Certificate #6613.01

FCC TEST REPORT

(PART 24)

Applicant:	Telit Communications S.p.A.
Address:	Via Stazione di Prosecco 5/b – 34010 Sgonico, Trieste – Italy

Manufacturer or Supplier:	Telit Communications S.p.A.
Address:	Via Stazione di Prosecco 5/b – 34010 Sgonico, Trieste – Italy
Product:	ME310M1-W2 / ME310M1-W1
Brand Name:	Telit Cinterion
Model Name:	ME310M1-W2 / ME310M1-W1
FCC ID	RI7ME310M1WX
Date of tests	Feb. 18, 2024 ~ Apr. 26, 2024

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

Prepared by Hanwen Xu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
Date: Apr. 26, 2024	Date: Apr. 26, 2024

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-240204W001RF02	Original release	Apr. 26, 2024

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	Coduncted Output Power	Compliance	A
§24.232(c)	Equivalent Isotropic Radiated Power	Compliance	A
§2.1055 §24.235	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§24.232(d)	Peak to average ratio*	Compliance	A
§24.238(a)(b)	Band Edge Measurements	Compliance	A
§2.1051 §24.238(a)(b)	Conducted Spurious Emissions	Compliance	A
§2.1053 §24.238(a)(b)	Radiated Spurious Emissions	Compliance	A

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

Note:
The differences between LTE NB-IoT/Cat-M1 modules ME310M1-W1 (FCC ID:RI7ME310M1WX) HW 0.0 and ME310M1-W2 (FCC ID: RI7ME310M1W2) HW0.0 are as shown in the following list. Testing has been run on parent product ME310M1-W2 and the worst cases of power and RSE have been verified also on ME310M1-W1 variant. Only the worst-case data (ME310M1-W2) have been reported.

Model	ME310M1-W1 HW0.0	ME310M1-W2 HW0.0
The PSRAM section (U403/R402/R402/C402)	NOT-mounted	Mounted
The FLASH dimensions and capacity (U401)	(Small dimensions) 8MB	(Big dimensions) 16MB

***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

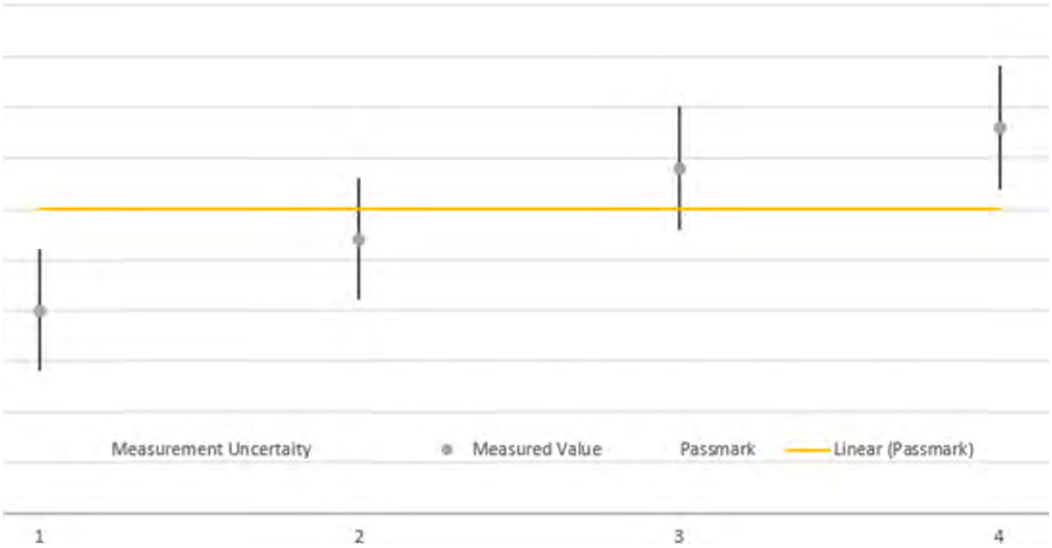
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

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	±76.97Hz
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB
Peak to average ratio	±0.76dB

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



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Vector Signal Generator	R&S	SMBV100B	102176	Feb.15,24	Feb.14,26
Signal Generator	R&S	SMB100A	182185	Feb.15,24	Feb.14,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Feb.25,22	Feb.24,24
EMI TEST Receiver	R&S	ESR26	101734	Feb.24,24	Feb.23,26
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,24
EMI TEST Receiver	R&S	ESW44	101973	Feb.24,24	Feb.23,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.27,24	Feb.26,26
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.22,24	Feb.21,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,24	Feb.21,26
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	EMC32	EMC32	N/A	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	Oct.01,22	Sep.30,24
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.28,23	Apr.27,24
CABLE	R&S	W12.14	N/A	Apr.28,23	Apr.27,24
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.28,23	Apr.27,24
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.28,23	Apr.27,24
Temperature Chamber	votsch	VT4002	58566078100050	May.31,22	May.30,24

NOTE: 1. The calibration interval of the above test instruments is 12/24/36 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.

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

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	ME310M1-W2 / ME310M1-W1	
BRAND NAME*	Telit Cinterion	
MODEL NAME*	ME310M1-W2 / ME310M1-W1	
NOMINAL VOLTAGE*	EUT 3.8Vdc	
MODULATION TYPE	**CAT-M / NB-IOT :LTE**	BPSK, QPSK, 16QAM
FREQUENCY RANGE CAT-M	**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
	LTE Band 25 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1914.3MHz
	LTE Band 25 Channel Bandwidth: 3MHz	1851.5MHz ~ 1913.5MHz
	LTE Band 25 Channel Bandwidth: 5MHz	1852.5MHz ~ 1912.5MHz
	LTE Band 25 Channel Bandwidth: 10MHz	1855.0MHz ~ 1910.0MHz
	LTE Band 25 Channel Bandwidth: 15MHz	1857.5MHz ~ 1907.5MHz
	LTE Band 25 Channel Bandwidth: 20MHz	1860.0MHz ~ 1905.0MHz
FREQUENCY RANGE NB-IOT	**LTE Band 2 (Sub-carrier Speacing: 3.75/15KHz)**	1850.7MHz ~ 1909.3MHz
	LTE Band 25 (Sub-carrier Speacing: 3.75/15KHz)	1851.5MHz ~ 1908.5MHz
MAX. ERP POWER CAM-T	**LTE Band 2 Channel Bandwidth: 1.4MHz**	335.74mW
	LTE Band 2 Channel Bandwidth: 3MHz	336.51mW

	LTE Band 2 Channel Bandwidth: 5MHz	334.97mW
	LTE Band 2 Channel Bandwidth: 10MHz	337.29mW
	LTE Band 2 Channel Bandwidth: 15MHz	336.51mW
	LTE Band 2 Channel Bandwidth: 20MHz	339.63mW
	LTE Band 25 Channel Bandwidth: 1.4MHz	338.06mW
	LTE Band 25 Channel Bandwidth: 3MHz	336.51mW
	LTE Band 25 Channel Bandwidth: 5MHz	333.43mW
	LTE Band 25 Channel Bandwidth: 10MHz	336.51mW
	LTE Band 25 Channel Bandwidth: 15MHz	334.97mW
	LTE Band 25 Channel Bandwidth: 20MHz	338.06mW
MAX. ERP POWER NB-IOT	**LTE Band 2 (Sub-carrier Speacing: 3.75KHz)**	328.1mW
	LTE Band 2 (Sub-carrier Speacing: 15KHz)	325.84mW
	LTE Band 25 (Sub-carrier Speacing: 3.75KHz)	322.11mW
	LTE Band 25 (Sub-carrier Speacing: 15KHz)	325.84mW
EMISSION DESIGNATORGOGN CAT-M	**LTE Band 25 Channel Bandwidth: 1.4MHz**	QPSK: 1M09G7D
		16QAM: 1M08W7D
	LTE Band 25 Channel Bandwidth: 3MHz	QPSK: 1M08G7D
		16QAM: 1M08W7D
	LTE Band 25 Channel Bandwidth: 5MHz	QPSK: 1M09G7D
		16QAM: 1M08W7D
	LTE Band 25 Channel Bandwidth: 10MHz	QPSK: 1M08G7D
		16QAM: 1M08W7D
	LTE Band 25 Channel Bandwidth: 15MHz	QPSK: 1M09G7D
		16QAM: 1M08W7D
	LTE Band 25	QPSK: 1M09G7D

	Channel Bandwidth: 20MHz	16QAM: 1M09W7D
EMISSION DESIGNATORGOGN NB-IOT	**LTE Band 25 (Sub-carrier Speacing: 3.75KHz)**	BPSK: 44K51G7D
		QPSK: 49K27W7D
	LTE Band 25 (Sub-carrier Speacing: 15KHz)	BPSK: 120K6G7D
		QPSK: 190K6W7D
ANTENNA TYPE*	1/4 1 Antenna with 2.14dBi for LTE B2/ LTE B25	
HW VERSION*	0.0	
SW VERSION*	ME310M1-W2: M0U.100001/ME310M1-W1: M0U.000001	
I/O PORTS*	Refer to user's manual	
CABLE SUPPLIED*	N/A	
EXTREME TEMPERATURE*	-40-85 ℃	
EXTREME VOLTAGE*	2.5V - 4.5V	

NOTE:

1. ***Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information , Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

