

# FCC TEST REPORT (PART 24)

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

Manufacturer or Supplier:	u-blox AG
Address:	Zuercherstrasse 68, 8800 Thalwil, Switzerland
Product:	LENA-R8001M10
Brand Name:	u-blox
Model Name:	LENA-R8001M10
FCC ID:	XPYUBX22EL01
Date of tests:	Nov. 10, 2022 ~ Nov. 25, 2022

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

- FCC PART 24, Subpart E**  
  **FCC PART 2**  
 **ANSI/TIA/EIA-603-D**  
  **ANSI/TIA/EIA-603-E**  
  **ANSI C63.26-2015**

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

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*Chao Wu*

Date: Nov.25, 2022

*San Peibo*

Date: Nov.25, 2022

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2204290110-1RF02	Original release	Nov.25, 2022



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	Test lab*
§2.1046	Coducted Output Power	Compliance	B
§24.232(c)	Equivalent Isotropic Radiated Power	Compliance	B
§2.1055 §24.235	Frequency Stability	Compliance	B
§2.1049	Occupied Bandwidth	Compliance	B
§24.232(d)	Peak to average ratio	Compliance	B
§24.238(a)(b)	Band Edge Measurements	Compliance	B
§2.1051 §24.238(a)(b)	Conducted Spurious Emissions	Compliance	B
§2.1053 §24.238(a)(b)	Radiated Spurious Emissions	Compliance	A

**NOTE :1.** This report refers to the data of PSU-NQN2204290110RF02( model: LENA-R8001 ), the difference of LENA-R8001 and LENA-R8001M10 is LENA-R8001M10 add GPS and Galileo function,change HW version and model name. . In this report only verify power and RSE worst case. The verify results of conducted power are similar or lower(refer to power clause 4.3.1.2). So this report only replaces the low frequency data and the high frequency data of RSE( LTE Band2 10MHz CH18900 ).

**\*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
Frequency Stability	$\pm 76.97\text{Hz}$
Radiated emissions & Radiated Power (30MHz~1GMHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (1GMHz ~6GMHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GMHz ~18GMHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GMHz ~40GMHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
Band Edge Measurements	$\pm 4.70\text{dB}$
Peak to average ratio	$\pm 0.76\text{dB}$

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.04,22	Sep.03,23
Bilog Antenna	ETS-LINDGRE N	3143B	00161965	Mar. 06,22	Mar. 05,23
Horn Antenna	ETS-LINDGRE N	3117	00168692	Mar. 06,22	Mar. 05,23
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-LINDGRE N	9m*6m*6m	Euroshieldpn- CT0001143-121 6	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&Schwa rz	CMW500	153085	May.12,22	May.11,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,22	Aug. 23,23



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Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date
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.11.24
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.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.29.22	Jul.28.23
Horn Antenna	SCHWARZ	BBHA 9170	1025	Jul.29.22	Jul.28.23
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.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.01.22	Sep.30.23
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 36 months 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

<b>PRODUCT</b>	LENA-R8001M10	
<b>BRAND NAME</b>	u-blox	
<b>MODEL NAME</b>	LENA-R8001M10	
<b>NOMINAL VOLTAGE</b>	EUT 3.8V	
<b>MODULATION TYPE</b>	GSM/GPRS: GMSK LTE: QPSK, 16QAM	
<b>FREQUENCY RANGE</b>	GSM/GPRS	1850.2MHz ~ 1909.8MHz
	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1909.3MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5MHz ~ 1908.5MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~ 1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0MHz ~ 1905.0MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5MHz ~ 1902.5MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0MHz ~ 1900.0MHz
	<b>MAX. EIRP POWER</b>	GSM/GPRS
LTE Band 2 Channel Bandwidth: 1.4MHz		181.55mW
LTE Band 2 Channel Bandwidth: 3MHz		173.78mW
LTE Band 2 Channel Bandwidth: 5MHz		169.04mW
LTE Band 2 Channel Bandwidth: 10MHz		175.39mW
LTE Band 2 Channel Bandwidth: 15MHz		176.60mW
LTE Band 2 Channel Bandwidth: 20MHz		200.91mW
<b>EMISSION DESIGNATOR</b>	GSM/GPRS	237KGXW
	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D
		16QAM: 1M09W7D
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK: 2M68G7D
16QAM: 2M68W7D		



	<b>LTE Band 2 Channel Bandwidth: 5MHz</b>	QPSK: 4M48G7D 16QAM: 4M48W7D
	<b>LTE Band 2 Channel Bandwidth: 10MHz</b>	QPSK: 8M95G7D 16QAM: 4M94W7D
	<b>LTE Band 2 Channel Bandwidth: 15MHz</b>	QPSK: 13M5G7D 16QAM: 5M07W7D
	<b>LTE Band 2 Channel Bandwidth: 20MHz</b>	QPSK: 18M0G7D 16QAM: 5M21W7D
<b>ANTENNA TYPE</b>	Fixed External Antenna with -0.2dBi gain for GSM1900/ LTE B2	
<b>HW VERSION</b>	UBX-R80AA0	
<b>SW VERSION</b>	02.00	
<b>I/O PORTS</b>	Refer to user's manual	
<b>CABLE SUPPLIED</b>	N/A	
<b>EXTREME TEMPERATURE</b>	-20-65 °C	
<b>EXTREME VOLTAGE</b>	EUT 3.4V - EUT 4.2V	

**NOTE:**

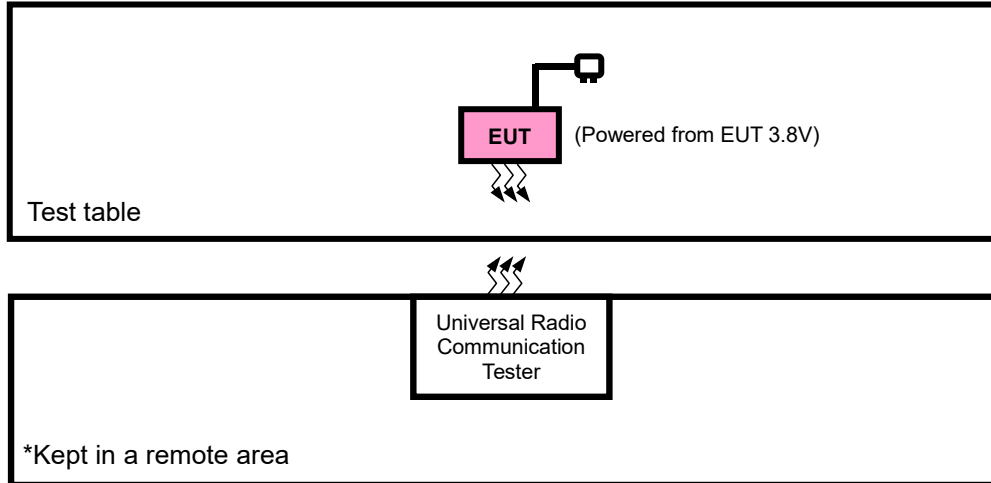
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

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 TEST





## 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 EIRP 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	EIRP	512 to 810	512, 661, 810	GSM
B	FREQUENCY STABILITY	512 to 810	512, 661, 810	GSM
A	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM
A	PEAK TO AVERAGE RATIO	512 to 810	512, 661, 810	GSM
A	BAND EDGE	512 to 810	512, 810	GSM
A	CONDUCTED EMISSION	512 to 810	512, 661, 810	GSM
A	RADIATED EMISSION	512 to 810	512, 661, 810	GSM



LTE BAND 2 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	Full RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	Full RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
A	BAND EDGE	18607 to 19193	18607	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19193	1.4MHz	QPSK,16QAM	1 RB / 5 RB Offset Full RB / 0 RB Offset
		18615 to 19185	18615	3MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19185	3MHz	QPSK,16QAM	1 RB / 14 RB Offset Full RB / 0 RB Offset
		18625 to 19175	18625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
						Full RB / 0 RB Offset



BUREAU  
VERITAS

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			19175	5MHz	QPSK,16QAM	1 RB / 24 RB Offset
						Full RB / 0 RB Offset
		18650 to 19150	18650	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		18675 to 19125	19150	10MHz	QPSK,16QAM	1 RB / 49 RB Offset
						Full RB / 0 RB Offset
		18675 to 19125	18675	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		18700 to 19100	19125	15MHz	QPSK,16QAM	1 RB / 74 RB Offset
						Full RB / 0 RB Offset
18700 to 19100	18700	20MHz	QPSK,16QAM	1 RB / 0 RB Offset		
				Full RB / 0 RB Offset		
18700 to 19100	19100	20MHz	QPSK,16QAM	1 RB / 99 RB Offset		
				Full RB / 0 RB Offset		
A	CONDCUDET D EMISSION	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18900	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18900	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18607, 18900, 19193	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18900	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset



**TEST CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	EUT 3.8V	Walker Ye
FREQUENCY STABILITY	23deg. C, 61%RH	EUT 3.8V	Walker Ye
OCCUPIED BANDWIDTH	23deg. C, 61%RH	EUT 3.8V	Walker Ye
PEAK TO AVERAGE RATIO	23deg. C, 61%RH	EUT 3.8V	Walker Ye
BAND EDGE	23deg. C, 61%RH	EUT 3.8V	Walker Ye
CONDCUDED EMISSION	23deg. C, 61%RH	EUT 3.8V	Walker Ye
RADIATED EMISSION	23deg. C, 70%RH	EUT 3.8V	Chao Wu

**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 24**

**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 and portable stations are limited to 2 watts EIRP.

#### 3.1.2 TEST PROCEDURES

##### **EIRP 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 determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

Where:

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

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

$G_{\text{T}}$  = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

$L_{\text{C}}$  = 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/WCDMA 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.

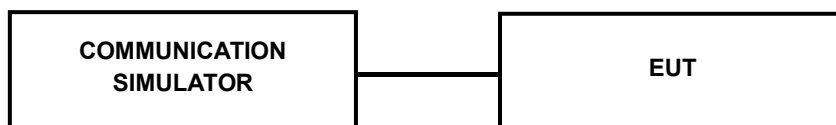




### 3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



### 3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GSM1900			Max. Tune-up Power
	512	661	810	
Channel	1850.2	1880	1909.8	
Frequency				
GSM (GMSK, 1Tx-slot)	29.60	29.74	29.75	31.0
GPRS (GMSK, 1Tx-slot)	29.62	29.77	<b>29.79</b>	31.0
GPRS (GMSK, 2Tx-slot)	27.65	27.92	27.89	28.5
GPRS (GMSK, 3Tx-slot)	25.47	25.61	25.83	26.5
GPRS (GMSK, 4Tx-slot)	23.62	23.78	23.80	24.5



LTE BAND 2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18607	Mid CH 18900	High CH 19193	MPR
				Frequency 1850.7 MHz	Frequency 1880 MHz	Frequency 1909.3 MHz	
2/ 1.4	QPSK	1	0	21.97	22.38	21.56	0
		1	2	22.47	22.79	21.89	0
		1	5	22.12	22.04	21.14	0
		3	0	22.34	22.61	21.88	0
		3	1	22.27	22.58	21.86	0
		3	3	22.28	22.56	21.84	0
		6	0	20.60	21.26	20.57	1
	16QAM	1	0	21.93	22.28	21.46	1
		1	2	22.50	22.74	21.91	1
		1	5	21.82	22.07	21.32	1
		3	0	22.18	22.40	21.68	1
		3	1	22.31	22.38	21.67	1
		3	3	22.20	22.37	21.66	1
		6	0	20.70	21.29	20.59	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18615	Mid CH 18900	High CH 19185	MPR
				Frequency 1851.5 MHz	Frequency 1880 MHz	Frequency 1908.5 MHz	
2/ 3	QPSK	1	0	20.82	21.49	20.80	0
		1	7	21.90	22.52	21.74	0
		1	14	20.13	20.96	20.06	0
		8	0	20.65	21.51	21.08	1
		8	3	20.63	21.51	21.06	1
		8	7	20.62	21.52	21.06	1
		15	0	20.46	21.38	20.87	1
	16QAM	1	0	21.01	21.58	20.95	1
		1	7	22.03	22.60	21.83	1
		1	14	20.36	21.17	20.26	1
		8	0	20.73	21.51	21.06	2
		8	3	20.72	21.52	21.05	2
		8	7	20.70	21.51	21.05	2
		15	0	20.49	21.36	20.83	2



Test Report No.: PSU-NQN2204290110-1RF02

Band/BW	Modulation	RB Size	RB Offset	Low CH 18625	Mid CH 18900	High CH 19175	MPR
				Frequency 1852.5 MHz	Frequency 1880 MHz	Frequency 1907.5 MHz	
2/ 5	QPSK	1	0	21.72	22.10	21.81	0
		1	12	21.89	22.48	22.09	0
		1	24	21.17	21.27	20.83	0
		12	0	21.35	22.22	21.62	1
		12	6	21.28	22.20	21.59	1
		12	13	21.45	22.21	21.59	1
		25	0	20.39	21.33	21.00	1
	16QAM	1	0	21.56	21.96	21.66	1
		1	12	21.82	22.37	21.99	1
		1	24	20.82	21.23	20.78	1
		12	0	21.30	22.13	21.51	2
		12	6	21.80	22.12	21.49	2
		12	13	21.39	22.16	21.48	2
		25	0	20.40	21.31	20.97	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18650	Mid CH 18900	High CH 19150	MPR
				Frequency 1855 MHz	Frequency 1880 MHz	Frequency 1905 MHz	
2/ 10	QPSK	1	0	21.24	21.27	20.87	0
		1	24	21.49	22.54	22.25	0
		1	49	20.11	21.44	20.30	0
		25	0	21.04	21.96	21.51	1
		25	12	20.69	21.91	21.44	1
		25	25	20.33	20.72	21.12	1
		50	0	20.69	21.15	21.12	1
	16QAM	1	0	21.49	21.47	20.91	1
		1	24	21.82	22.64	22.29	1
		1	49	20.28	21.63	20.45	1
		12	0	21.83	21.77	22.01	2
		12	18	21.51	22.01	22.17	2
		12	37	21.19	21.01	21.55	2
		27	0	20.15	21.48	21.07	2



Test Report No.: PSU-NQN2204290110-1RF02

Band/BW	Modulation	RB Size	RB Offset	Low CH 18675	Mid CH 18900	High CH 19125	MPR
				Frequency 1857.5 MHz	Frequency 1880 MHz	Frequency 1902.5 MHz	
2/ 15	QPSK	1	0	22.67	21.57	20.67	0
		1	37	21.70	22.07	22.12	0
		1	74	21.87	19.65	20.94	0
		36	0	21.24	21.95	20.74	1
		36	19	21.04	21.47	21.36	1
		36	39	20.88	20.42	21.23	1
		75	0	21.15	21.16	21.02	1
	16QAM	1	0	22.51	21.79	21.04	1
		1	37	21.96	22.08	22.57	1
		1	74	21.80	19.89	21.23	1
		12	0	22.38	21.77	21.22	2
		12	31	21.77	21.95	22.23	2
		12	62	22.04	20.34	21.67	2
		27	0	21.34	21.45	20.70	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18700	Mid CH 18900	High CH 19100	MPR
				Frequency 1860 MHz	Frequency 1880 MHz	Frequency 1900 MHz	
2/ 20	QPSK	1	0	22.75	21.31	22.01	0
		1	50	22.71	22.57	23.12	0
		1	99	21.95	20.47	21.92	0
		50	0	20.08	22.01	21.52	1
		50	25	20.13	21.93	22.17	1
		50	50	20.41	21.53	22.69	1
		100	0	21.16	20.76	21.15	1
	16QAM	1	0	23.23	21.48	22.20	1
		1	50	23.20	22.69	23.21	1
		1	99	22.49	20.83	21.99	1
		12	0	21.85	21.85	22.02	2
		12	43	22.84	22.63	23.02	2
		12	87	22.12	21.07	22.15	2
		27	0	20.16	21.53	21.15	2



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Test Report No.: PSU-NQN2204290110-1RF02

**EIRP POWER (dBm)**

**GSM 1900**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
512	1850.2	29.62	-0.2	29.42	874.98	2
661	1880.0	29.77	-0.2	29.57	905.73	2
810	1909.8	29.79	-0.2	29.59	909.91	2



**LTE BAND 2**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	22.47	-0.2	22.27	168.66	2
18900	1880.0	22.79	-0.2	22.59	181.55	2
19193	1908.3	21.89	-0.2	21.69	147.57	2

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	22.5	-0.2	22.30	169.82	2
18900	1880.0	22.74	-0.2	22.54	179.47	2
19193	1908.3	21.91	-0.2	21.71	148.25	2

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	21.9	-0.2	21.70	147.91	2
18900	1880.0	22.52	-0.2	22.32	170.61	2
19185	1908.5	21.74	-0.2	21.54	142.56	2

**CHANNEL BANDWIDTH: 3MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	22.03	-0.2	21.83	152.41	2
18900	1880.0	22.6	-0.2	22.40	173.78	2
19185	1908.5	21.83	-0.2	21.63	145.55	2



**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	21.89	-0.2	21.69	147.57	2
18900	1880.0	22.48	-0.2	22.28	169.04	2
19175	1907.5	22.09	-0.2	21.89	154.53	2

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	21.82	-0.2	21.62	145.21	2
18900	1880.0	22.37	-0.2	22.17	164.82	2
19175	1907.5	21.99	-0.2	21.79	151.01	2

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	21.49	-0.2	21.29	134.59	2
18900	1880.0	22.54	-0.2	22.34	171.40	2
19150	1905.0	22.25	-0.2	22.05	160.32	2

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	21.83	-0.2	21.63	145.55	2
18900	1880.0	22.64	-0.2	22.44	175.39	2
19150	1905.0	22.29	-0.2	22.09	161.81	2



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**CHANNEL BANDWIDTH: 15MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	22.67	-0.2	22.47	176.60	2
18900	1880.0	22.07	-0.2	21.87	153.82	2
19125	1902.5	22.12	-0.2	21.92	155.60	2

**CHANNEL BANDWIDTH: 15MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	22.51	-0.2	22.31	170.22	2
18900	1880.0	22.08	-0.2	21.88	154.17	2
19125	1902.5	22.57	-0.2	22.37	172.58	2

**CHANNEL BANDWIDTH: 20MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	22.75	-0.2	22.55	179.89	2
18900	1880	22.57	-0.2	22.37	172.58	2
19100	1900	23.12	-0.2	22.92	195.88	2

**CHANNEL BANDWIDTH: 20MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	23.23	-0.2	23.03	200.91	2
18900	1880	22.69	-0.2	22.49	177.42	2
19100	1900	23.21	-0.2	23.01	199.99	2



### 3.2 FREQUENCY STABILITY MEASUREMENT

#### 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

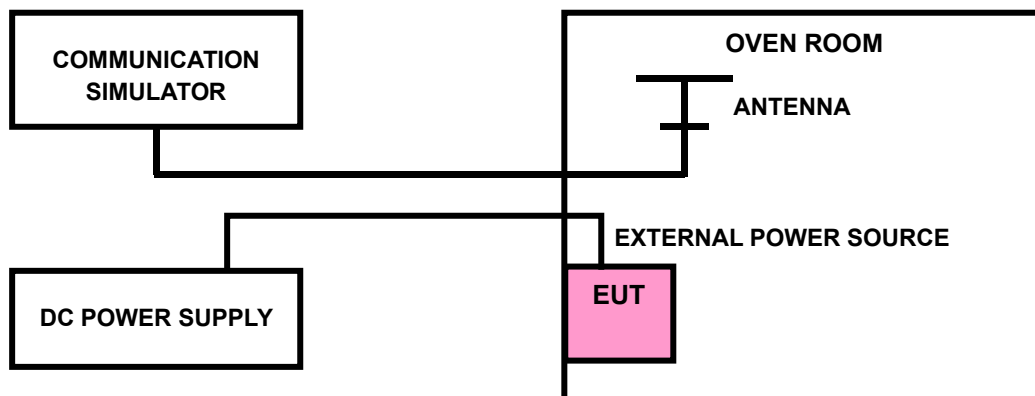
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### 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  $\pm 0.5^{\circ}\text{C}$  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





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**Test Report No.: PSU-NQN2204290110-1RF02**

### 3.2.4 TEST RESULTS

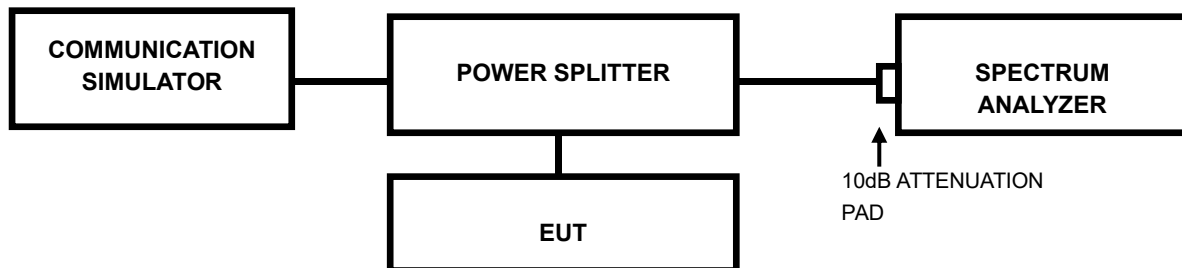
Please Refer to Appendix B Of this test report.

### 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





Test Report No.: PSU-NQN2204290110-1RF02

### 3.3.3 TEST RESULTS

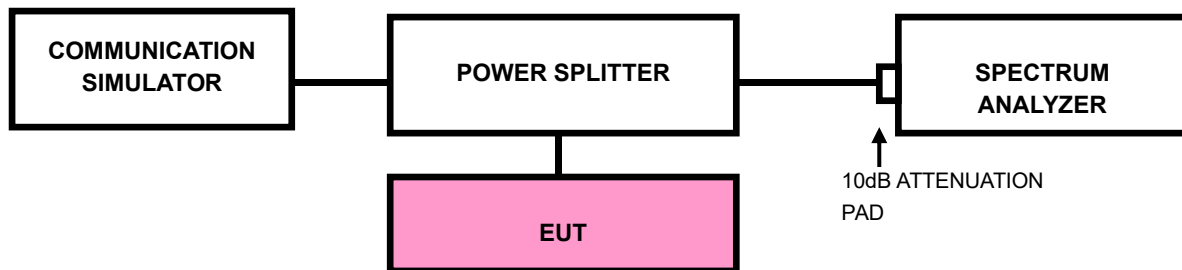
Please Refer to Appendix B Of this test report.

### 3.4 BAND EDGE MEASUREMENTC

#### 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 (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  $\geq 1\% \cdot \text{EBW}$  kHz and VBW of the spectrum is  $3 \cdot \text{RBW}$  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 B Of this test report.

### 3.5 CONDUCTED SPURIOUS EMISSIONS

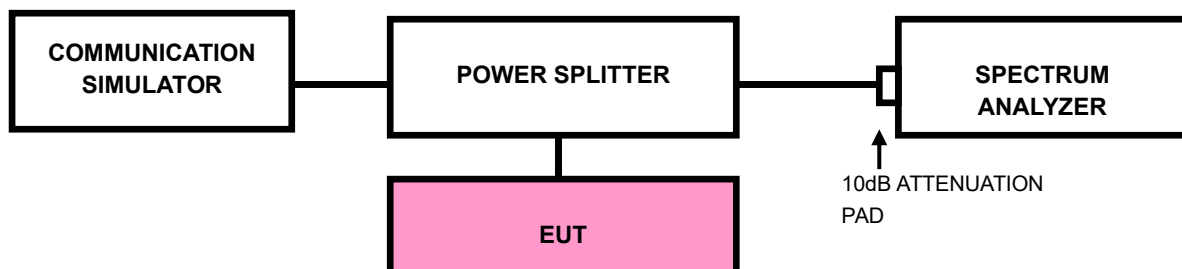
#### 3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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  $-13\text{dBm}$ .

#### 3.5.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9kHz up to a frequency including its 10<sup>th</sup> harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

#### 3.5.3 TEST SETUP





Test Report No.: PSU-NQN2204290110-1RF02

### 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 B 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  $-13\text{dBm}$ .

#### 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.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$

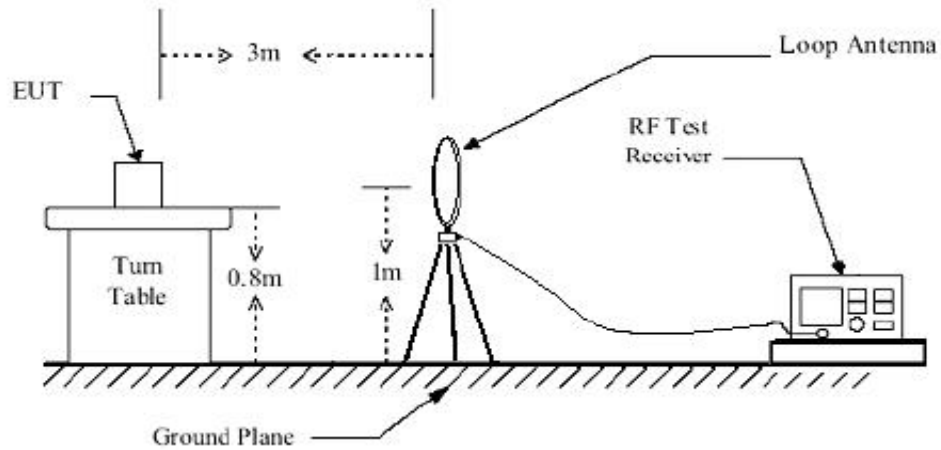
**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

#### 3.6.3 DEVIATION FROM TEST STANDARD

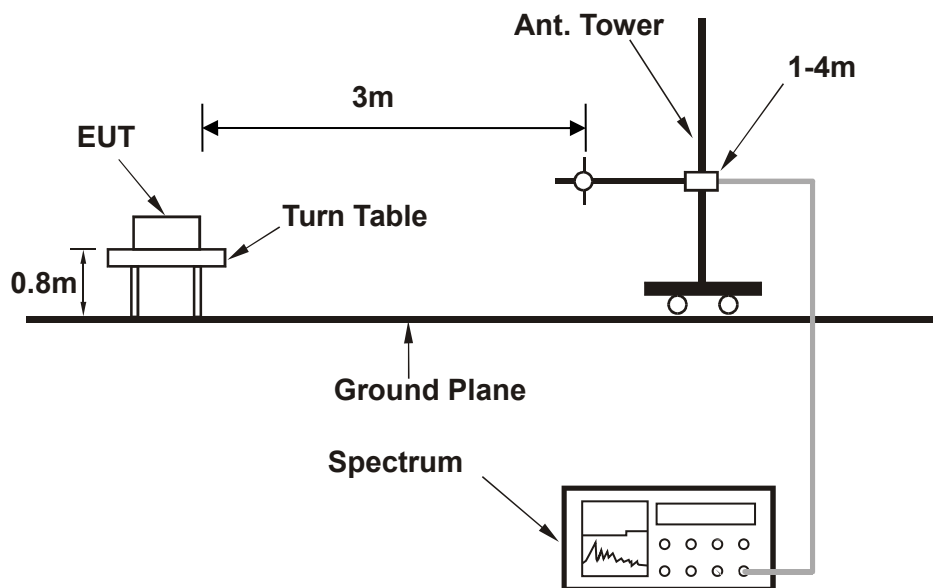
No deviation

### 3.6.4 TEST SETUP

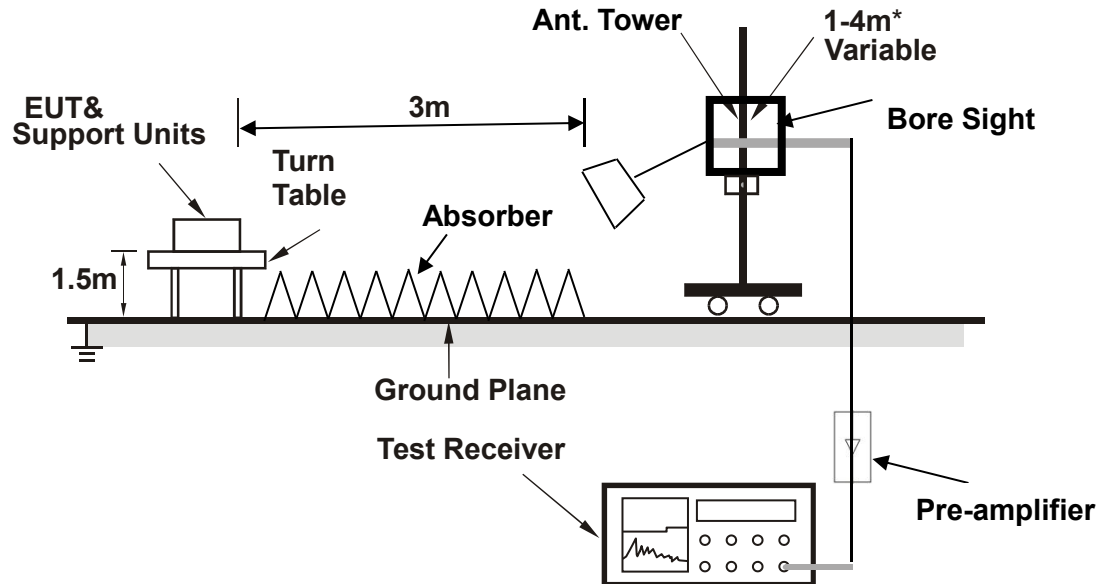
#### < Frequency Range below 30MHz >



#### < 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

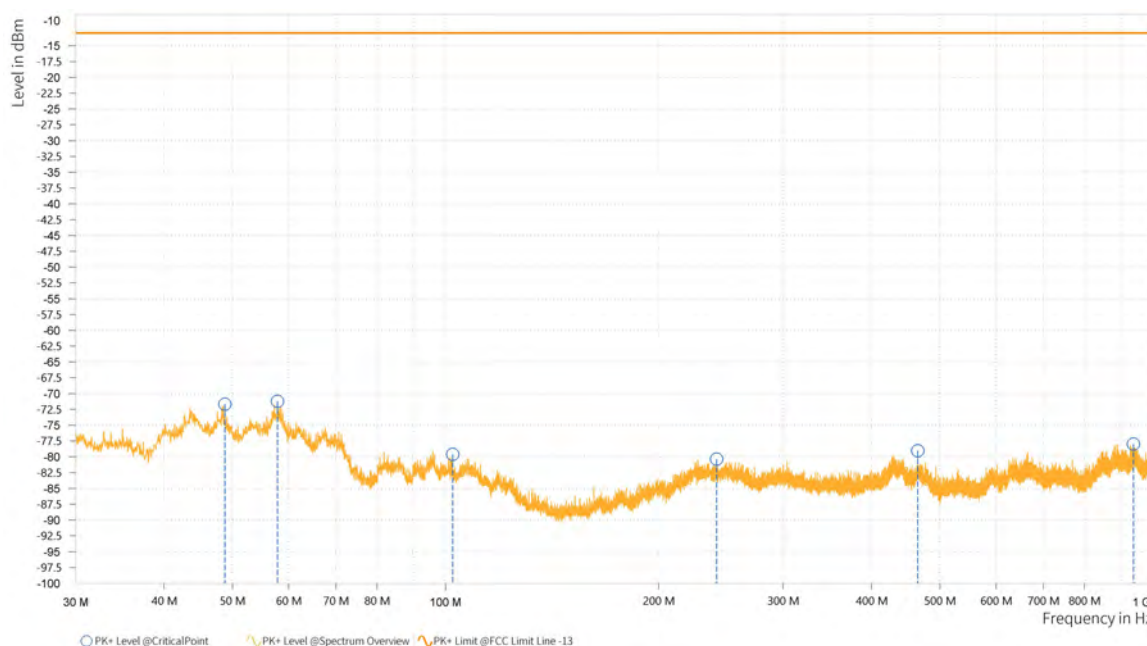
30 MHz – 1GHz data:

LTE Band2

CHANNEL BANDWIDTH: 10MHz

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	48.750	-71.68	-13.00	58.68	-6.22	H	359.9	2
1	57.850	-71.24	-13.00	58.24	-4.88	H	0.1	1
1	102.350	-79.59	-13.00	66.59	-12.27	H	360	1
1	241.700	-80.37	-13.00	67.37	-8.05	H	0	2
2	465.079	-79.04	-13.00	66.04	-3.56	H	276.1	1
2	938.538	-77.97	-13.00	64.97	3.55	H	112.2	1

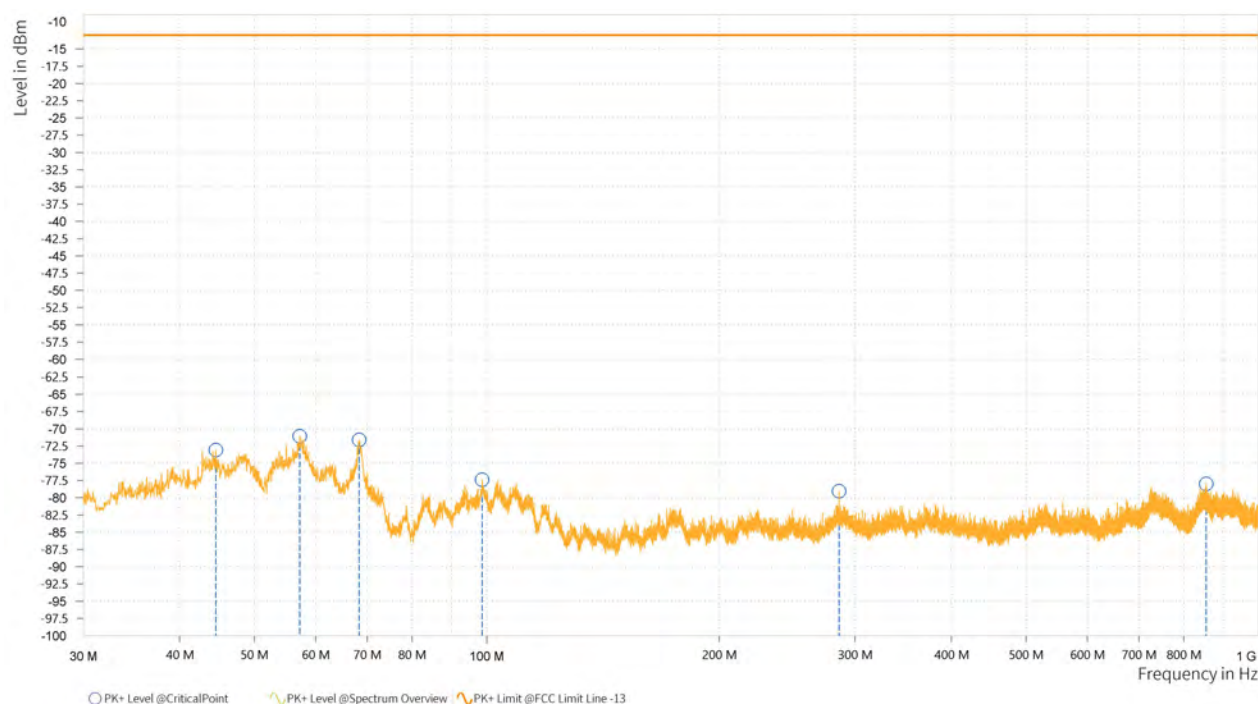




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	44.550	-73.07	-13.00	60.07	-6.97	V	2.7	2
1	57.250	-71.09	-13.00	58.09	-3.34	V	4.2	1
1	68.350	-71.58	-13.00	58.58	-2.90	V	0.1	1
1	98.650	-77.37	-13.00	64.37	-8.53	V	204.2	1
1	286.150	-79.05	-13.00	66.05	-6.79	V	4.2	1
2	855.533	-77.99	-13.00	64.99	2.76	V	0.1	2





**ABOVE 1GHz**

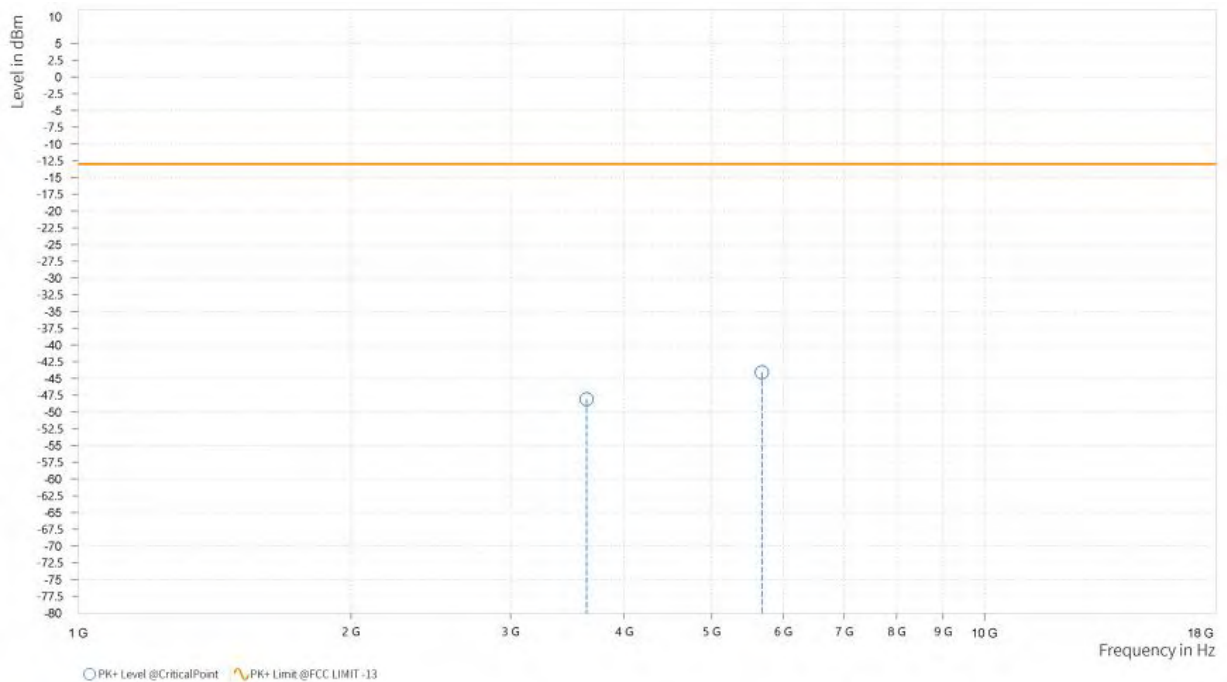
**Note:** For higher frequency, the emission is too low to be detected.

