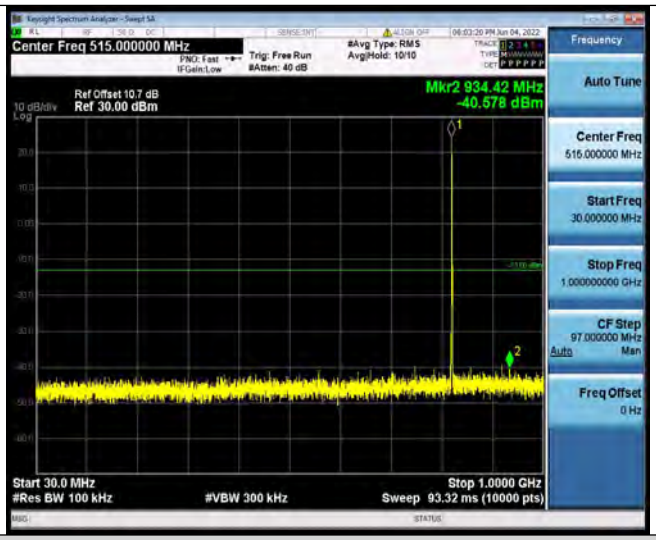
Band5-1.4MHz-QPSK-20643-1RB#0-Range1:30~1000MHz



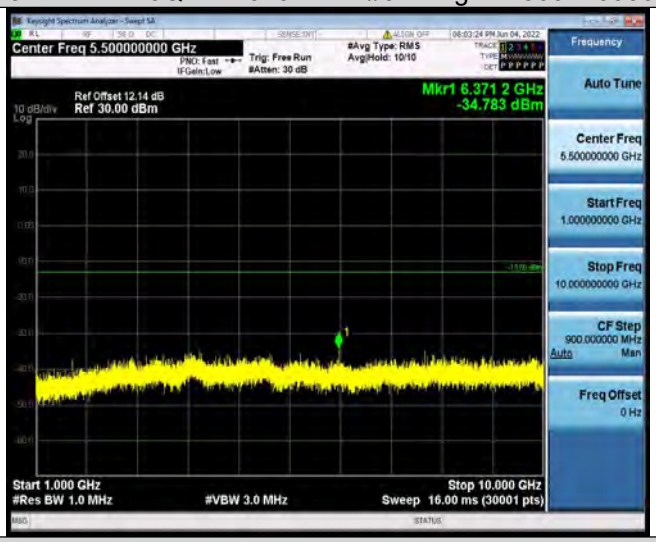
Band5-1.4MHz-QPSK-20643-1RB#0-Range2:1000~10000MHz



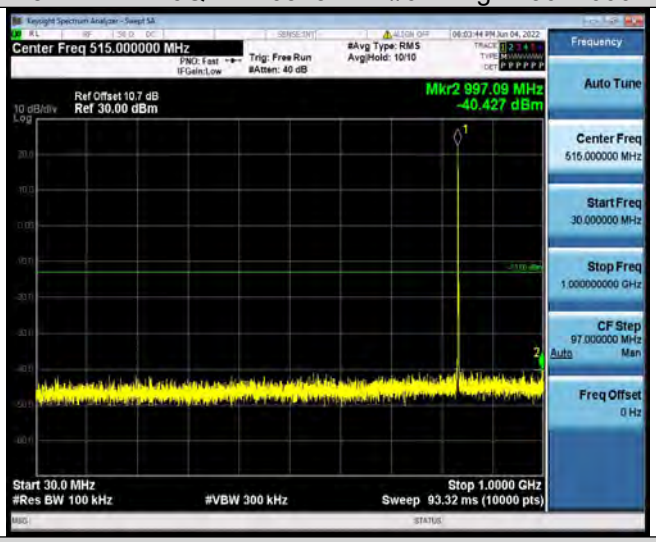
Band5-1.4MHz-16QAM-20407-1RB#0-Range1:30~1000MHz



Band5-1.4MHz-16QAM-20407-1RB#0-Range2:1000~10000MHz

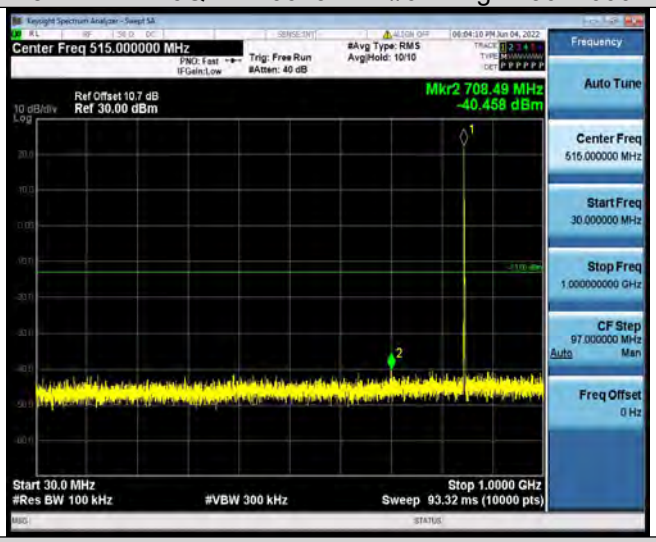


Band5-1.4MHz-16QAM-20525-1RB#0-Range1:30~1000MHz

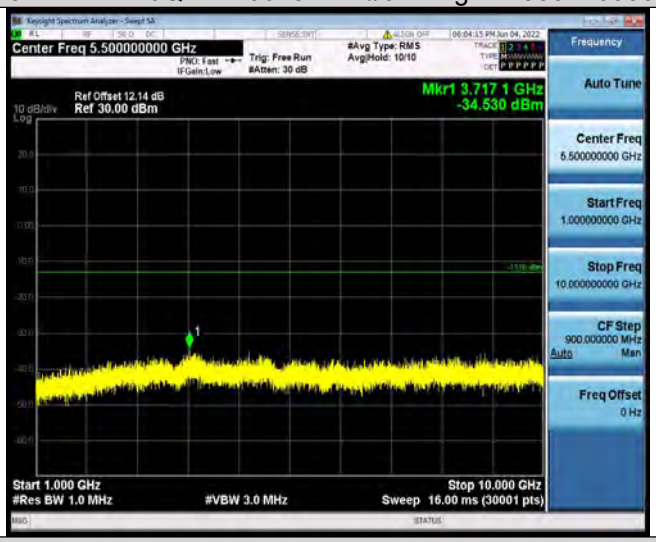


Band5-1.4MHz-16QAM-20525-1RB#0-Range2:1000~10000MHz

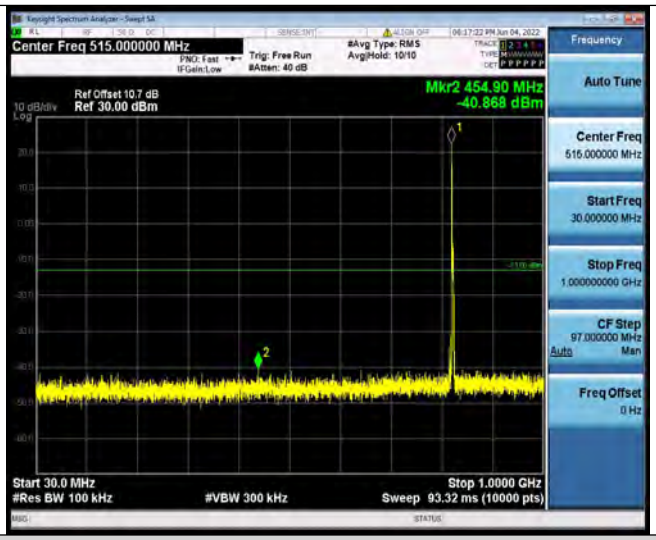
Band5-1.4MHz-16QAM-20643-1RB#0-Range1:30~1000MHz