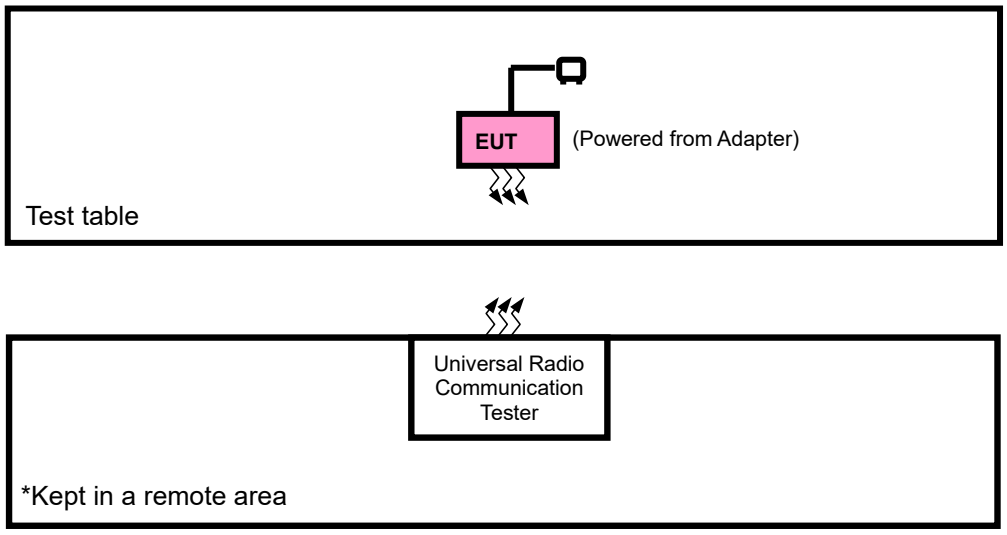
3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

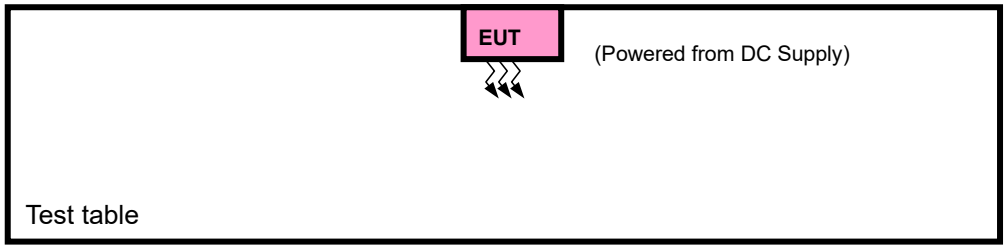
MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

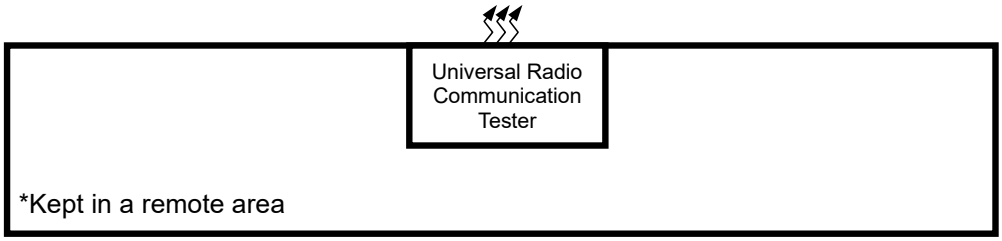
4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

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	Laptop	Lenovo	ThinkPad E14	HRSW00024	N/A
2	DC Source	HYELEC	HY3010B	551016	N/A
3	Adapter	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable, 1.0m;
2	USB Line: Unshielded, Detachable, 1.0m;

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/EDGE/ LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	**EUT + Adapter + USB Cable with LTE link**
B	**EUT + DC Source with LTE link**

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 NB-IOT	ERP	18602 to 19198	18602, 20525, 19198	3.75KHz	BPSK,QPSK	1 RB / 0 RB Offset
		18602 to 19198	18602, 20525, 19198	15KHz	BPSK,QPSK	1 RB / 0 RB Offset

Note: 1.This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

2. LTE Band 2 are covered by LTE Band 25, Because it is a subset of LTE Band 25 with the same output power and supported bandwidths, So the conducted test data and RSE test data please refer to LTE Band 25

CAM-T LTE BAND 25 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26090 to 26640	26090, 26365 26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	100 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	6 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	15 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	25 RB / 0 RB Offset
		26090 to 26640	26090, 26365 26640	10MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	75 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	26047 to 26683	26047	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		26055 to 26675	26055	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		26065 to 26665	26065	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		26090 to 26640	26090	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		26115 to 26615	26115	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset

		26140 to 26590	26140	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
A	CONDCUDETED EMISSION	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26090 to 26640	26090, 26365 26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	26047 to 26683	26365	1.4MHz	QPSK	1 RB / 0 RB Offset
		26055 to 26675	26365	3MHz	QPSK	1 RB / 0 RB Offset
		26065 to 26665	26365	5MHz	QPSK	1 RB / 0 RB Offset
		26090 to 26640	26090,26365,26640	10MHz	QPSK	1 RB / 0 RB Offset
		26115 to 26615	26365	15MHz	QPSK	1 RB / 0 RB Offset
		26140 to 26590	26365	20MHz	QPSK	1 RB / 0 RB Offset

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

NB-IOT LTE BAND 25 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	MODE
A	ERP	26042 to 26688	26042,26365,26688	BPSK,QPSK	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	26365	26365	BPSK,QPSK	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	26042 to 26688	26042,26365,26688	BPSK,QPSK	6 RB / 0 RB Offset
		26365	26365	BPSK,QPSK	50 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	26365	26365	BPSK,QPSK	1 RB / 0 RB Offset 50 RB / 0 RB Offset
A	BAND EDGE	26042 to 26688	26042	BPSK,QPSK	1 RB / 0 RB Offset
					6 RB / 0 RB Offset
			26688	BPSK,QPSK	1 RB / 5 RB Offset
					6 RB / 0 RB Offset
		26365	26365	BPSK,QPSK	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
			26365	BPSK,QPSK	1 RB / 49 RB Offset
					50 RB / 0 RB Offset
A	CONDUCTED EMISSION	26042 to 26688	26042,26365,26688	BPSK,QPSK	1 RB / 0 RB Offset
		26365	26365	BPSK,QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	26042 to 26688	26042,26365,26688	QPSK	1 RB / 0 RB Offset
		26365	26365	QPSK	1 RB / 0 RB Offset

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

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	DC 4.5V By Adapter	Hanwen Xu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 2.5V/ 3.8V/ 4.5V By DC Source	Hanwen Xu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 4.5V By Adapter	Hanwen Xu
BAND EDGE	23deg. C, 70%RH	DC 4.5V By Adapter	Hanwen Xu
CONDCUDETED EMISSION	23deg. C, 70%RH	DC 4.5V By Adapter	Hanwen Xu
RADIATED EMISSION	23deg. C, 70%RH	DC 4.5V By Adapter	Hanwen Xu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 4.5V By Adapter	Hanwen Xu

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

ERP or EIRP = $P_{Meas} + G_T – L_C$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as P_{Meas}, typically dBW or dBm);

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

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

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

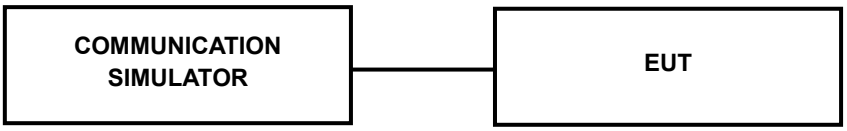
CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with 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) :

CAM-T

LTE BAND 2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18607	Mid CH 18900	High CH 19193
				Frequency 1850.7 MHz	Frequency 1880 MHz	Frequency 1909.3 MHz
2/ 1.4	QPSK	1	0	22.79	22.95	22.91
		1	5	22.82	23.00	22.92
		3	0	22.88	22.96	23.05
		3	3	22.88	23.00	23.12
		6	0	22.93	22.98	23.04
	16QAM	1	0	22.74	22.70	22.74
		1	5	22.73	22.89	22.89
		3	0	22.82	22.92	22.95
		3	3	22.95	23.01	22.94
		6	0	22.96	22.94	22.98

Band/BW	Modulation	RB Size	RB Offset	Low CH 18615	Mid CH 18900	High CH 19185
				Frequency 1851.5 MHz	Frequency 1880 MHz	Frequency 1908.5 MHz
2/ 3	QPSK	1	0	22.89	22.95	22.93
		1	5	22.73	23.01	22.96
		3	0	22.82	23.05	23.01
		3	3	22.96	23.13	23.08
		6	0	22.93	23.07	23.10
	16QAM	1	0	22.78	22.83	22.75
		1	5	22.71	22.90	22.80
		3	0	22.69	22.89	22.90
		3	3	22.91	23.02	22.90
		6	0	22.96	22.97	22.96

Band/BW	Modulation	RB Size	RB Offset	Low CH 18625	Mid CH 18900	High CH 19175
				Frequency 1852.5 MHz	Frequency 1880 MHz	Frequency 1907.5 MHz
2/ 5	QPSK	1	0	22.82	22.83	22.98
		1	5	22.72	22.90	22.94
		3	0	22.85	22.98	23.07
		3	3	22.90	23.08	23.06
		6	0	22.87	23.11	23.06
	16QAM	1	0	22.73	22.74	22.83
		1	5	22.72	22.89	22.87
		3	0	22.69	22.89	22.87
		3	3	22.91	22.96	22.89
		6	0	22.90	23.01	22.98