**GSM 1900:**

**CH 512**

<b>MODE</b>	TX channel 512	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	3,639.000	-48.08	-13.00	35.08	21.70	H	360	1
11	5,680.500	-44.07	-13.00	31.07	26.81	H	360	2



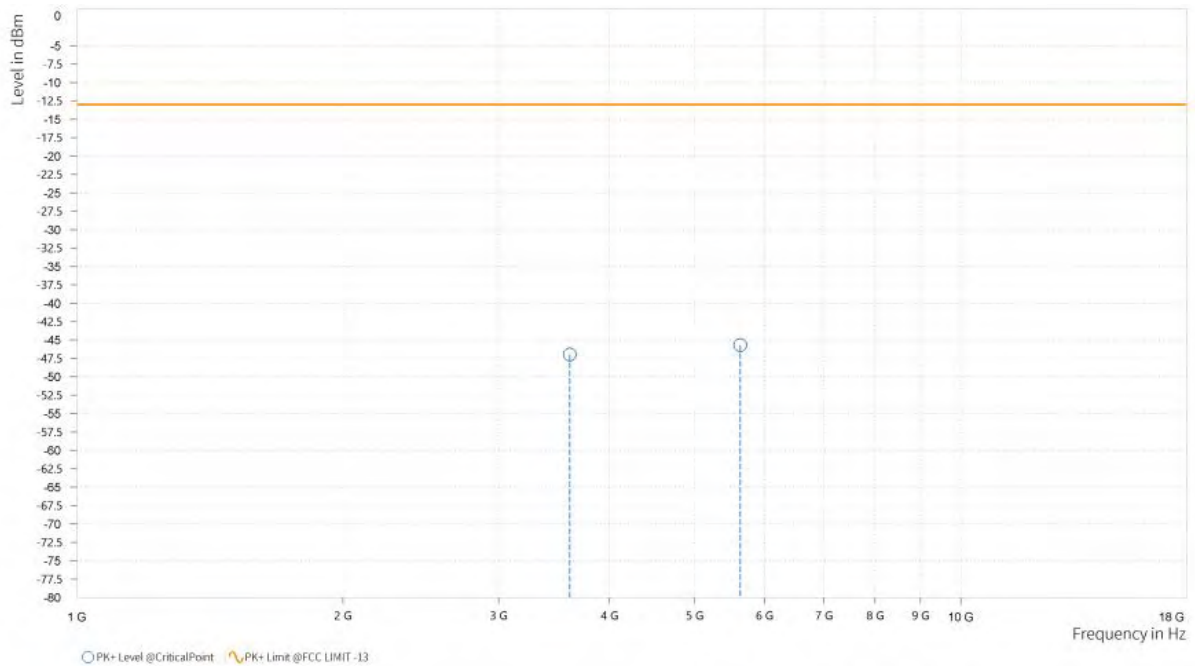




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 512	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	3,610.500	-46.97	-13.00	33.97	21.99	V	360	1
11	5,628.000	-45.68	-13.00	32.68	25.66	V	360	2

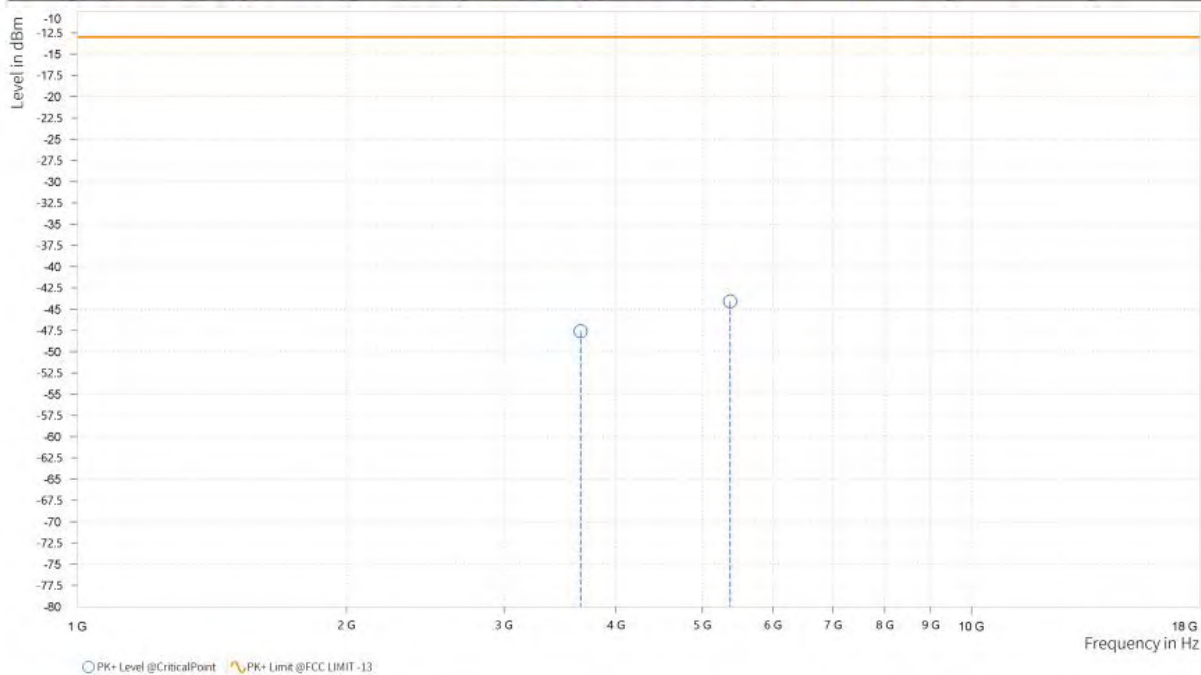




CH 661

<b>MODE</b>	TX channel 661	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	3,655.500	-47.60	-13.00	34.60	22.09	H	0	2
11	5,373.000	-44.08	-13.00	31.08	27.12	H	0	1



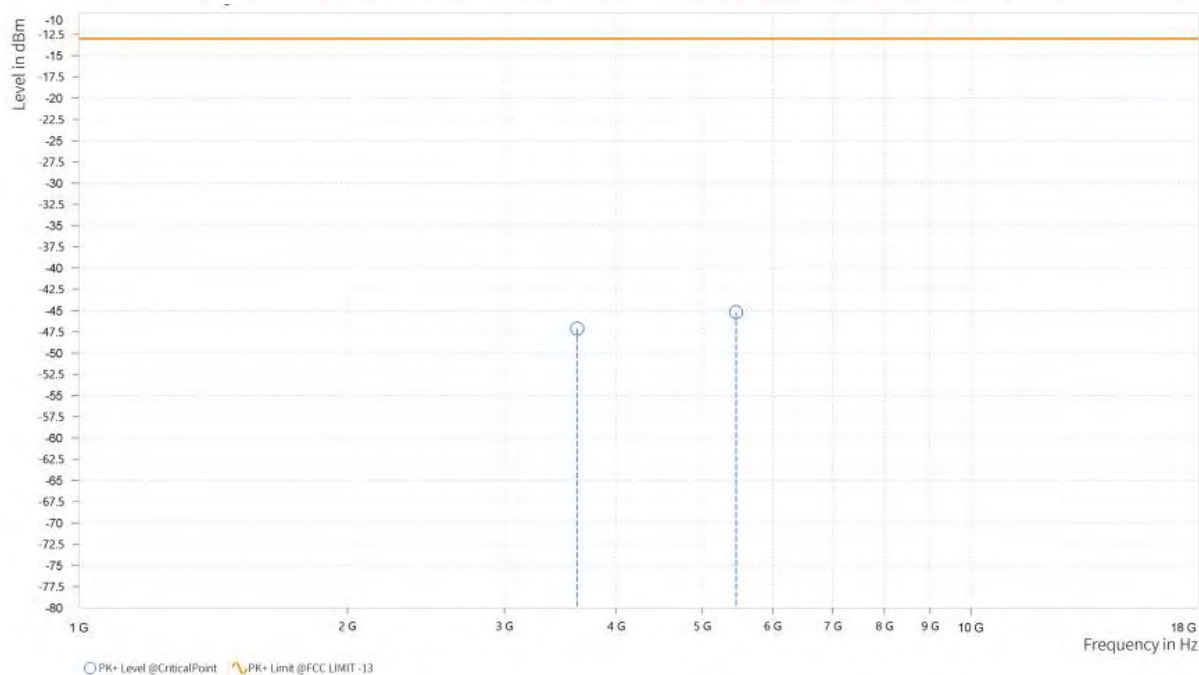




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 661	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	3,621.000	-47.13	-13.00	34.13	22.04	V	360	1
11	5,457.000	-45.19	-13.00	32.19	25.77	V	360	1





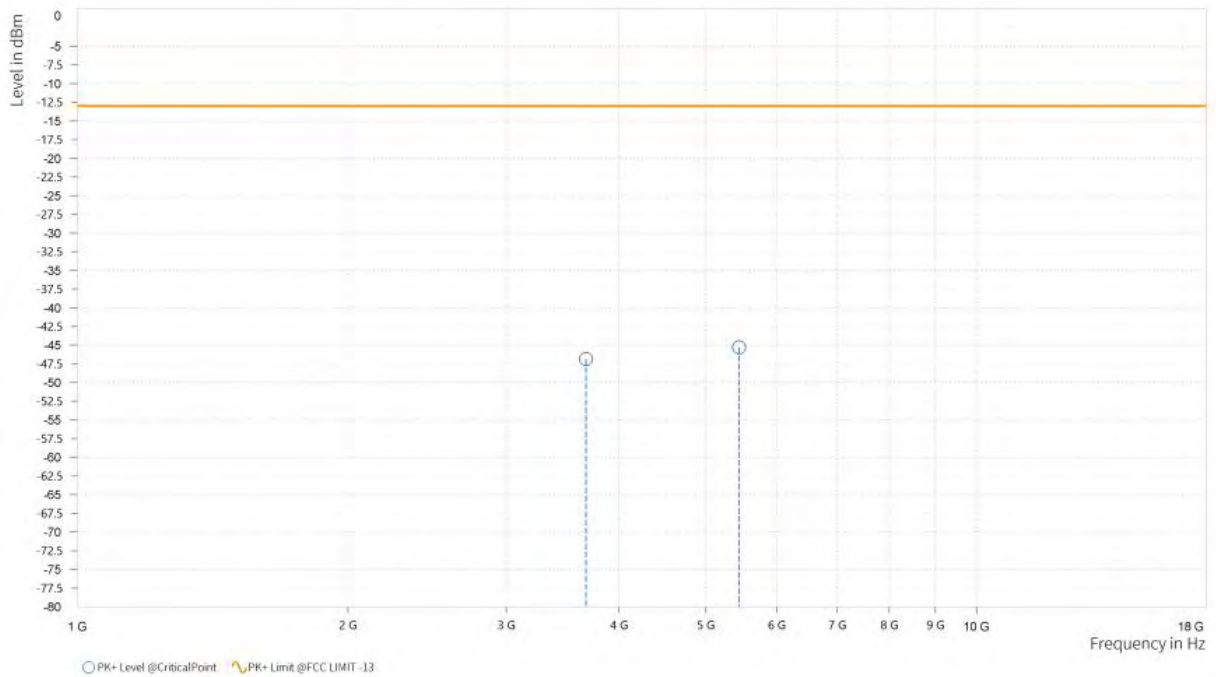
**BUREAU  
VERITAS**

Test Report No.: PSU-NQN2204290110-1RF02

**CH 810**

<b>MODE</b>	TX channel 810	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	3,678.000	-46.86	-13.00	33.86	22.51	H	0	2
11	5,445.000	-45.30	-13.00	32.30	26.52	H	0	1

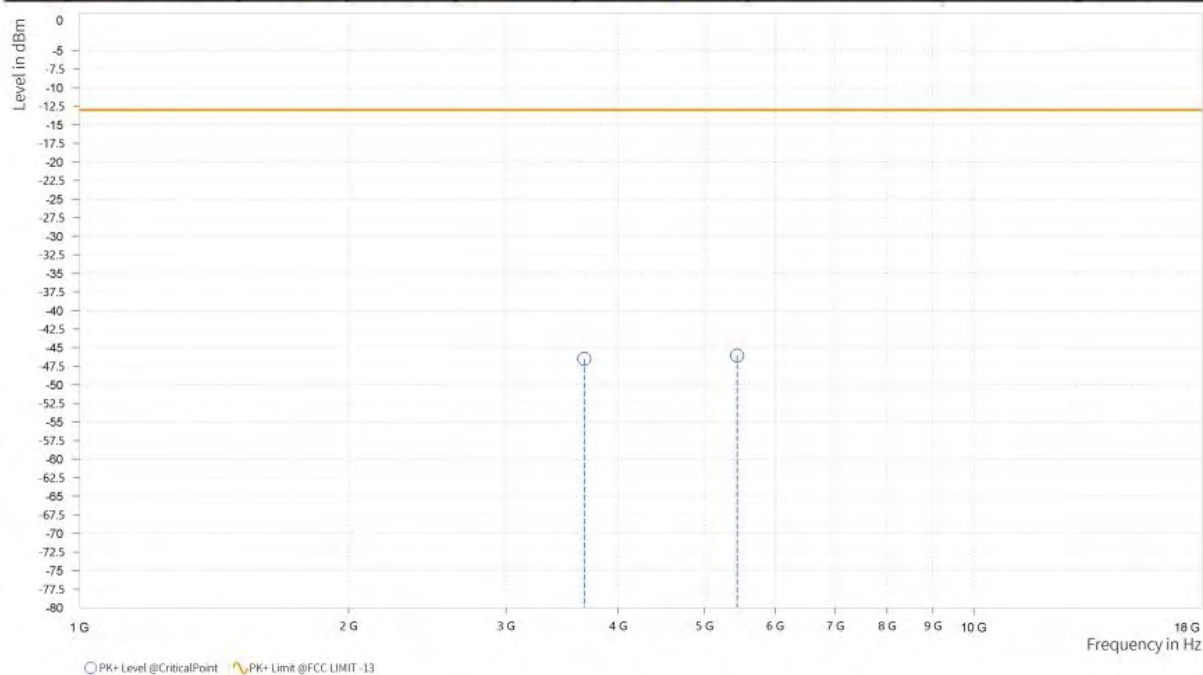




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 810	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	3,670.500	-46.51	-13.00	33.51	22.12	V	360	2
11	5,437.500	-46.07	-13.00	33.07	25.65	V	360	1





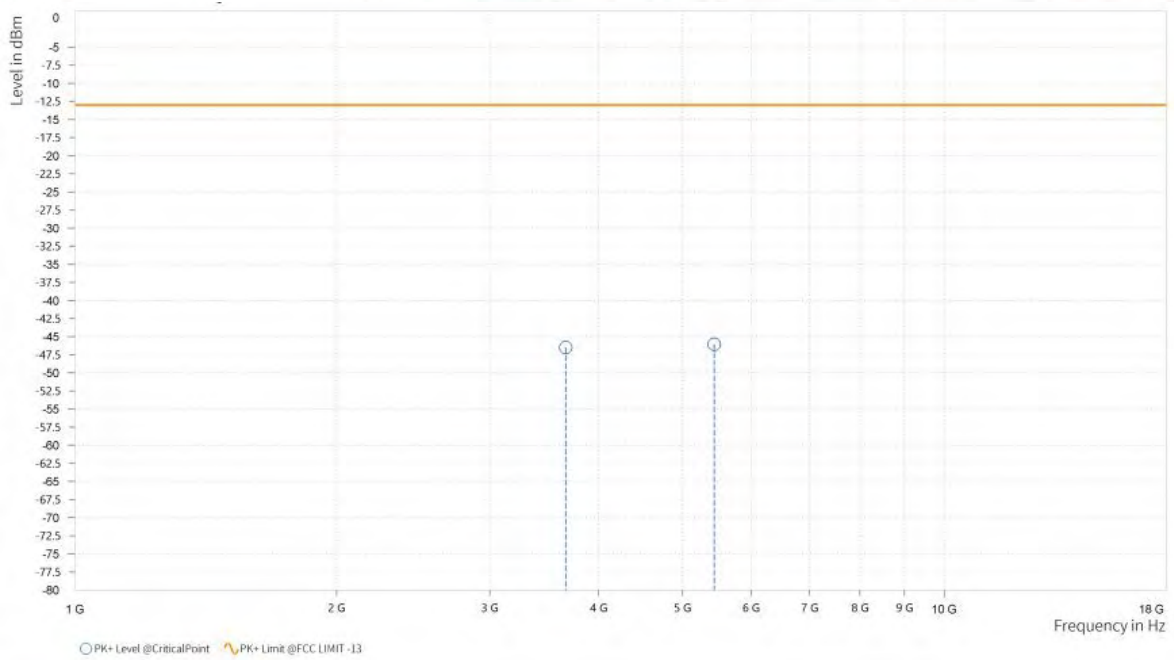
LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH18900

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-38.72	-13.00	25.72	22.41	H	182.6	1
5	7,520.000	-40.49	-13.00	27.49	32.97	H	360	1

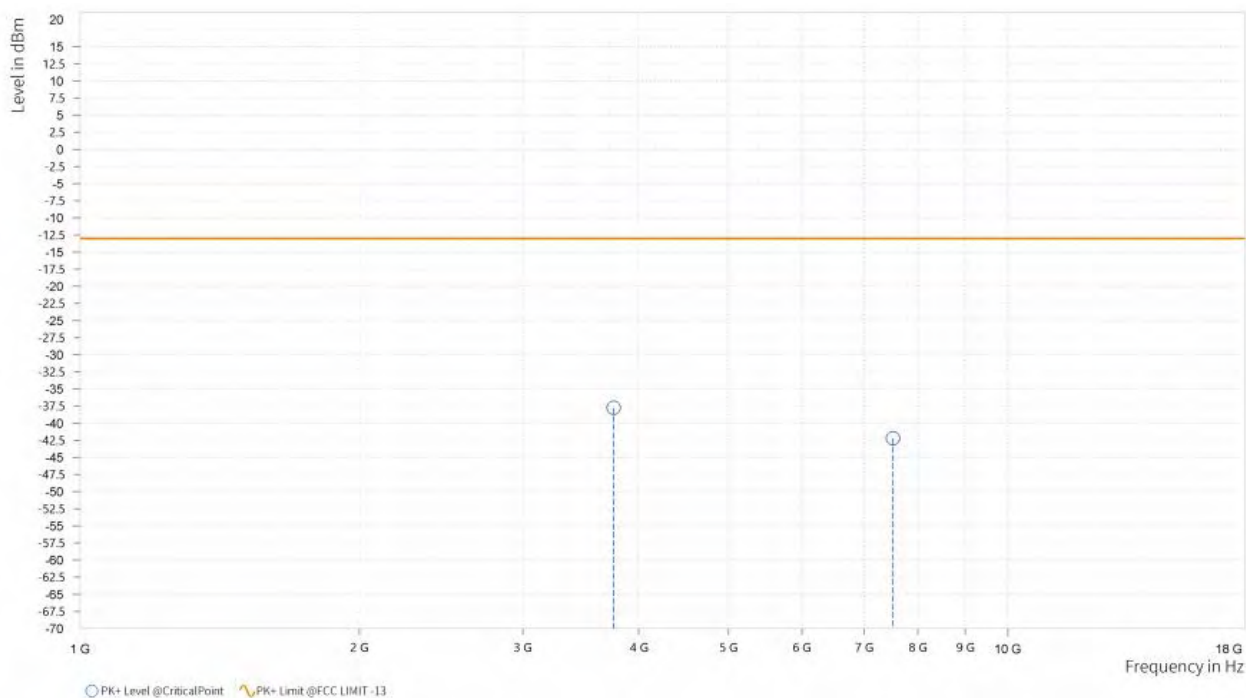




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,759.500	-37.75	-13.00	24.75	23.09	V	182.6	1
5	7,520.500	-42.21	-13.00	29.21	31.98	V	360	1



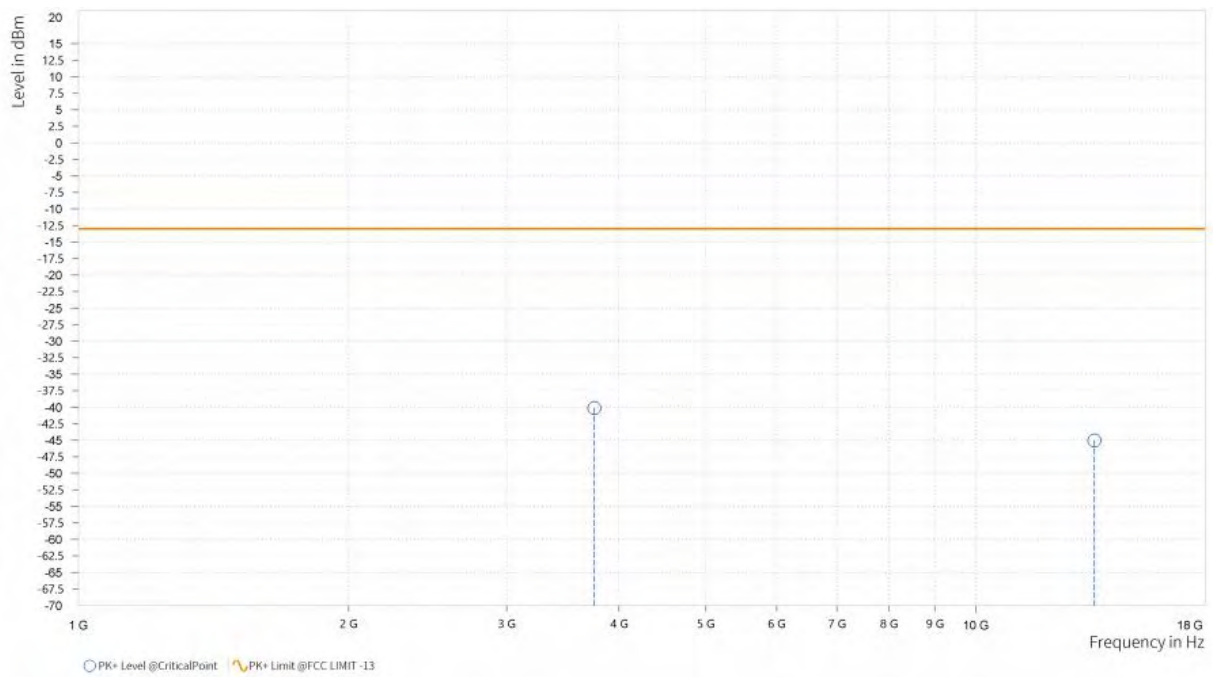




**CHANNEL BANDWIDTH: 3MHz / QPSK**

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,758.500	-40.12	-13.00	27.12	22.41	H	181.4	1
6	13,549.500	-45.04	-13.00	32.04	27.14	H	360	1

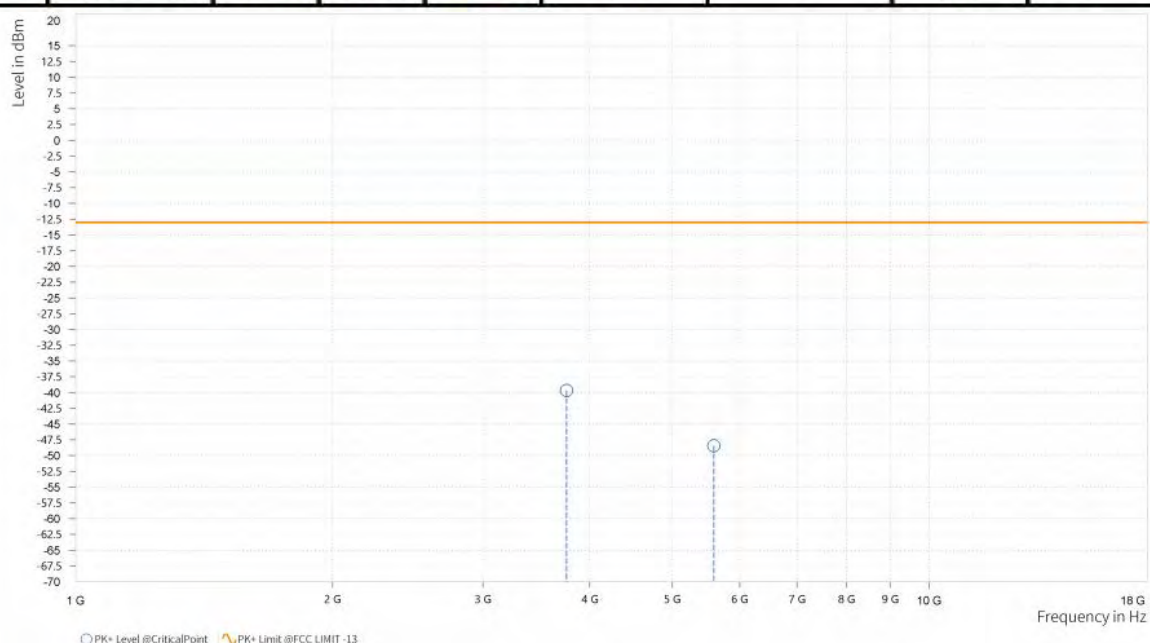




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-39.69	-13.00	26.69	23.09	V	183.8	1
4	5,593.500	-48.45	-13.00	35.45	28.47	V	360	2





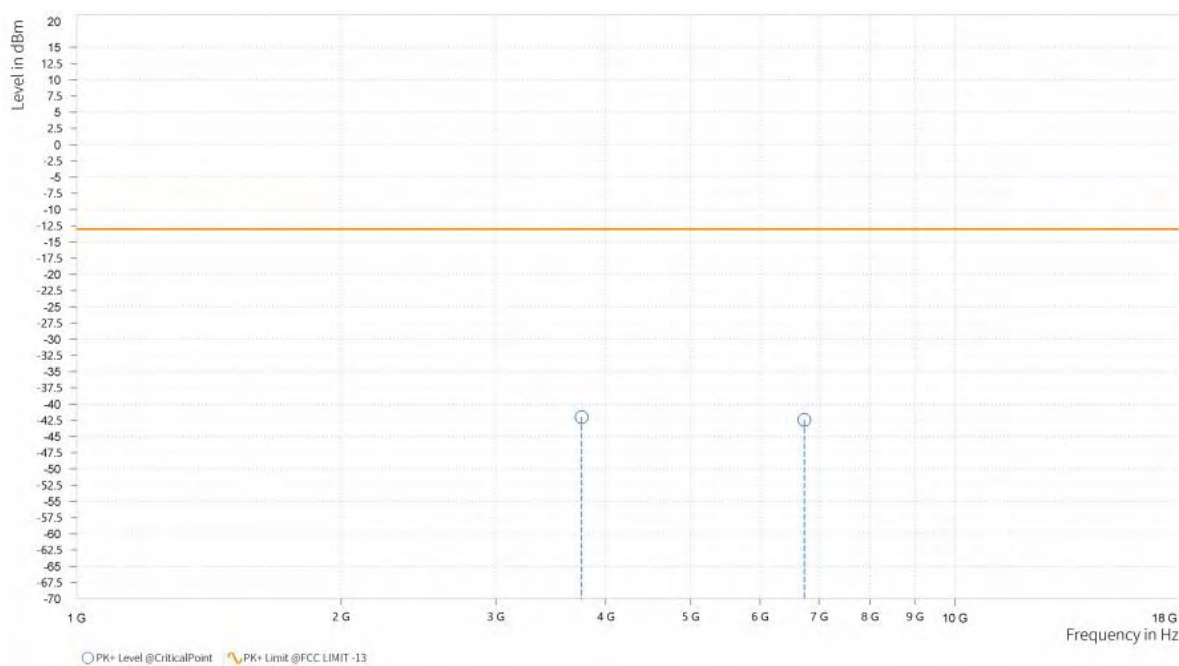
Test Report No.: PSU-NQN2204290110-1RF02

CHANNEL BANDWIDTH: 5MHz / QPSK

CH18900:

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 3.8V
TESTED BY	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,757.500	-42.03	-13.00	29.03	22.41	H	186.2	1
5	6,738.000	-42.41	-13.00	29.41	32.88	H	0	1



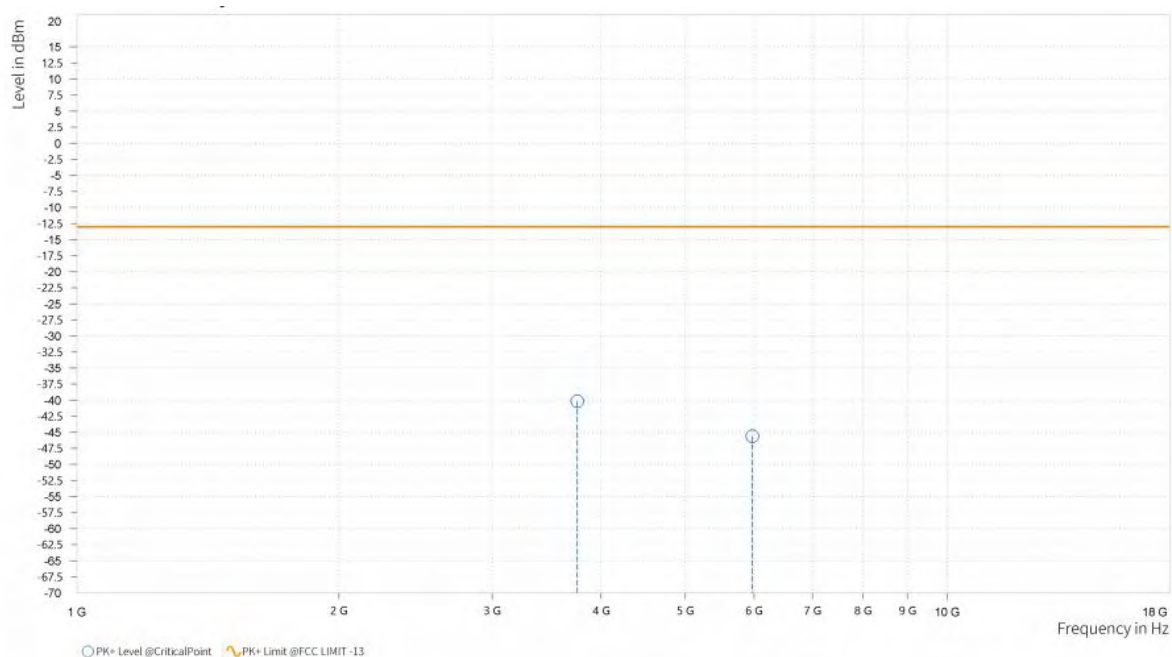




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,757.500	-40.18	-13.00	27.18	23.11	V	183.8	1
4	5,972.500	-45.60	-13.00	32.60	29.43	V	0	2



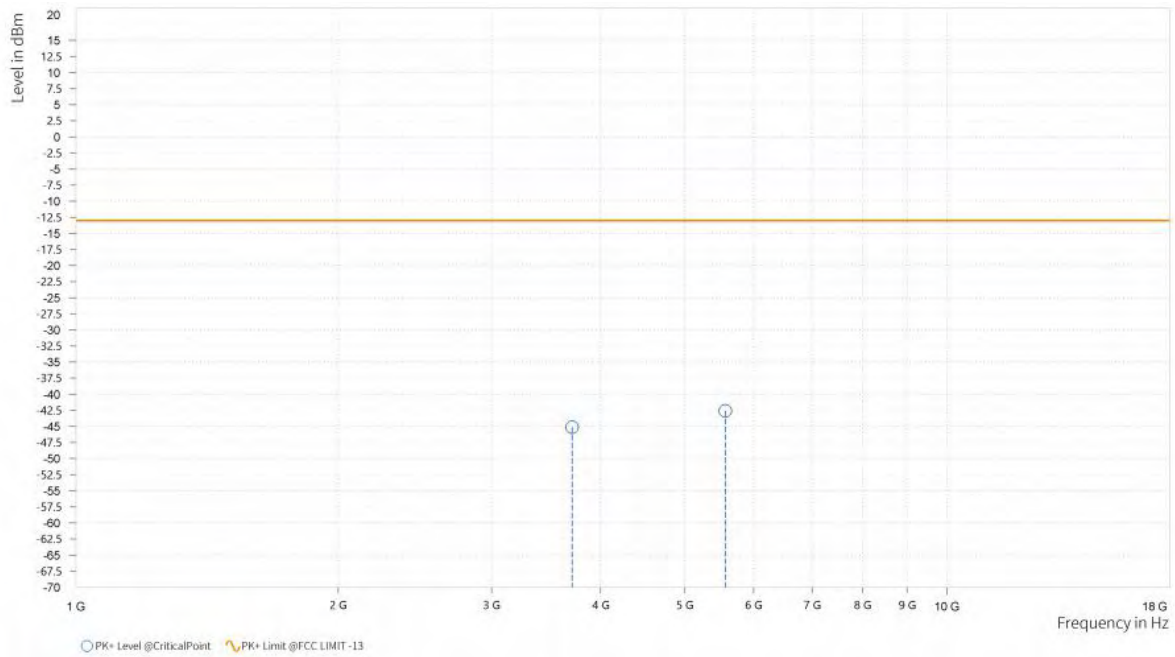


**CHANNEL BANDWIDTH: 10MHz / QPSK**

**CH18650**

<b>MODE</b>	TX channel 18650	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,711.000	-45.13	-13.00	32.13	21.40	H	178.5	2
4	5,566.500	-42.59	-13.00	29.59	27.79	H	181.4	1