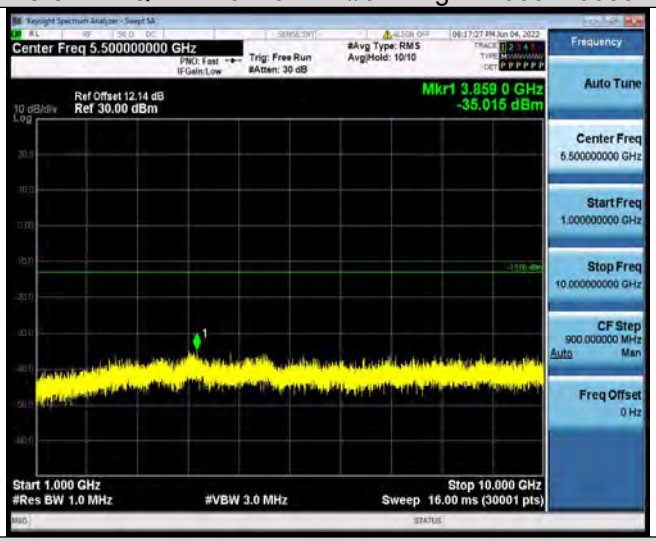
Band5-1.4MHz-16QAM-20643-1RB#0-Range2:1000~10000MHz



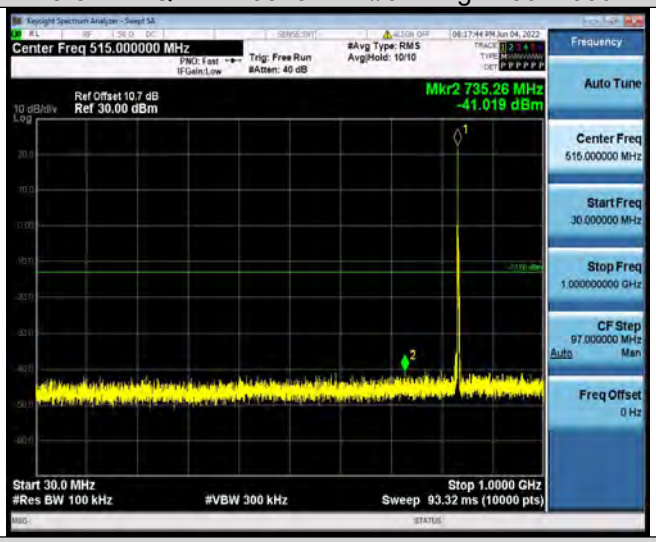
Band5-3MHz-QPSK-20415-1RB#0-Range1:30~1000MHz



Band5-3MHz-QPSK-20415-1RB#0-Range2:1000~10000MHz

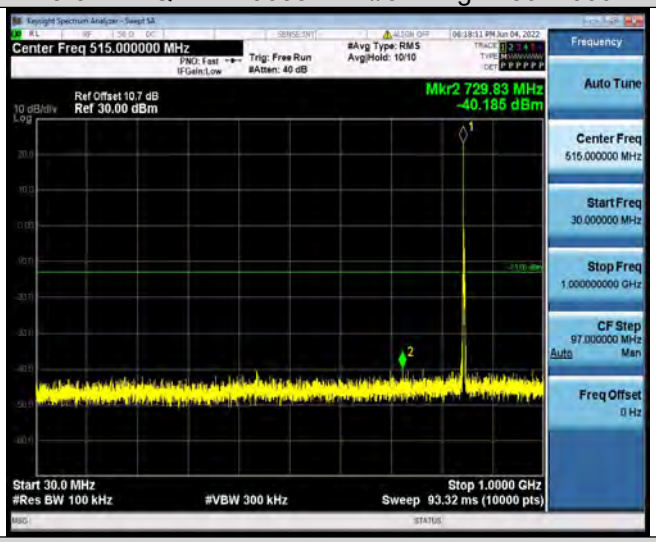


Band5-3MHz-QPSK-20525-1RB#0-Range1:30~1000MHz

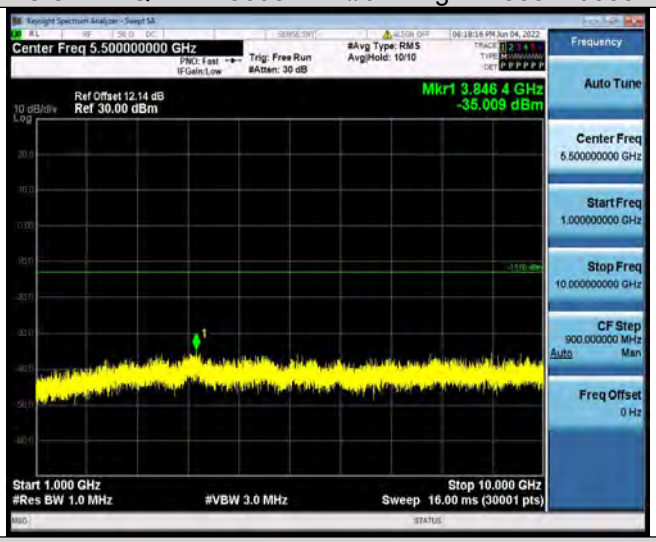


Band5-3MHz-QPSK-20525-1RB#0-Range2:1000~10000MHz

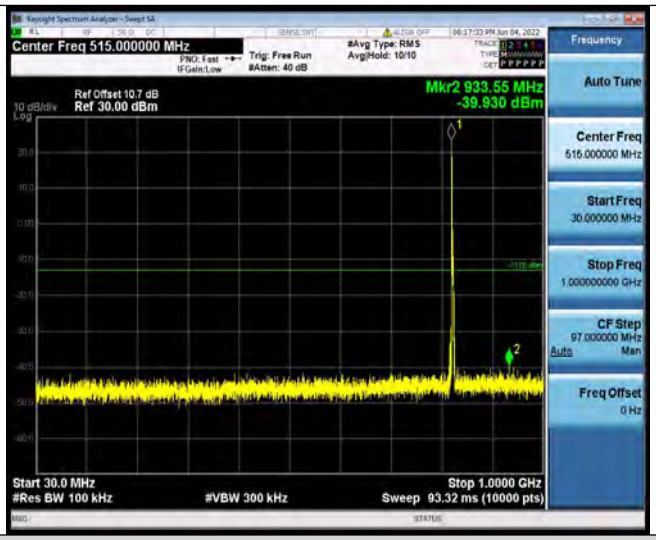
Band5-3MHz-QPSK-20635-1RB#0-Range1:30~1000MHz