Band/BW	Modulation	RB Size	RB Offset	Low CH 18650	Mid CH 18900	High CH 19150
				Frequency 1855 MHz	Frequency 1880 MHz	Frequency 1905 MHz
2/ 10	QPSK	1	0	22.86	22.84	22.97
		1	5	22.85	22.87	22.98
		3	0	22.81	23.06	23.10
		3	3	22.93	23.05	23.00
		6	0	22.93	23.11	23.14
	16QAM	1	0	22.71	22.76	22.78
		1	5	22.71	22.96	22.83
		3	0	22.79	22.80	22.91
		3	3	22.85	23.01	22.95
		6	0	22.90	23.01	22.95

Band/BW	Modulation	RB Size	RB Offset	Low CH 18675	Mid CH 18900	High CH 19125
				Frequency 1857.5 MHz	Frequency 1880 MHz	Frequency 1902.5 MHz
2/ 15	QPSK	1	0	22.90	22.90	22.94
		1	5	22.77	22.90	23.02
		3	0	22.86	22.99	22.98
		3	3	22.94	23.13	23.01
		6	0	22.95	22.98	23.13
	16QAM	1	0	22.80	22.84	22.83
		1	5	22.65	22.91	22.78
		3	0	22.77	22.85	22.97
		3	3	22.83	23.05	22.85
		6	0	22.91	23.01	23.06

Band/BW	Modulation	RB Size	RB Offset	Low CH 18700	Mid CH 18900	High CH 19100
				Frequency 1860 MHz	Frequency 1880 MHz	Frequency 1900 MHz
2/ 20	QPSK	1	0	22.93	22.98	23.01
		1	5	22.86	23.02	23.06
		3	0	22.94	23.09	23.11
		3	3	22.98	23.15	23.13
		6	0	23.02	23.13	23.17
	16QAM	1	0	22.83	22.85	22.87
		1	5	22.80	23.00	22.91
		3	0	22.84	22.95	23.01
		3	3	22.97	23.08	22.98
		6	0	22.98	23.09	23.07

LTE BAND 25

Band/BW	Modulation	RB Size	RB Offset	Low CH 26047	Mid CH 26365	High CH 26683
				Frequency 1850.7 MHz	Frequency 1882.5 MHz	Frequency 1914.3 MHz
25/ 1.4	QPSK	1	0	22.81	22.89	23.00
		1	5	22.74	22.97	22.97
		3	0	22.79	23.15	23.06
		3	3	22.82	22.98	22.98
		6	0	22.91	23.03	23.00
	16QAM	1	0	22.68	22.86	22.81
		1	5	22.53	22.90	23.00
		3	0	22.79	22.99	22.98
		3	3	22.71	23.07	23.00
		6	0	22.96	23.03	23.00

Band/BW	Modulation	RB Size	RB Offset	Low CH 26055	Mid CH 26365	High CH 26675
				Frequency 1851.5 MHz	Frequency 1882.5 MHz	Frequency 1913.5 MHz
25/ 3	QPSK	1	0	22.86	23.01	22.97
		1	5	22.76	23.02	22.94
		3	0	22.83	23.04	23.01
		3	3	22.92	23.01	23.06
		6	0	22.90	23.12	23.13
	16QAM	1	0	22.62	22.99	22.91
		1	5	22.57	22.86	22.92
		3	0	22.80	22.93	22.94
		3	3	22.77	22.96	23.02
		6	0	22.97	23.03	22.99

Band/BW	Modulation	RB Size	RB Offset	Low CH 26065	Mid CH 26365	High CH 26665
				Frequency 1852.5 MHz	Frequency 1882.5 MHz	Frequency 1912.5 MHz
25/ 5	QPSK	1	0	22.88	22.98	22.94
		1	5	22.78	22.99	23.01
		3	0	22.83	23.06	23.07
		3	3	22.85	23.08	23.09
		6	0	22.98	23.02	23.07
	16QAM	1	0	22.64	22.94	22.86
		1	5	22.58	22.95	22.87
		3	0	22.88	22.96	22.99
		3	3	22.75	23.02	23.01
		6	0	22.96	23.04	23.07

Band/BW	Modulation	RB Size	RB Offset	Low CH 26090	Mid CH 26365	High CH 26640
				Frequency 1855 MHz	Frequency 1882.5 MHz	Frequency 1910 MHz
25/ 10	QPSK	1	0	22.80	22.95	22.97
		1	5	22.72	23.00	23.02
		3	0	22.84	23.06	22.94
		3	3	22.85	23.06	23.05
		6	0	22.87	23.10	23.13
	16QAM	1	0	22.70	22.96	22.89
		1	5	22.63	22.91	22.92
		3	0	22.87	22.95	22.92
		3	3	22.70	23.00	22.91
		6	0	22.99	23.00	22.97

Band/BW	Modulation	RB Size	RB Offset	Low CH 26115	Mid CH 26365	High CH 26615
				Frequency 1857.5 MHz	Frequency 1882.5 MHz	Frequency 1907.5 MHz
25/ 15	QPSK	1	0	22.81	22.88	22.90
		1	5	22.80	23.02	22.93
		3	0	22.92	23.01	22.95
		3	3	22.93	23.11	23.03
		6	0	22.97	23.09	23.08
	16QAM	1	0	22.62	22.99	22.84
		1	5	22.63	22.87	23.01
		3	0	22.82	22.96	22.96
		3	3	22.83	23.07	23.02
		6	0	22.96	22.97	22.95

Band/BW	Modulation	RB Size	RB Offset	Low CH 26140	Mid CH 26365	High CH 26590
				Frequency 1860 MHz	Frequency 1882.5 MHz	Frequency 1905 MHz
25/ 20	QPSK	1	0	22.92	23.03	23.05
		1	5	22.82	23.12	23.07
		3	0	22.94	23.16	23.09
		3	3	22.96	23.12	23.13
		6	0	23.02	23.17	23.15
	16QAM	1	0	22.77	23.00	22.96
		1	5	22.68	22.97	23.02
		3	0	22.91	23.02	23.00
		3	3	22.85	23.08	23.05
		6	0	23.01	23.05	23.09

N-IOT

LTE Band 2						
Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18602	18900	19198
		Frequence (MHz)		1850.2	1880	1909.8
3.75	BPSK	1	0	22.68	22.92	22.89
		1	47	22.74	**23.02**	22.91
	QPSK	1	0	22.64	23.01	22.88
		1	47	22.71	22.99	22.90
15	BPSK	1	0	22.69	22.98	22.91
		1	11	22.57	22.91	22.88
	QPSK	1	0	22.65	22.90	22.87
		1	11	22.64	22.99	22.90
		12	0	21.49	21.86	21.73

LTE Band 25						
Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		26042	26365	26688
		Frequence (MHz)		1850.2	1882.5	1914.8
3.75	BPSK	1	0	22.61	22.87	22.85
		1	47	22.62	22.89	22.88
	QPSK	1	0	22.59	22.94	22.89
		1	47	22.60	22.93	22.90
15	BPSK	1	0	22.68	22.98	22.85
		1	11	22.58	22.99	22.78
	QPSK	1	0	22.59	**23.01**	22.79
		1	11	22.58	22.99	22.78
		12	0	21.42	21.78	21.64

EIRP POWER (dBm)

LTE BAND 2

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	22.93	2.14	25.07	321.37	2
18900	1880	23	2.14	25.14	326.59	2
19193	1909.3	23.12	2.14	25.26	335.74	2

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	22.96	2.14	25.1	323.59	2
18900	1880	23.01	2.14	25.15	327.34	2
19193	1909.3	22.98	2.14	25.12	325.09	2

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	22.96	2.14	25.1	323.59	2
18900	1880	23.13	2.14	25.27	336.51	2
19185	1908.5	23.1	2.14	25.24	334.2	2

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	22.96	2.14	25.1	323.59	2
18900	1880	23.02	2.14	25.16	328.1	2
19185	1908.5	22.96	2.14	25.1	323.59	2

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	22.9	2.14	25.04	319.15	2
18900	1880	23.11	2.14	25.25	334.97	2
19175	1907.5	23.07	2.14	25.21	331.89	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	22.91	2.14	25.05	319.89	2
18900	1880	23.01	2.14	25.15	327.34	2
19175	1907.5	22.98	2.14	25.12	325.09	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855	22.93	2.14	25.07	321.37	2
18900	1880	23.11	2.14	25.25	334.97	2
19150	1905	23.14	2.14	25.28	337.29	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855	22.9	2.14	25.04	319.15	2
18900	1880	23.01	2.14	25.15	327.34	2
19150	1905	22.95	2.14	25.09	322.85	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	22.95	2.14	25.09	322.85	2
18900	1880	23.13	2.14	25.27	336.51	2
19125	1902.5	23.13	2.14	25.27	336.51	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	22.91	2.14	25.05	319.89	2
18900	1880	23.05	2.14	25.19	330.37	2
19125	1902.5	23.06	2.14	25.2	331.13	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	23.02	2.14	25.16	328.1	2
18900	1880	23.15	2.14	25.29	338.06	2
19100	1900	23.17	2.14	25.31	339.63	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	22.98	2.14	25.12	325.09	2
18900	1880	23.09	2.14	25.23	333.43	2
19100	1900	23.07	2.14	25.21	331.89	2

LTE BAND 25

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26047	1850.7	22.91	2.14	25.05	319.89	2
26365	1882.5	23.15	2.14	25.29	338.06	2
26683	1914.3	23.06	2.14	25.2	331.13	2

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26047	1850.7	22.96	2.14	25.1	323.59	2
26365	1882.5	23.07	2.14	25.21	331.89	2
26683	1914.3	23	2.14	25.14	326.59	2

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26055	1851.5	22.92	2.14	25.06	320.63	2
26365	1882.5	23.12	2.14	25.26	335.74	2
26675	1913.5	23.13	2.14	25.27	336.51	2