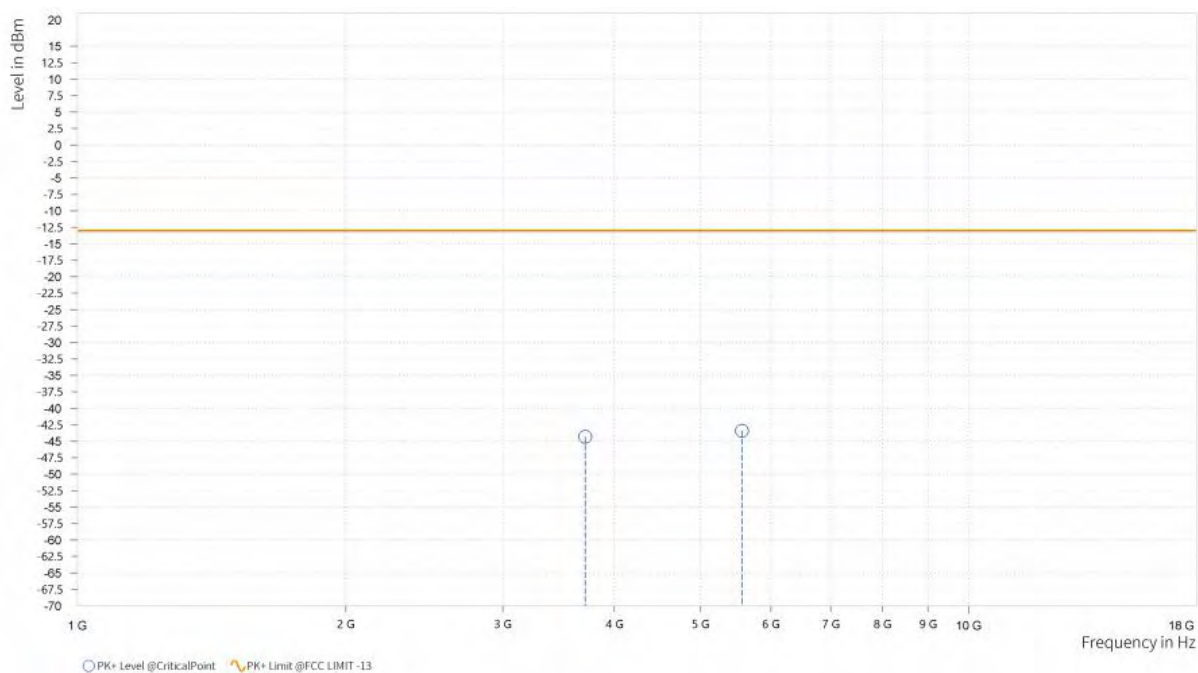




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18650	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,711.000	-44.31	-13.00	31.31	22.17	V	181.4	1
4	5,566.500	-43.41	-13.00	30.41	27.93	V	181.4	1



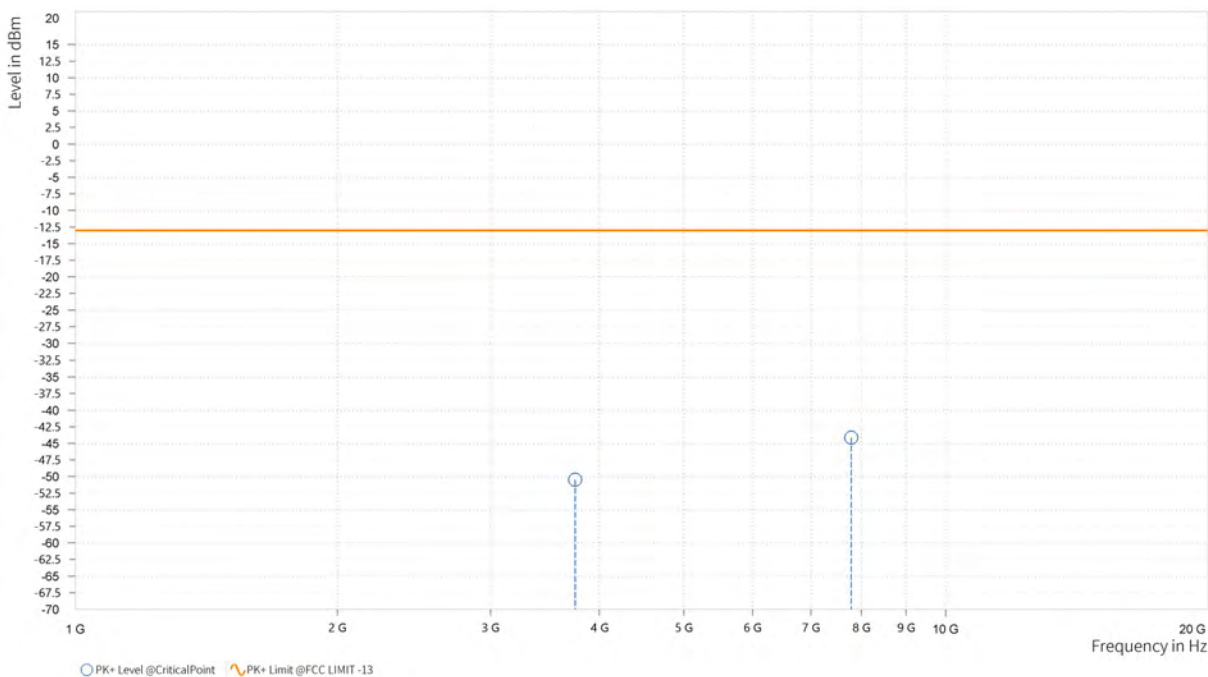


Test Report No.: PSU-NQN2204290110-1RF02

CH18900

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,751.500	-50.49	-13.00	37.49	23.56	H	180.2	1
5	7,788.000	-44.11	-13.00	31.11	32.88	H	95.9	2

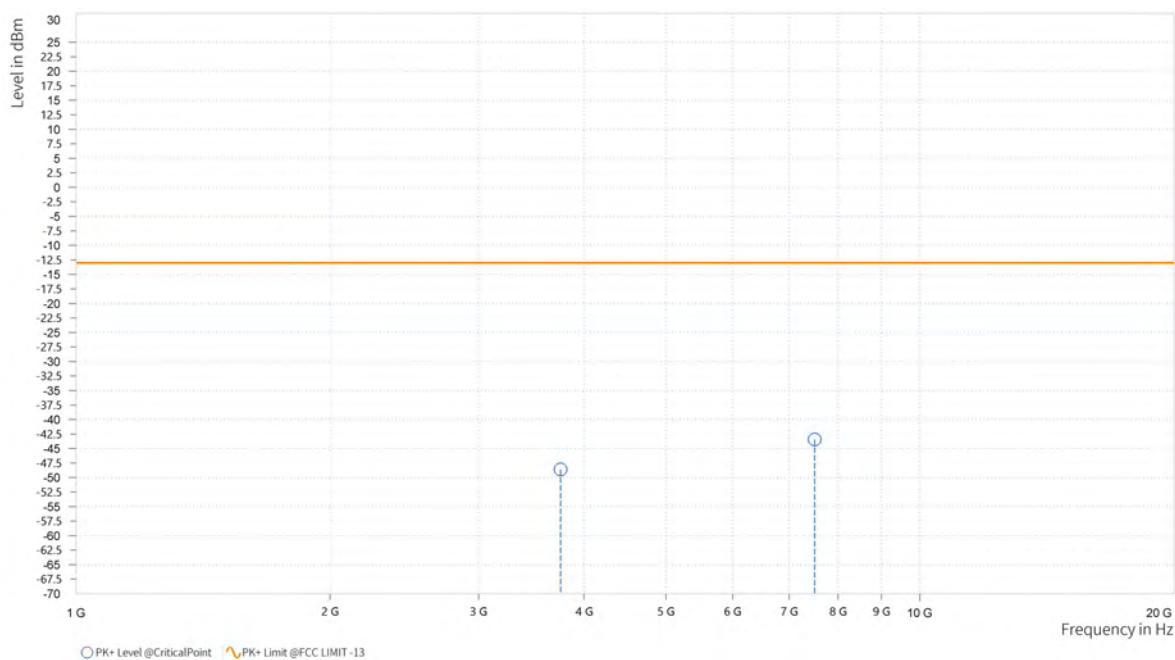




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,751.000	-48.61	-13.00	35.61	23.43	V	179.1	1
5	7,502.500	-43.43	-13.00	30.43	31.91	V	0	2



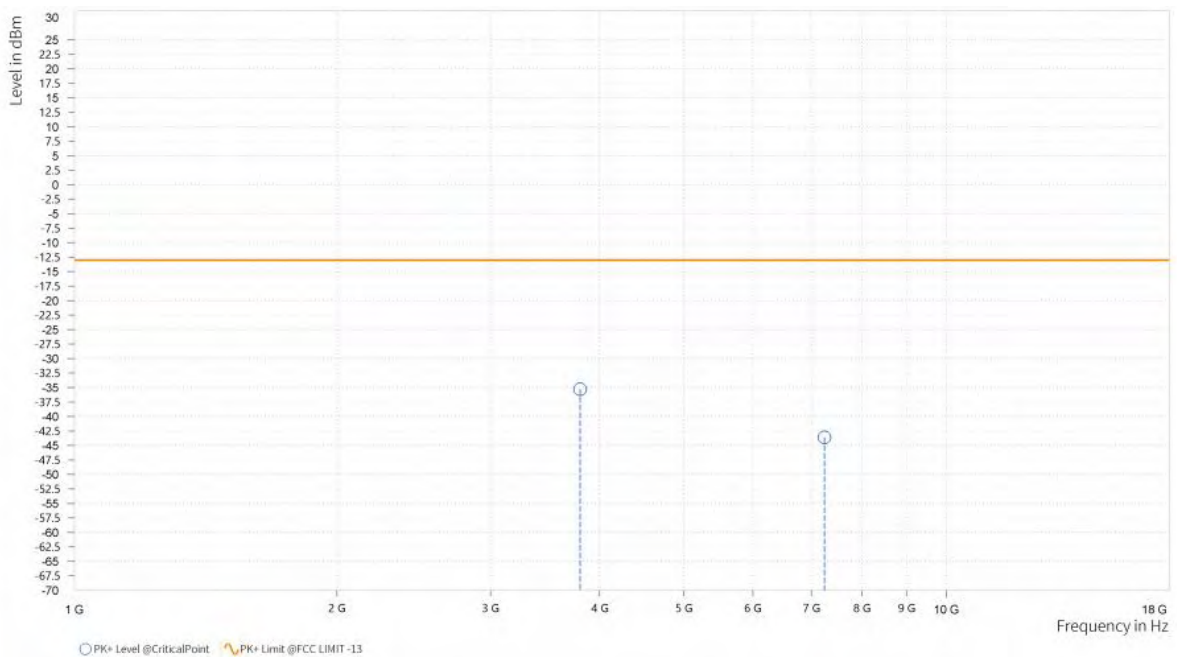




CH19150

<b>MODE</b>	TX channel 19150	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,801.500	-35.28	-13.00	22.28	22.51	H	181.4	1
5	7,247.000	-43.60	-13.00	30.60	33.44	H	0	1

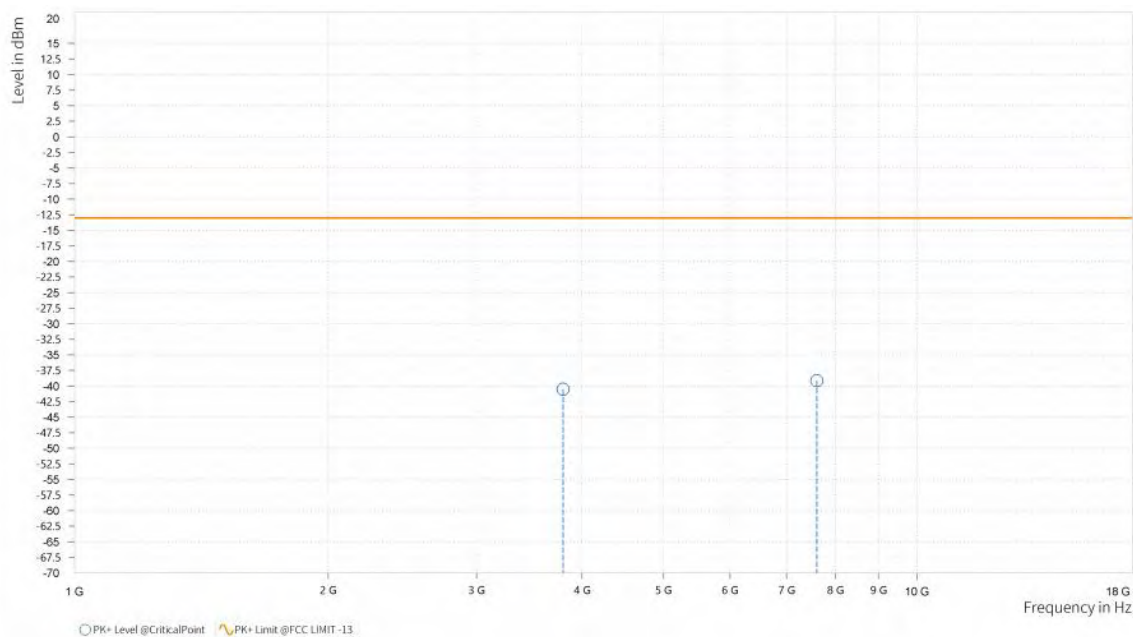




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 19150	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,801.500	-40.49	-13.00	27.49	22.87	V	177.3	2
5	7,602.000	-39.15	-13.00	26.15	32.43	V	0	1



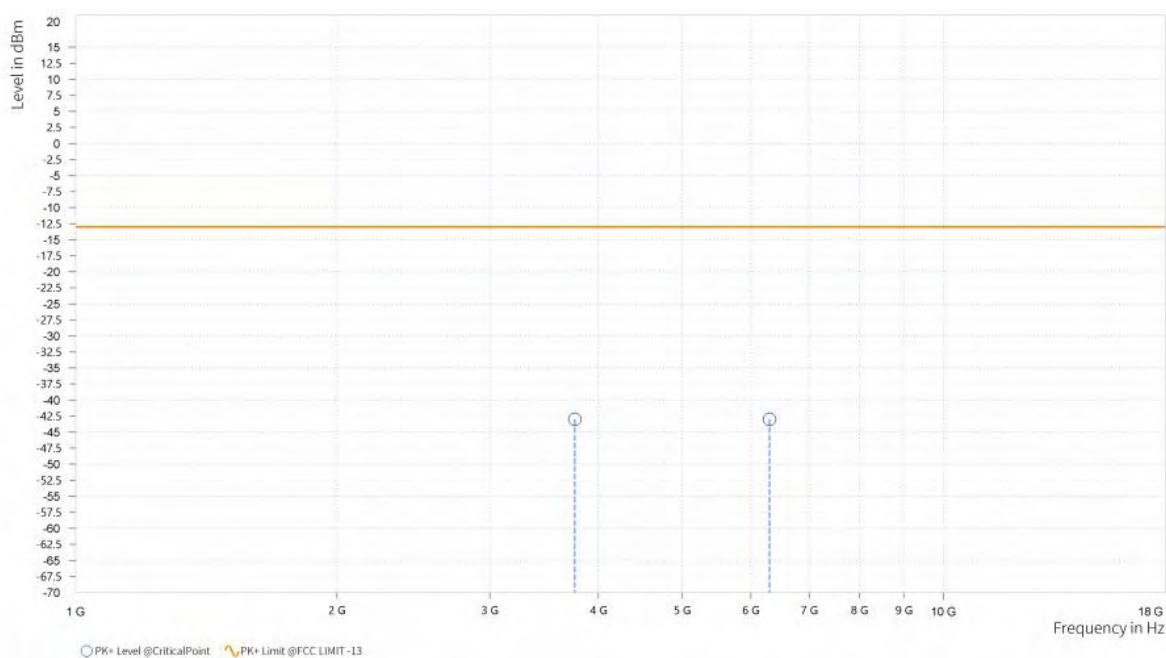


Test Report No.: PSU-NQN2204290110-1RF02

**CHANNEL BANDWIDTH: 15MHz / QPSK**

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-43.01	-13.00	30.01	22.41	H	185	1
5	6,300.500	-43.00	-13.00	30.00	33.86	H	360	1



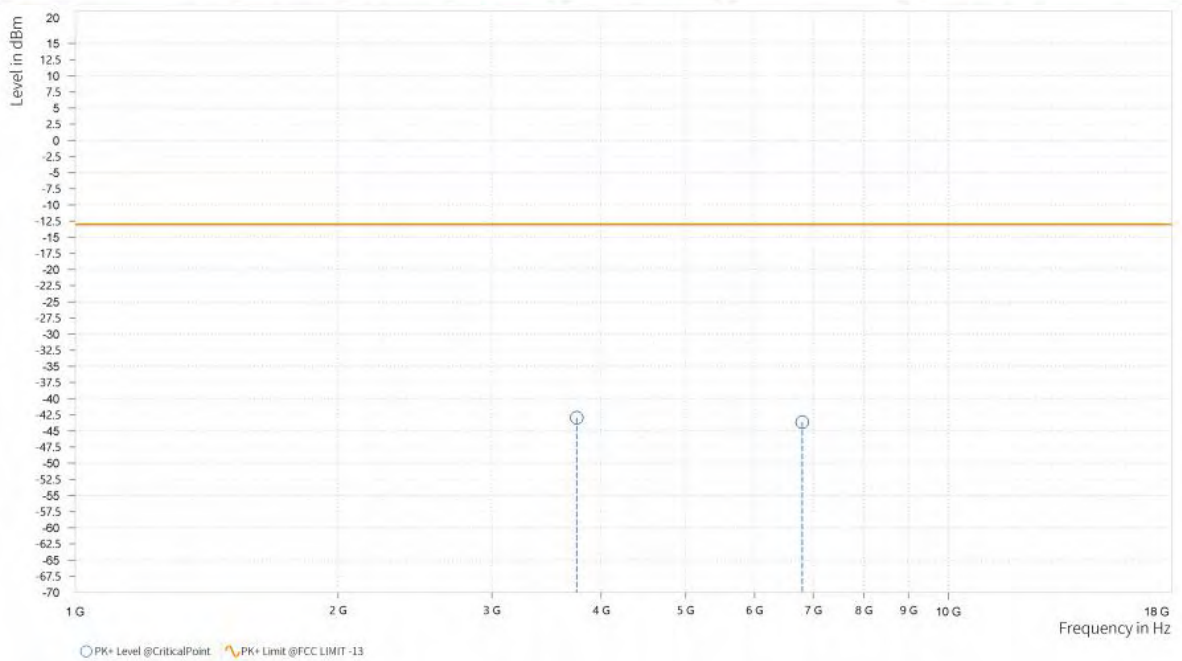




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,753.000	-42.96	-13.00	29.96	23.12	V	183.8	1
5	6,800.500	-43.64	-13.00	30.64	32.75	V	268.7	1





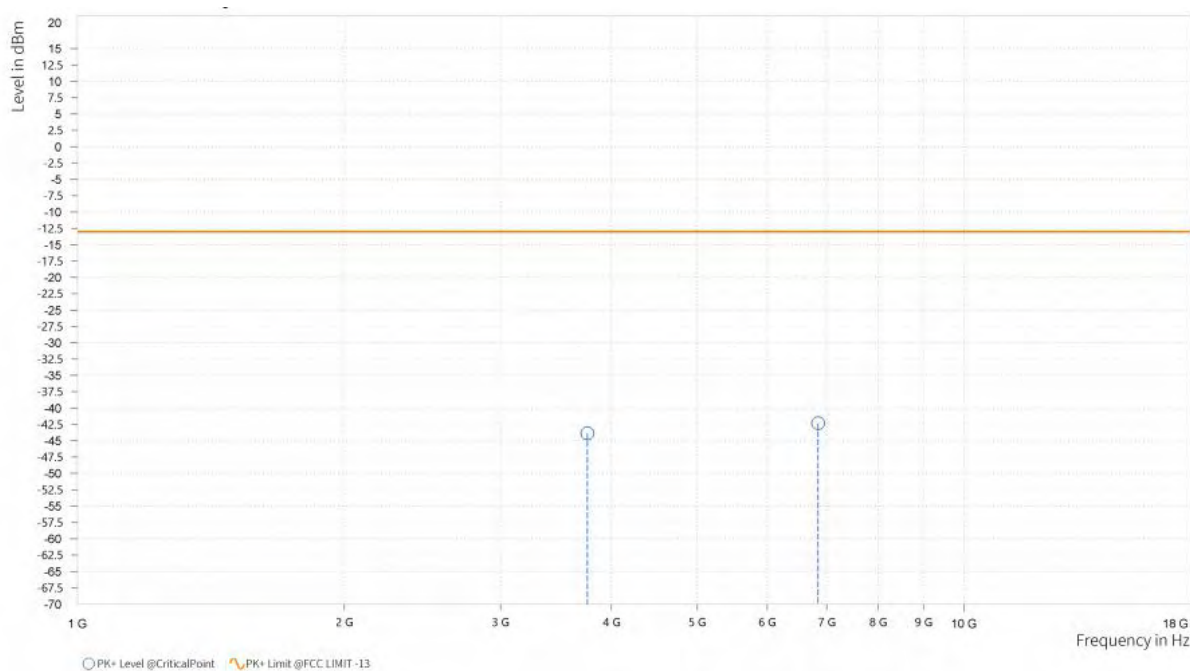
Test Report No.: PSU-NQN2204290110-1RF02

CHANNEL BANDWIDTH: 20MHz / QPSK

CH18900

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-43.87	-13.00	30.87	22.41	H	183.8	1
5	6,845.500	-42.30	-13.00	29.30	33.03	H	0	1

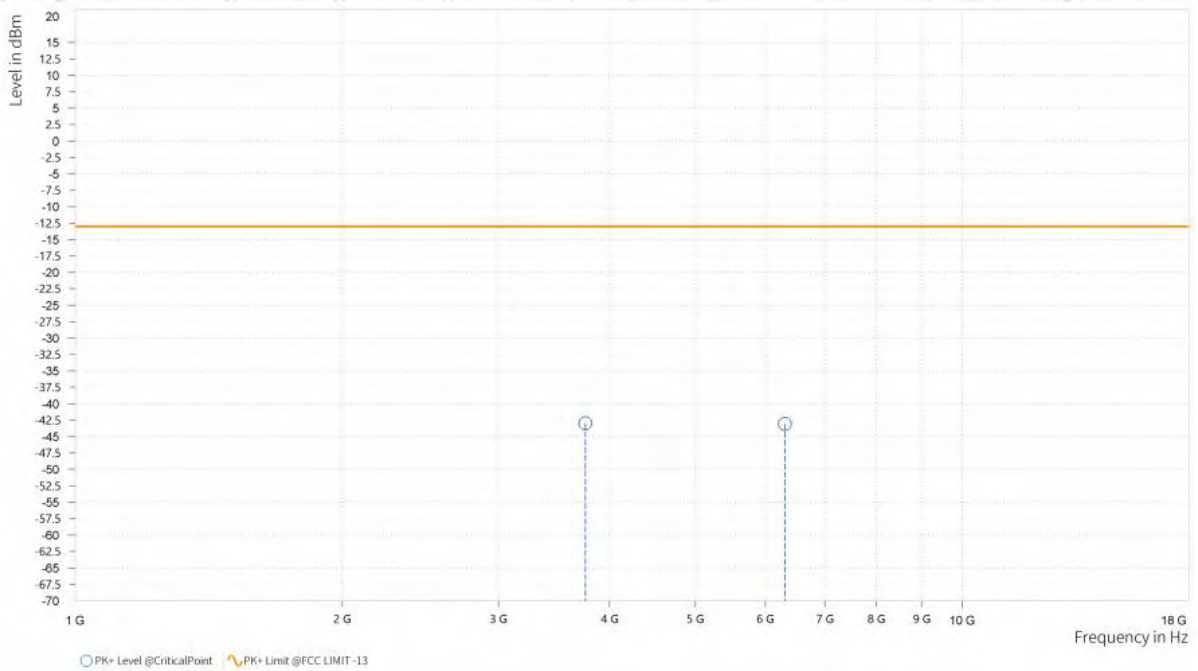




Test Report No.: PSU-NQN2204290110-1RF02

<b>MODE</b>	TX channel 18900	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 3.8V
<b>TESTED BY</b>	Chao Wu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-42.95	-13.00	29.95	23.09	V	181.4	1
5	6,309.500	-43.08	-13.00	30.08	33.17	V	0	2

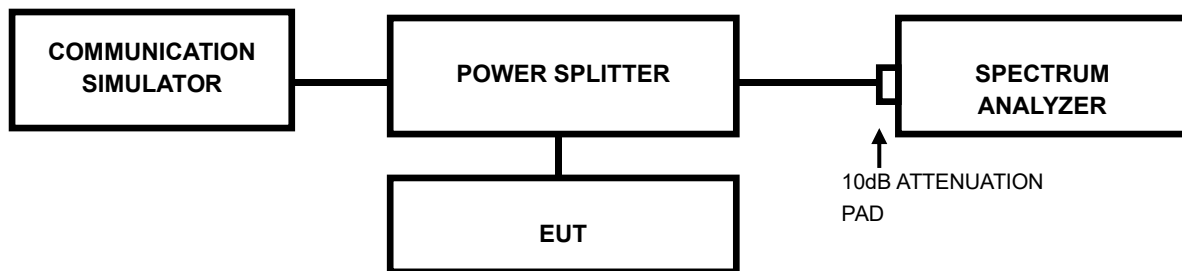


### 3.7 PEAK TO AVERAGE RATIO

#### 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  $\geq$  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%.



Test Report No.: PSU-NQN2204290110-1RF02

### 3.7.4 TEST RESULTS

Please Refer to Appendix B Of this test report.



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## 4 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



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## **5 APPENDIX A – 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.



## Appendix B

### GSM1900

#### PEAK-TO-AVERAGE RATIO(CCDF)

##### Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM1900	512	2.84	13	PASS
GSM1900	661	2.83	13	PASS
GSM1900	810	2.81	13	PASS





Test Graphs





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**VERITAS**

**Test Report No.: PSU-NQN2204290110-1RF02**





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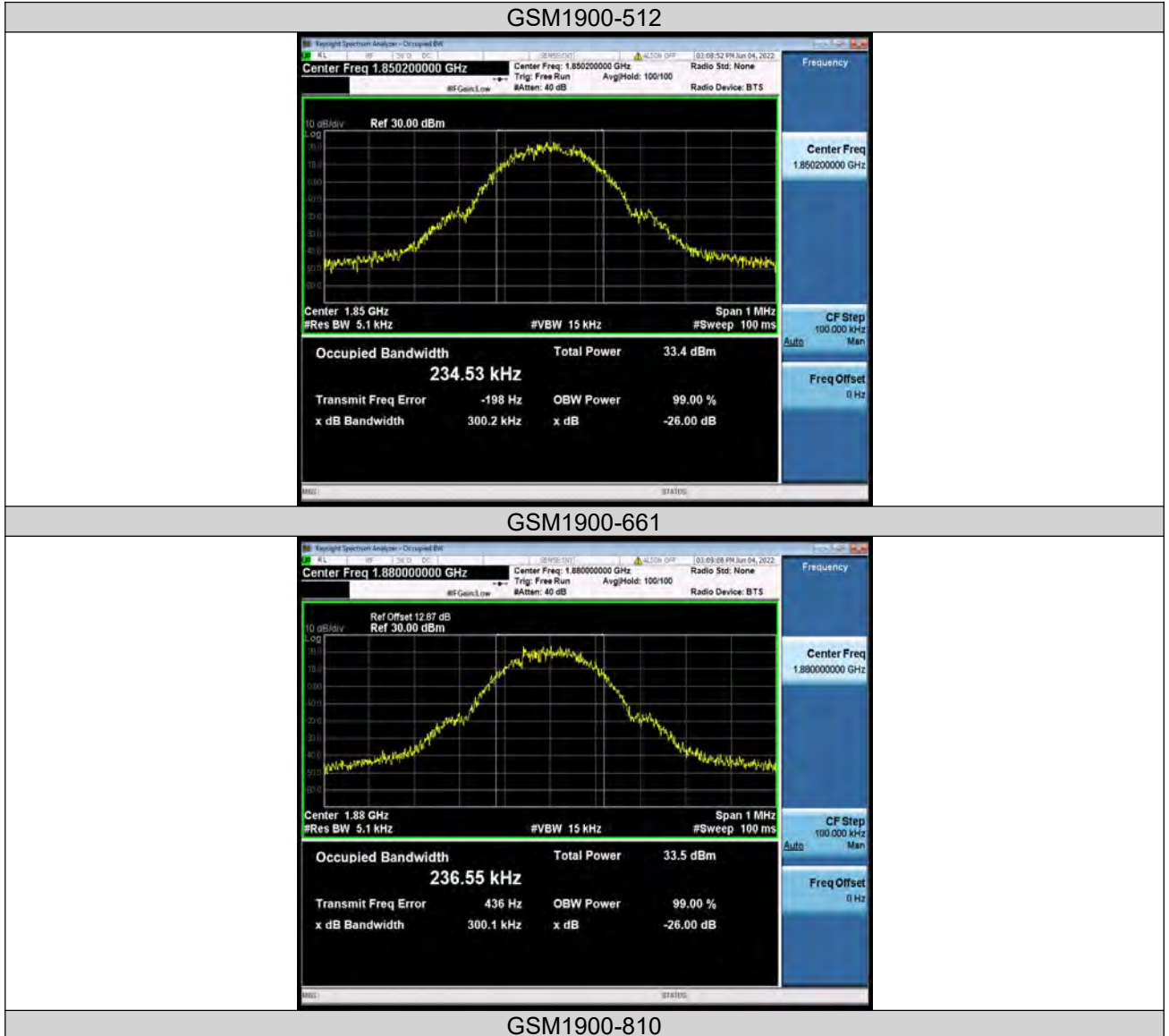
## 26DB BANDWIDTH AND OCCUPIED BANDWIDTH

### Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM1900	512	0.23453	0.3002	---	PASS
GSM1900	661	0.23655	0.3001	---	PASS
GSM1900	810	0.23727	0.2964	---	PASS



Test Graphs





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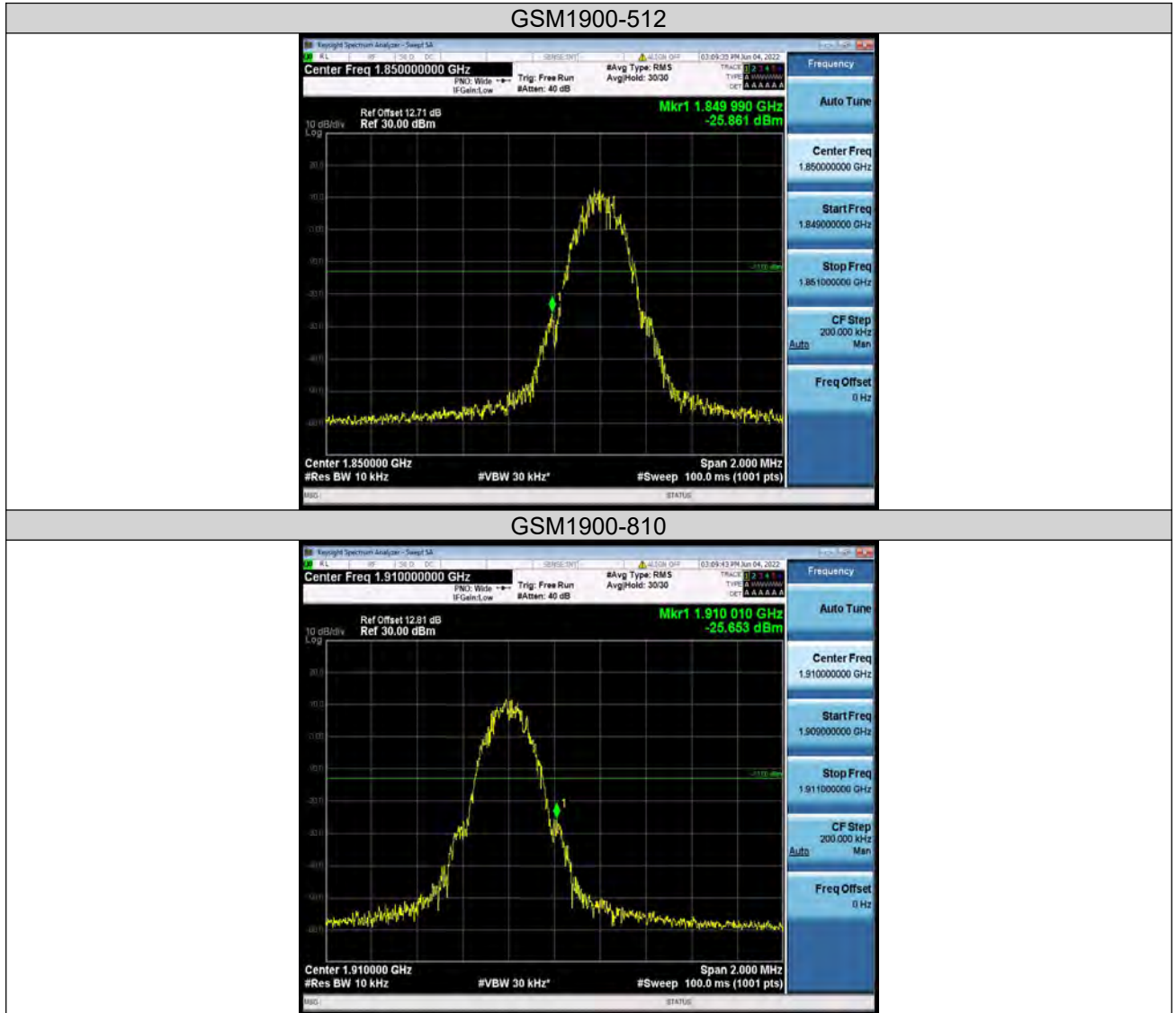
## BAND EDGE

### Test Result

Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM1900	512	1849.99	-25.86	-13	PASS
GSM1900	810	1910.01	-25.65	-13	PASS



### Test Graphs





## CONDUCTED SPURIOUS EMISSION

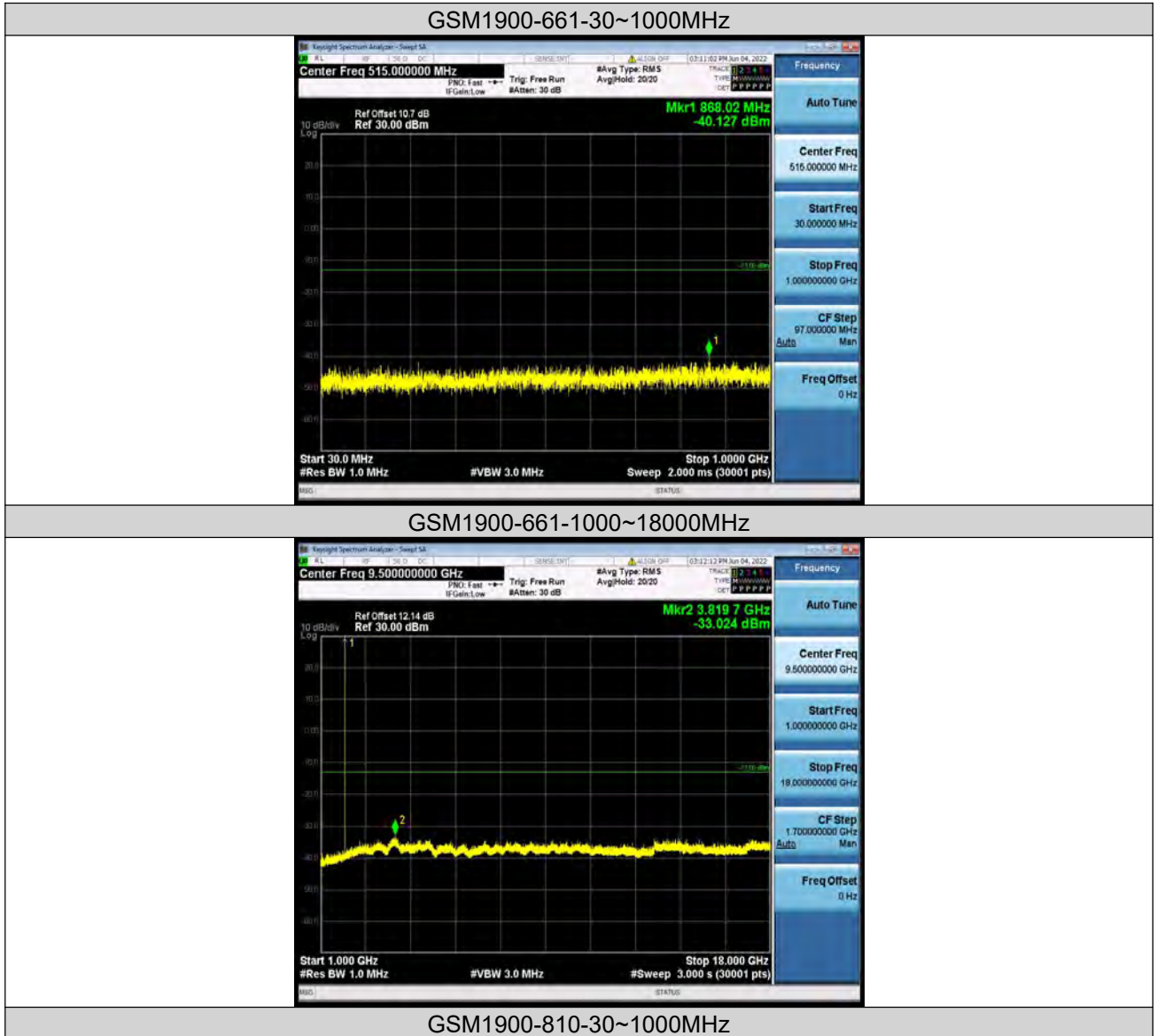
### Test Result

Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GSM1900	512	30~1000MHz	691.7	-41.34	-13	PASS
GSM1900	512	1000~18000MHz	3819.73	-33.34	-13	PASS
GSM1900	661	30~1000MHz	868.02	-40.13	-13	PASS
GSM1900	661	1000~18000MHz	3819.73	-33.02	-13	PASS
GSM1900	810	30~1000MHz	770.05	-41.54	-13	PASS
GSM1900	810	1000~18000MHz	3819.73	-33.05	-13	PASS