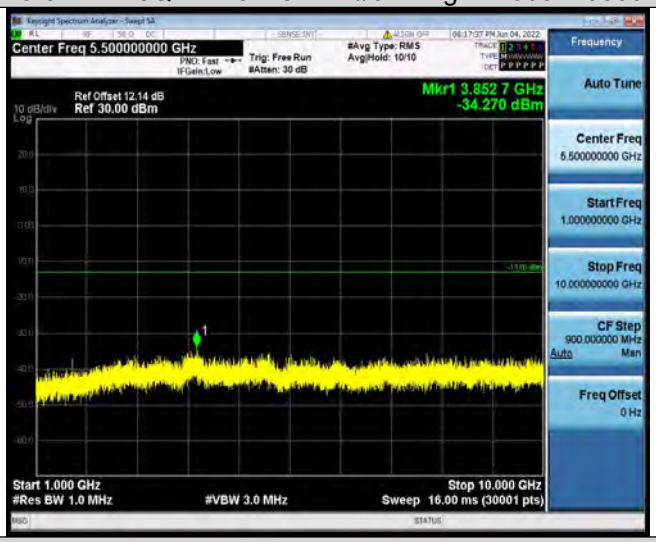
Band5-3MHz-QPSK-20635-1RB#0-Range2:1000~10000MHz



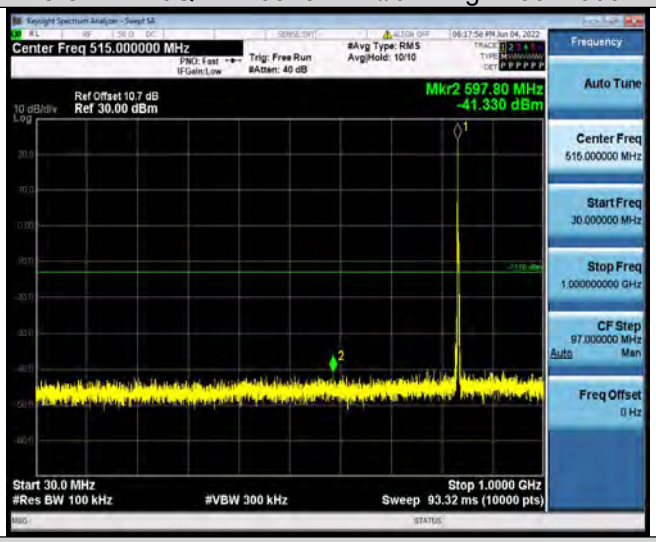
Band5-3MHz-16QAM-20415-1RB#0-Range1:30~1000MHz



Band5-3MHz-16QAM-20415-1RB#0-Range2:1000~10000MHz

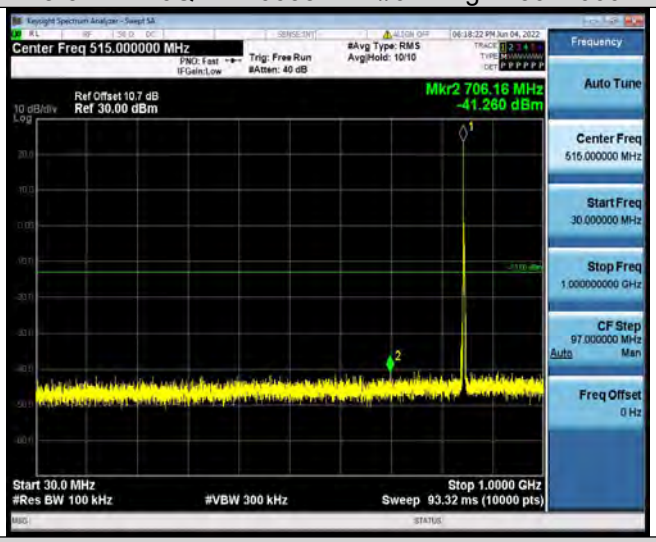


Band5-3MHz-16QAM-20525-1RB#0-Range1:30~1000MHz

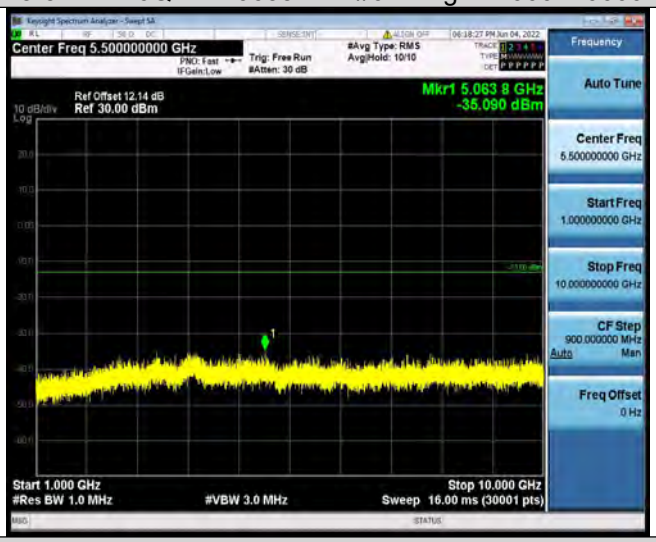


Band5-3MHz-16QAM-20525-1RB#0-Range2:1000~10000MHz

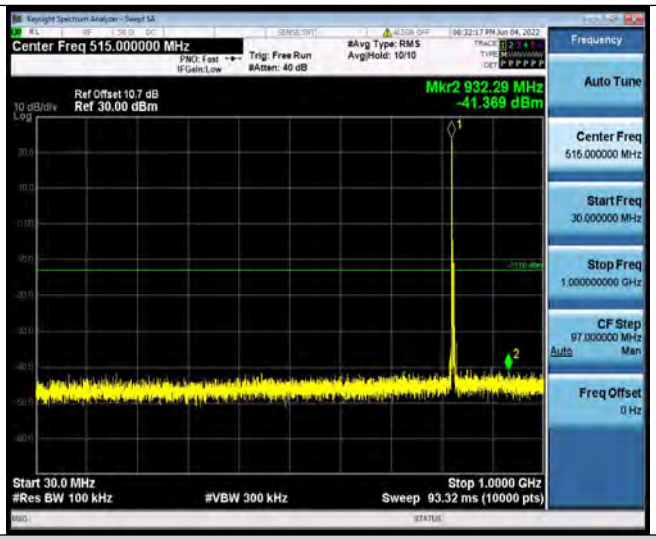
Band5-3MHz-16QAM-20635-1RB#0-Range1:30~1000MHz



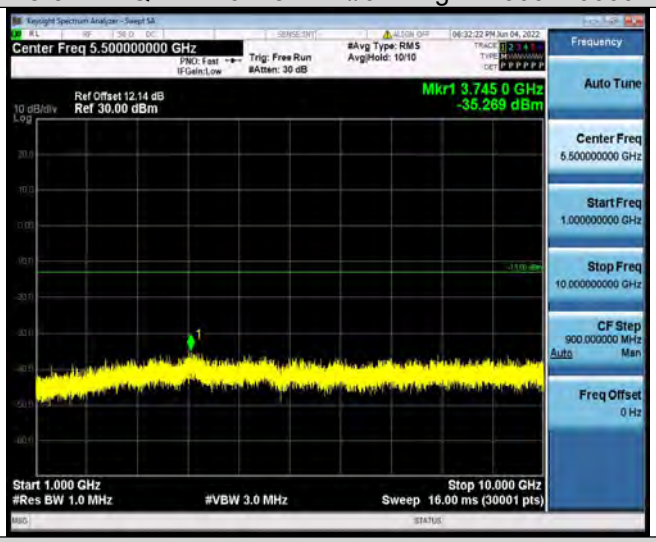
Band5-3MHz-16QAM-20635-1RB#0-Range2:1000~10000MHz