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26055	1851.5	22.97	2.14	25.11	324.34	2
26365	1882.5	23.03	2.14	25.17	328.85	2
26675	1913.5	23.02	2.14	25.16	328.1	2

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	22.98	2.14	25.12	325.09	2
26365	1882.5	23.08	2.14	25.22	332.66	2
26665	1912.5	23.09	2.14	25.23	333.43	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	22.96	2.14	25.1	323.59	2
26365	1882.5	23.04	2.14	25.18	329.61	2
26665	1912.5	23.07	2.14	25.21	331.89	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	22.87	2.14	25.01	316.96	2
26365	1882.5	23.1	2.14	25.24	334.2	2
26640	1910	23.13	2.14	25.27	336.51	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	22.99	2.14	25.13	325.84	2
26365	1882.5	23	2.14	25.14	326.59	2
26640	1910	22.97	2.14	25.11	324.34	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26115	1857.5	22.97	2.14	25.11	324.34	2
26365	1882.5	23.11	2.14	25.25	334.97	2
26615	1907.5	23.08	2.14	25.22	332.66	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26115	1857.5	22.96	2.14	25.1	323.59	2
26365	1882.5	23.07	2.14	25.21	331.89	2
26615	1907.5	23.02	2.14	25.16	328.1	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	23.02	2.14	25.16	328.1	2
26365	1882.5	23.17	2.14	25.31	339.63	2
26590	1905	23.15	2.14	25.29	338.06	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	23.01	2.14	25.15	327.34	2
26365	1882.5	23.08	2.14	25.22	332.66	2
26590	1905	23.09	2.14	25.23	333.43	2

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

NB-IOT

LTE B2 3.75KHz

CHANNEL BANDWIDTH: BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
18602	1850.2	22.74	2.14	24.88	307.61	2
18900	1880	23.02	2.14	25.16	328.1	2
19198	1909.8	22.91	2.14	25.05	319.89	2

CHANNEL BANDWIDTH: QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
18602	1850.2	22.71	2.14	24.85	305.49	2
18900	1880	23.01	2.14	25.15	327.34	2
19198	1909.8	22.9	2.14	25.04	319.15	2

LTE B2 15KHz

CHANNEL BANDWIDTH: BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
18602	1850.2	22.69	2.14	24.83	304.09	2
18900	1880	22.98	2.14	25.12	325.09	2
19198	1909.8	22.91	2.14	25.05	319.89	2

CHANNEL BANDWIDTH: QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
18602	1850.2	22.65	2.14	24.79	301.3	2
18900	1880	22.99	2.14	25.13	325.84	2
19198	1909.8	22.9	2.14	25.04	319.15	2

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

NB-IOT

LTE B25 3.75KHz

CHANNEL BANDWIDTH: BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26042	1850.2	22.62	2.14	24.76	299.23	2
26365	1882.5	22.89	2.14	25.03	318.42	2
26688	1914.8	22.88	2.14	25.02	317.69	2

CHANNEL BANDWIDTH: QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26042	1850.2	22.6	2.14	24.74	297.85	2
26365	1882.5	22.94	2.14	25.08	322.11	2
26688	1914.8	22.9	2.14	25.04	319.15	2

LTE B25 15KHz

CHANNEL BANDWIDTH: BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26042	1850.2	22.68	2.14	24.82	303.39	2
26365	1882.5	22.99	2.14	25.13	325.84	2
26688	1914.8	22.85	2.14	24.99	315.5	2

CHANNEL BANDWIDTH: QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26042	1850.2	22.59	2.14	24.73	297.17	2
26365	1882.5	23.01	2.14	25.15	327.34	2
26688	1914.8	22.79	2.14	24.93	311.17	2

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

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

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

3.2.2 TEST PROCEDURE

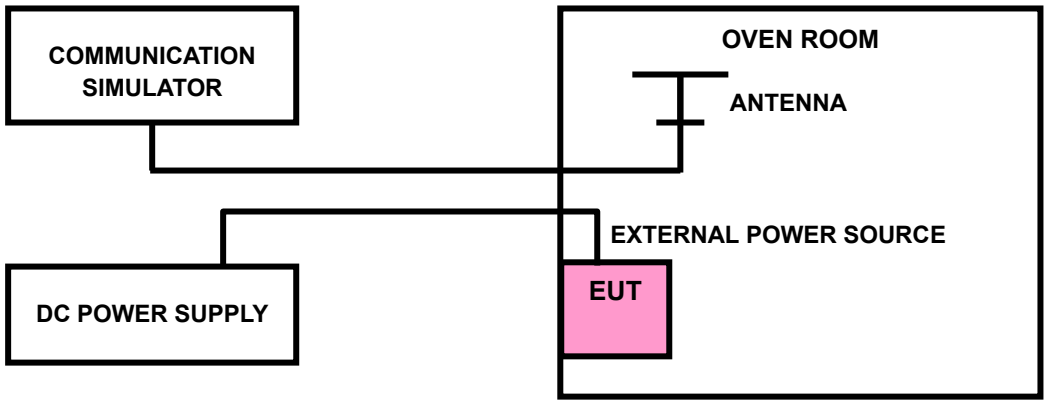
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

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 ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

3.2.3 TEST SETUP



3.2.4 TEST RESULTS

Please Refer to Appendix Of this test report.

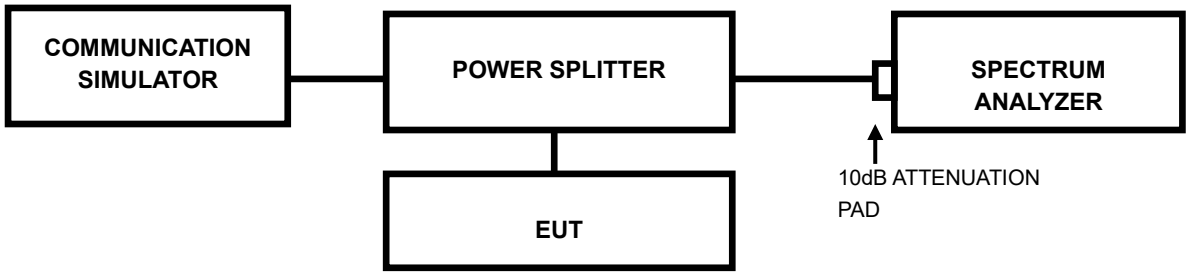
Note: VL = Low voltage(2.5V); VN/NV = Normal voltage(3.8V); VH = High voltage(4.5V);
NT = Normal temperature (25℃)

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage
0.5 %of the total mean power of a given emission.

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.4 TEST RESULTS

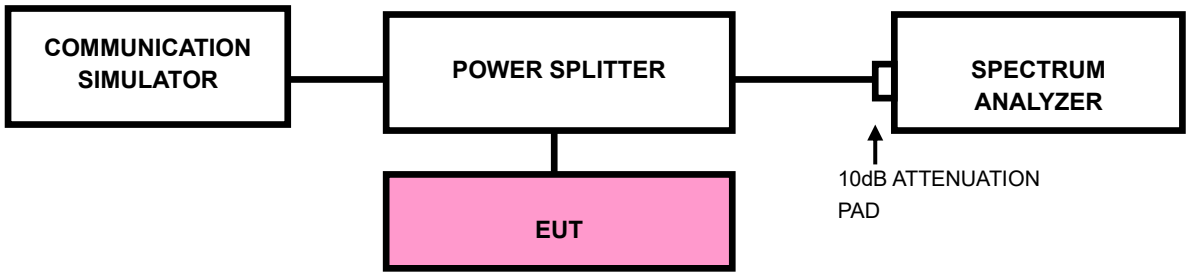
Please Refer to Appendix Of this test report.

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) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.

c) Tune the analyzer to the nominal center frequency of the emission bandwidth (EBW)

d) .Set the resolution bandwidth (RBW) ≧ 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.

e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.

f) Set the video bandwidth (VBW) to ≧3 x RBW.

g) Select the average power (RMS) display detector.

h) Set the number of measurement points to ≧ 1001.

i) Use auto-coupled sweep time.

j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.

k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.

l) Record the max trace plot into the test report.

3.4.4. TEST RESULTS

Please Refer to Appendix Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

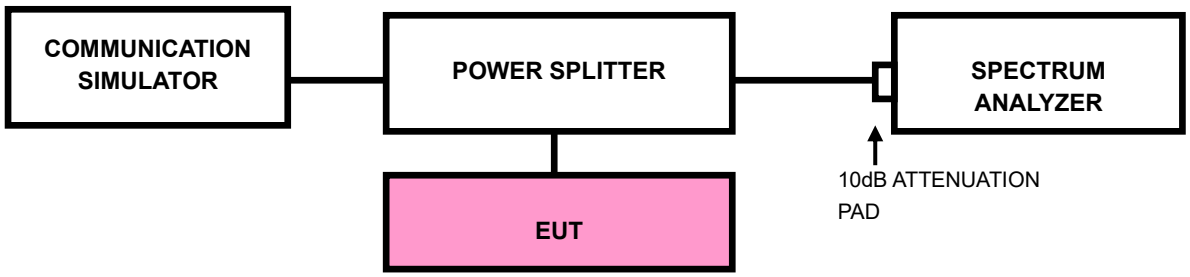
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

3.5.2 TEST PROCEDURE

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

b. Measuring frequency range is from 30MHz up to a frequency including its 10^{th} harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

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

Please Refer to Appendix Of this test report.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