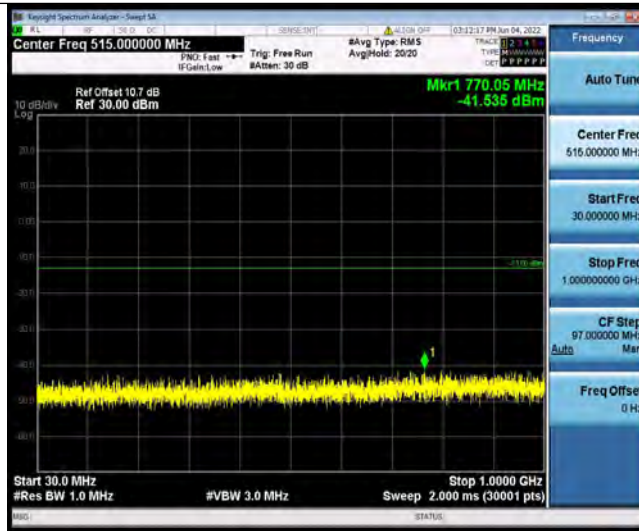
### Test Graphs





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Test Report No.: PSU-NQN2204290110-1RF02



GSM1900-810-1000~18000MHz





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VERITAS

Test Report No.: PSU-NQN2204290110-1RF02

## FREQUENCY STABILITY

### Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	VL	NT	-6.75	-0.003648	±2.5	PASS
GSM1900	512	VN	NT	-7.36	-0.003978	±2.5	PASS
GSM1900	512	VH	NT	-6.65	-0.003594	±2.5	PASS
GSM1900	661	VL	NT	-11.78	-0.006266	±2.5	PASS
GSM1900	661	VN	NT	-12.59	-0.006697	±2.5	PASS
GSM1900	661	VH	NT	-14.40	-0.007660	±2.5	PASS
GSM1900	810	VL	NT	-13.24	-0.006933	±2.5	PASS
GSM1900	810	VN	NT	-14.63	-0.007660	±2.5	PASS
GSM1900	810	VH	NT	-14.08	-0.007372	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	NV	-30	-7.59	-0.004102	±2.5	PASS
GSM1900	512	NV	-20	-7.49	-0.004048	±2.5	PASS
GSM1900	512	NV	-10	-9.23	-0.004989	±2.5	PASS
GSM1900	512	NV	0	-6.13	-0.003313	±2.5	PASS
GSM1900	512	NV	10	-6.36	-0.003437	±2.5	PASS
GSM1900	512	NV	20	-10.75	-0.005810	±2.5	PASS
GSM1900	512	NV	30	-7.65	-0.004135	±2.5	PASS
GSM1900	512	NV	40	-6.39	-0.003454	±2.5	PASS
GSM1900	512	NV	50	-9.30	-0.005026	±2.5	PASS
GSM1900	661	NV	-30	-11.59	-0.006165	±2.5	PASS
GSM1900	661	NV	-20	-12.37	-0.006580	±2.5	PASS
GSM1900	661	NV	-10	-11.40	-0.006064	±2.5	PASS
GSM1900	661	NV	0	-13.14	-0.006989	±2.5	PASS
GSM1900	661	NV	10	-13.56	-0.007213	±2.5	PASS
GSM1900	661	NV	20	-12.95	-0.006888	±2.5	PASS
GSM1900	661	NV	30	-14.21	-0.007559	±2.5	PASS
GSM1900	661	NV	40	-13.37	-0.007112	±2.5	PASS
GSM1900	661	NV	50	-14.33	-0.007622	±2.5	PASS
GSM1900	810	NV	-30	-14.56	-0.007624	±2.5	PASS
GSM1900	810	NV	-20	-14.88	-0.007791	±2.5	PASS
GSM1900	810	NV	-10	-14.11	-0.007388	±2.5	PASS
GSM1900	810	NV	0	-15.37	-0.008048	±2.5	PASS
GSM1900	810	NV	10	-15.50	-0.008116	±2.5	PASS
GSM1900	810	NV	20	-13.69	-0.007168	±2.5	PASS
GSM1900	810	NV	30	-15.05	-0.007880	±2.5	PASS
GSM1900	810	NV	40	-14.21	-0.007441	±2.5	PASS
GSM1900	810	NV	50	-13.72	-0.007184	±2.5	PASS



## LTE BAND2

### PEAK-TO-AVERAGE RATIO(CCDF)

#### Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	1.4MHz	QPSK	18607	1RB#0	5.31	13	PASS
Band2	1.4MHz	QPSK	18607	6RB#0	5.52	13	PASS
Band2	1.4MHz	QPSK	18900	1RB#0	4.48	13	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	4.65	13	PASS
Band2	1.4MHz	QPSK	19193	1RB#0	4.75	13	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	5.05	13	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	5.51	13	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	6.14	13	PASS
Band2	1.4MHz	16QAM	18900	1RB#0	4.91	13	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	5.23	13	PASS
Band2	1.4MHz	16QAM	19193	1RB#0	5.21	13	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	5.57	13	PASS
Band2	3MHz	QPSK	18615	1RB#0	5.66	13	PASS
Band2	3MHz	QPSK	18615	15RB#0	5.51	13	PASS
Band2	3MHz	QPSK	18900	1RB#0	4.71	13	PASS
Band2	3MHz	QPSK	18900	15RB#0	4.69	13	PASS
Band2	3MHz	QPSK	19185	1RB#0	4.66	13	PASS
Band2	3MHz	QPSK	19185	15RB#0	4.85	13	PASS
Band2	3MHz	16QAM	18615	1RB#0	6.34	13	PASS
Band2	3MHz	16QAM	18615	15RB#0	6.36	13	PASS
Band2	3MHz	16QAM	18900	1RB#0	5.15	13	PASS
Band2	3MHz	16QAM	18900	15RB#0	5.21	13	PASS
Band2	3MHz	16QAM	19185	1RB#0	5.23	13	PASS
Band2	3MHz	16QAM	19185	15RB#0	5.49	13	PASS
Band2	5MHz	QPSK	18625	1RB#0	5.68	13	PASS
Band2	5MHz	QPSK	18625	25RB#0	5.68	13	PASS
Band2	5MHz	QPSK	18900	1RB#0	4.49	13	PASS
Band2	5MHz	QPSK	18900	25RB#0	4.74	13	PASS
Band2	5MHz	QPSK	19175	1RB#0	4.11	13	PASS
Band2	5MHz	QPSK	19175	25RB#0	4.59	13	PASS
Band2	5MHz	16QAM	18625	1RB#0	5.81	13	PASS
Band2	5MHz	16QAM	18625	25RB#0	6.84	13	PASS
Band2	5MHz	16QAM	18900	1RB#0	4.64	13	PASS
Band2	5MHz	16QAM	18900	25RB#0	5.20	13	PASS
Band2	5MHz	16QAM	19175	1RB#0	4.36	13	PASS
Band2	5MHz	16QAM	19175	25RB#0	5.05	13	PASS
Band2	10MHz	QPSK	18650	1RB#0	5.63	13	PASS
Band2	10MHz	QPSK	18650	50RB#0	5.57	13	PASS
Band2	10MHz	QPSK	18900	1RB#0	4.45	13	PASS
Band2	10MHz	QPSK	18900	50RB#0	4.74	13	PASS
Band2	10MHz	QPSK	19150	1RB#0	4.92	13	PASS
Band2	10MHz	QPSK	19150	50RB#0	4.37	13	PASS



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**VERITAS**

**Test Report No.: PSU-NQN2204290110-1RF02**

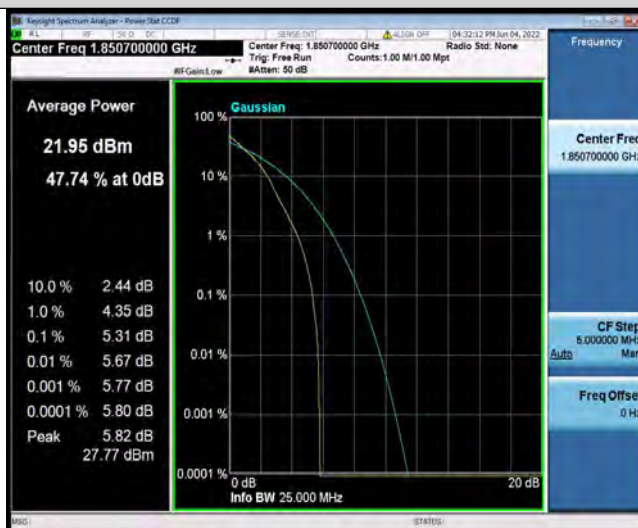
Band2	10MHz	16QAM	18650	1RB#0	6.03	13	PASS
Band2	10MHz	16QAM	18650	27RB#0	6.16	13	PASS
Band2	10MHz	16QAM	18900	1RB#0	4.82	13	PASS
Band2	10MHz	16QAM	18900	27RB#0	4.83	13	PASS
Band2	10MHz	16QAM	19150	1RB#0	5.48	13	PASS
Band2	10MHz	16QAM	19150	27RB#0	4.72	13	PASS
Band2	15MHz	QPSK	18675	1RB#0	5.33	13	PASS
Band2	15MHz	QPSK	18675	75RB#0	5.76	13	PASS
Band2	15MHz	QPSK	18900	1RB#0	4.27	13	PASS
Band2	15MHz	QPSK	18900	75RB#0	5.13	13	PASS
Band2	15MHz	QPSK	19125	1RB#0	5.43	13	PASS
Band2	15MHz	QPSK	19125	75RB#0	4.92	13	PASS
Band2	15MHz	16QAM	18675	1RB#0	5.58	13	PASS
Band2	15MHz	16QAM	18675	27RB#0	6.23	13	PASS
Band2	15MHz	16QAM	18900	1RB#0	4.71	13	PASS
Band2	15MHz	16QAM	18900	27RB#0	4.78	13	PASS
Band2	15MHz	16QAM	19125	1RB#0	6.18	13	PASS
Band2	15MHz	16QAM	19125	27RB#0	5.83	13	PASS
Band2	20MHz	QPSK	18700	1RB#0	5.09	13	PASS
Band2	20MHz	QPSK	18700	100RB#0	5.34	13	PASS
Band2	20MHz	QPSK	18900	1RB#0	4.35	13	PASS
Band2	20MHz	QPSK	18900	100RB#0	4.97	13	PASS
Band2	20MHz	QPSK	19100	1RB#0	5.26	13	PASS
Band2	20MHz	QPSK	19100	100RB#0	4.93	13	PASS
Band2	20MHz	16QAM	18700	1RB#0	5.39	13	PASS
Band2	20MHz	16QAM	18700	27RB#0	6.42	13	PASS
Band2	20MHz	16QAM	18900	1RB#0	4.57	13	PASS
Band2	20MHz	16QAM	18900	27RB#0	4.93	13	PASS
Band2	20MHz	16QAM	19100	1RB#0	5.71	13	PASS
Band2	20MHz	16QAM	19100	27RB#0	6.22	13	PASS



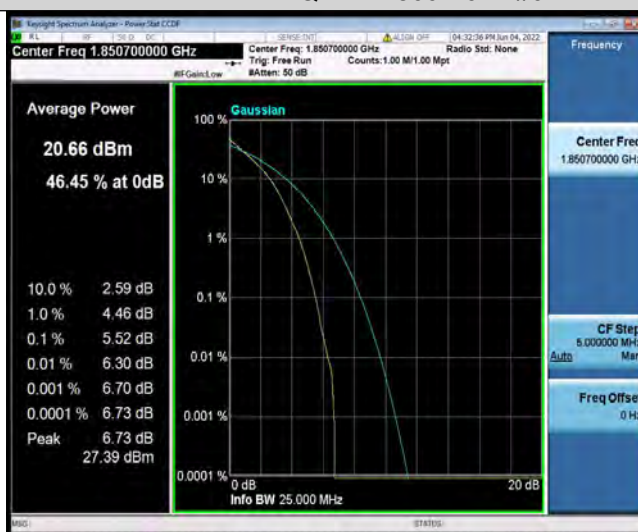


### Test Graphs

Band2-1.4MHz-QPSK-18607-1RB#0



Band2-1.4MHz-QPSK-18607-6RB#0



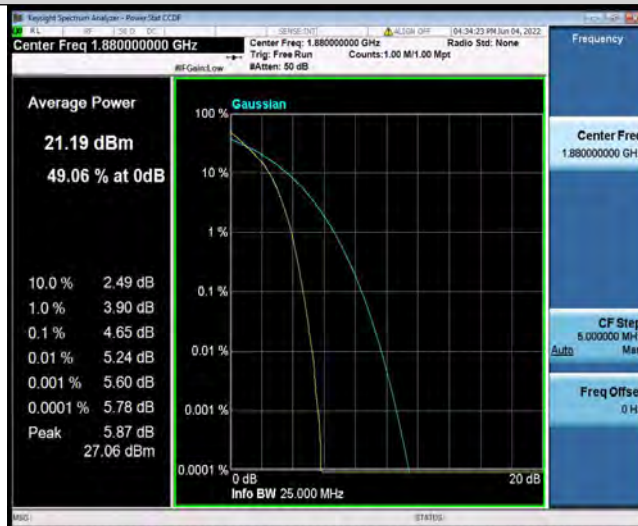
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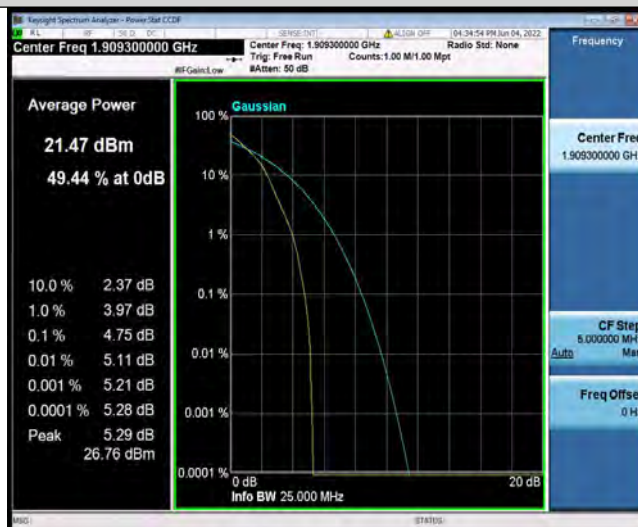
Test Report No.: PSU-NQN2204290110-1RF02



Band2-1.4MHz-QPSK-18900-6RB#0



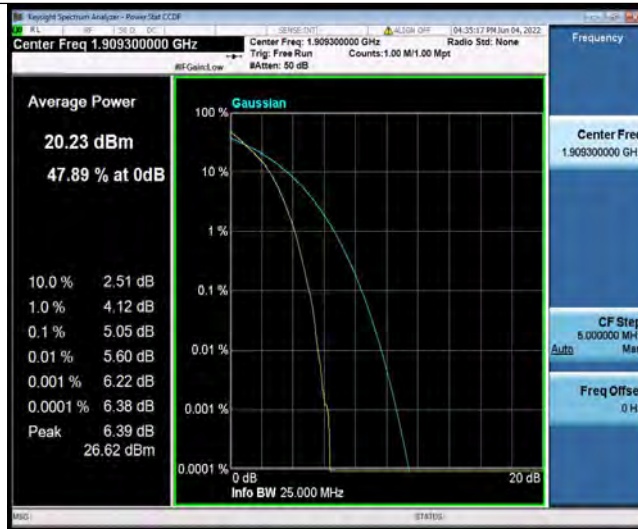
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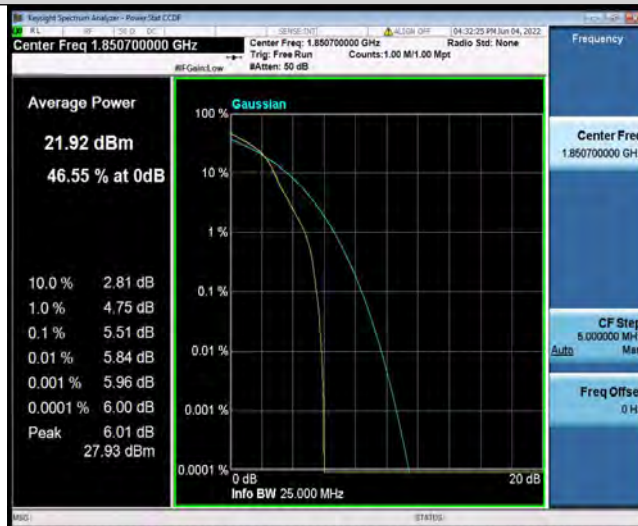
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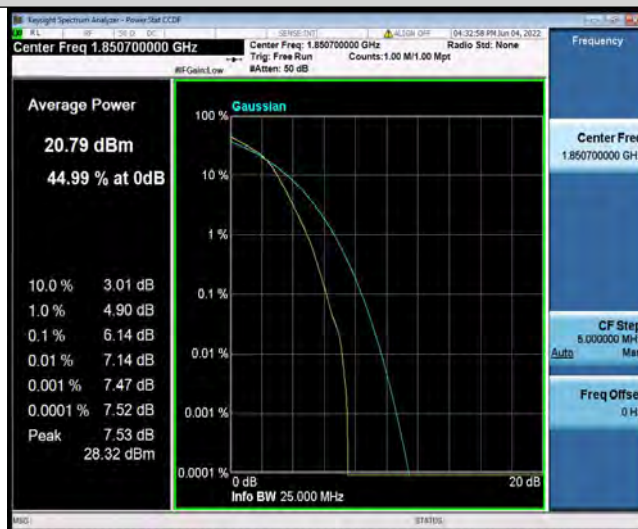
Test Report No.: PSU-NQN2204290110-1RF02



Band2-1.4MHz-16QAM-18607-1RB#0



Band2-1.4MHz-16QAM-18607-6RB#0

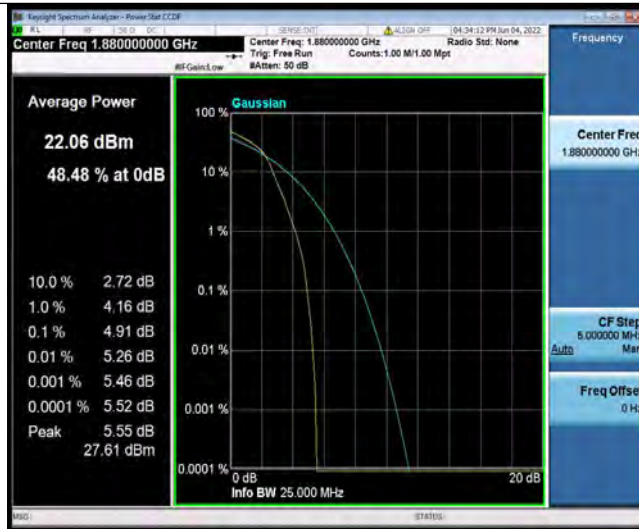


Band2-1.4MHz-16QAM-18900-1RB#0





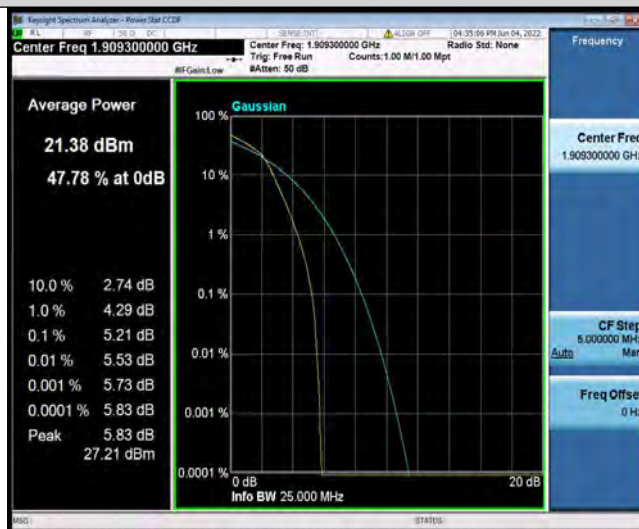
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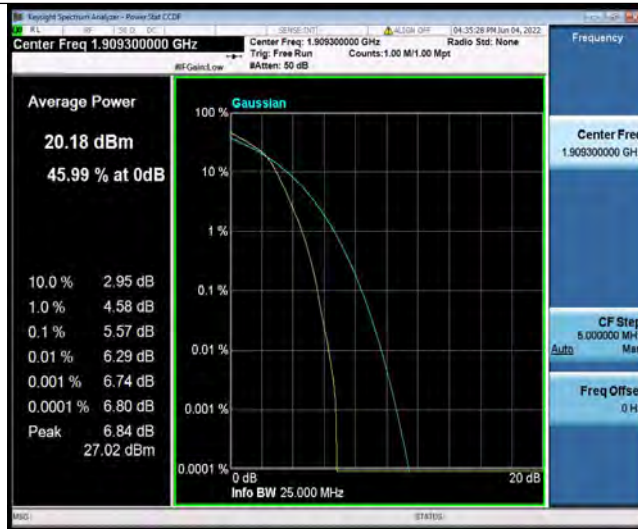
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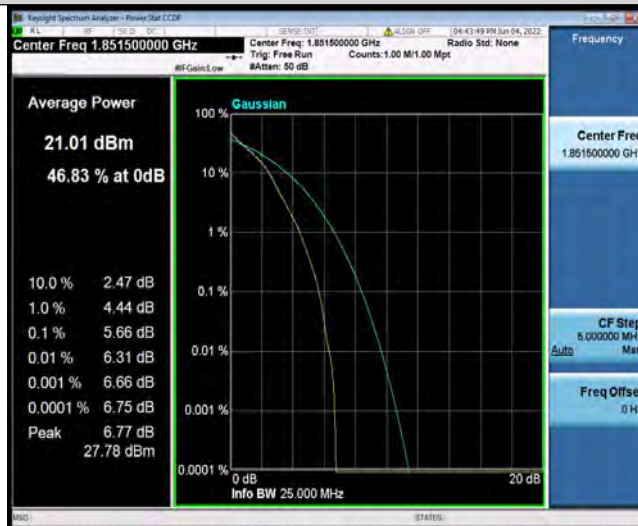
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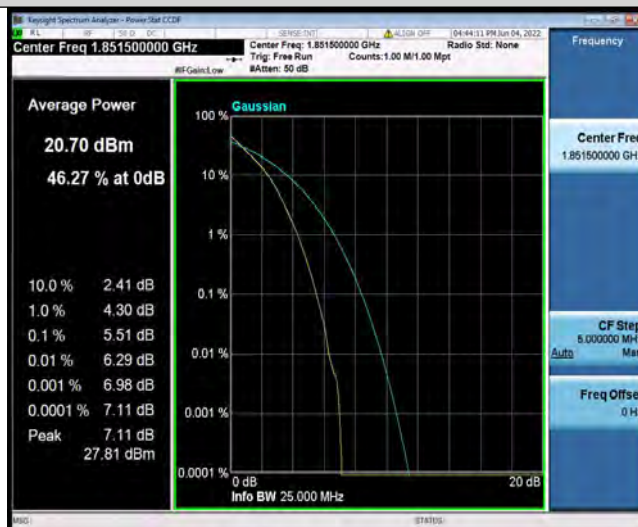
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-QPSK-18615-1RB#0



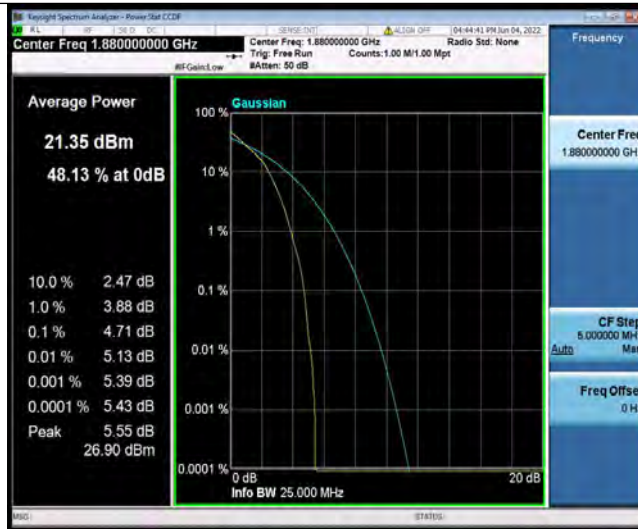
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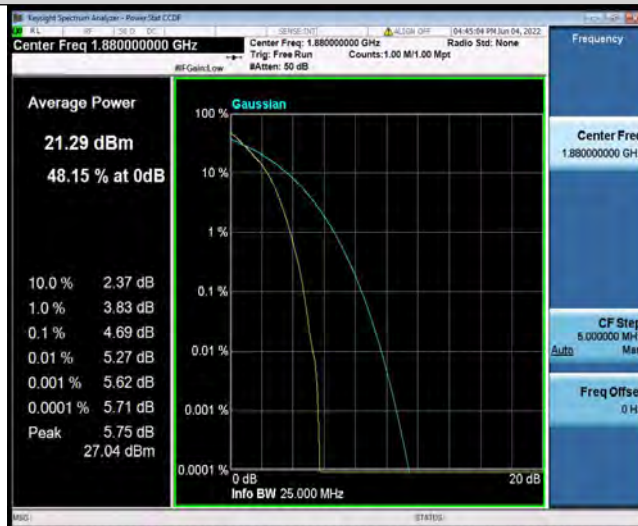
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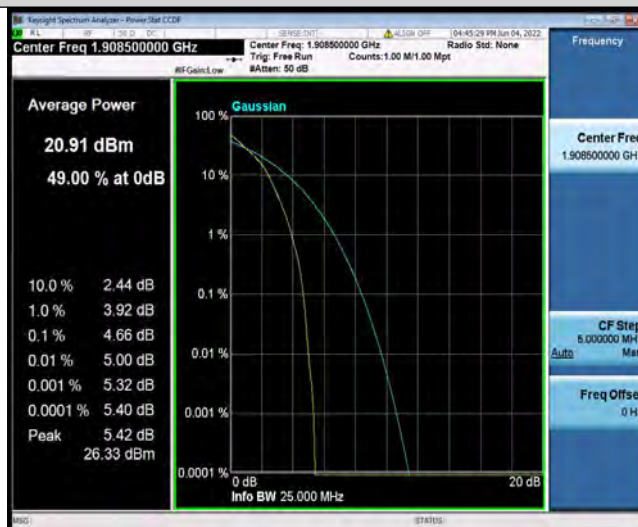
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-QPSK-18900-15RB#0



Band2-3MHz-QPSK-19185-1RB#0

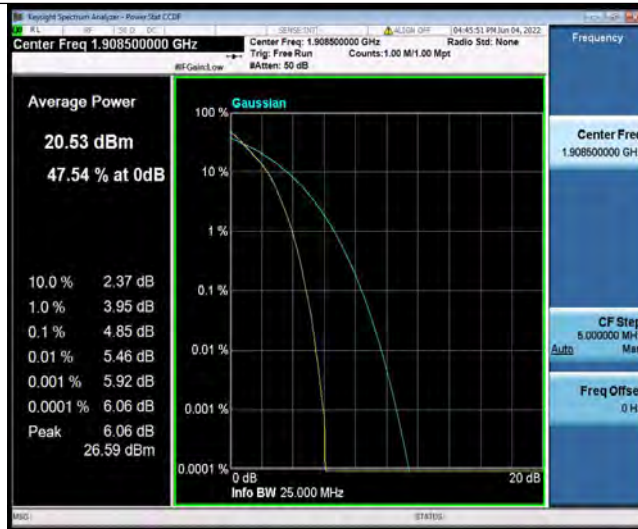


Band2-3MHz-QPSK-19185-15RB#0





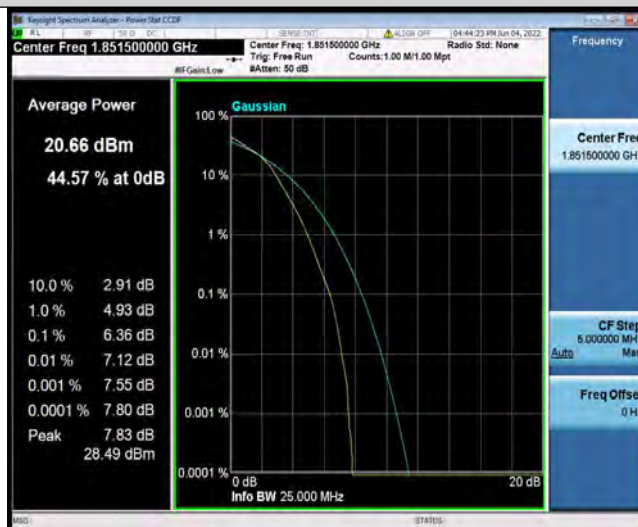
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-16QAM-18615-1RB#0



Band2-3MHz-16QAM-18615-15RB#0

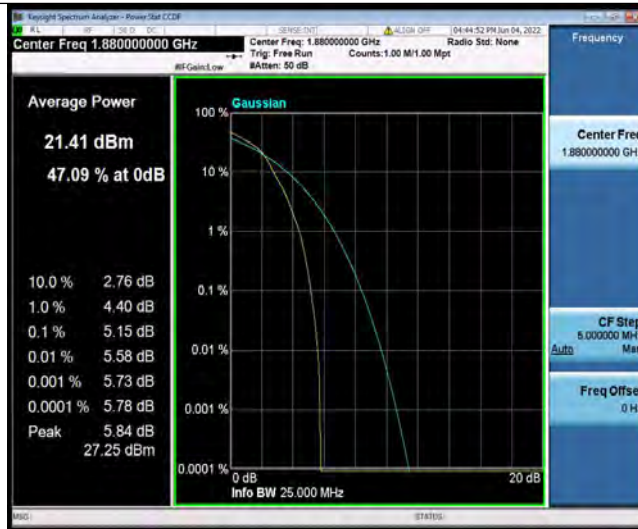


Band2-3MHz-16QAM-18900-1RB#0

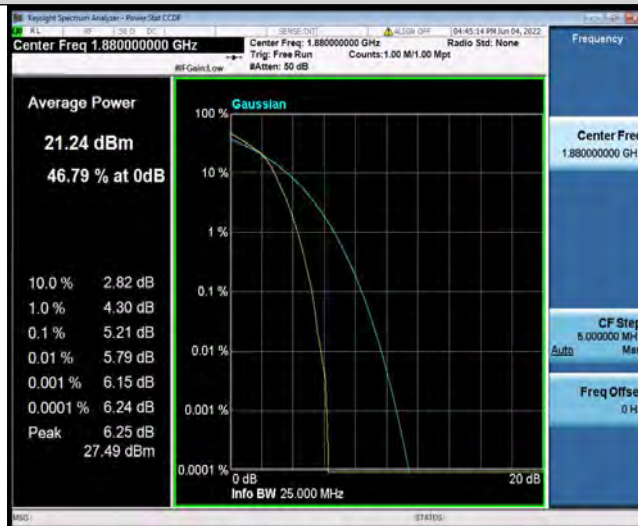


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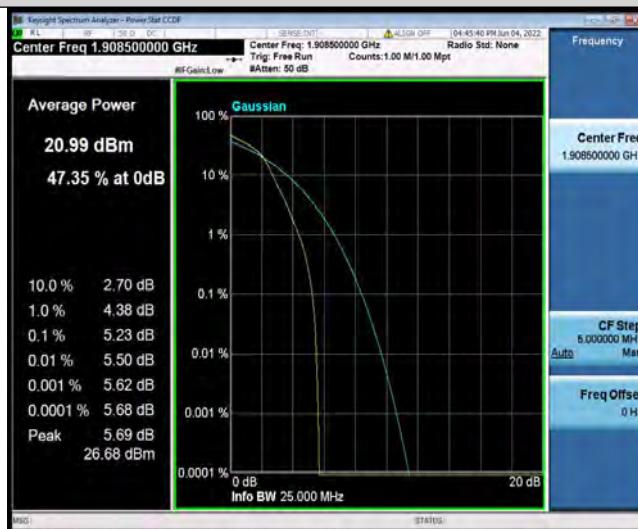
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-16QAM-18900-15RB#0



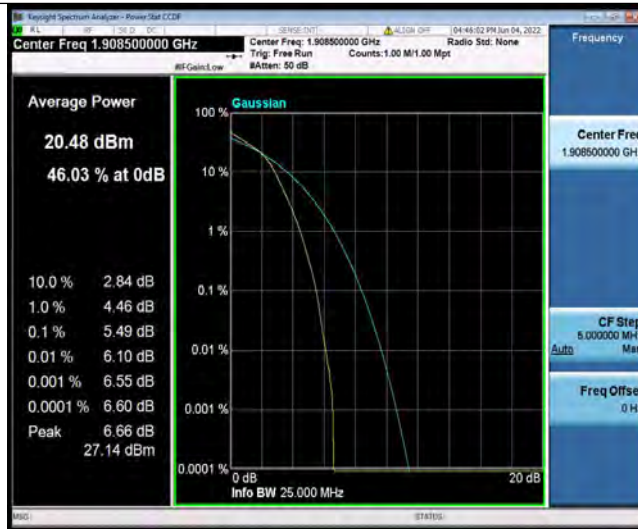
Band2-3MHz-16QAM-19185-1RB#0



Band2-3MHz-16QAM-19185-15RB#0



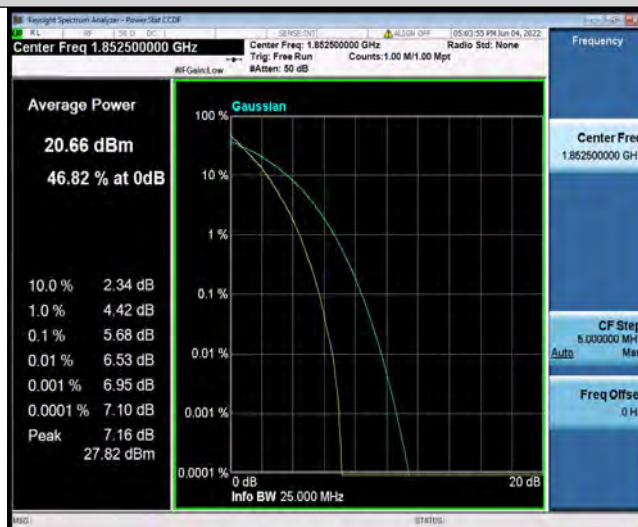
Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-QPSK-18625-1RB#0