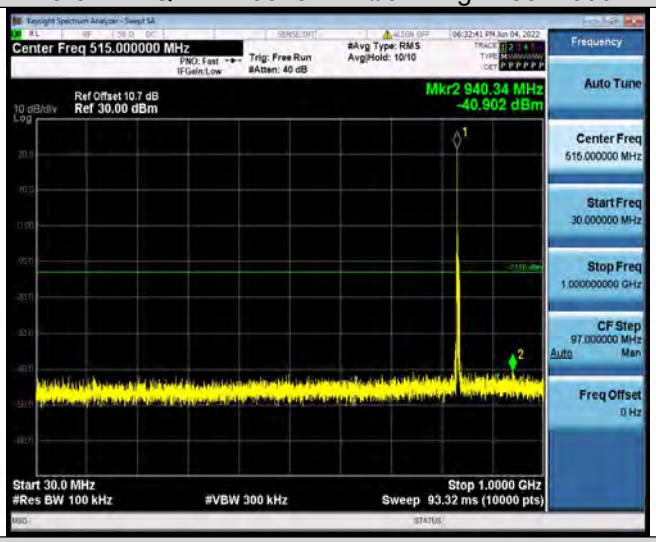
Band5-5MHz-QPSK-20425-1RB#0-Range1:30~1000MHz



Band5-5MHz-QPSK-20425-1RB#0-Range2:1000~10000MHz

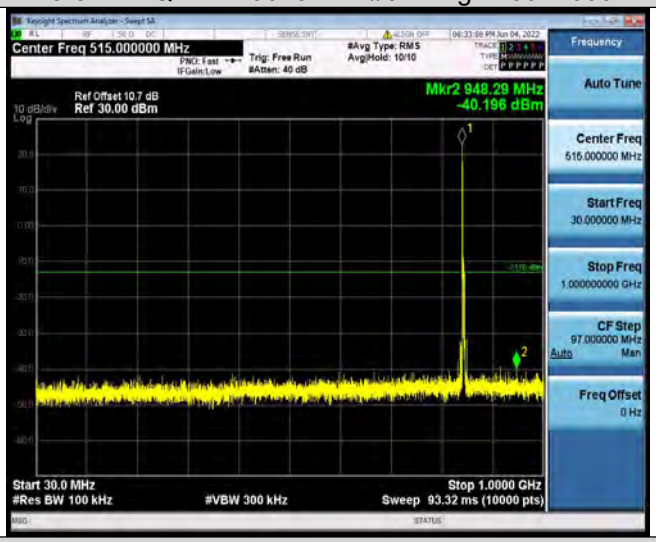


Band5-5MHz-QPSK-20525-1RB#0-Range1:30~1000MHz

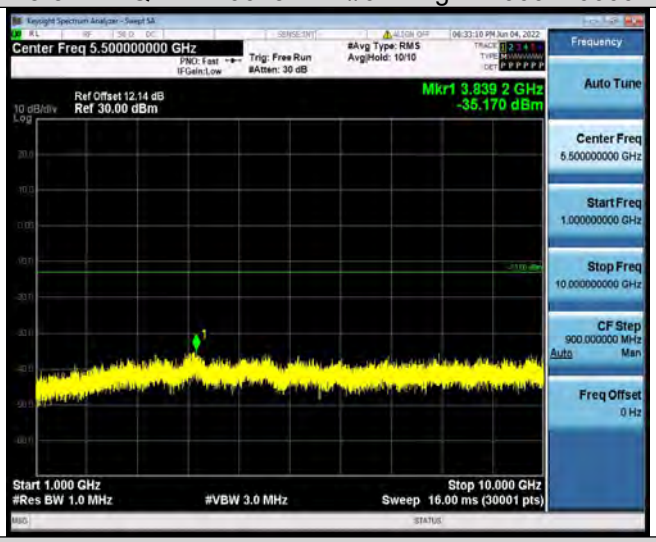


Band5-5MHz-QPSK-20525-1RB#0-Range2:1000~10000MHz

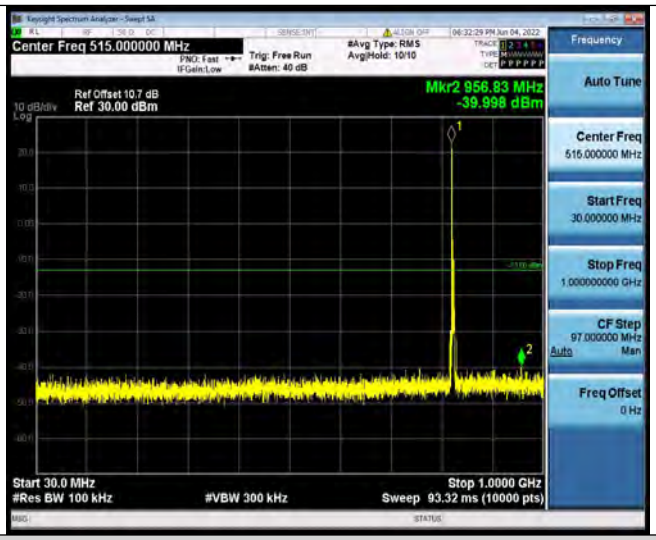
Band5-5MHz-QPSK-20625-1RB#0-Range1:30~1000MHz



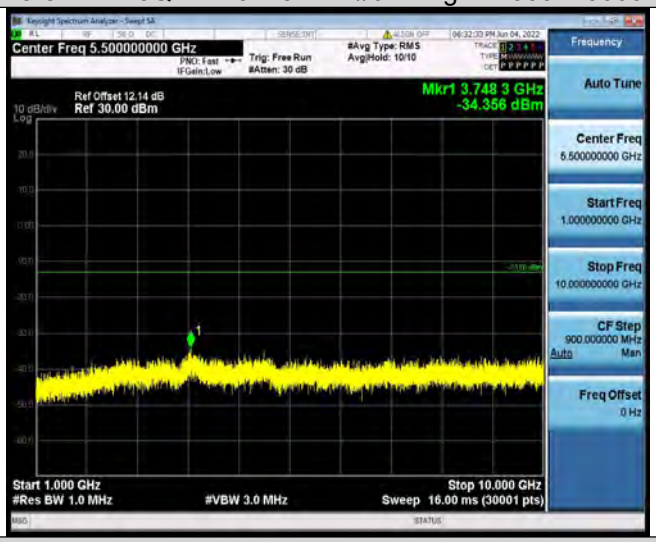
Band5-5MHz-QPSK-20625-1RB#0-Range2:1000~10000MHz