3.6.2 TEST PROCEDURES

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

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G

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

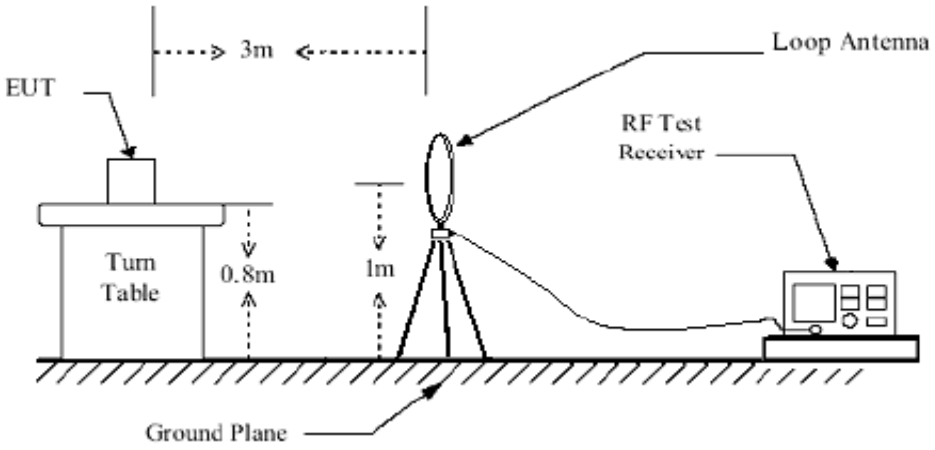
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

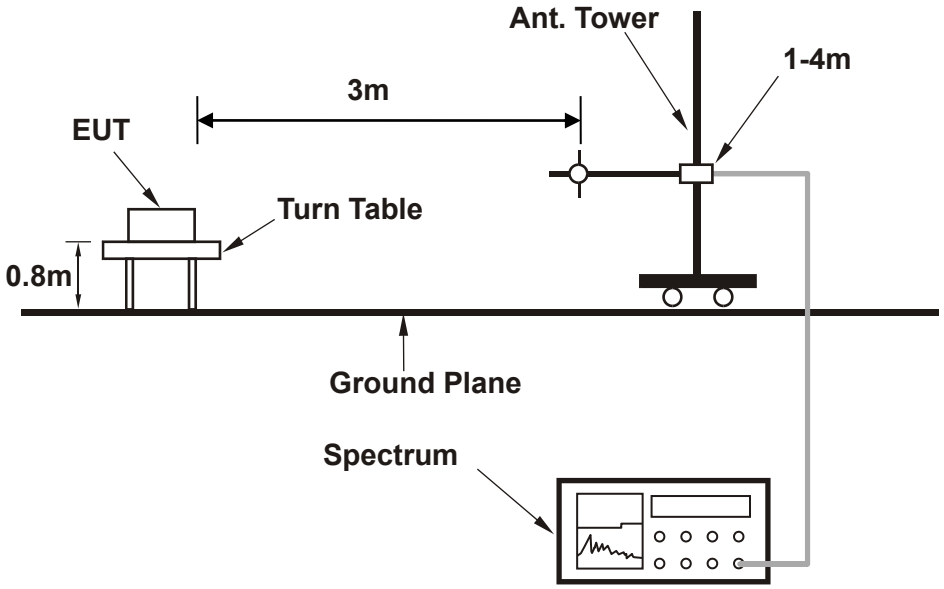
No deviation

3.6.4 TEST SETUP

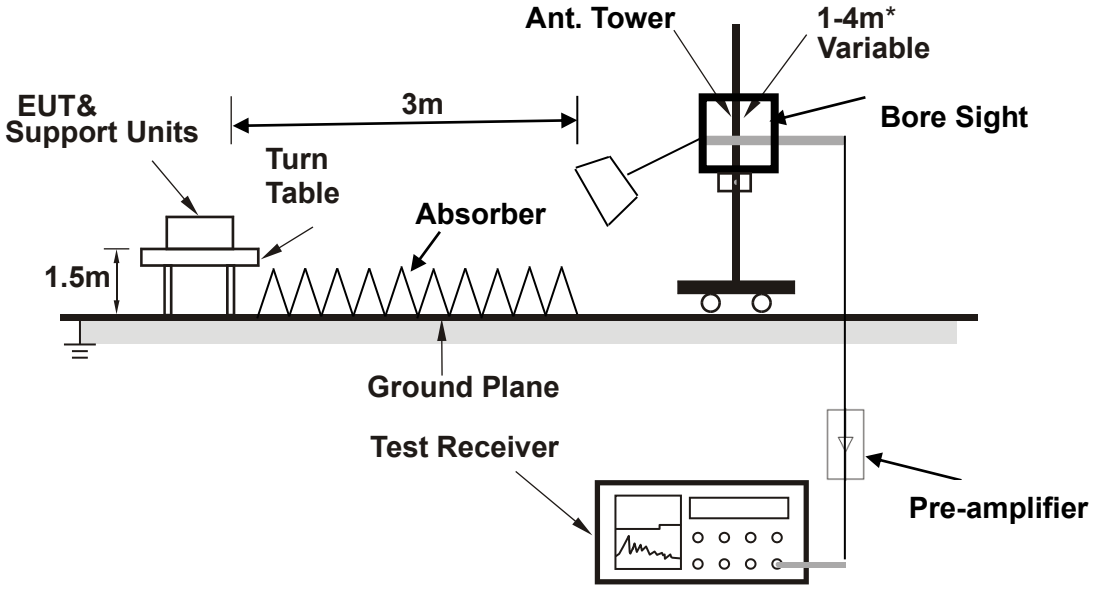
< Frequency Range below 30MHz >



< 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

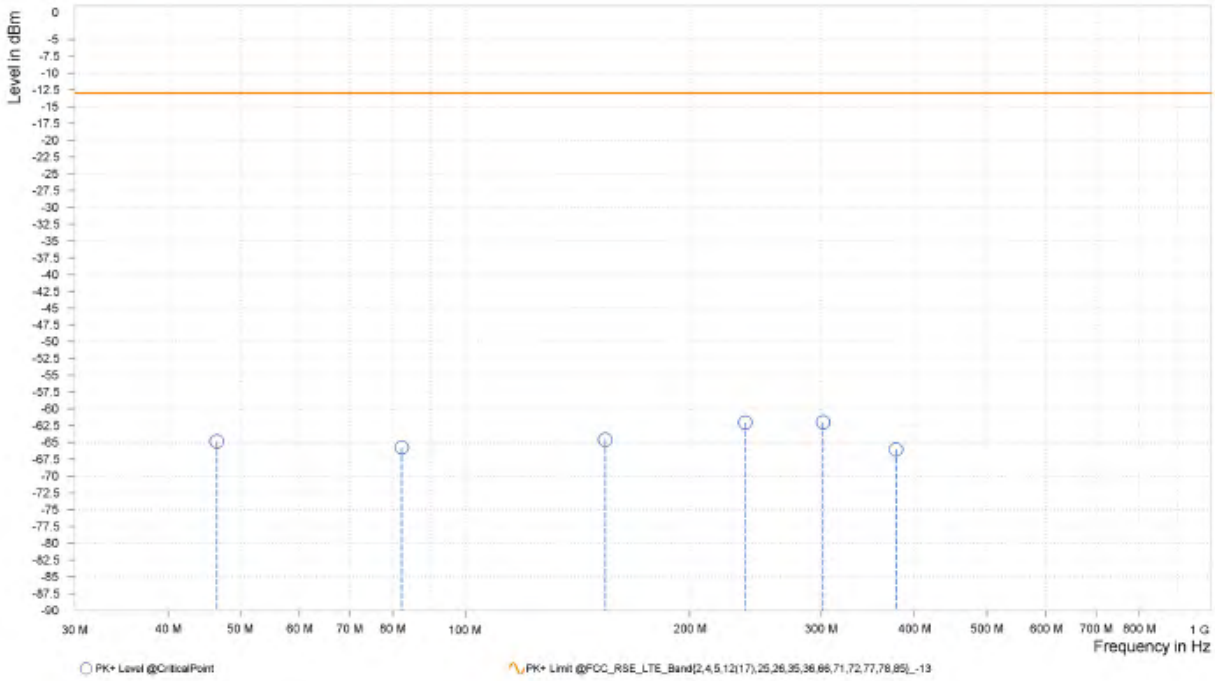
30 MHz – 1GHz data:

NB-IOT LTE Band25：

CHANNEL BANDWIDTH: QPSK

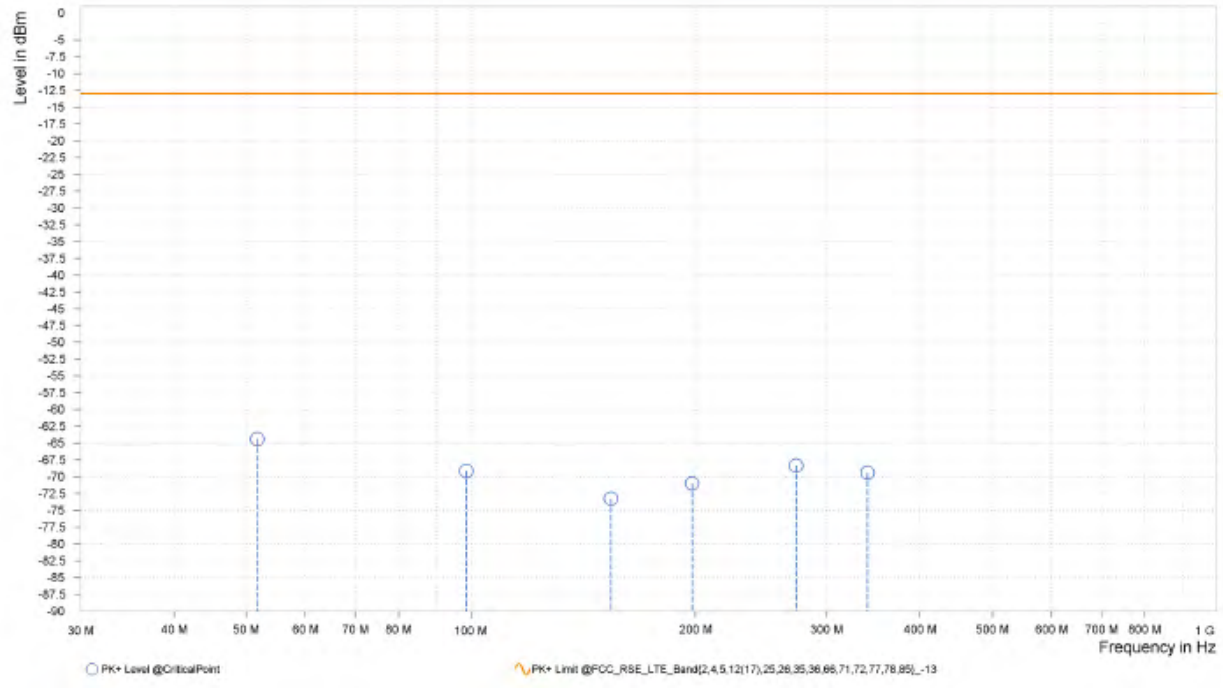
MODE	TX channel 26688	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	46.500	-64.84	-13.00	51.84	2.98	H	236.2	1.00
1	82.300	-65.74	-13.00	52.74	-3.44	H	135.8	1.00
1	154.000	-64.57	-13.00	51.57	-5.49	H	123.8	2.00
1	237.400	-62.05	-13.00	49.05	2.46	H	236.2	1.00
1	301.650	-62.00	-13.00	49.00	5.43	H	236.2	1.00
1	377.850	-66.03	-13.00	53.03	6.94	H	225.5	2.00



MODE	TX channel 26688	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	51.750	-64.36	-13.00	51.36	5.29	V	133.4	1.00
1	98.650	-69.15	-13.00	56.15	4.92	V	359	2.00
1	154.150	-73.24	-13.00	60.24	-2.42	V	4.5	1.00
1	198.000	-70.98	-13.00	57.98	1.59	V	236.2	1.00
1	272.800	-68.31	-13.00	55.31	2.89	V	236.2	1.00
1	340.250	-69.40	-13.00	56.40	5.72	V	183.7	2.00



ABOVE 1GHz DATA

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

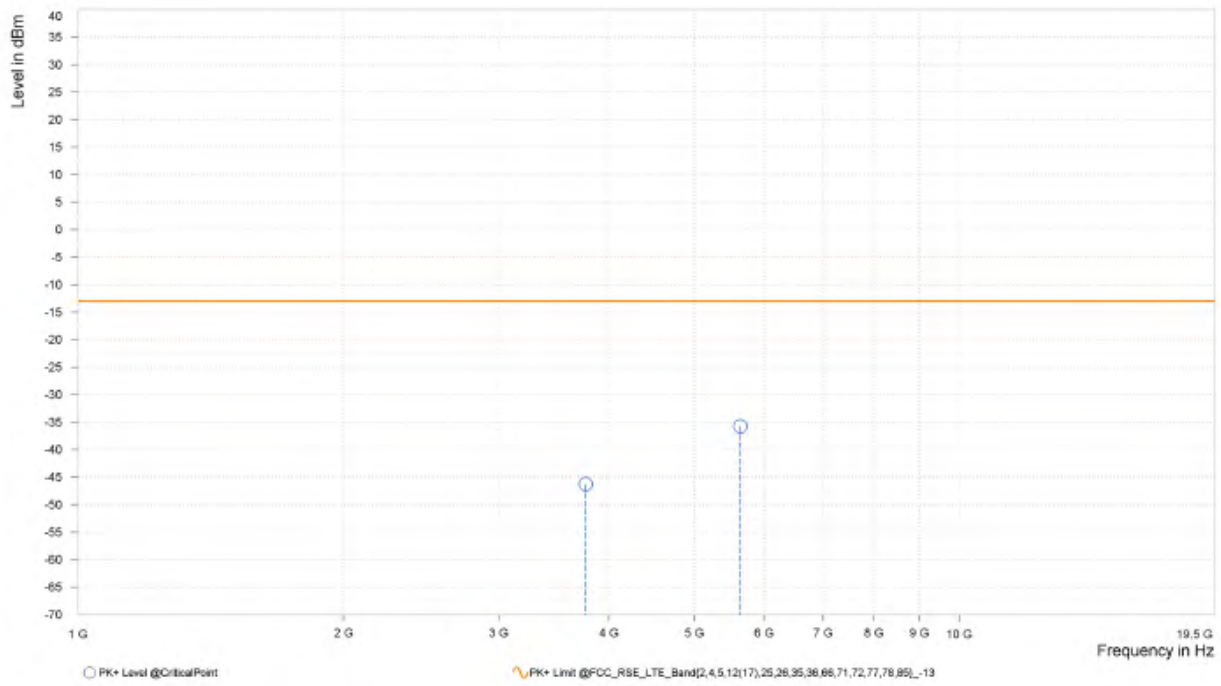
WORST-CASE DATA

CAT-M LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK

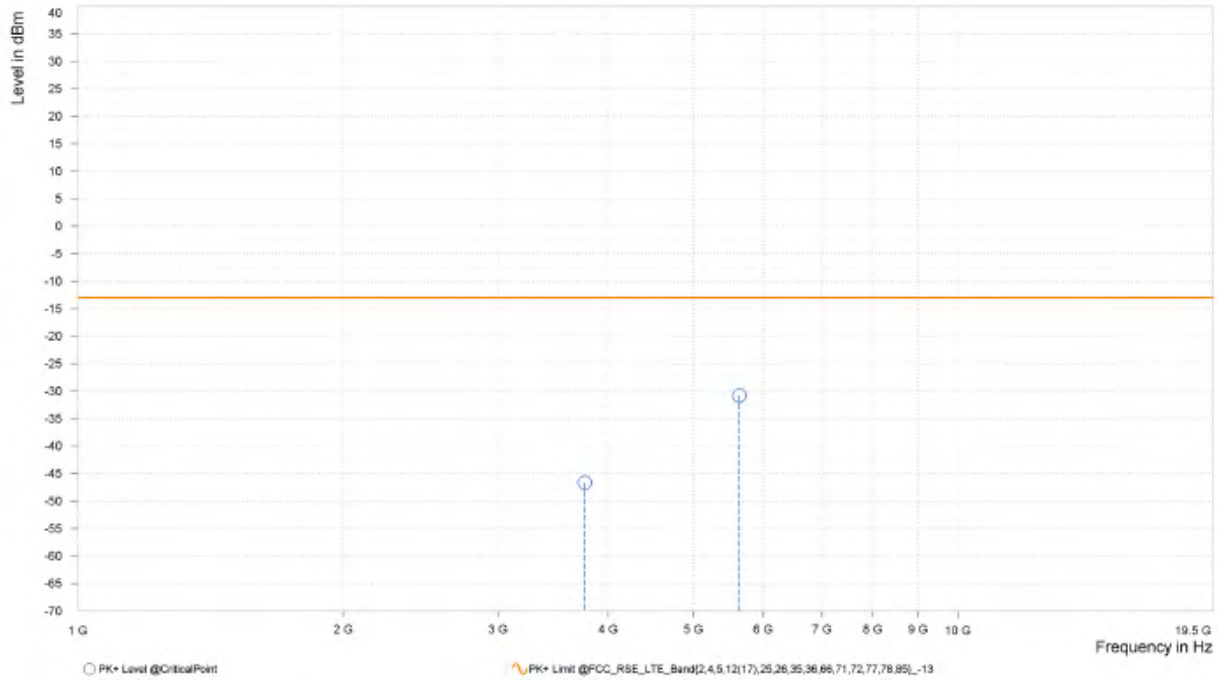
MODE	TX channel 26365	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,763.740	-46.28	-13.00	33.28	15.48	H	1	2.00
2	5,642.000	-35.74	-13.00	22.74	18.58	H	327.1	1.00



MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

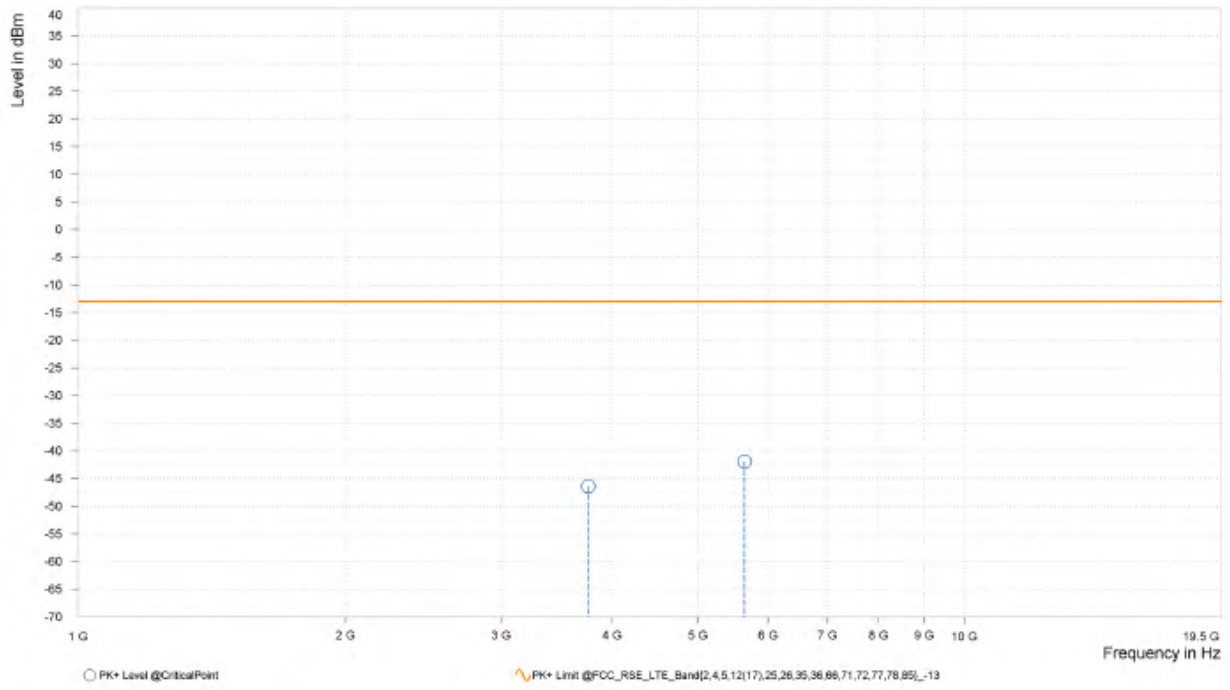
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,763.740	-46.63	-13.00	33.63	15.16	V	359	2.00
2	5,642.500	-30.80	-13.00	17.80	18.32	V	50.9	2.00