Band2-5MHz-QPSK-18625-25RB#0

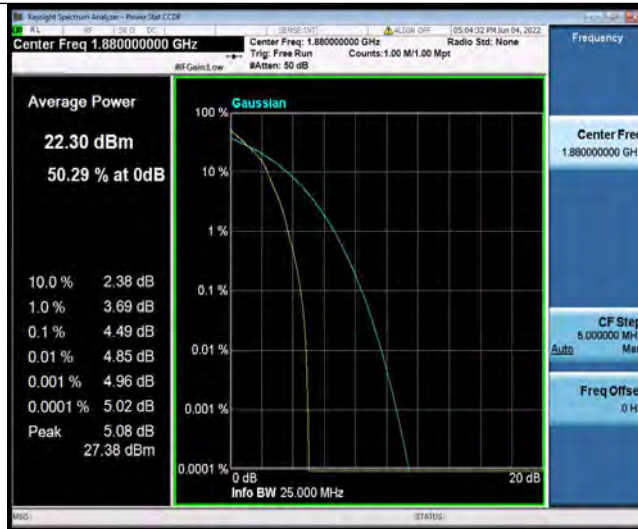


Band2-5MHz-QPSK-18900-1RB#0

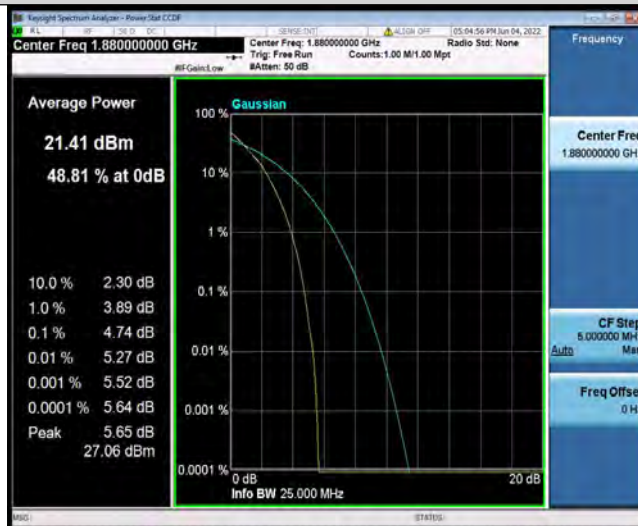




Test Report No.: PSU-NQN2204290110-1RF02



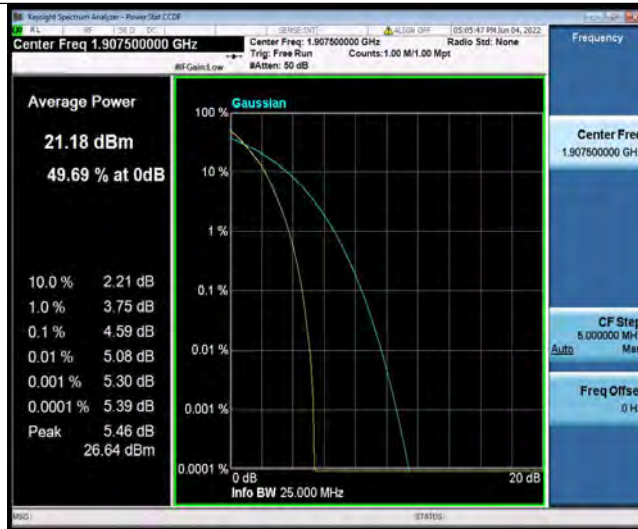
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Band2-5MHz-QPSK-19175-1RB#0



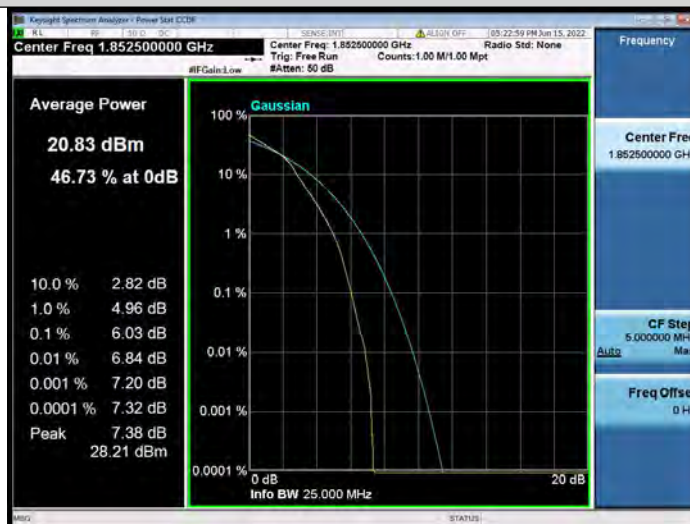
Band2-5MHz-QPSK-19175-25RB#0



Band2-5MHz-16QAM-18625-1RB#0



Band2-5MHz-16QAM-18625-25RB#0



Band2-5MHz-16QAM-18900-1RB#0





Test Report No.: PSU-NQN2204290110-1RF02



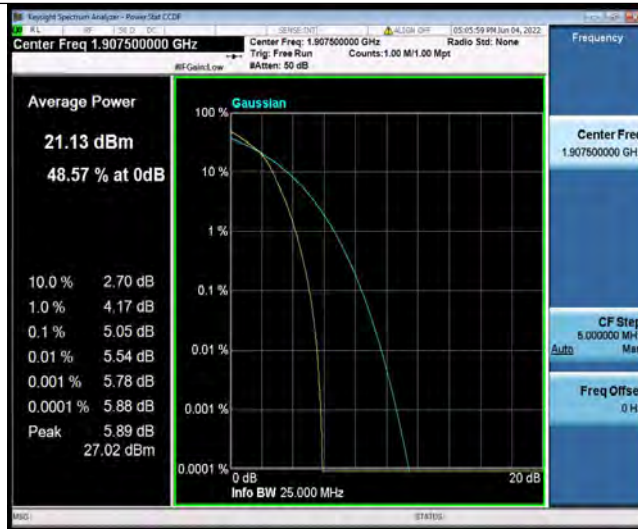
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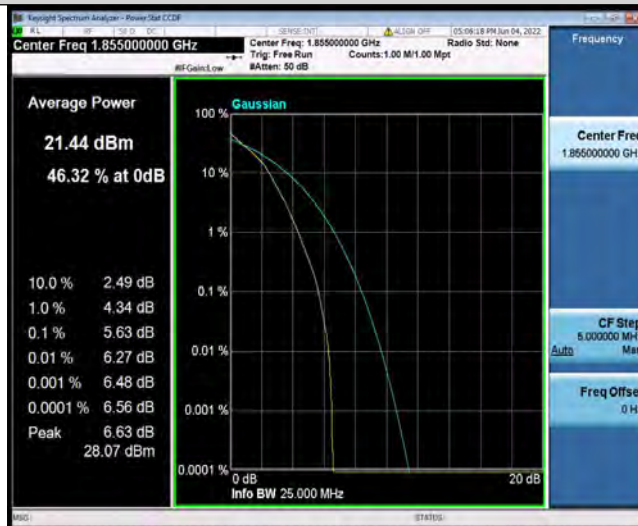
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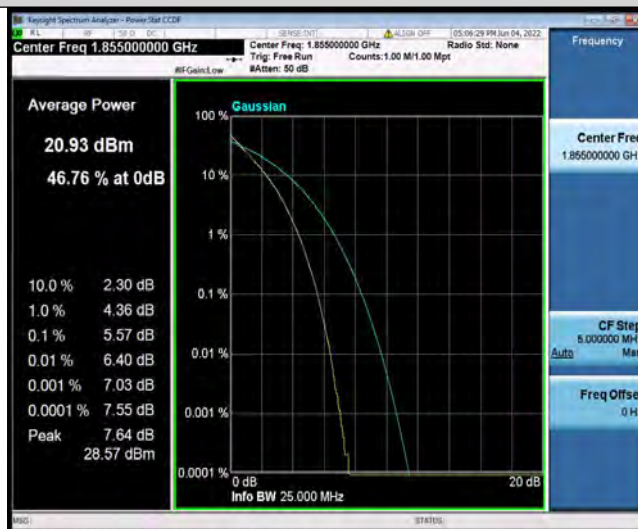
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Band2-10MHz-QPSK-18650-1RB#0



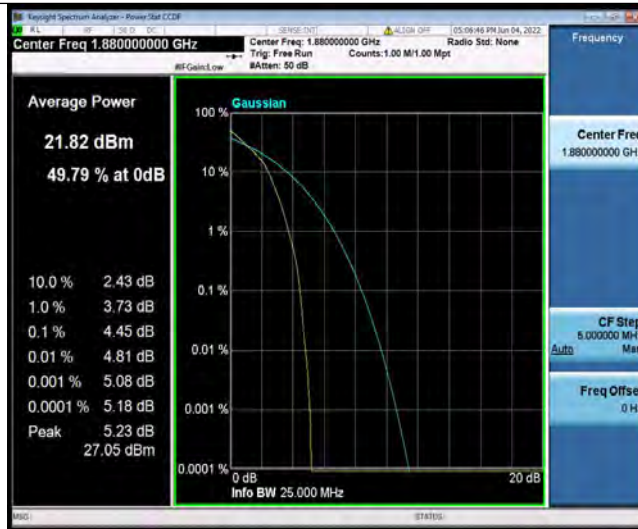
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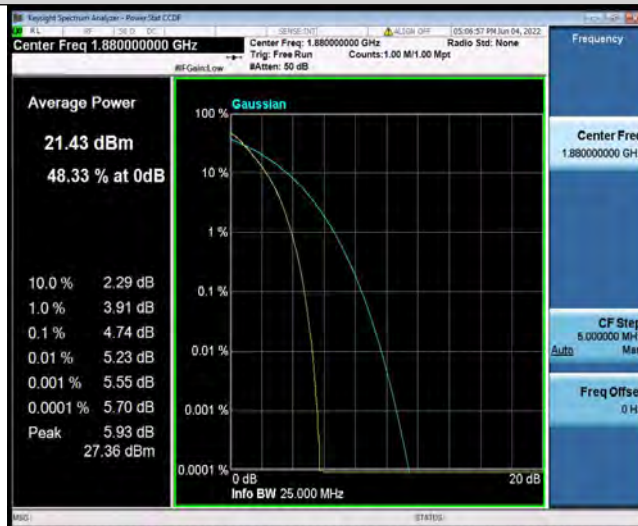
Band2-10MHz-QPSK-18900-1RB#0



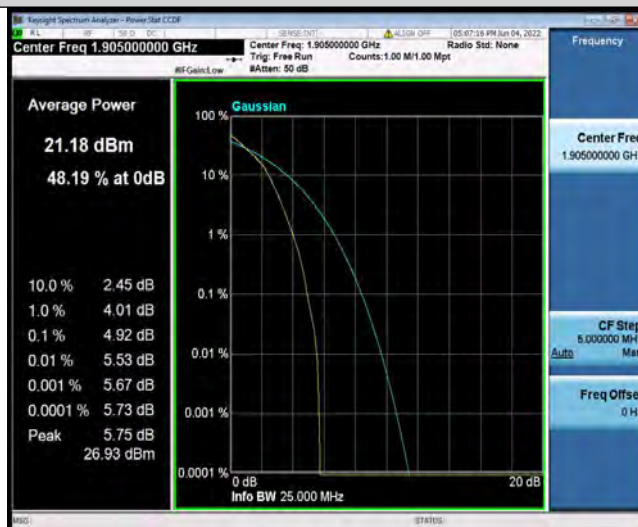
Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-QPSK-18900-50RB#0



Band2-10MHz-QPSK-19150-1RB#0



Band2-10MHz-QPSK-19150-50RB#0





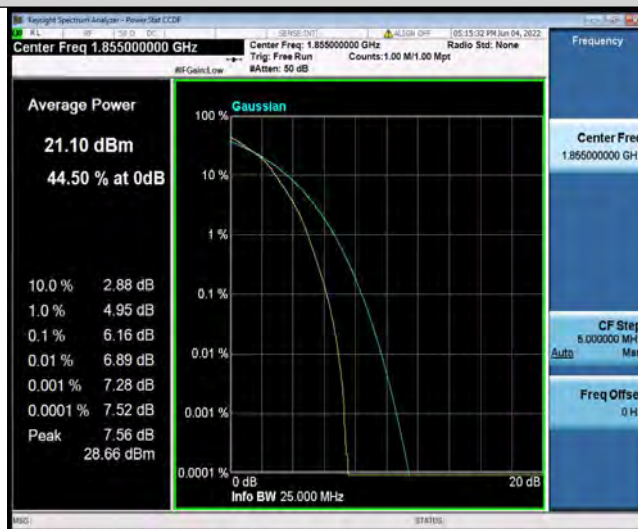
Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-16QAM-18650-1RB#0



Band2-10MHz-16QAM-18650-27RB#0

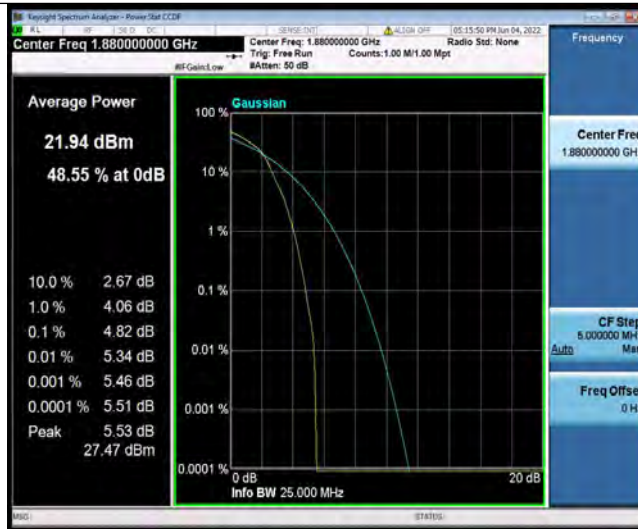


Band2-10MHz-16QAM-18900-1RB#0

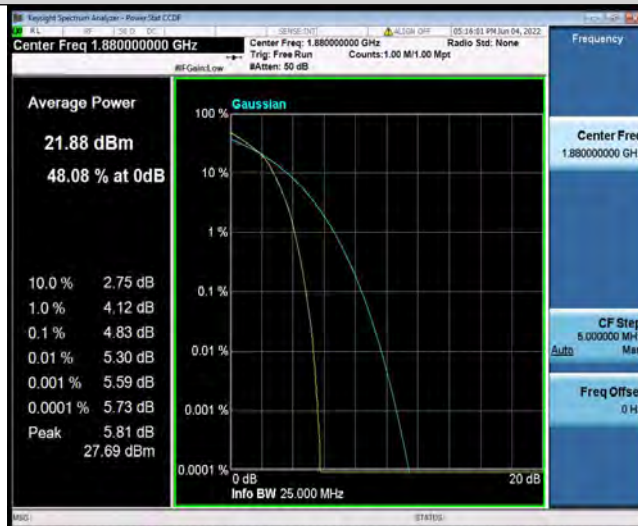


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Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-16QAM-18900-27RB#0



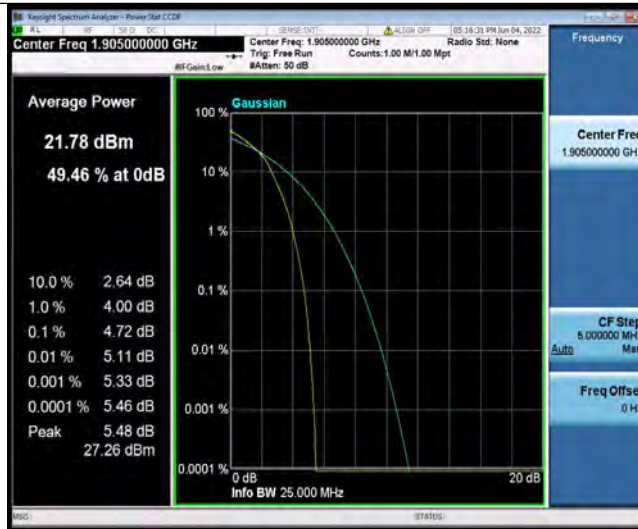
Band2-10MHz-16QAM-19150-1RB#0



Band2-10MHz-16QAM-19150-27RB#0



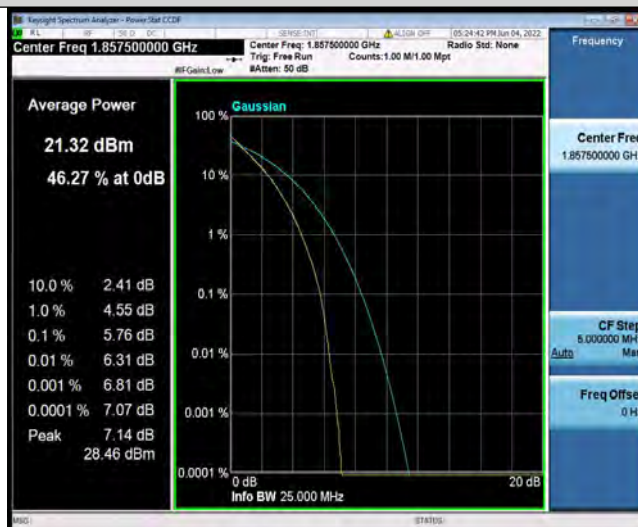
Test Report No.: PSU-NQN2204290110-1RF02



Band2-15MHz-QPSK-18675-1RB#0



Band2-15MHz-QPSK-18675-75RB#0



Band2-15MHz-QPSK-18900-1RB#0

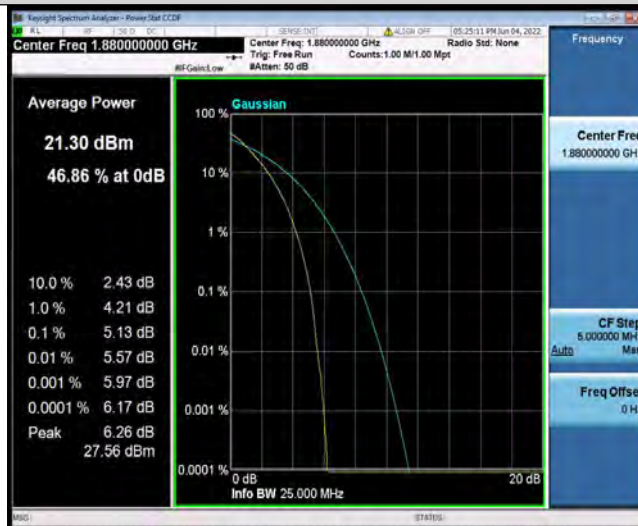




Test Report No.: PSU-NQN2204290110-1RF02



Band2-15MHz-QPSK-18900-75RB#0



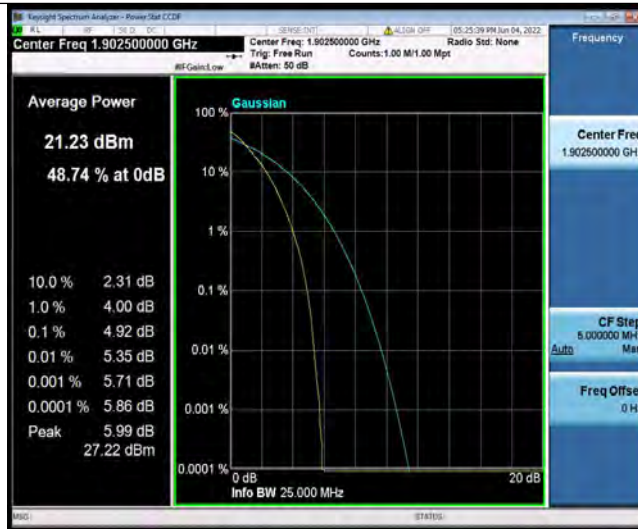
Band2-15MHz-QPSK-19125-1RB#0



Band2-15MHz-QPSK-19125-75RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-15MHz-16QAM-18675-1RB#0



Band2-15MHz-16QAM-18675-27RB#0

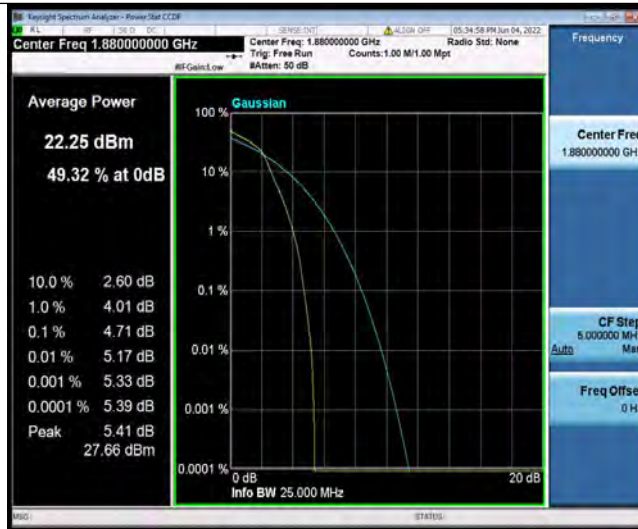


Band2-15MHz-16QAM-18900-1RB#0





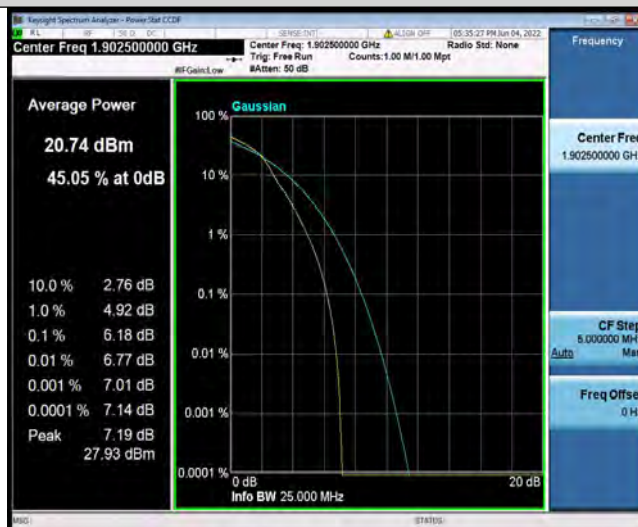
Test Report No.: PSU-NQN2204290110-1RF02



Band2-15MHz-16QAM-18900-27RB#0



Band2-15MHz-16QAM-19125-1RB#0

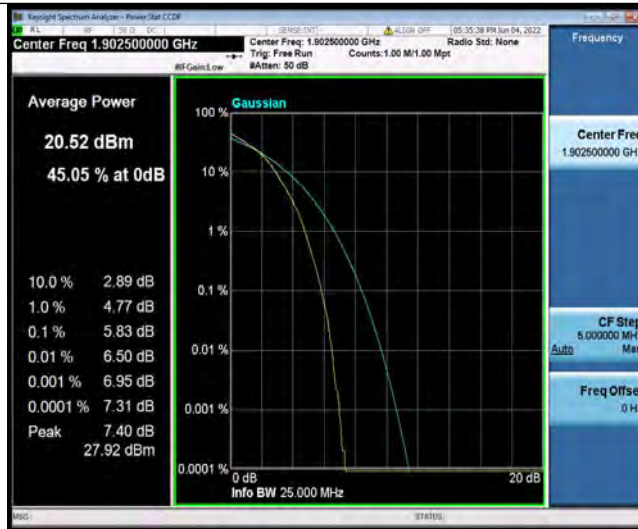


Band2-15MHz-16QAM-19125-27RB#0



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Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-QPSK-18700-1RB#0



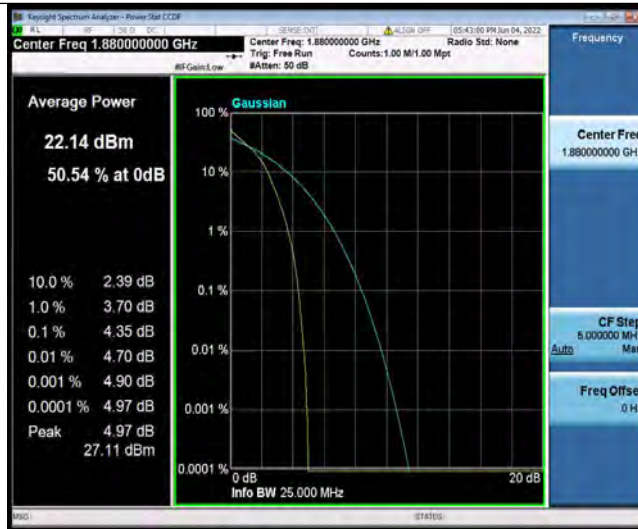
Band2-20MHz-QPSK-18700-100RB#0



Band2-20MHz-QPSK-18900-1RB#0



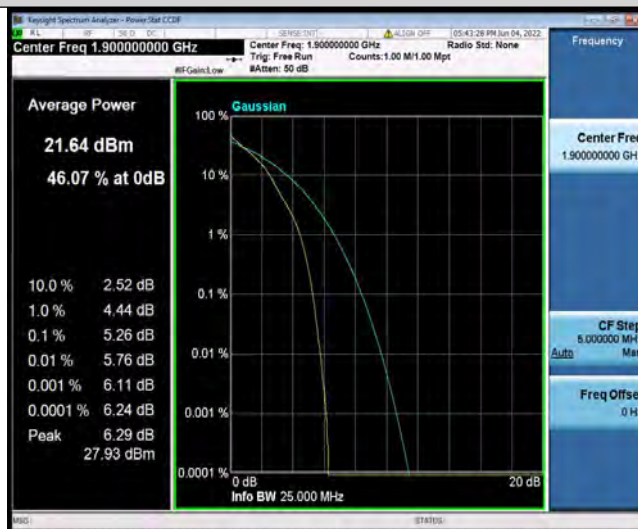
Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-QPSK-18900-100RB#0



Band2-20MHz-QPSK-19100-1RB#0

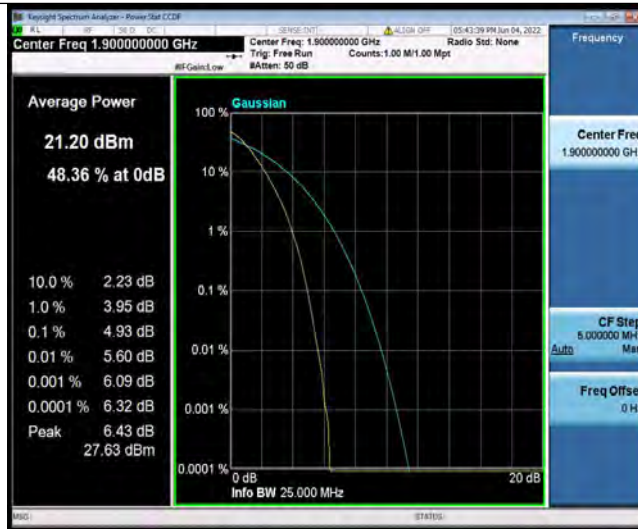


Band2-20MHz-QPSK-19100-100RB#0





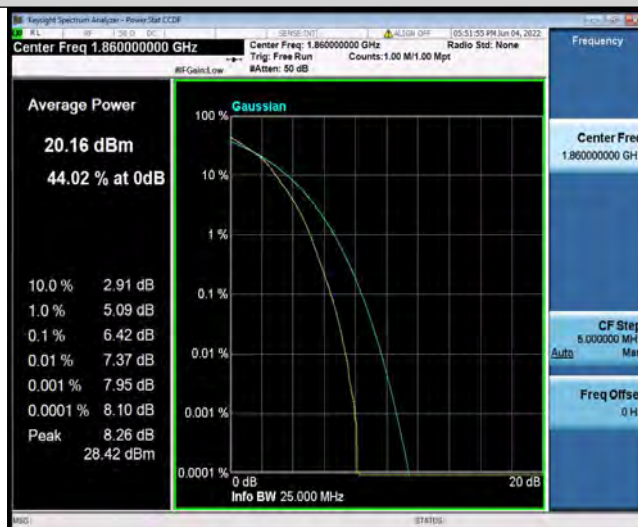
Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-16QAM-18700-1RB#0



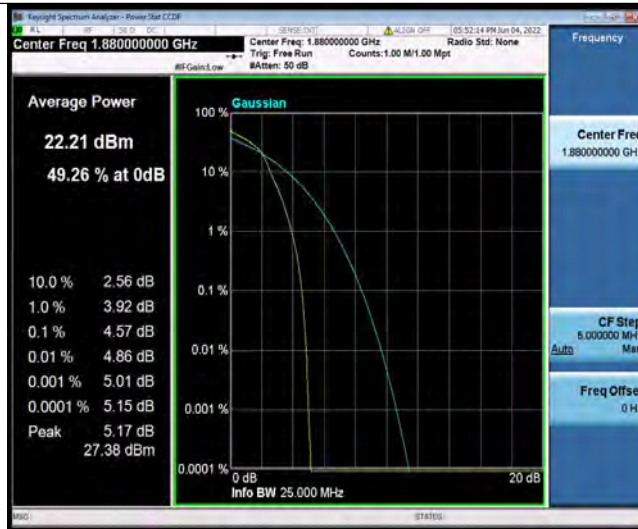
Band2-20MHz-16QAM-18700-27RB#0



Band2-20MHz-16QAM-18900-1RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-16QAM-18900-27RB#0



Band2-20MHz-16QAM-19100-1RB#0



Band2-20MHz-16QAM-19100-27RB#0



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### Test Report No.: PSU-NQN2204290110-1RF02





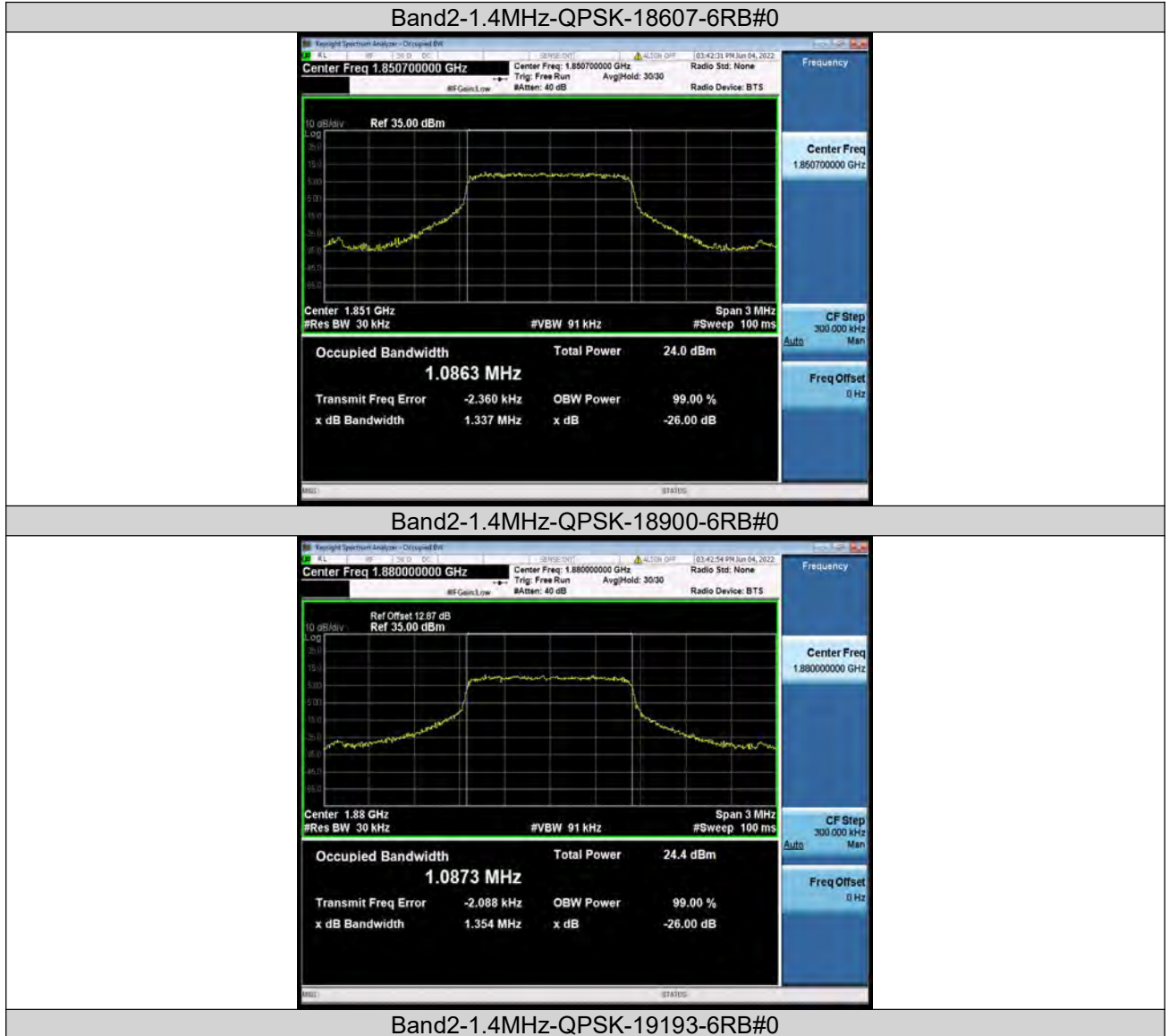
## 26DB BANDWIDTH AND OCCUPIED BANDWIDTH

### Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band2	1.4MHz	QPSK	18607	6RB#0	1.0863	1.337	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	1.0873	1.354	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	1.0846	1.345	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	1.0881	1.363	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	1.0906	1.386	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	1.0867	1.371	PASS
Band2	3MHz	QPSK	18615	15RB#0	2.6804	2.962	PASS
Band2	3MHz	QPSK	18900	15RB#0	2.6799	2.954	PASS
Band2	3MHz	QPSK	19185	15RB#0	2.6828	2.962	PASS
Band2	3MHz	16QAM	18615	15RB#0	2.6786	2.986	PASS
Band2	3MHz	16QAM	18900	15RB#0	2.6790	3.002	PASS
Band2	3MHz	16QAM	19185	15RB#0	2.6745	2.992	PASS
Band2	5MHz	QPSK	18625	25RB#0	4.4790	4.902	PASS
Band2	5MHz	QPSK	18900	25RB#0	4.4802	4.897	PASS
Band2	5MHz	QPSK	19175	25RB#0	4.4755	4.913	PASS
Band2	5MHz	16QAM	18625	25RB#0	4.4749	4.859	PASS
Band2	5MHz	16QAM	18900	25RB#0	4.4729	4.913	PASS
Band2	5MHz	16QAM	19175	25RB#0	4.4823	4.975	PASS
Band2	10MHz	QPSK	18650	50RB#0	8.9458	9.486	PASS
Band2	10MHz	QPSK	18900	50RB#0	8.9215	9.491	PASS
Band2	10MHz	QPSK	19150	50RB#0	8.9156	9.504	PASS
Band2	10MHz	16QAM	18650	27RB#0	4.9280	5.720	PASS
Band2	10MHz	16QAM	18900	27RB#0	4.9269	5.906	PASS
Band2	10MHz	16QAM	19150	27RB#0	4.9390	6.463	PASS
Band2	15MHz	QPSK	18675	75RB#0	13.493	14.61	PASS
Band2	15MHz	QPSK	18900	75RB#0	13.419	14.46	PASS
Band2	15MHz	QPSK	19125	75RB#0	13.406	14.37	PASS
Band2	15MHz	16QAM	18675	27RB#0	5.0681	5.855	PASS
Band2	15MHz	16QAM	18900	27RB#0	5.0559	6.204	PASS
Band2	15MHz	16QAM	19125	27RB#0	5.0685	5.907	PASS
Band2	20MHz	QPSK	18700	100RB#0	17.984	19.56	PASS
Band2	20MHz	QPSK	18900	100RB#0	17.848	19.00	PASS
Band2	20MHz	QPSK	19100	100RB#0	17.873	19.02	PASS
Band2	20MHz	16QAM	18700	27RB#0	5.1965	6.027	PASS
Band2	20MHz	16QAM	18900	27RB#0	5.1833	6.303	PASS
Band2	20MHz	16QAM	19100	27RB#0	5.2069	6.102	PASS