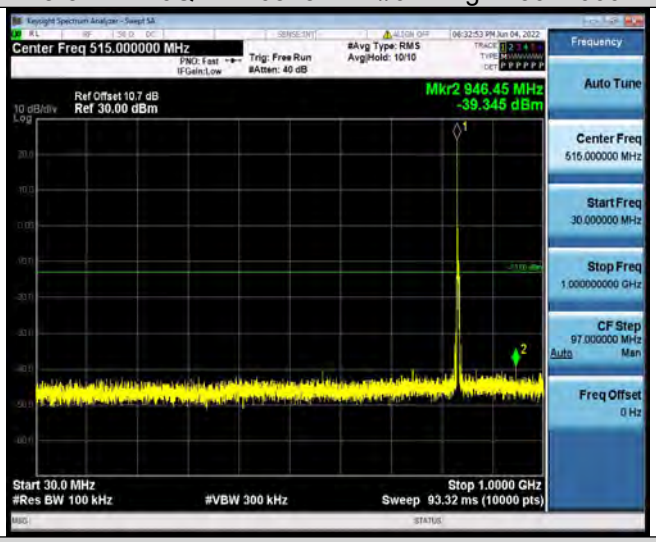
Band5-5MHz-16QAM-20425-1RB#0-Range1:30~1000MHz



Band5-5MHz-16QAM-20425-1RB#0-Range2:1000~10000MHz

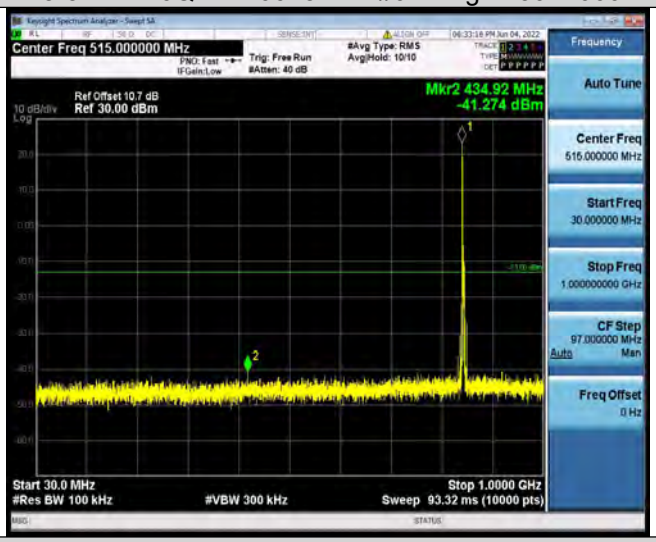


Band5-5MHz-16QAM-20525-1RB#0-Range1:30~1000MHz

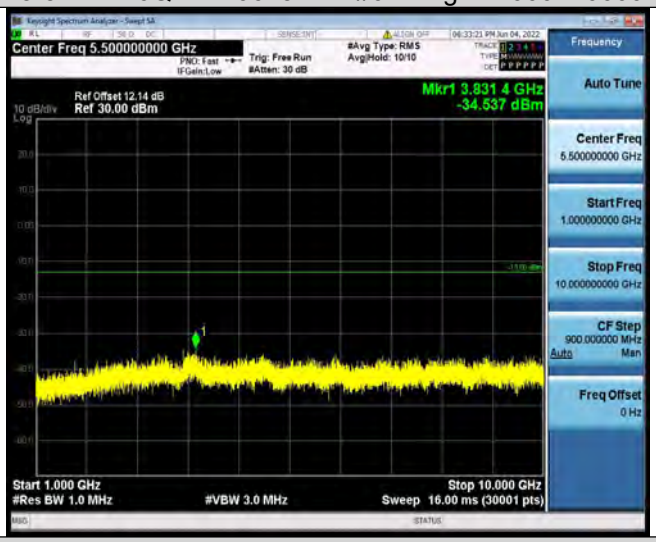


Band5-5MHz-16QAM-20525-1RB#0-Range2:1000~10000MHz

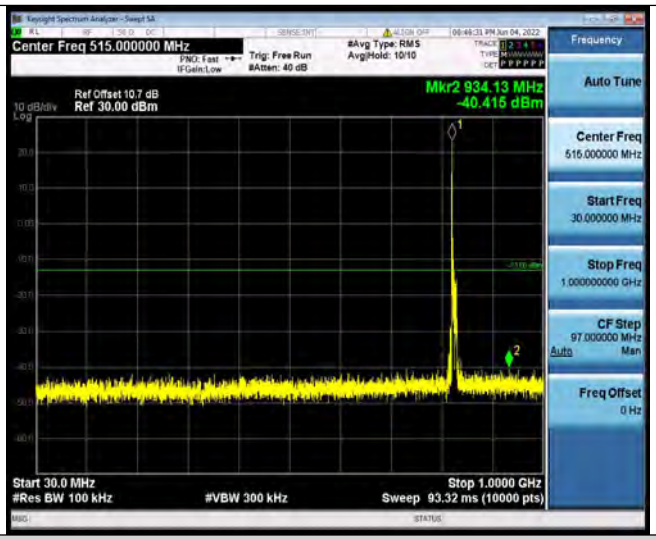
Band5-5MHz-16QAM-20625-1RB#0-Range1:30~1000MHz



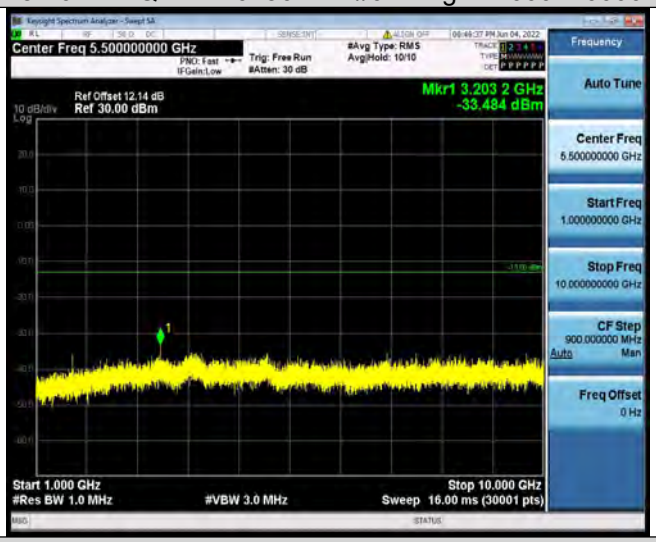
Band5-5MHz-16QAM-20625-1RB#0-Range2:1000~10000MHz



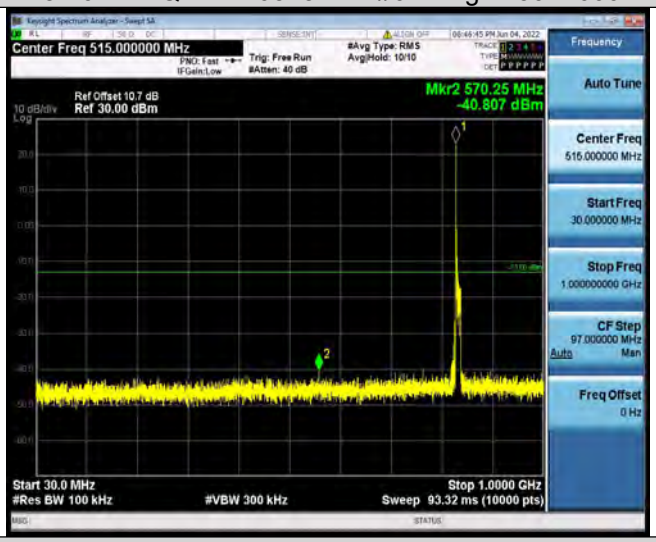
Band5-10MHz-QPSK-20450-1RB#0-Range1:30~1000MHz