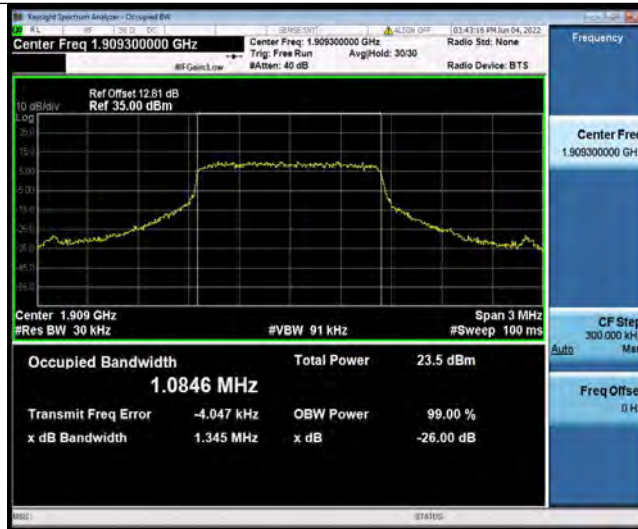
### Test Graphs







Test Report No.: PSU-NQN2204290110-1RF02



Band2-1.4MHz-16QAM-18607-6RB#0



Band2-1.4MHz-16QAM-18900-6RB#0



Band2-1.4MHz-16QAM-19193-6RB#0

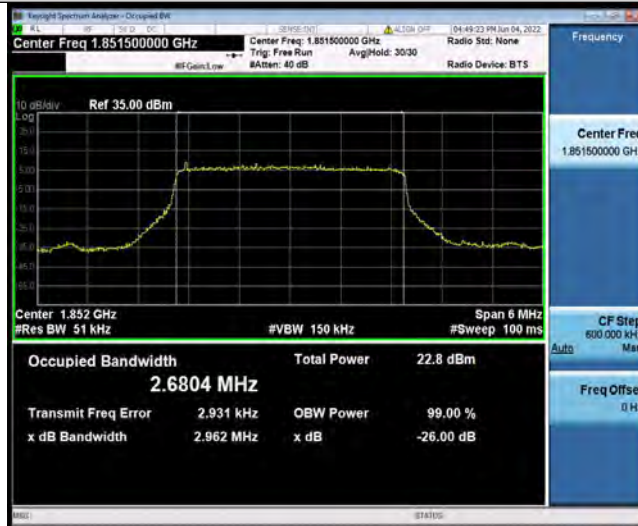


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Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-QPSK-18615-15RB#0



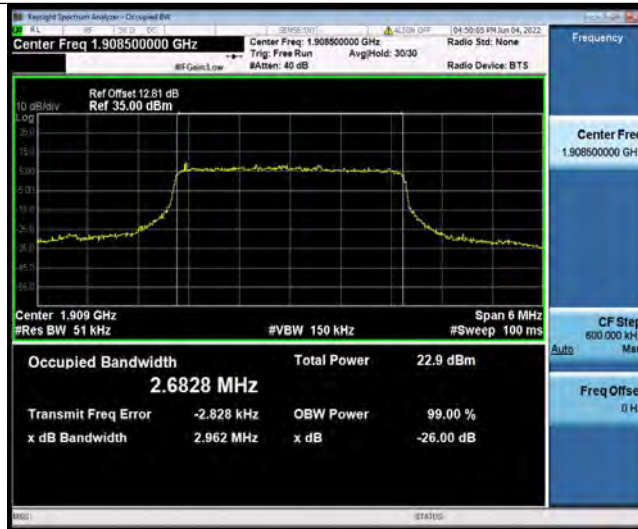
Band2-3MHz-QPSK-18900-15RB#0



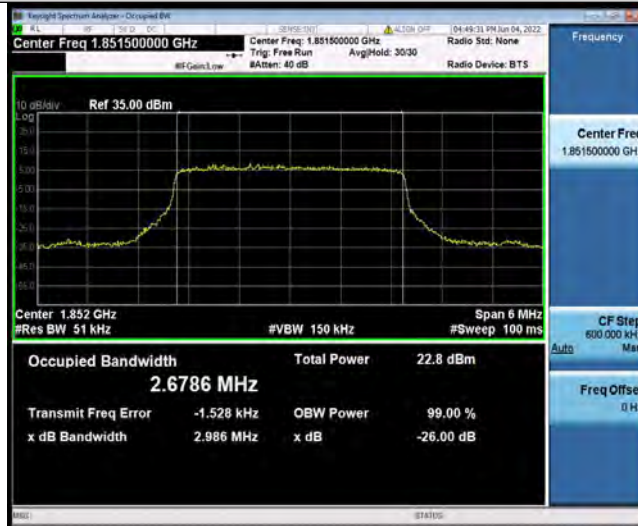
Band2-3MHz-QPSK-19185-15RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-16QAM-18615-15RB#0



Band2-3MHz-16QAM-18900-15RB#0



Band2-3MHz-16QAM-19185-15RB#0

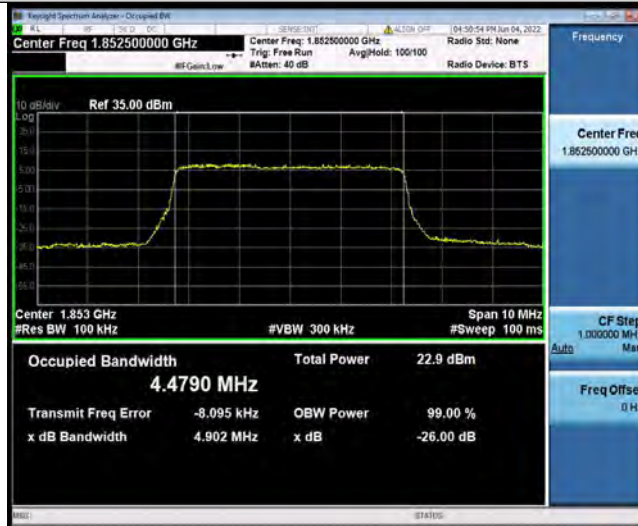




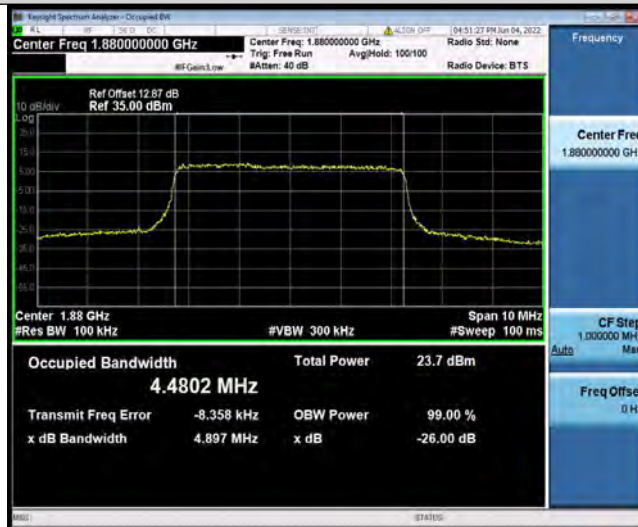
Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-QPSK-18625-25RB#0



Band2-5MHz-QPSK-18900-25RB#0



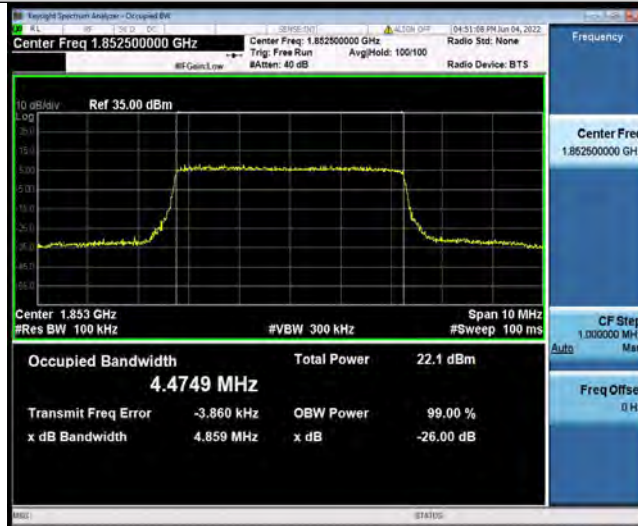
Band2-5MHz-QPSK-19175-25RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-16QAM-18625-25RB#0



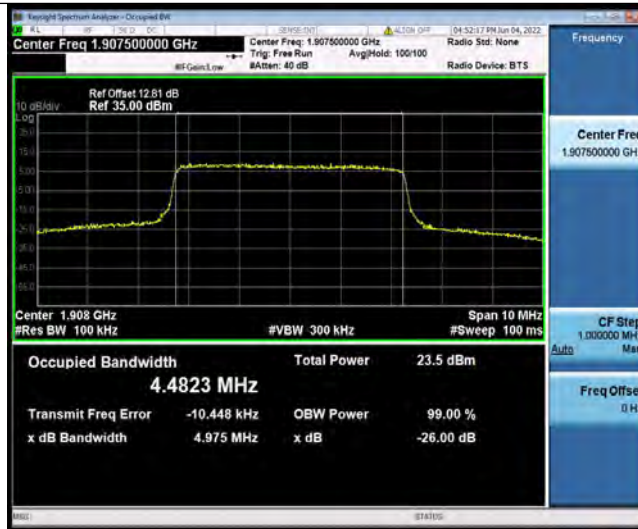
Band2-5MHz-16QAM-18900-25RB#0



Band2-5MHz-16QAM-19175-25RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-QPSK-18650-50RB#0



Band2-10MHz-QPSK-18900-50RB#0



Band2-10MHz-QPSK-19150-50RB#0





Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-16QAM-18650-27RB#0



Band2-10MHz-16QAM-18900-27RB#0



Band2-10MHz-16QAM-19150-27RB#0

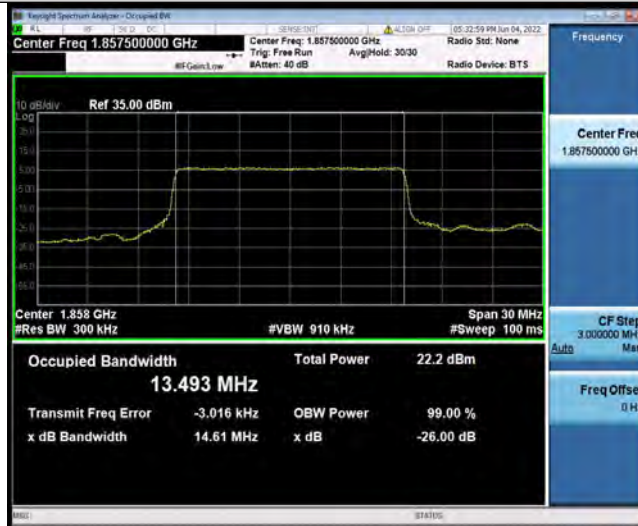




Test Report No.: PSU-NQN2204290110-1RF02



Band2-15MHz-QPSK-18675-75RB#0



Band2-15MHz-QPSK-18900-75RB#0



Band2-15MHz-QPSK-19125-75RB#0



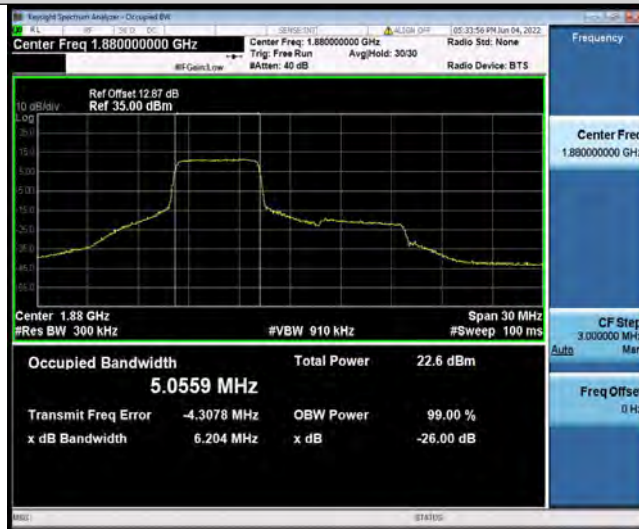
Test Report No.: PSU-NQN2204290110-1RF02



Band2-15MHz-16QAM-18675-27RB#0



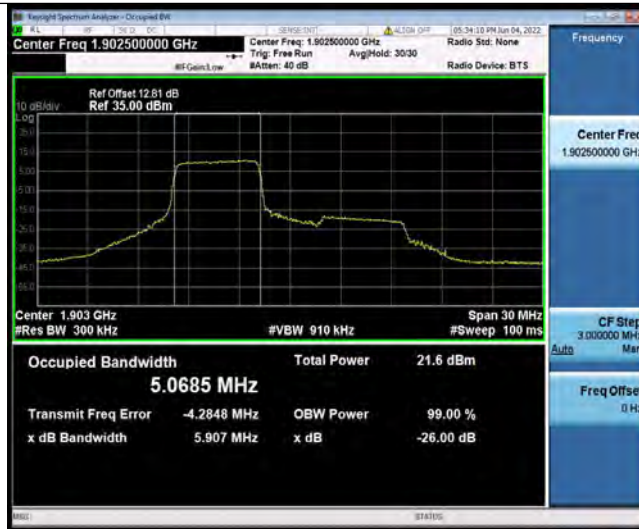
Band2-15MHz-16QAM-18900-27RB#0



Band2-15MHz-16QAM-19125-27RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-QPSK-18700-100RB#0



Band2-20MHz-QPSK-18900-100RB#0



Band2-20MHz-QPSK-19100-100RB#0





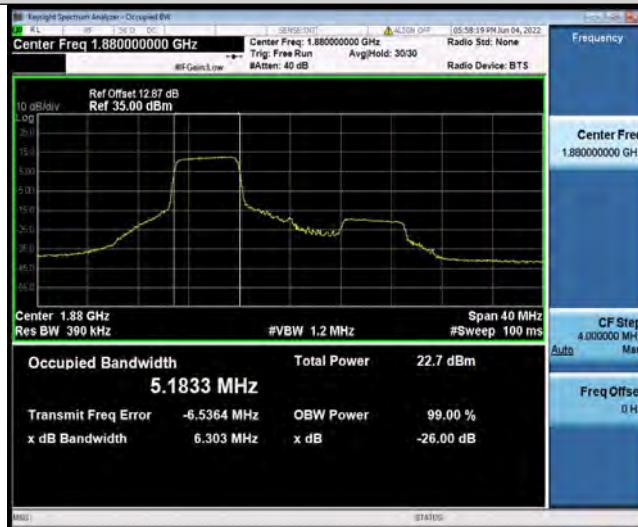
Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-16QAM-18700-27RB#0



Band2-20MHz-16QAM-18900-27RB#0



Band2-20MHz-16QAM-19100-27RB#0



Test Report No.: PSU-NQN2204290110-1RF02





## BAND EDGE

### Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band2	1.4MHz	QPSK	18607	1RB#0	-18.89	PASS
Band2	1.4MHz	QPSK	18607	6RB#0	-20.96	PASS
Band2	1.4MHz	QPSK	19193	1RB#5	-20.22	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	-21.14	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	-19.13	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	-25.16	PASS
Band2	1.4MHz	16QAM	19193	1RB#5	-20.06	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	-20.23	PASS
Band2	3MHz	QPSK	18615	1RB#0	-19.90	PASS
Band2	3MHz	QPSK	18615	15RB#0	-17.14	PASS
Band2	3MHz	QPSK	19185	1RB#14	-20.34	PASS
Band2	3MHz	QPSK	19185	15RB#0	-17.70	PASS
Band2	3MHz	16QAM	18615	1RB#0	-18.97	PASS
Band2	3MHz	16QAM	18615	15RB#0	-16.72	PASS
Band2	3MHz	16QAM	19185	1RB#14	-20.61	PASS
Band2	3MHz	16QAM	19185	15RB#0	-17.59	PASS
Band2	5MHz	QPSK	18625	1RB#0	-21.64	PASS
Band2	5MHz	QPSK	18625	25RB#0	-20.76	PASS
Band2	5MHz	QPSK	19175	1RB#24	-22.16	PASS
Band2	5MHz	QPSK	19175	25RB#0	-21.63	PASS
Band2	5MHz	16QAM	18625	1RB#0	-20.25	PASS
Band2	5MHz	16QAM	18625	25RB#0	-20.44	PASS
Band2	5MHz	16QAM	19175	1RB#24	-22.12	PASS
Band2	5MHz	16QAM	19175	25RB#0	-20.81	PASS
Band2	10MHz	QPSK	18650	1RB#0	-39.33	PASS
Band2	10MHz	QPSK	18650	50RB#0	-31.67	PASS
Band2	10MHz	QPSK	19150	1RB#49	-40.17	PASS
Band2	10MHz	QPSK	19150	50RB#0	-22.98	PASS
Band2	10MHz	16QAM	18650	1RB#0	-38.02	PASS
Band2	10MHz	16QAM	18650	27RB#0	-28.12	PASS
Band2	10MHz	16QAM	19150	1RB#49	-39.07	PASS
Band2	10MHz	16QAM	19150	27RB#23	-20.57	PASS
Band2	15MHz	QPSK	18675	1RB#0	-27.70	PASS
Band2	15MHz	QPSK	18675	75RB#0	-24.09	PASS
Band2	15MHz	QPSK	19125	1RB#74	-30.50	PASS
Band2	15MHz	QPSK	19125	75RB#0	-23.56	PASS
Band2	15MHz	16QAM	18675	1RB#0	-27.55	PASS
Band2	15MHz	16QAM	18675	27RB#0	-19.94	PASS
Band2	15MHz	16QAM	19125	1RB#74	-30.48	PASS
Band2	15MHz	16QAM	19125	27RB#48	-19.31	PASS
Band2	20MHz	QPSK	18700	1RB#0	-32.71	PASS
Band2	20MHz	QPSK	18700	100RB#0	-21.64	PASS
Band2	20MHz	QPSK	19100	1RB#99	-31.99	PASS
Band2	20MHz	QPSK	19100	100RB#0	-21.72	PASS



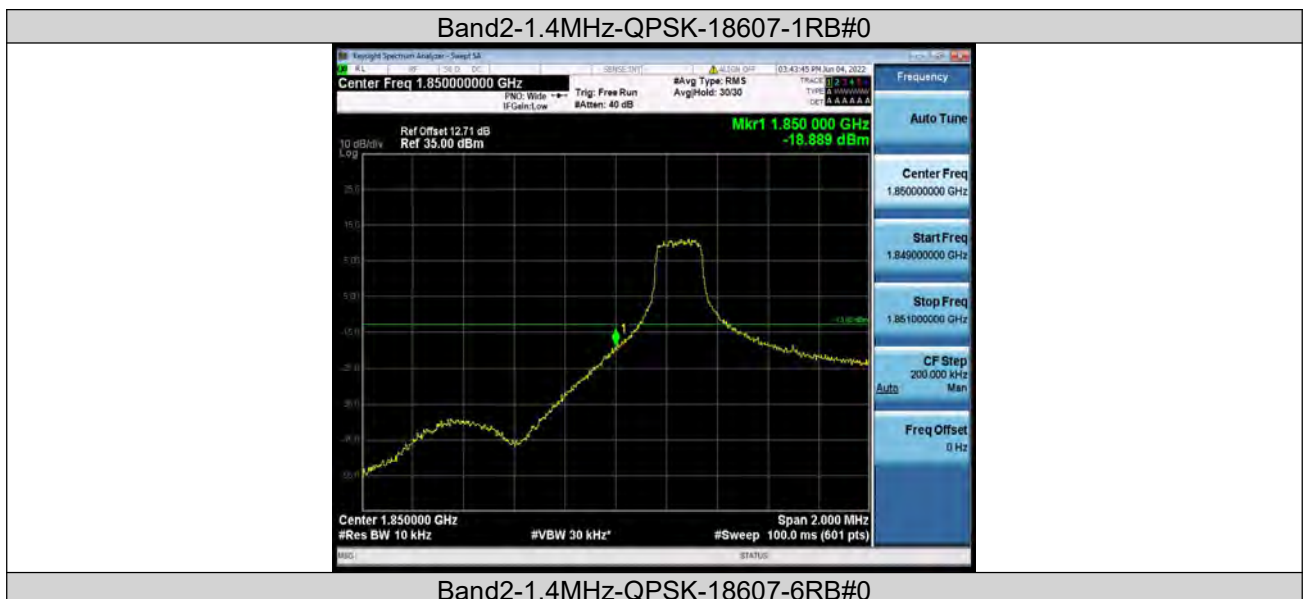


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**Test Report No.: PSU-NQN2204290110-1RF02**

Band2	20MHz	16QAM	18700	1RB#0	-29.10	PASS
Band2	20MHz	16QAM	18700	27RB#0	-18.39	PASS
Band2	20MHz	16QAM	19100	1RB#99	-31.51	PASS
Band2	20MHz	16QAM	19100	27RB#73	-16.43	PASS

**Test Graphs**





Band2-1.4MHz-QPSK-19193-1RB#5



Band2-1.4MHz-QPSK-19193-6RB#0



Band2-1.4MHz-16QAM-18607-1RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-1.4MHz-16QAM-18607-6RB#0



Band2-1.4MHz-16QAM-19193-1RB#5



Band2-1.4MHz-16QAM-19193-6RB#0



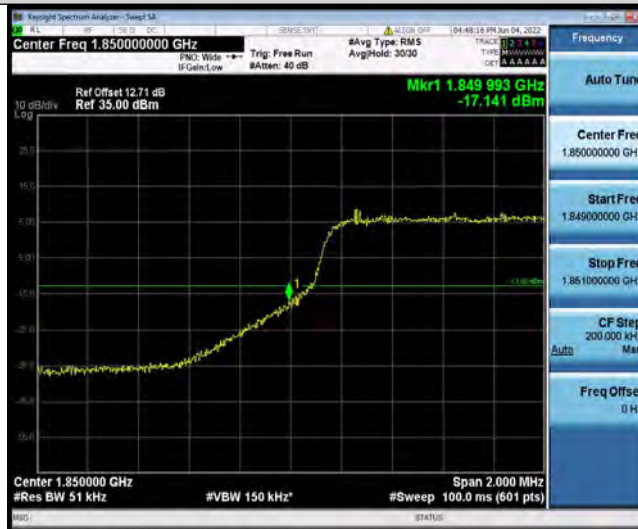
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-QPSK-18615-1RB#0

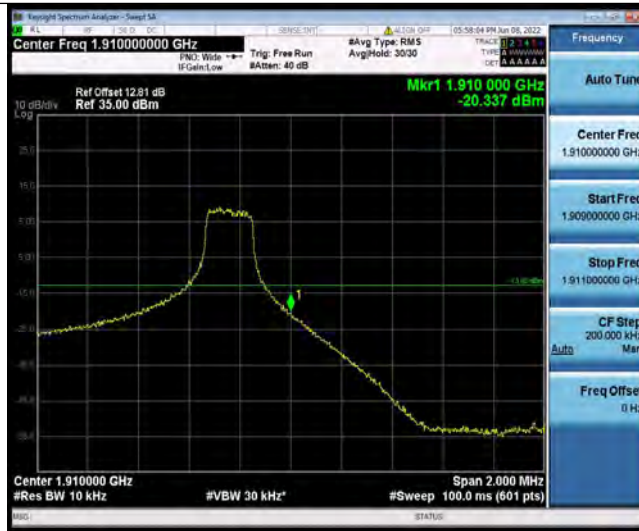


Band2-3MHz-QPSK-18615-15RB#0



Band2-3MHz-QPSK-19185-1RB#14





Band2-3MHz-QPSK-19185-15RB#0



Band2-3MHz-16QAM-18615-1RB#0



Band2-3MHz-16QAM-18615-15RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-16QAM-19185-1RB#14

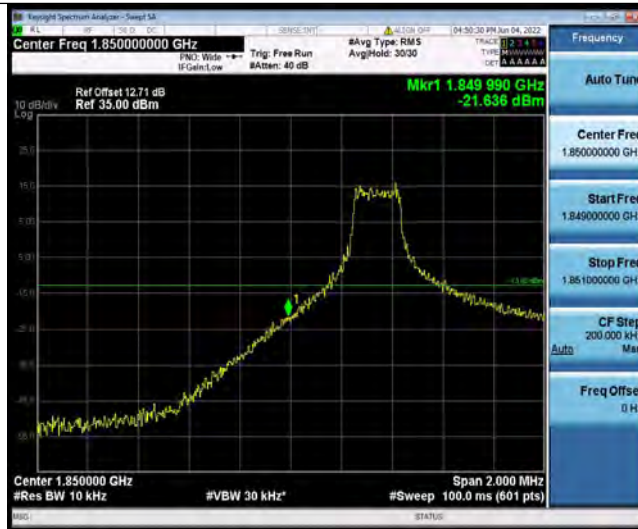


Band2-3MHz-16QAM-19185-15RB#0



Band2-5MHz-QPSK-18625-1RB#0





Band2-5MHz-QPSK-18625-25RB#0



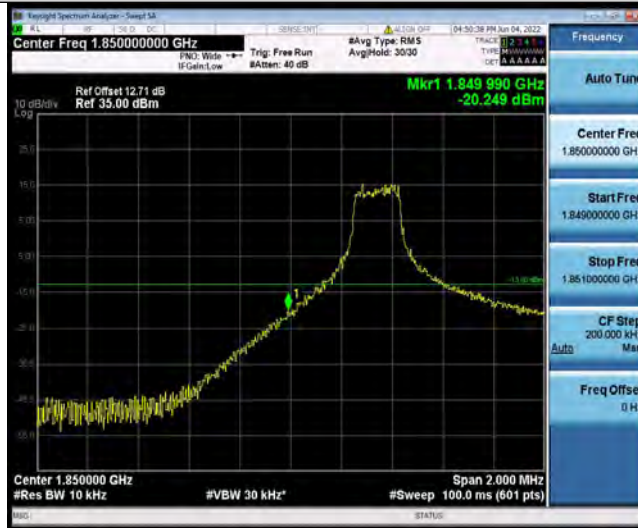
Band2-5MHz-QPSK-19175-1RB#24



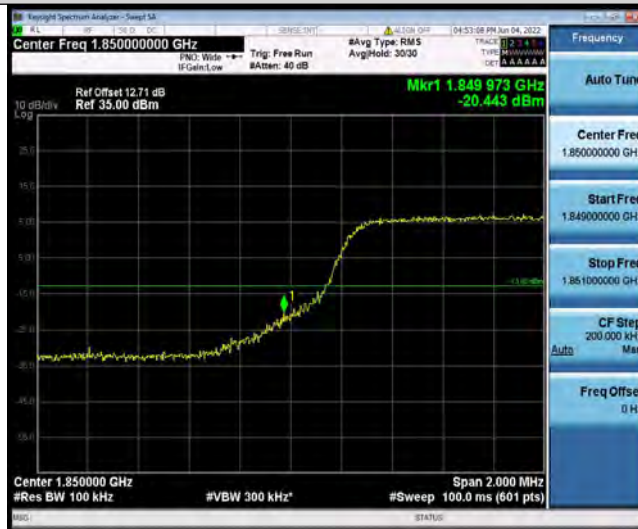
Band2-5MHz-QPSK-19175-25RB#0



Band2-5MHz-16QAM-18625-1RB#0



Band2-5MHz-16QAM-18625-25RB#0



Band2-5MHz-16QAM-19175-1RB#24



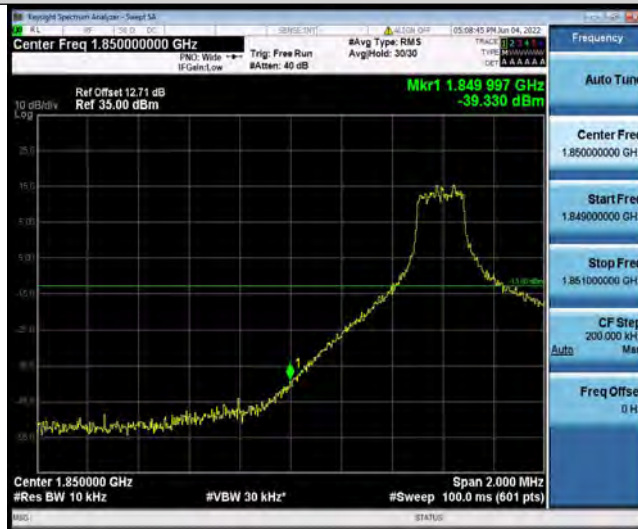
Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-16QAM-19175-25RB#0



Band2-10MHz-QPSK-18650-1RB#0



Band2-10MHz-QPSK-18650-50RB#0





Band2-10MHz-QPSK-19150-1RB#49



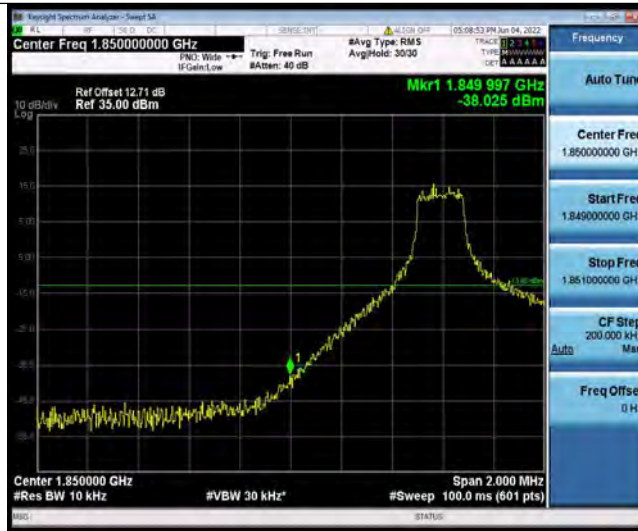
Band2-10MHz-QPSK-19150-50RB#0



Band2-10MHz-16QAM-18650-1RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-16QAM-18650-27RB#0



Band2-10MHz-16QAM-19150-1RB#49



Band2-10MHz-16QAM-19150-27RB#23



Band2-15MHz-QPSK-18675-1RB#0



Band2-15MHz-QPSK-18675-75RB#0



Band2-15MHz-QPSK-19125-1RB#74





Test Report No.: PSU-NQN2204290110-1RF02



Band2-15MHz-QPSK-19125-75RB#0



Band2-15MHz-16QAM-18675-1RB#0



Band2-15MHz-16QAM-18675-27RB#0



Test Report No.: PSU-NQN2204290110-1RF02



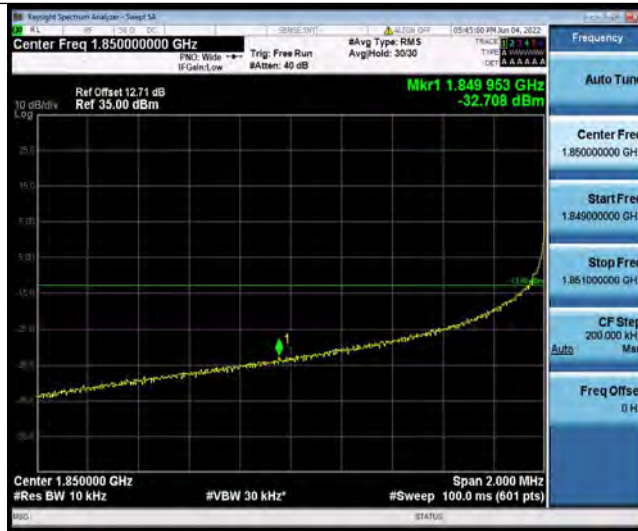
Band2-15MHz-16QAM-19125-1RB#74



Band2-15MHz-16QAM-19125-27RB#48



Band2-20MHz-QPSK-18700-1RB#0



Band2-20MHz-QPSK-18700-100RB#0



Band2-20MHz-QPSK-19100-1RB#99



Band2-20MHz-QPSK-19100-100RB#0



Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-16QAM-18700-1RB#0



Band2-20MHz-16QAM-18700-27RB#0



Band2-20MHz-16QAM-19100-1RB#99





BUREAU VERITAS

Test Report No.: PSU-NQN2204290110-1RF02



Band2-20MHz-16QAM-19100-27RB#73







## CONDUCTED SPURIOUS EMISSION

### Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band2	1.4MHz	QPSK	18607	1RB#0	Range1:30~1000MHz	-31.82	PASS
Band2	1.4MHz	QPSK	18607	1RB#0	Range2:1000~20000MHz	-34.13	PASS
Band2	1.4MHz	QPSK	18900	1RB#0	Range1:30~1000MHz	-31.51	PASS
Band2	1.4MHz	QPSK	18900	1RB#0	Range2:1000~20000MHz	-33.96	PASS
Band2	1.4MHz	QPSK	19193	1RB#0	Range1:30~1000MHz	-31.75	PASS
Band2	1.4MHz	QPSK	19193	1RB#0	Range2:1000~20000MHz	-34.32	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	Range1:30~1000MHz	-31.11	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	Range2:1000~20000MHz	-34.17	PASS
Band2	1.4MHz	16QAM	18900	1RB#0	Range1:30~1000MHz	-31.69	PASS
Band2	1.4MHz	16QAM	18900	1RB#0	Range2:1000~20000MHz	-34.16	PASS
Band2	1.4MHz	16QAM	19193	1RB#0	Range1:30~1000MHz	-31	PASS
Band2	1.4MHz	16QAM	19193	1RB#0	Range2:1000~20000MHz	-33.74	PASS
Band2	3MHz	QPSK	18615	1RB#0	Range1:30~1000MHz	-31.48	PASS
Band2	3MHz	QPSK	18615	1RB#0	Range2:1000~20000MHz	-34.32	PASS
Band2	3MHz	QPSK	18900	1RB#0	Range1:30~1000MHz	-31.4	PASS
Band2	3MHz	QPSK	18900	1RB#0	Range2:1000~20000MHz	-33.95	PASS
Band2	3MHz	QPSK	19185	1RB#0	Range1:30~1000MHz	-31.68	PASS
Band2	3MHz	QPSK	19185	1RB#0	Range2:1000~20000MHz	-34	PASS
Band2	3MHz	16QAM	18615	1RB#0	Range1:30~1000MHz	-30.25	PASS
Band2	3MHz	16QAM	18615	1RB#0	Range2:1000~20000MHz	-33.91	PASS
Band2	3MHz	16QAM	18900	1RB#0	Range1:30~1000MHz	-29.78	PASS
Band2	3MHz	16QAM	18900	1RB#0	Range2:1000~20000MHz	-33.78	PASS
Band2	3MHz	16QAM	19185	1RB#0	Range1:30~1000MHz	-31.52	PASS
Band2	3MHz	16QAM	19185	1RB#0	Range2:1000~20000MHz	-34.2	PASS
Band2	5MHz	QPSK	18625	1RB#0	Range1:30~1000MHz	-30.61	PASS
Band2	5MHz	QPSK	18625	1RB#0	Range2:1000~20000MHz	-33.63	PASS
Band2	5MHz	QPSK	18900	1RB#0	Range1:30~1000MHz	-31.06	PASS
Band2	5MHz	QPSK	18900	1RB#0	Range2:1000~20000MHz	-33.63	PASS
Band2	5MHz	QPSK	19175	1RB#0	Range1:30~1000MHz	-30.97	PASS
Band2	5MHz	QPSK	19175	1RB#0	Range2:1000~20000MHz	-34.7	PASS
Band2	5MHz	16QAM	18625	1RB#0	Range1:30~1000MHz	-31.61	PASS
Band2	5MHz	16QAM	18625	1RB#0	Range2:1000~20000MHz	-32.63	PASS
Band2	5MHz	16QAM	18900	1RB#0	Range1:30~1000MHz	-30.99	PASS
Band2	5MHz	16QAM	18900	1RB#0	Range2:1000~20000MHz	-34.33	PASS
Band2	5MHz	16QAM	19175	1RB#0	Range1:30~1000MHz	-30.85	PASS
Band2	5MHz	16QAM	19175	1RB#0	Range2:1000~20000MHz	-34.21	PASS
Band2	10MHz	QPSK	18650	1RB#0	Range1:30~1000MHz	-30.73	PASS
Band2	10MHz	QPSK	18650	1RB#0	Range2:1000~20000MHz	-34.14	PASS
Band2	10MHz	QPSK	18900	1RB#0	Range1:30~1000MHz	-31.9	PASS
Band2	10MHz	QPSK	18900	1RB#0	Range2:1000~20000MHz	-34.85	PASS
Band2	10MHz	QPSK	19150	1RB#0	Range1:30~1000MHz	-31.62	PASS
Band2	10MHz	QPSK	19150	1RB#0	Range2:1000~20000MHz	-34.25	PASS
Band2	10MHz	16QAM	18650	1RB#0	Range1:30~1000MHz	-30.61	PASS
Band2	10MHz	16QAM	18650	1RB#0	Range2:1000~20000MHz	-33.51	PASS