Band5-10MHz-QPSK-20450-1RB#0-Range2:1000~10000MHz

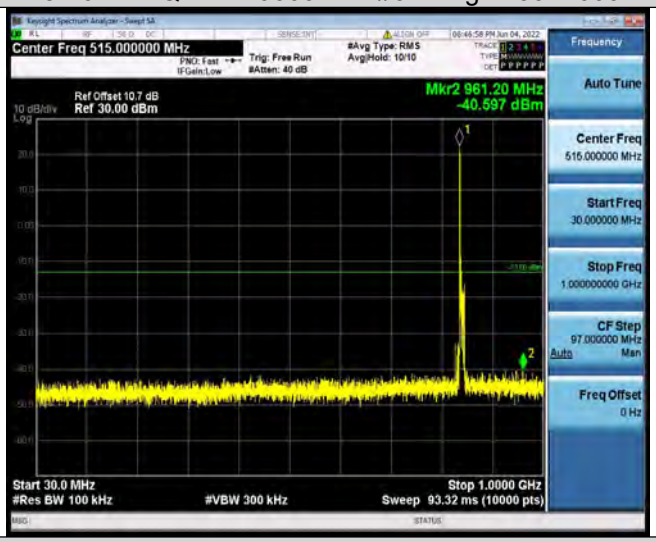


Band5-10MHz-QPSK-20525-1RB#0-Range1:30~1000MHz

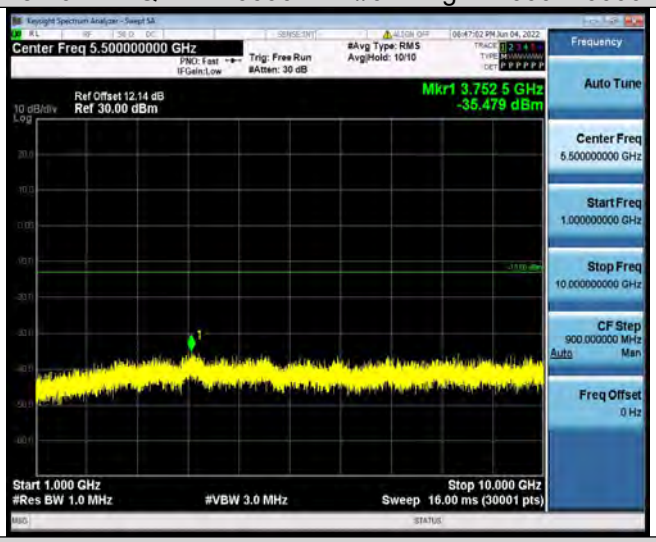


Band5-10MHz-QPSK-20525-1RB#0-Range2:1000~10000MHz

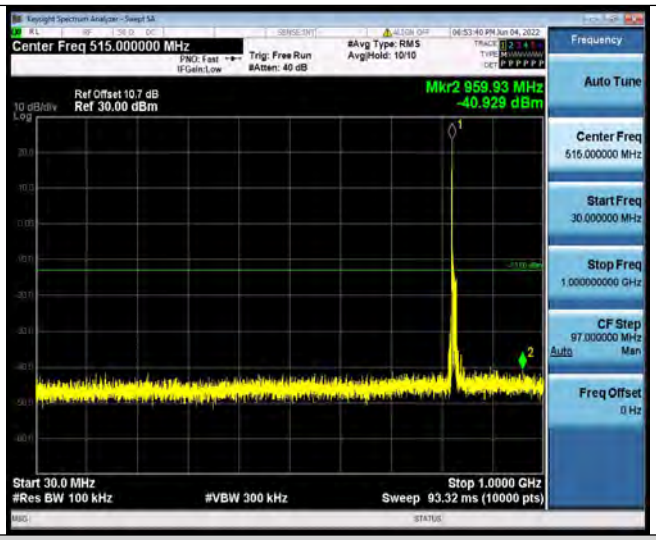
Band5-10MHz-QPSK-20600-1RB#0-Range1:30~1000MHz



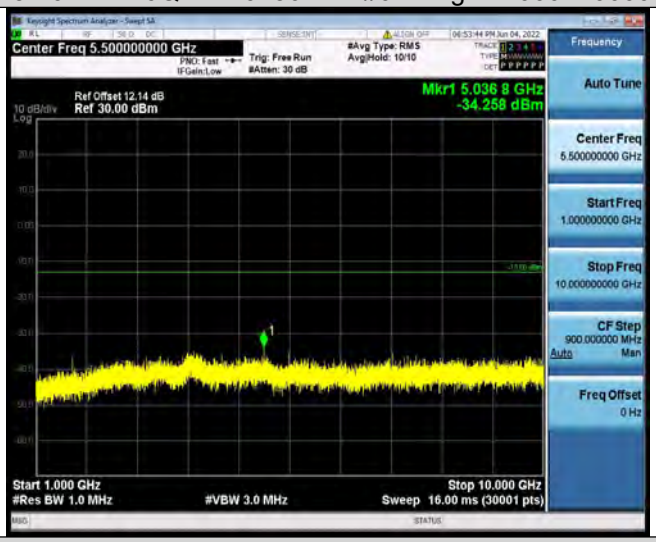
Band5-10MHz-QPSK-20600-1RB#0-Range2:1000~10000MHz



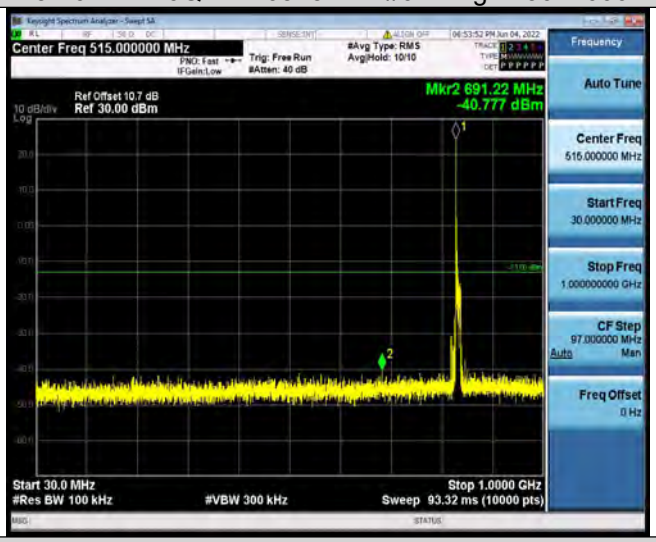
Band5-10MHz-16QAM-20450-1RB#0-Range1:30~1000MHz



Band5-10MHz-16QAM-20450-1RB#0-Range2:1000~10000MHz

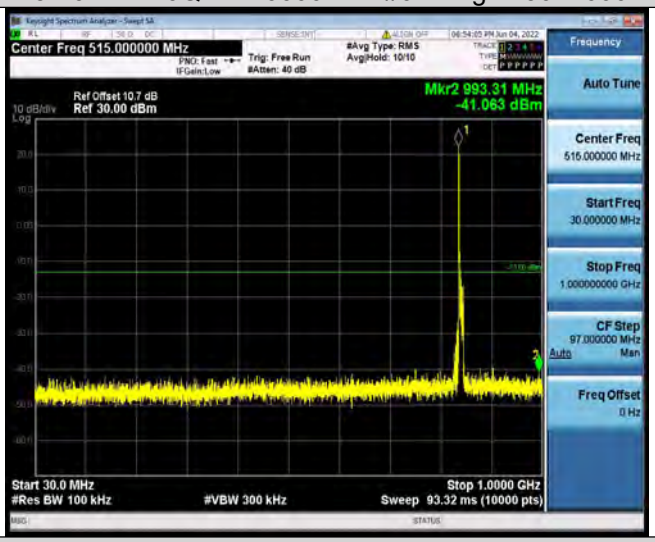


Band5-10MHz-16QAM-20525-1RB#0-Range1:30~1000MHz

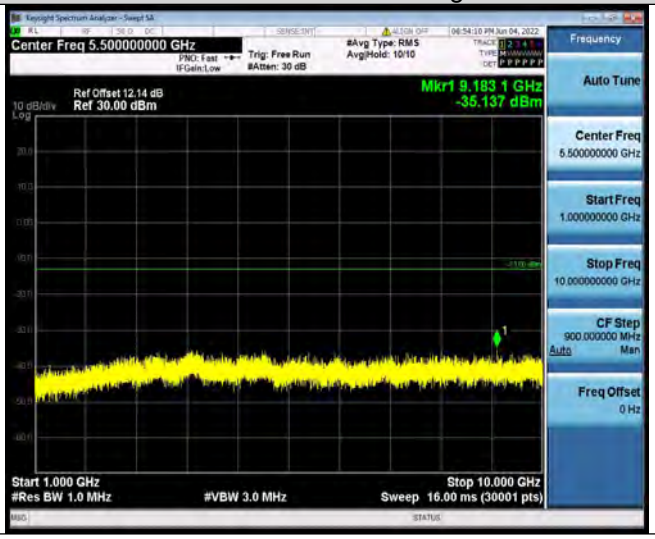


Band5-10MHz-16QAM-20525-1RB#0-Range2:1000~10000MHz

Band5-10MHz-16QAM-20600-1RB#0-Range1:30~1000MHz



Band5-10MHz-16QAM-20600-1RB#0-Range2:1000~10000MHz



FREQUENCY STABILITY

Test Result

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	1.4MHz	QPSK	20407	6RB#0	VL	NT	-6.24	-0.007566	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	VN	NT	-5.56	-0.006742	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	VH	NT	-6.22	-0.007542	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	VL	NT	-3.10	-0.003706	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	VN	NT	-4.28	-0.005117	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	VH	NT	-4.16	-0.004973	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	VL	NT	-8.71	-0.010268	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	VN	NT	-7.00	-0.008252	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	VH	NT	-9.04	-0.010657	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	VL	NT	-3.76	-0.004559	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	VN	NT	-6.62	-0.008027	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	VH	NT	-3.58	-0.004341	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	VL	NT	-3.85	-0.004603	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	VN	NT	-4.46	-0.005332	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	VH	NT	-4.19	-0.005009	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	VL	NT	-3.99	-0.004704	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	VN	NT	-7.44	-0.008770	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	VH	NT	-4.06	-0.004786	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	VL	NT	-6.35	-0.007692	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	VN	NT	-6.37	-0.007717	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	VH	NT	-7.00	-0.008480	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	VL	NT	-5.31	-0.006348	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	VN	NT	-3.06	-0.003658	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	VH	NT	-5.36	-0.006408	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	VL	NT	-6.24	-0.007363	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	VN	NT	-3.89	-0.004590	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	VH	NT	-8.20	-0.009676	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	VL	NT	-7.38	-0.008940	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	VN	NT	-6.98	-0.008455	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	VH	NT	-8.43	-0.010212	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	VL	NT	-1.95	-0.002331	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	VN	NT	-3.69	-0.004411	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	VH	NT	-6.28	-0.007507	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	VL	NT	-6.48	-0.007646	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	VN	NT	-5.92	-0.006985	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	VH	NT	-8.61	-0.010159	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	VL	NT	-7.72	-0.009341	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	VN	NT	-8.84	-0.010696	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	VH	NT	-7.57	-0.009159	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	VL	NT	-7.88	-0.009420	±2.5	PASS

Band5	5MHz	QPSK	20525	25RB#0	VN	NT	-3.75	-0.004483	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	VH	NT	-4.46	-0.005332	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	VL	NT	-8.37	-0.009888	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	VN	NT	-3.85	-0.004548	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	VH	NT	-8.57	-0.010124	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	VL	NT	-6.08	-0.007356	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	VN	NT	-8.34	-0.010091	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	VH	NT	-6.25	-0.007562	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	VL	NT	-5.25	-0.006276	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	VN	NT	-3.50	-0.004184	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	VH	NT	-4.63	-0.005535	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	VL	NT	-4.09	-0.004832	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	VN	NT	-8.13	-0.009604	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	VH	NT	-5.69	-0.006722	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	VL	NT	-9.44	-0.011387	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	VN	NT	-6.07	-0.007322	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	VH	NT	-7.91	-0.009542	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	VL	NT	-7.12	-0.008512	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	VN	NT	-3.22	-0.003849	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	VH	NT	-6.84	-0.008177	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	VL	NT	-7.62	-0.009028	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	VN	NT	-3.52	-0.004171	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	VH	NT	-7.55	-0.008945	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	VL	NT	-8.00	-0.009650	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	VN	NT	-7.70	-0.009288	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	VH	NT	-7.67	-0.009252	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	VL	NT	-6.61	-0.007902	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	VN	NT	-6.67	-0.007974	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	VH	NT	-8.63	-0.010317	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	VL	NT	-7.84	-0.009289	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	VN	NT	-6.75	-0.007998	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	VH	NT	-8.14	-0.009645	±2.5	PASS

Temperature										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	1.4MHz	QPSK	20407	6RB#0	NV	-30	-7.10	-0.008609	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	NV	-20	-8.23	-0.009979	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	NV	0	-7.05	-0.008549	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	NV	10	-5.05	-0.006123	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	NV	20	-5.26	-0.006378	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	NV	30	-7.01	-0.008500	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	NV	40	-6.11	-0.007409	±2.5	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	NV	50	-6.95	-0.008427	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	-30	-4.15	-0.004961	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	-20	-3.83	-0.004579	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	0	-6.14	-0.007340	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	10	-4.18	-0.004997	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	20	-4.88	-0.005834	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	30	-4.86	-0.005810	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	40	-5.38	-0.006432	±2.5	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	NV	50	-3.12	-0.003730	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	-30	-6.34	-0.007474	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	-20	-7.37	-0.008688	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	0	-10.23	-0.012059	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	10	-8.40	-0.009902	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	20	-7.58	-0.008936	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	30	-4.75	-0.005599	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	40	-6.71	-0.007910	±2.5	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	NV	50	-5.66	-0.006672	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	-30	-5.69	-0.006899	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	-20	-6.57	-0.007967	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	0	-4.49	-0.005444	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	10	-3.48	-0.004220	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	20	-4.73	-0.005735	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	30	-3.58	-0.004341	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	40	-4.08	-0.004947	±2.5	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	NV	50	-4.11	-0.004984	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	-30	-4.01	-0.004794	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	-20	-4.43	-0.005296	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	0	-3.98	-0.004758	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	10	-4.56	-0.005451	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	20	-3.40	-0.004065	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	30	-3.19	-0.003814	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	40	-3.18	-0.003802	±2.5	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	NV	50	-4.41	-0.005272	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	NV	-30	-8.77	-0.010338	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	NV	-20	-4.56	-0.005375	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	NV	0	-6.12	-0.007214	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	NV	10	-5.16	-0.006083	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	NV	20	-5.61	-0.006613	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	NV	30	-4.89	-0.005764	±2.5	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	NV	40	-6.69	-0.007886	±2.5	PASS