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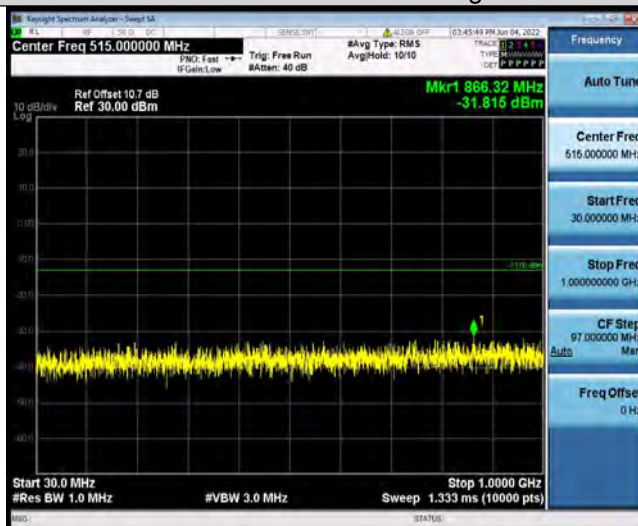
Test Report No.: PSU-NQN2204290110-1RF02

Band2	10MHz	16QAM	18900	1RB#0	Range1:30~1000MHz	-31.64	PASS
Band2	10MHz	16QAM	18900	1RB#0	Range2:1000~20000MHz	-34.77	PASS
Band2	10MHz	16QAM	19150	1RB#0	Range1:30~1000MHz	-30.05	PASS
Band2	10MHz	16QAM	19150	1RB#0	Range2:1000~20000MHz	-34.57	PASS
Band2	15MHz	QPSK	18675	1RB#0	Range1:30~1000MHz	-32	PASS
Band2	15MHz	QPSK	18675	1RB#0	Range2:1000~20000MHz	-34.59	PASS
Band2	15MHz	QPSK	18900	1RB#0	Range1:30~1000MHz	-32.04	PASS
Band2	15MHz	QPSK	18900	1RB#0	Range2:1000~20000MHz	-34.46	PASS
Band2	15MHz	QPSK	19125	1RB#0	Range1:30~1000MHz	-30.97	PASS
Band2	15MHz	QPSK	19125	1RB#0	Range2:1000~20000MHz	-34.34	PASS
Band2	15MHz	16QAM	18675	1RB#0	Range1:30~1000MHz	-31.74	PASS
Band2	15MHz	16QAM	18675	1RB#0	Range2:1000~20000MHz	-33.33	PASS
Band2	15MHz	16QAM	18900	1RB#0	Range1:30~1000MHz	-31.5	PASS
Band2	15MHz	16QAM	18900	1RB#0	Range2:1000~20000MHz	-34.38	PASS
Band2	15MHz	16QAM	19125	1RB#0	Range1:30~1000MHz	-31.76	PASS
Band2	15MHz	16QAM	19125	1RB#0	Range2:1000~20000MHz	-34.2	PASS
Band2	20MHz	QPSK	18700	1RB#0	Range1:30~1000MHz	-31.11	PASS
Band2	20MHz	QPSK	18700	1RB#0	Range2:1000~20000MHz	-34.11	PASS
Band2	20MHz	QPSK	18900	1RB#0	Range1:30~1000MHz	-30.98	PASS
Band2	20MHz	QPSK	18900	1RB#0	Range2:1000~20000MHz	-34.36	PASS
Band2	20MHz	QPSK	19100	1RB#0	Range1:30~1000MHz	-32.02	PASS
Band2	20MHz	QPSK	19100	1RB#0	Range2:1000~20000MHz	-33.59	PASS
Band2	20MHz	16QAM	18700	1RB#0	Range1:30~1000MHz	-31	PASS
Band2	20MHz	16QAM	18700	1RB#0	Range2:1000~20000MHz	-33.92	PASS
Band2	20MHz	16QAM	18900	1RB#0	Range1:30~1000MHz	-30.16	PASS
Band2	20MHz	16QAM	18900	1RB#0	Range2:1000~20000MHz	-33.95	PASS
Band2	20MHz	16QAM	19100	1RB#0	Range1:30~1000MHz	-31.99	PASS
Band2	20MHz	16QAM	19100	1RB#0	Range2:1000~20000MHz	-34.27	PASS

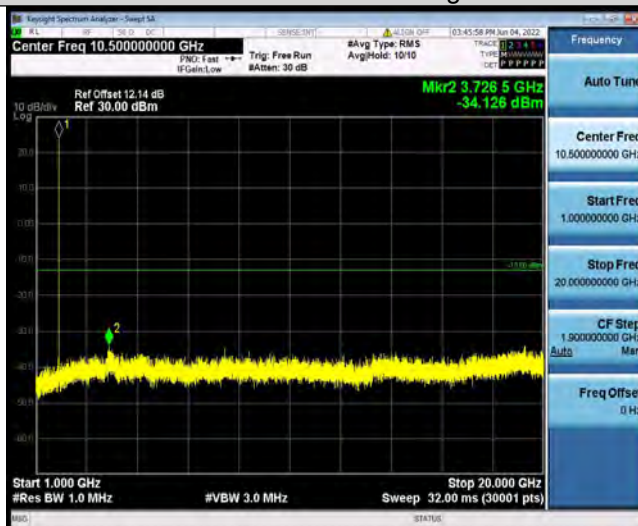


### Test Graphs

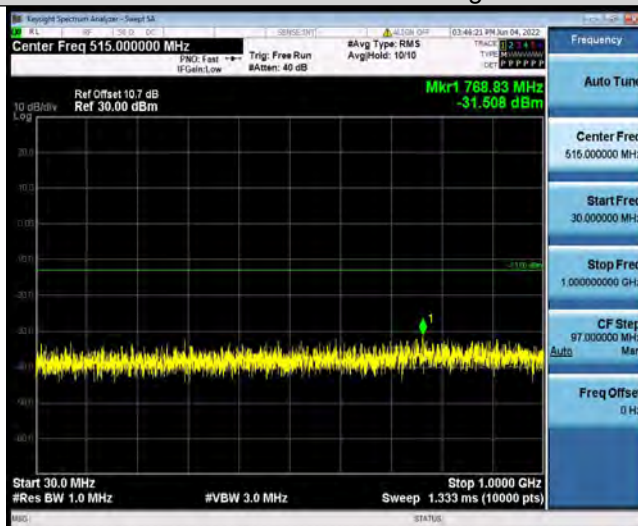
Band2-1.4MHz-QPSK-18607-1RB#0-Range1:30~1000MHz



Band2-1.4MHz-QPSK-18607-1RB#0-Range2:1000~20000MHz



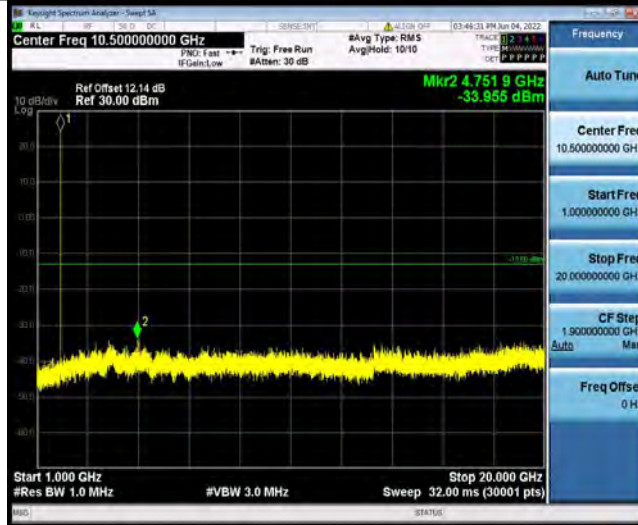
Band2-1.4MHz-QPSK-18900-1RB#0-Range1:30~1000MHz





Test Report No.: PSU-NQN2204290110-1RF02

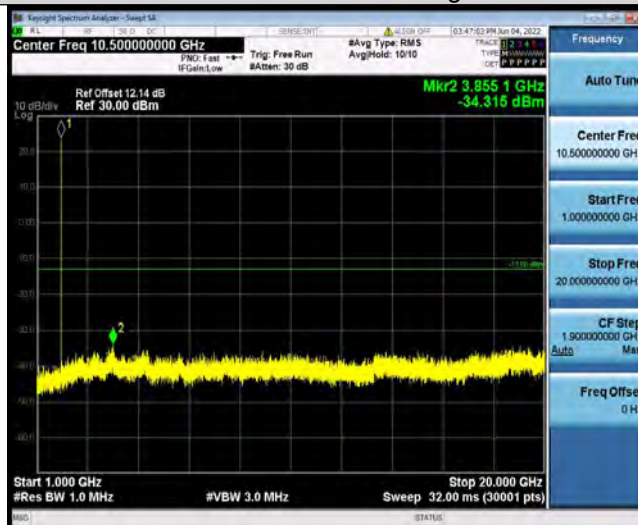
Band2-1.4MHz-QPSK-18900-1RB#0-Range2:1000~20000MHz



Band2-1.4MHz-QPSK-19193-1RB#0-Range1:30~1000MHz



Band2-1.4MHz-QPSK-19193-1RB#0-Range2:1000~20000MHz

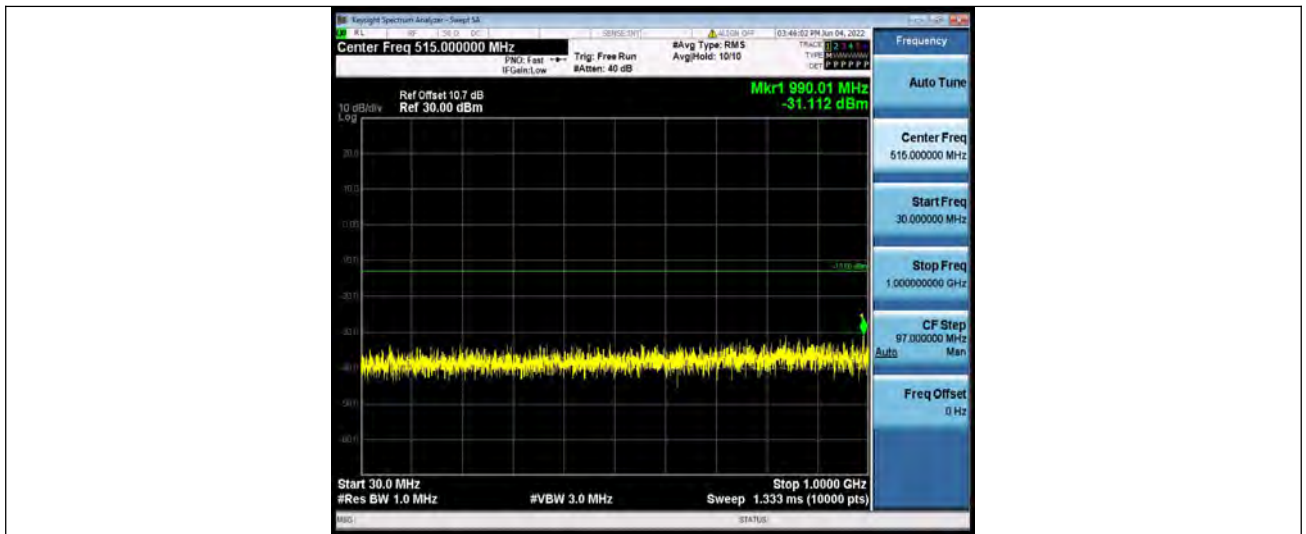


Band2-1.4MHz-16QAM-18607-1RB#0-Range1:30~1000MHz

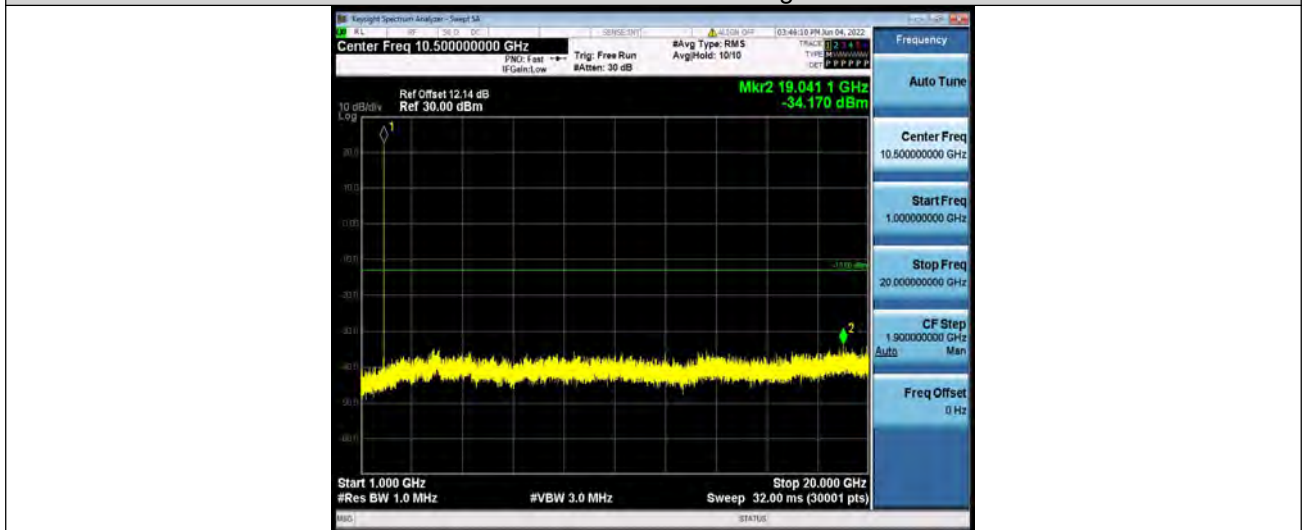




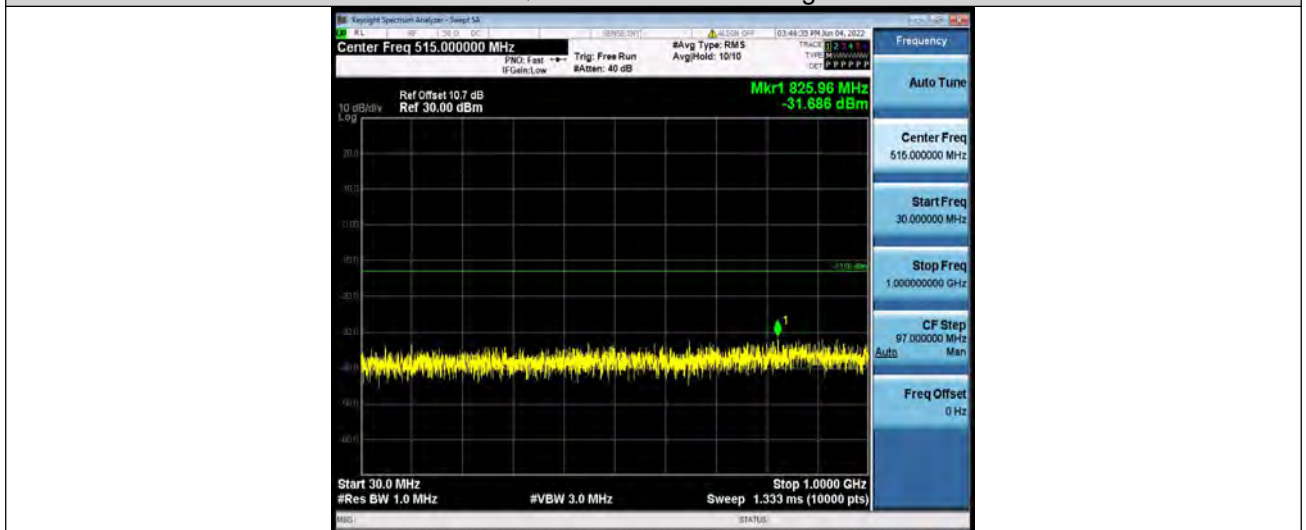
Test Report No.: PSU-NQN2204290110-1RF02



Band2-1.4MHz-16QAM-18607-1RB#0-Range2:1000~20000MHz



Band2-1.4MHz-16QAM-18900-1RB#0-Range1:30~1000MHz

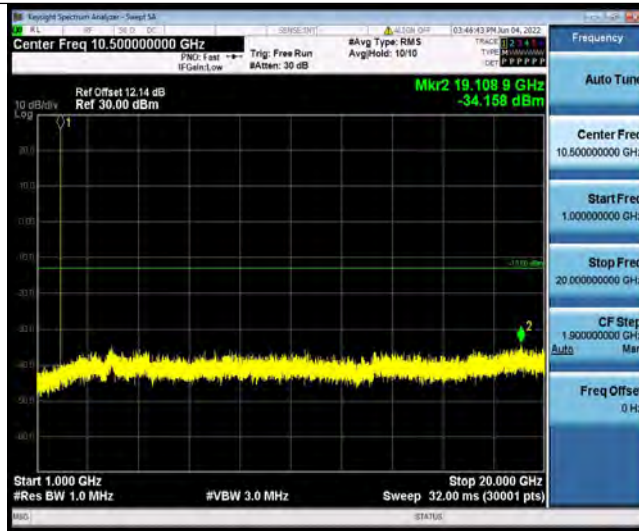


Band2-1.4MHz-16QAM-18900-1RB#0-Range2:1000~20000MHz

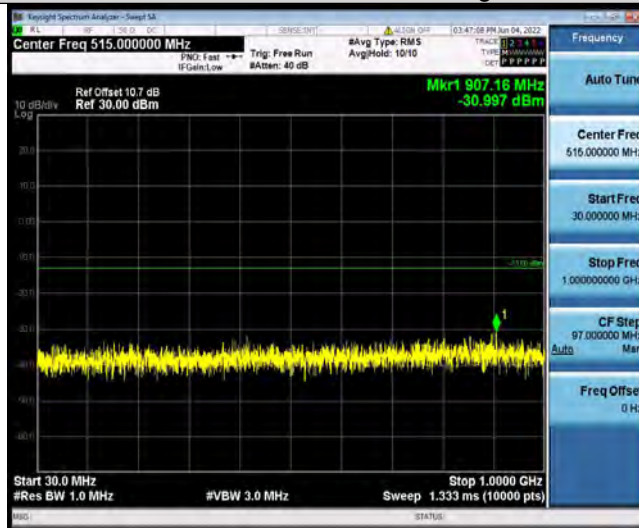




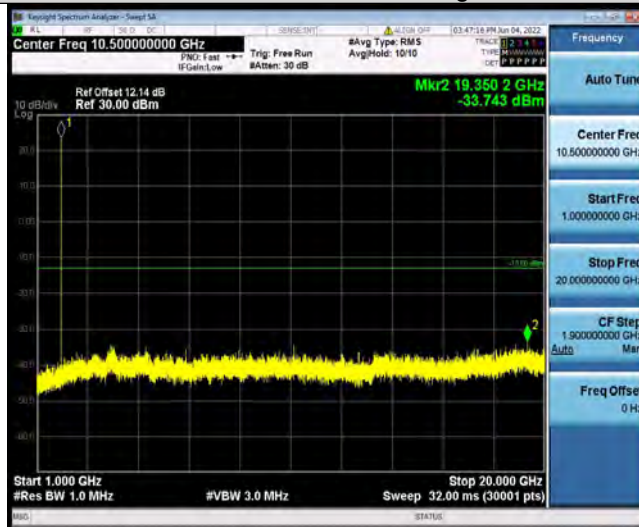
Test Report No.: PSU-NQN2204290110-1RF02



Band2-1.4MHz-16QAM-19193-1RB#0-Range1:30~1000MHz



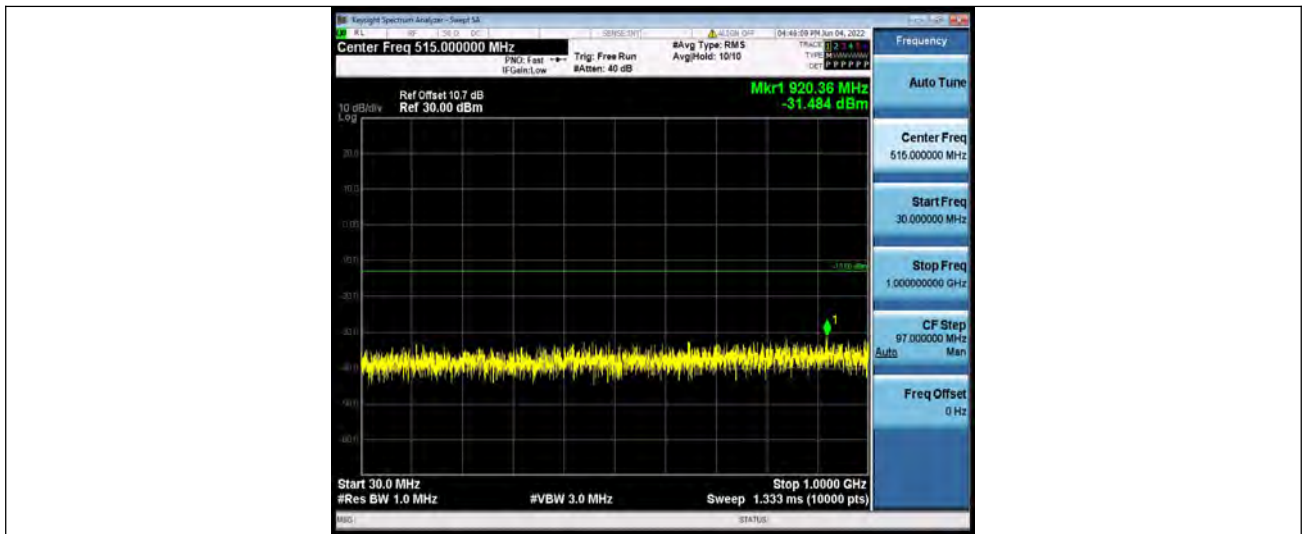
Band2-1.4MHz-16QAM-19193-1RB#0-Range2:1000~2000MHz



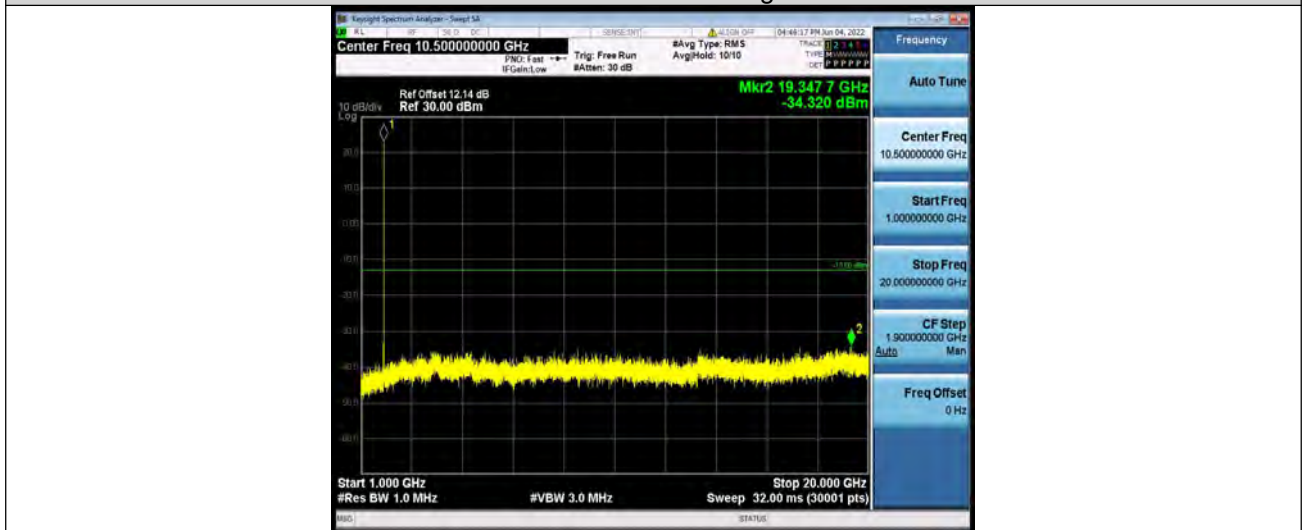
Band2-3MHz-QPSK-18615-1RB#0-Range1:30~1000MHz



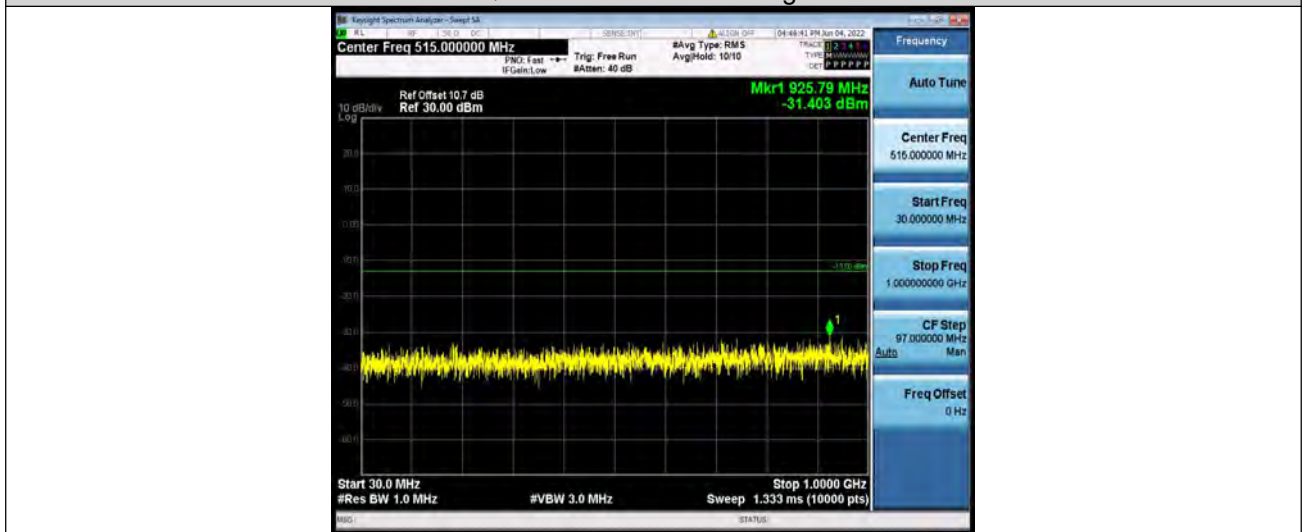
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-QPSK-18615-1RB#0-Range2:1000~20000MHz



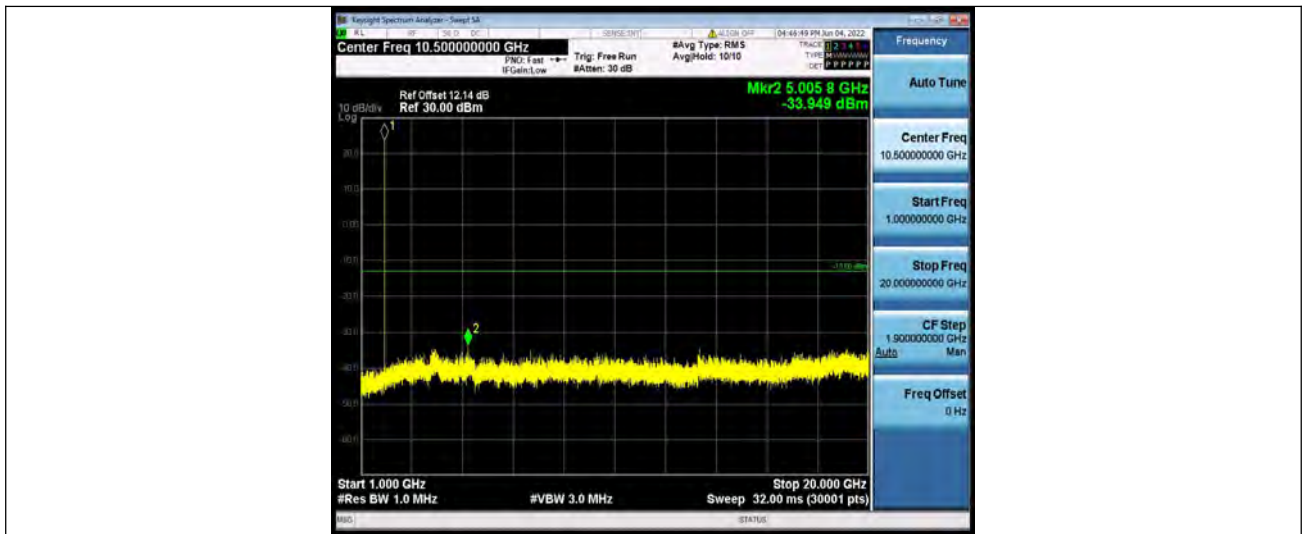
Band2-3MHz-QPSK-18900-1RB#0-Range1:30~1000MHz



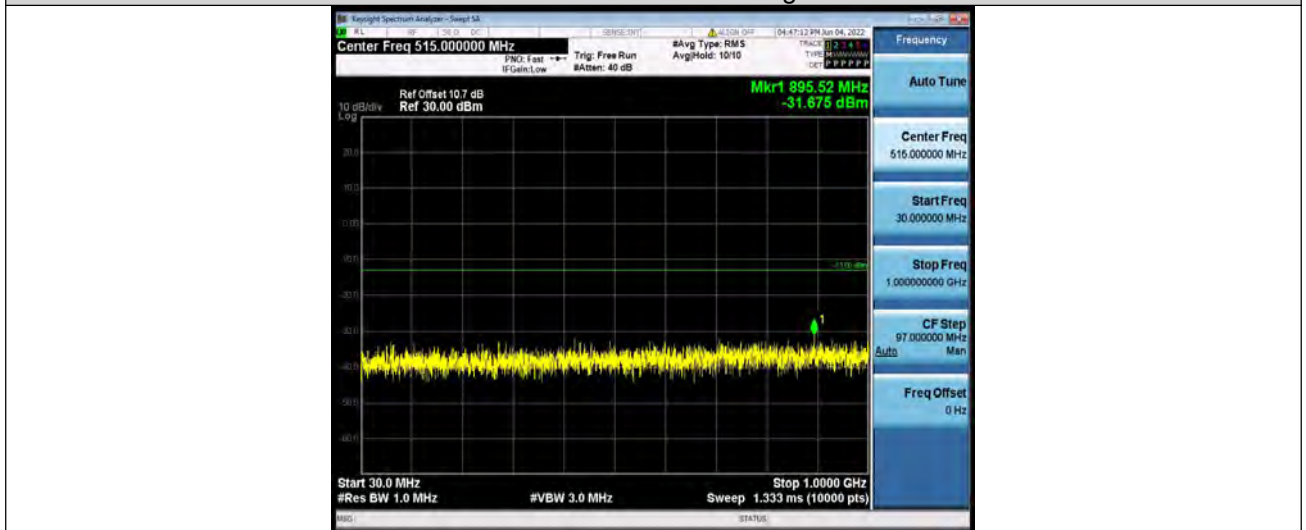
Band2-3MHz-QPSK-18900-1RB#0-Range2:1000~20000MHz



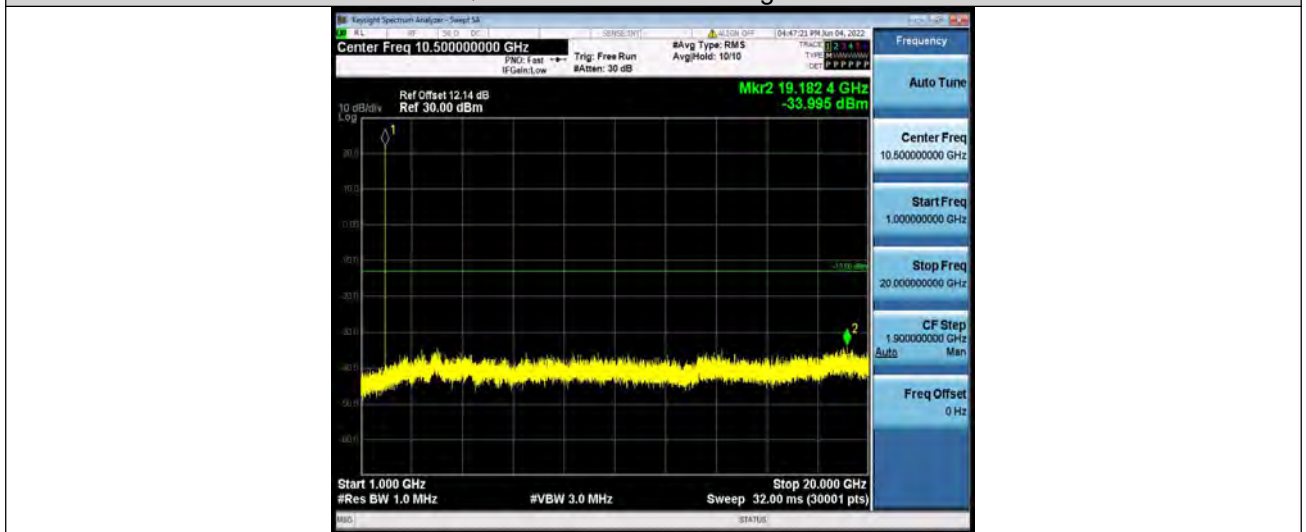
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-QPSK-19185-1RB#0-Range1:30~1000MHz



Band2-3MHz-QPSK-19185-1RB#0-Range2:1000~2000MHz

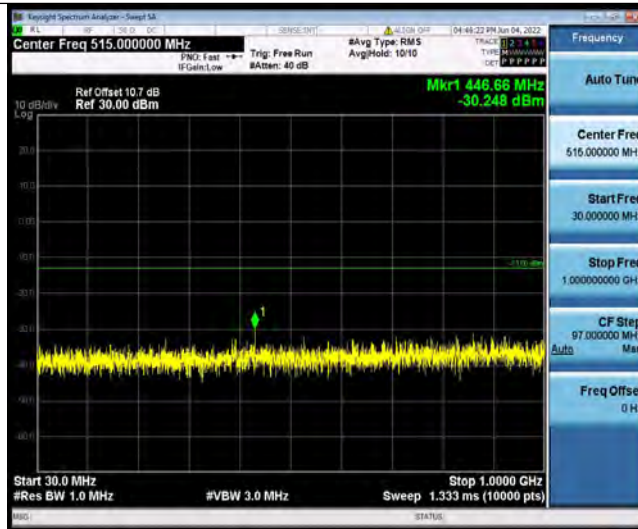


Band2-3MHz-16QAM-18615-1RB#0-Range1:30~1000MHz

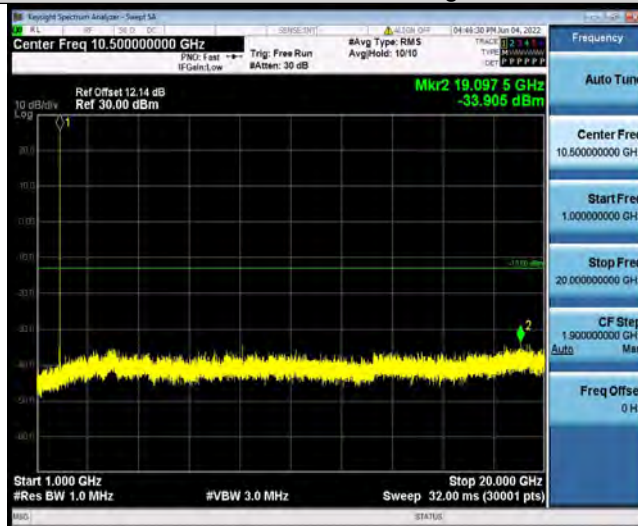




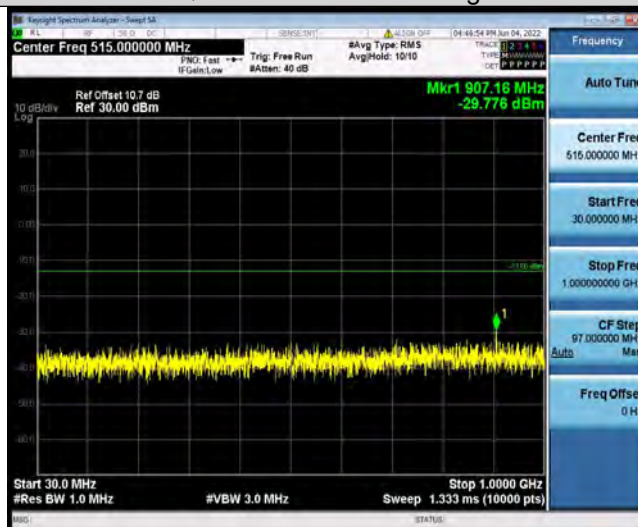
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-16QAM-18615-1RB#0-Range2:1000~20000MHz



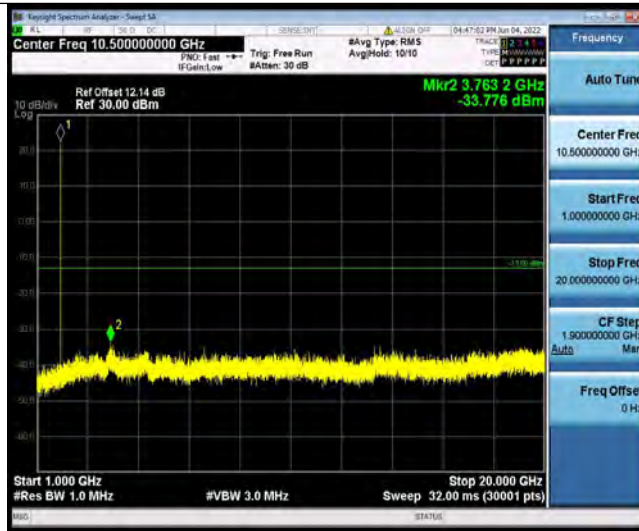
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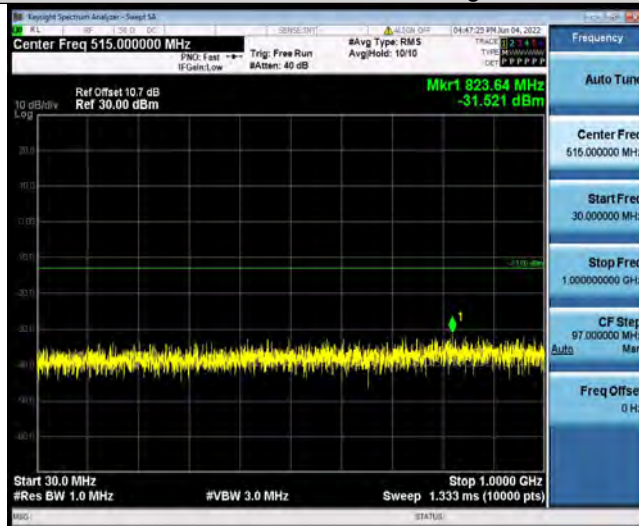
Band2-3MHz-16QAM-18900-1RB#0-Range2:1000~20000MHz



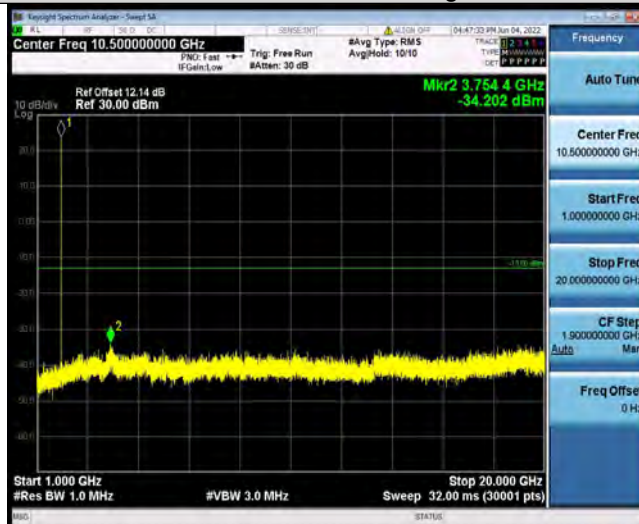
Test Report No.: PSU-NQN2204290110-1RF02



Band2-3MHz-16QAM-19185-1RB#0-Range1:30~1000MHz



Band2-3MHz-16QAM-19185-1RB#0-Range2:1000~20000MHz

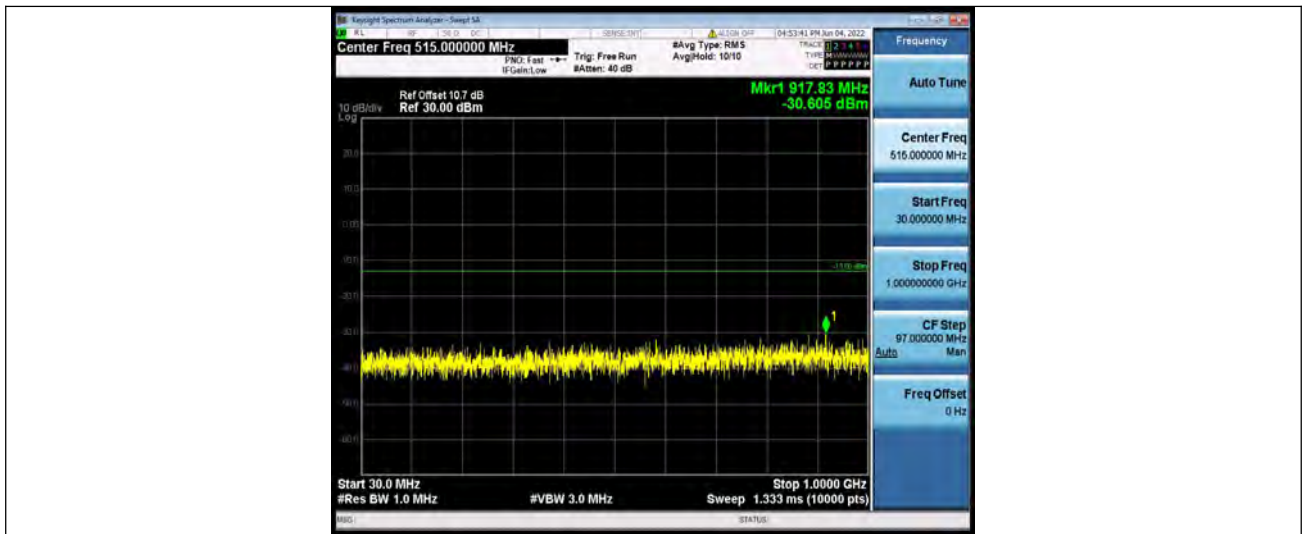


Band2-5MHz-QPSK-18625-1RB#0-Range1:30~1000MHz

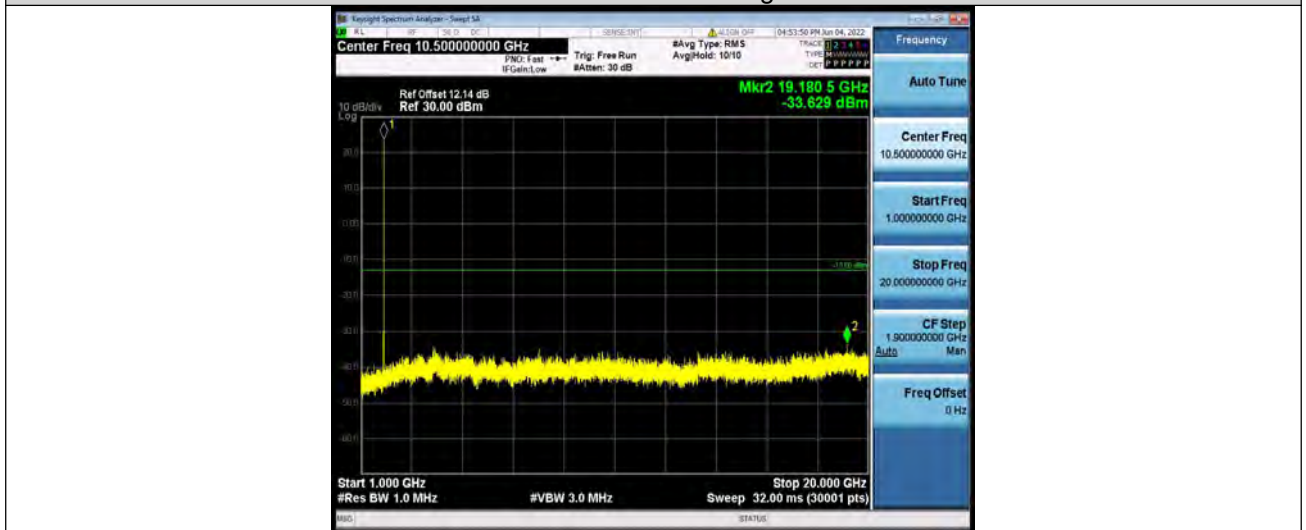




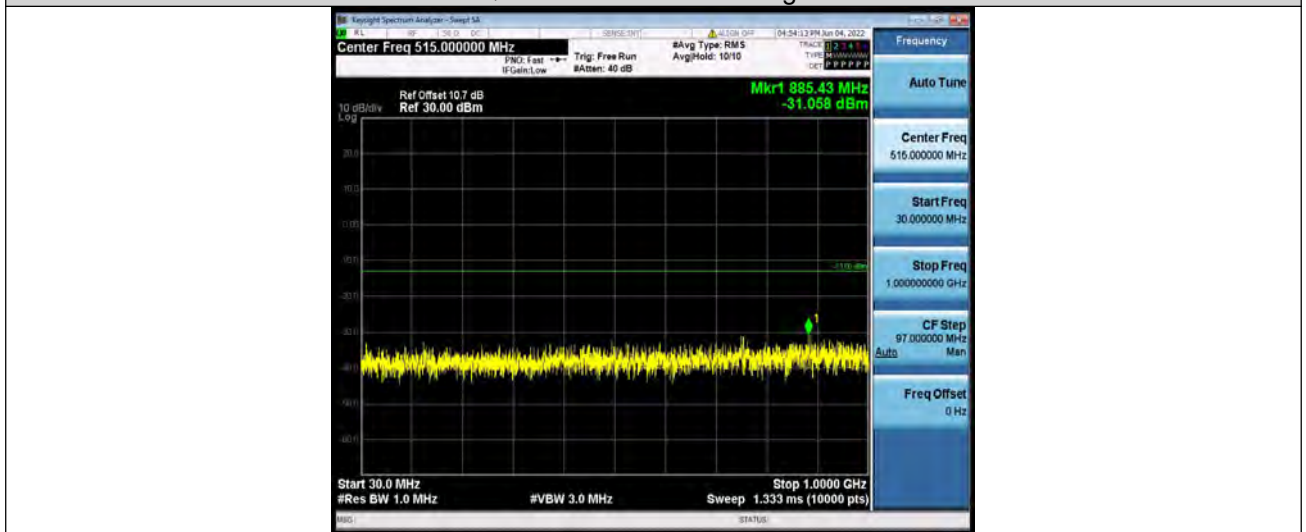
Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-QPSK-18625-1RB#0-Range2:1000~20000MHz



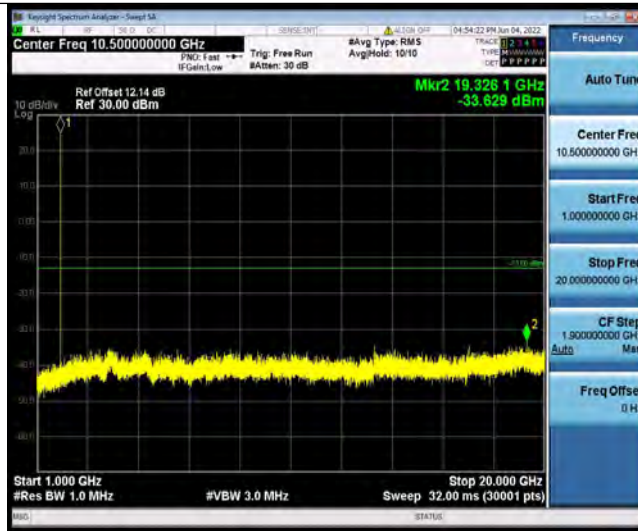
Band2-5MHz-QPSK-18900-1RB#0-Range1:30~1000MHz



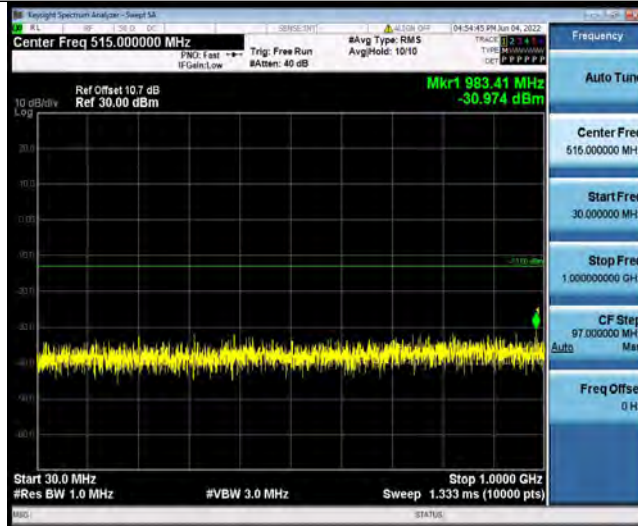
Band2-5MHz-QPSK-18900-1RB#0-Range2:1000~20000MHz



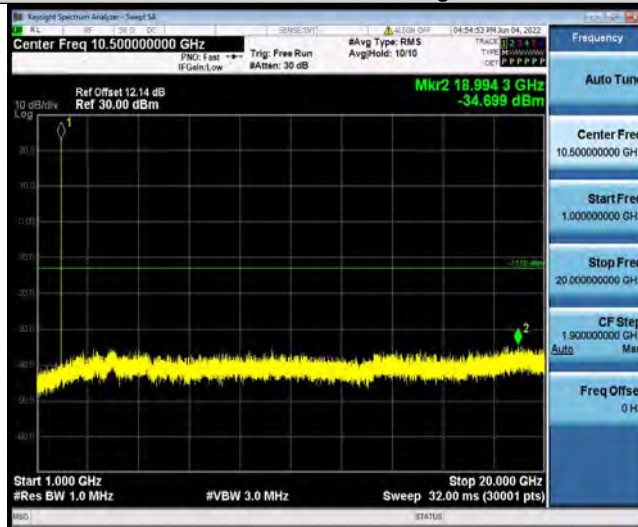
Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-QPSK-19175-1RB#0-Range1:30~1000MHz



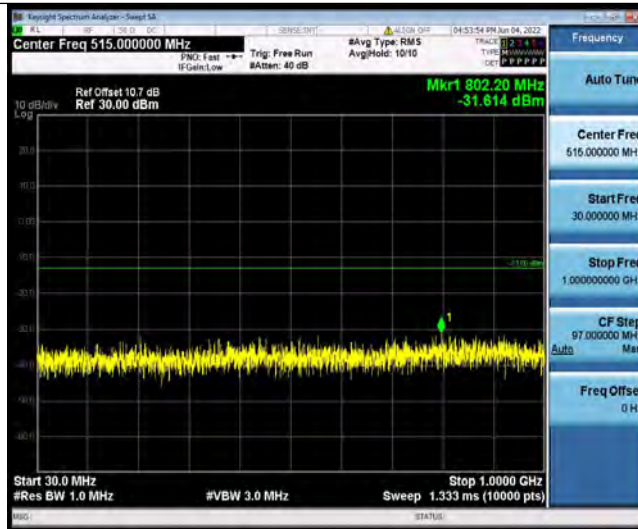
Band2-5MHz-QPSK-19175-1RB#0-Range2:1000~2000MHz



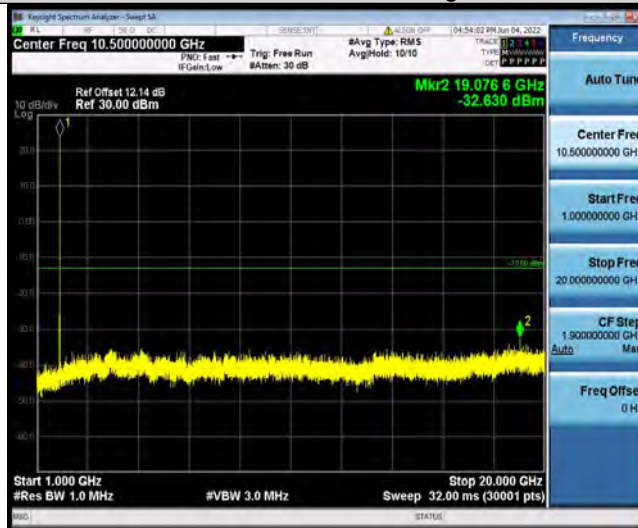
Band2-5MHz-16QAM-18625-1RB#0-Range1:30~1000MHz



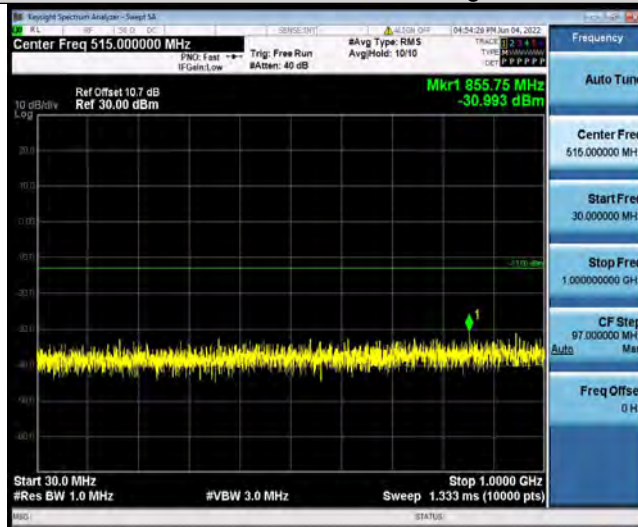
Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-16QAM-18625-1RB#0-Range2:1000~20000MHz



Band2-5MHz-16QAM-18900-1RB#0-Range1:30~1000MHz

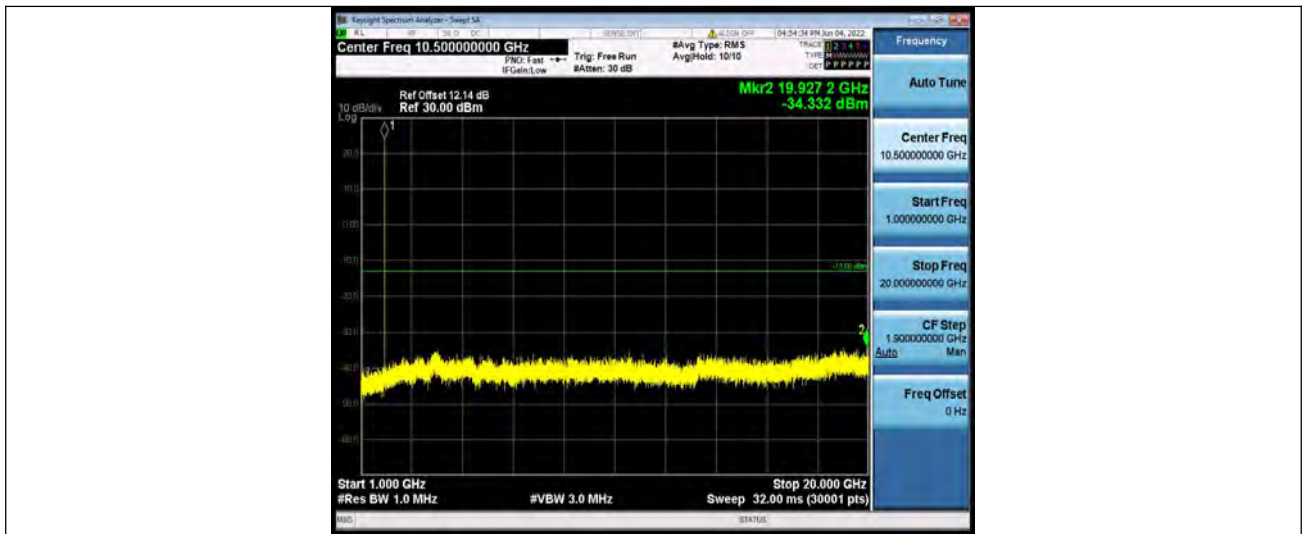


Band2-5MHz-16QAM-18900-1RB#0-Range2:1000~20000MHz

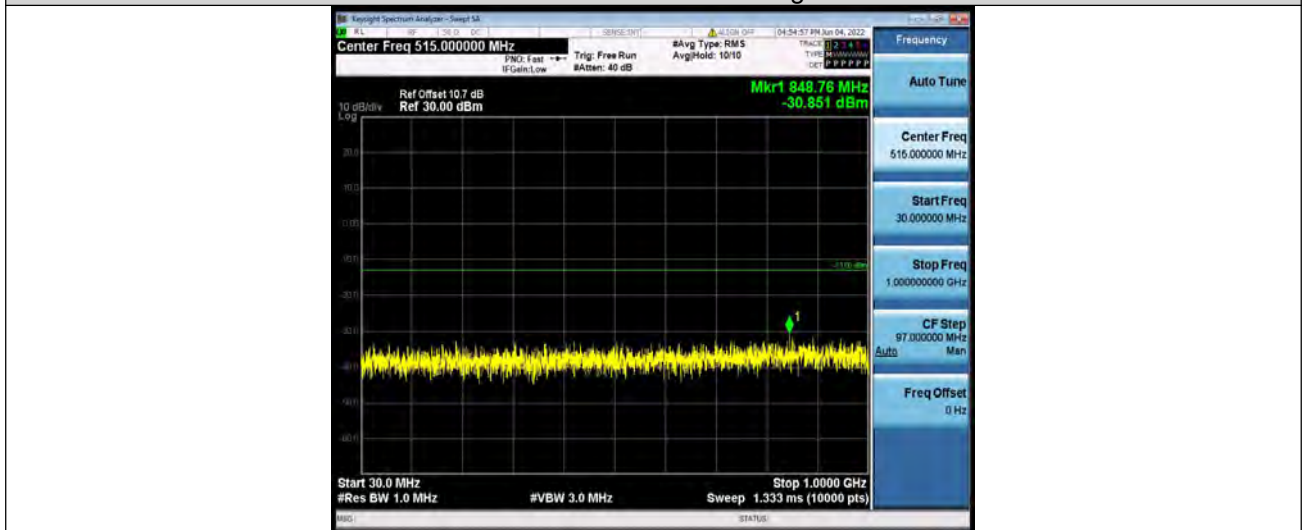




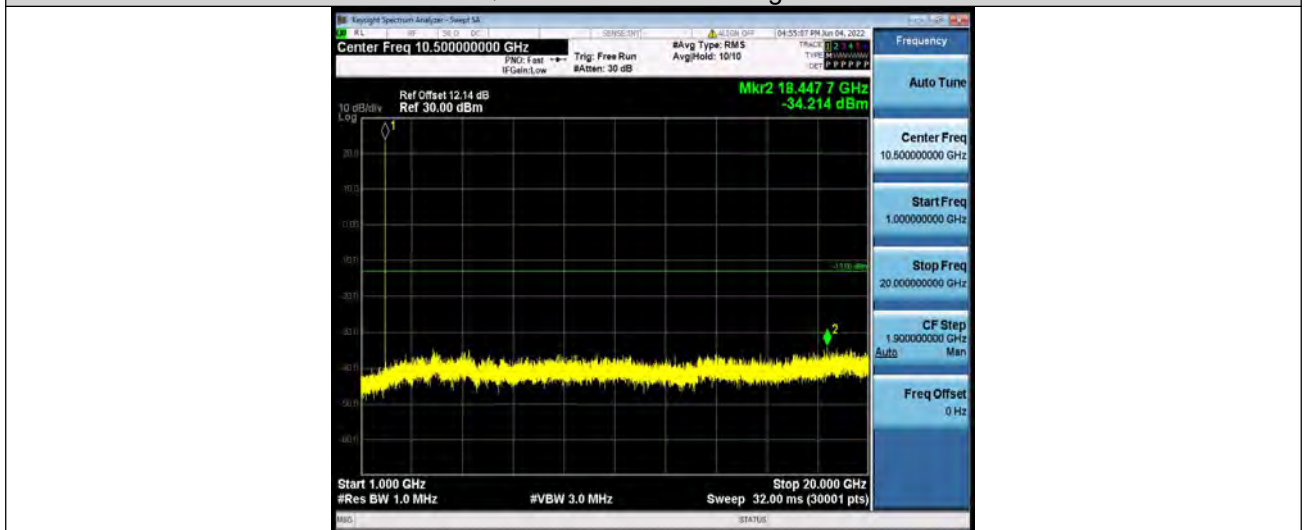
Test Report No.: PSU-NQN2204290110-1RF02



Band2-5MHz-16QAM-19175-1RB#0-Range1:30~1000MHz



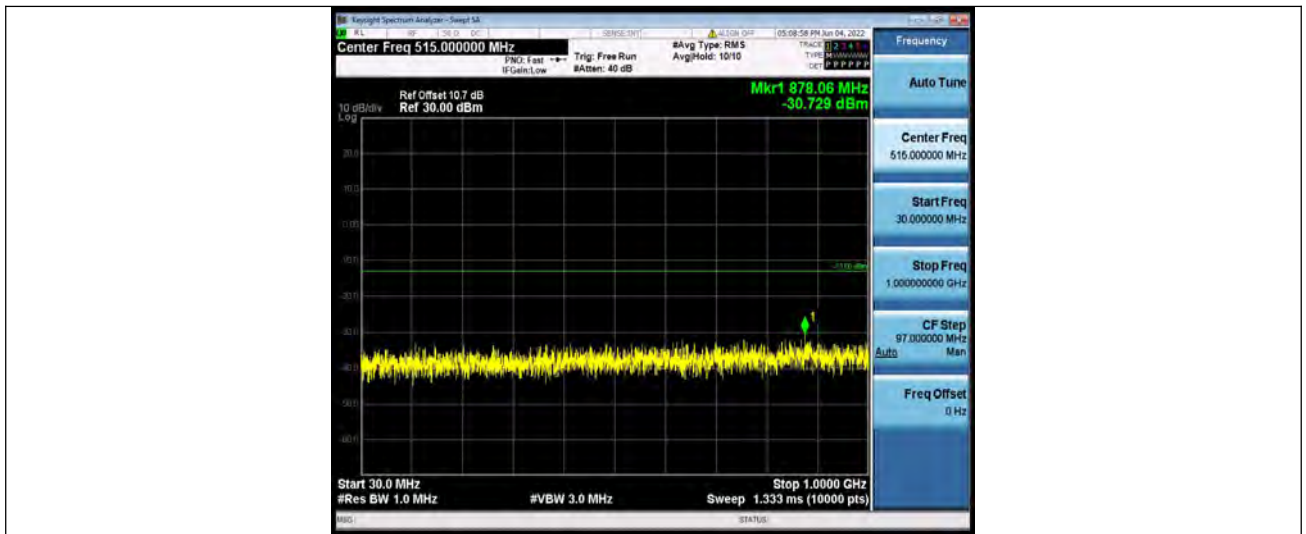
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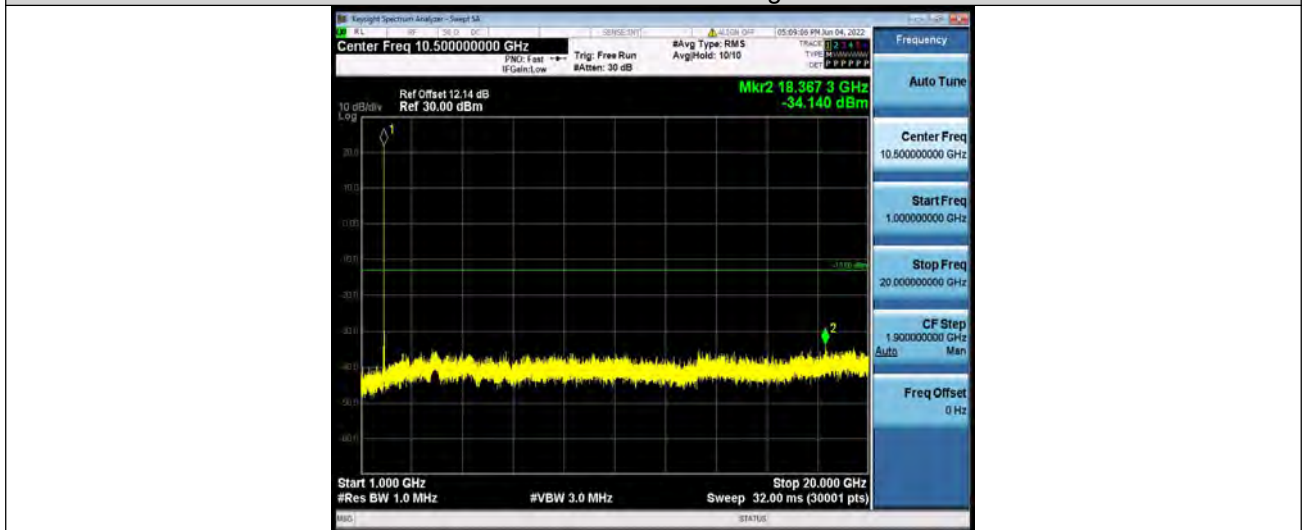
Band2-10MHz-QPSK-18650-1RB#0-Range1:30~1000MHz



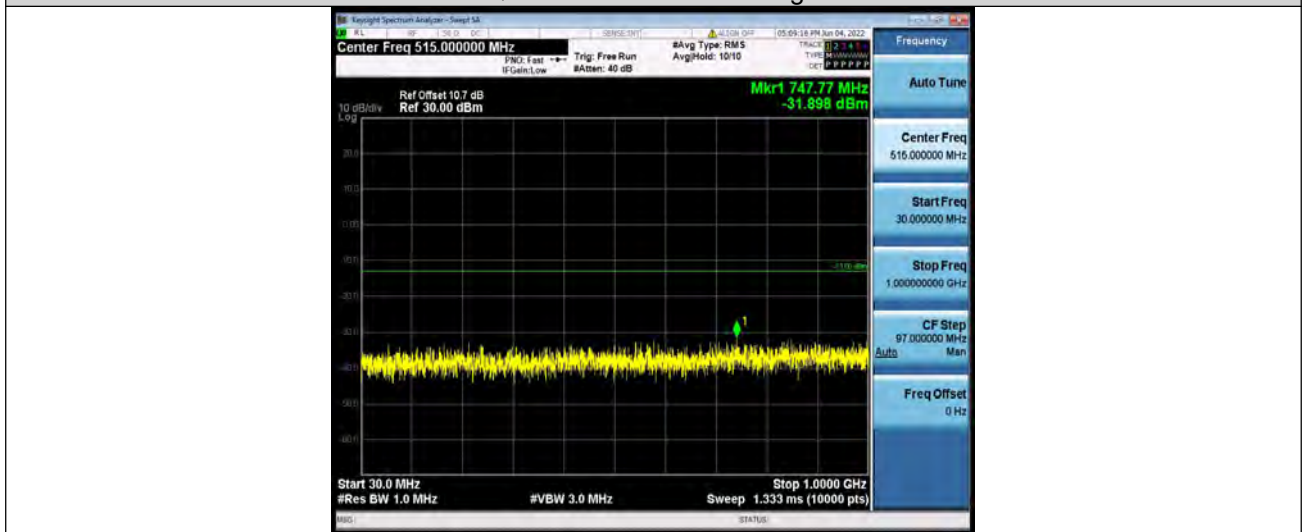
Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-QPSK-18650-1RB#0-Range2:1000~20000MHz



Band2-10MHz-QPSK-18900-1RB#0-Range1:30~1000MHz

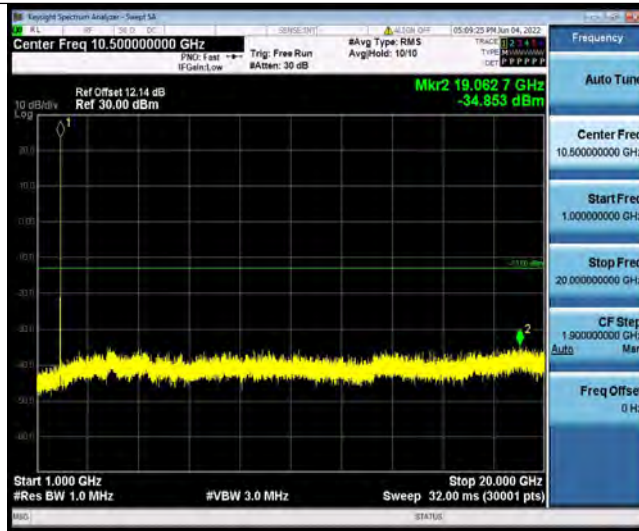


Band2-10MHz-QPSK-18900-1RB#0-Range2:1000~20000MHz

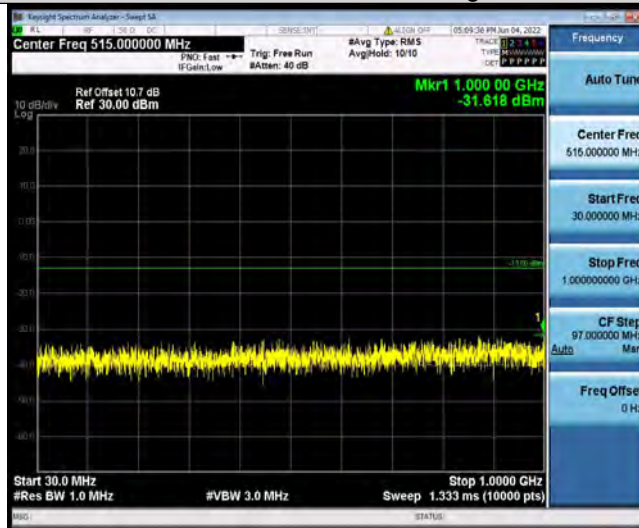




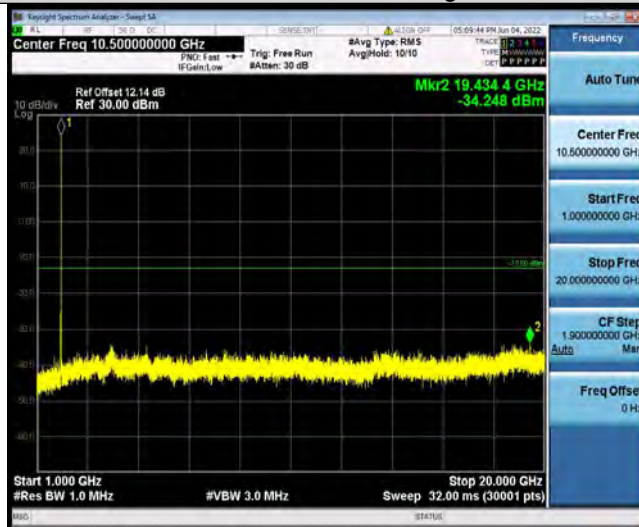
Test Report No.: PSU-NQN2204290110-1RF02



Band2-10MHz-QPSK-19150-1RB#0-Range1:30~1000MHz



Band2-10MHz-QPSK-19150-1RB#0-Range2:1000~20000MHz



Band2-10MHz-16QAM-18650-1RB#0-Range1:30~1000MHz