Band5	1.4MHz	16QAM	20643	6RB#0	NV	50	-5.84	-0.006884	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	-30	-6.78	-0.008213	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	-20	-6.58	-0.007971	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	0	-6.94	-0.008407	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	10	-6.68	-0.008092	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	20	-7.81	-0.009461	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	30	-7.60	-0.009207	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	40	-6.92	-0.008383	±2.5	PASS
Band5	3MHz	QPSK	20415	15RB#0	NV	50	-8.75	-0.010600	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	-30	-3.78	-0.004519	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	-20	-2.66	-0.003180	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	0	-3.43	-0.004100	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	10	-3.00	-0.003586	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	20	-3.10	-0.003706	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	30	-5.34	-0.006384	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	40	-3.05	-0.003646	±2.5	PASS
Band5	3MHz	QPSK	20525	15RB#0	NV	50	-4.31	-0.005152	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	-30	-7.07	-0.008342	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	-20	-8.17	-0.009640	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	0	-8.04	-0.009487	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	10	-7.44	-0.008779	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	20	-5.64	-0.006655	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	30	-6.38	-0.007528	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	40	-5.68	-0.006702	±2.5	PASS
Band5	3MHz	QPSK	20635	15RB#0	NV	50	-5.59	-0.006596	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	-30	-7.21	-0.008734	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	-20	-7.02	-0.008504	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	0	-5.74	-0.006953	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	10	-7.02	-0.008504	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	20	-6.12	-0.007414	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	30	-6.77	-0.008201	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	40	-8.07	-0.009776	±2.5	PASS
Band5	3MHz	16QAM	20415	15RB#0	NV	50	-6.19	-0.007498	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	-30	-5.11	-0.006109	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	-20	-4.78	-0.005714	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	0	-4.89	-0.005846	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	10	-4.26	-0.005093	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	20	-4.56	-0.005451	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	30	-3.82	-0.004567	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	40	-3.06	-0.003658	±2.5	PASS
Band5	3MHz	16QAM	20525	15RB#0	NV	50	-2.56	-0.003060	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	-30	-6.18	-0.007292	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	-20	-5.97	-0.007044	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	0	-6.67	-0.007870	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	10	-6.09	-0.007186	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	20	-9.24	-0.010903	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	30	-5.81	-0.006855	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	40	-5.68	-0.006702	±2.5	PASS
Band5	3MHz	16QAM	20635	15RB#0	NV	50	-4.73	-0.005581	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	NV	-30	-8.54	-0.010333	±2.5	PASS

Band5	5MHz	QPSK	20425	25RB#0	NV	-20	-7.58	-0.009171	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	NV	0	-11.10	-0.013430	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	NV	10	-7.67	-0.009280	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	NV	20	-8.73	-0.010563	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	NV	30	-6.72	-0.008131	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	NV	40	-7.51	-0.009087	±2.5	PASS
Band5	5MHz	QPSK	20425	25RB#0	NV	50	-7.37	-0.008917	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	-30	-4.05	-0.004842	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	-20	-4.08	-0.004877	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	0	-4.94	-0.005906	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	10	-2.80	-0.003347	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	20	-3.89	-0.004650	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	30	-4.26	-0.005093	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	40	-4.61	-0.005511	±2.5	PASS
Band5	5MHz	QPSK	20525	25RB#0	NV	50	-3.50	-0.004184	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	-30	-7.32	-0.008647	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	-20	-9.00	-0.010632	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	0	-7.30	-0.008624	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	10	-5.72	-0.006757	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	20	-7.62	-0.009002	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	30	-6.84	-0.008080	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	40	-7.78	-0.009191	±2.5	PASS
Band5	5MHz	QPSK	20625	25RB#0	NV	50	-7.21	-0.008517	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	-30	-7.78	-0.009413	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	-20	-5.49	-0.006642	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	0	-4.51	-0.005457	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	10	-3.89	-0.004707	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	20	-5.18	-0.006267	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	30	-5.08	-0.006146	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	40	-6.32	-0.007647	±2.5	PASS
Band5	5MHz	16QAM	20425	25RB#0	NV	50	-3.36	-0.004065	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	-30	-3.85	-0.004603	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	-20	-4.78	-0.005714	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	0	-2.80	-0.003347	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	10	-2.96	-0.003539	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	20	-4.03	-0.004818	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	30	-4.28	-0.005117	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	40	-2.79	-0.003335	±2.5	PASS
Band5	5MHz	16QAM	20525	25RB#0	NV	50	-4.91	-0.005870	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	-30	-4.38	-0.005174	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	-20	-8.07	-0.009533	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	0	-5.48	-0.006474	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	10	-8.10	-0.009569	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	20	-7.52	-0.008884	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	30	-6.94	-0.008198	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	40	-7.05	-0.008328	±2.5	PASS
Band5	5MHz	16QAM	20625	25RB#0	NV	50	-5.01	-0.005918	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	-30	-6.31	-0.007612	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	-20	-3.82	-0.004608	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	0	-6.71	-0.008094	±2.5	PASS

Band5	10MHz	QPSK	20450	50RB#0	NV	10	-8.14	-0.009819	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	20	-6.54	-0.007889	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	30	-7.00	-0.008444	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	40	-6.88	-0.008299	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	50	-6.42	-0.007744	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	-30	-8.17	-0.009767	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	-20	-5.49	-0.006563	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	0	-4.91	-0.005870	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	10	-3.65	-0.004363	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	20	-3.62	-0.004328	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	30	-3.20	-0.003825	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	40	-4.09	-0.004889	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	50	-12.32	-0.014728	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	-30	-7.71	-0.009135	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	-20	-7.37	-0.008732	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	0	-7.34	-0.008697	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	10	-6.47	-0.007666	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	20	-7.90	-0.009360	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	30	-7.47	-0.008851	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	40	-7.07	-0.008377	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	50	-7.30	-0.008649	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	-30	-7.95	-0.009590	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	-20	-8.21	-0.009903	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	0	-8.85	-0.010676	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	10	-7.62	-0.009192	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	20	-7.32	-0.008830	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	30	-8.44	-0.010181	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	40	-7.74	-0.009337	±2.5	PASS
Band5	10MHz	16QAM	20450	27RB#0	NV	50	-7.93	-0.009566	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	-30	-6.39	-0.007639	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	-20	-5.87	-0.007017	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	0	-5.66	-0.006766	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	10	-4.13	-0.004937	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	20	-5.21	-0.006228	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	30	-5.05	-0.006037	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	40	-5.95	-0.007113	±2.5	PASS
Band5	10MHz	16QAM	20525	27RB#0	NV	50	-4.86	-0.005810	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	-30	-6.90	-0.008175	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	-20	-6.54	-0.007749	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	0	-3.79	-0.004491	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	10	-3.32	-0.003934	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	20	-5.22	-0.006185	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	30	-5.02	-0.005948	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	40	-6.72	-0.007962	±2.5	PASS
Band5	10MHz	16QAM	20600	27RB#0	NV	50	-5.66	-0.006706	±2.5	PASS

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