CHANNEL BANDWIDTH: 3MHz / QPSK

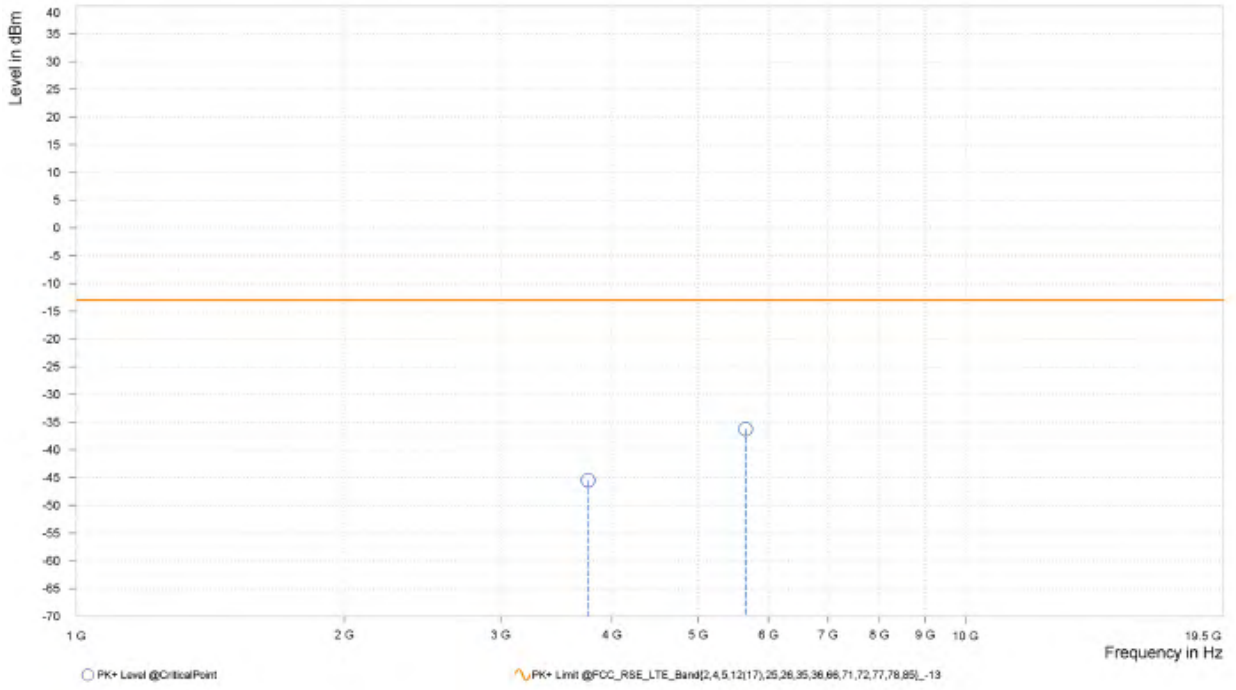
MODE	TX channel 26365	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,762.300	-46.38	-13.00	33.38	15.47	H	359	2.00
2	5,643.450	-41.91	-13.00	28.91	18.59	H	359.1	1.00



MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,762.300	-45.49	-13.00	32.49	15.16	V	359	2.00
2	5,654.000	-36.27	-13.00	23.27	18.38	V	304.4	1.00

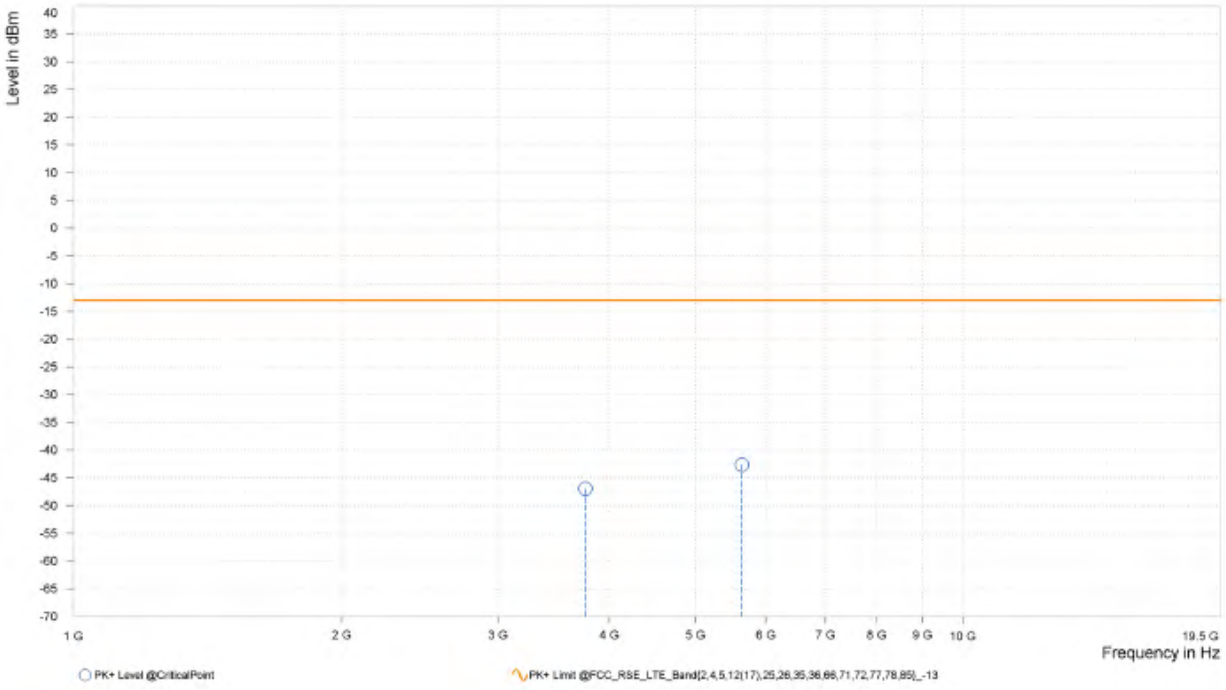


CHANNEL BANDWIDTH: 5MHz / QPSK

CH26365

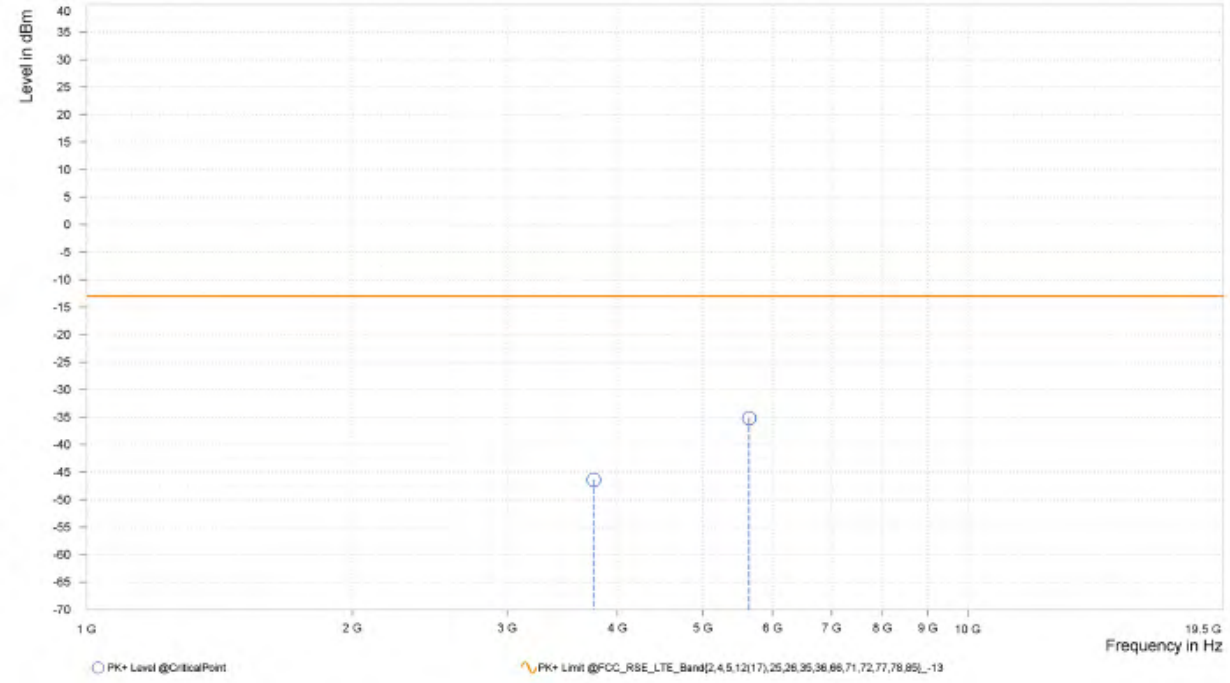
MODE	TX channel 26365	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,760.500	-46.92	-13.00	33.92	15.45	H	266	2.00
2	5,640.750	-42.66	-13.00	29.66	18.58	H	359	2.00



MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,760.500	-46.38	-13.00	33.38	15.14	V	0.9	2.00
2	5,643.500	-35.19	-13.00	22.19	18.33	V	359	1.00

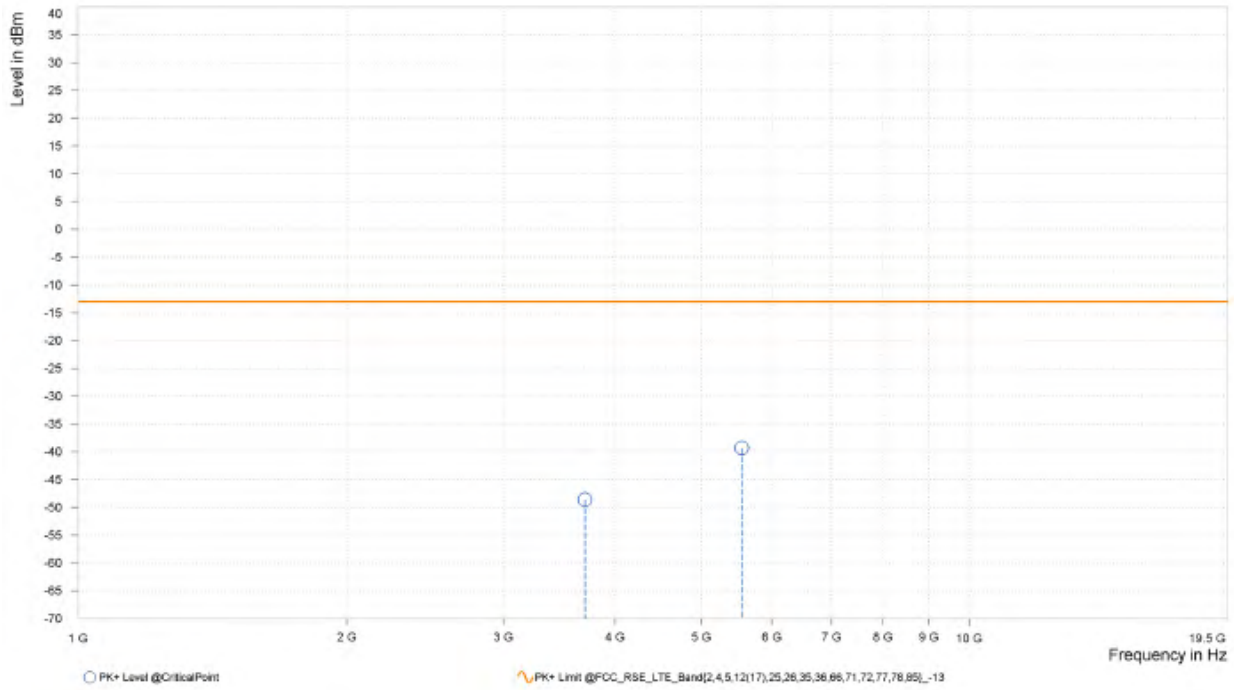


CHANNEL BANDWIDTH: 10MHz / QPSK

CH26090

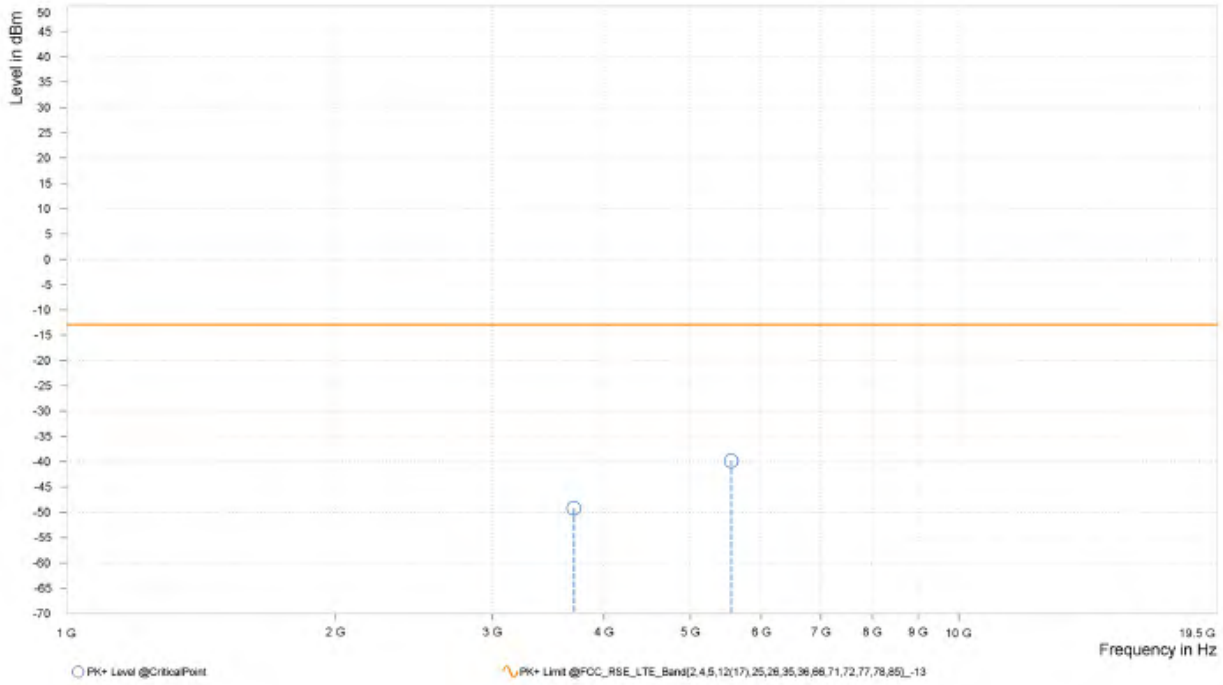
MODE	TX channel 26090	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,701.000	-48.61	-13.00	35.61	14.88	H	1	1.00
2	5,554.000	-39.32	-13.00	26.32	18.31	H	273.3	1.00



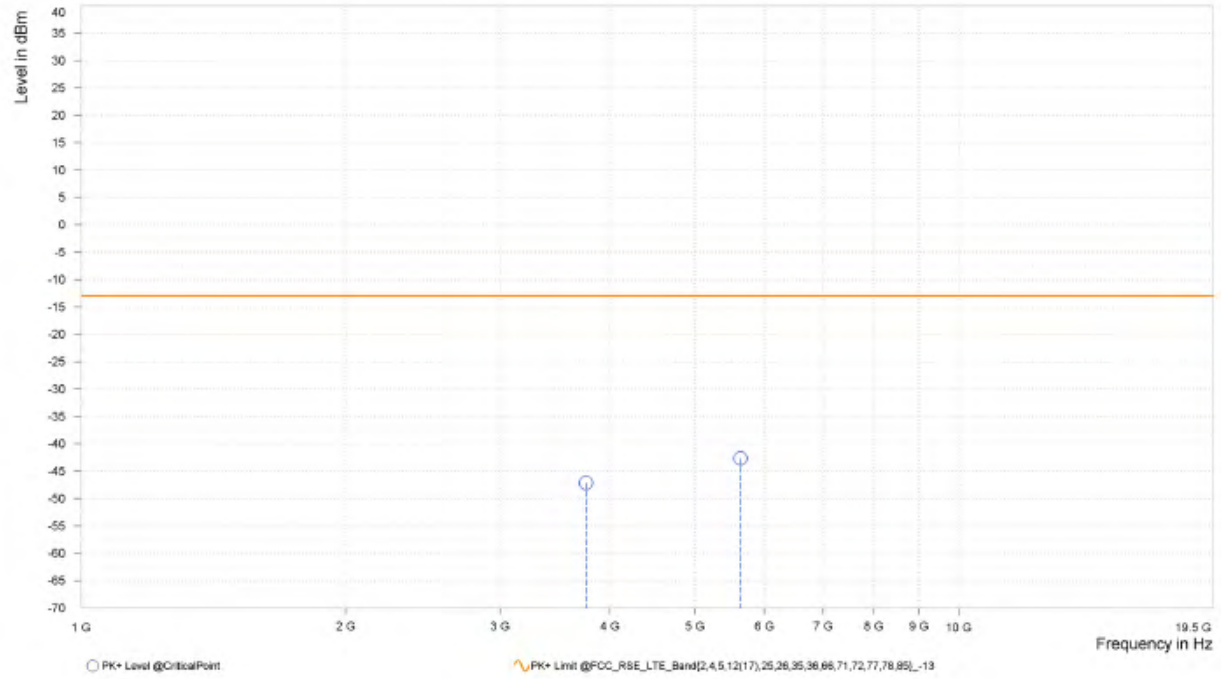
MODE	TX channel 26090	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,701.000	-49.21	-13.00	36.21	14.70	V	91.7	1.00
2	5,554.500	-39.83	-13.00	26.83	18.06	V	1	2.00



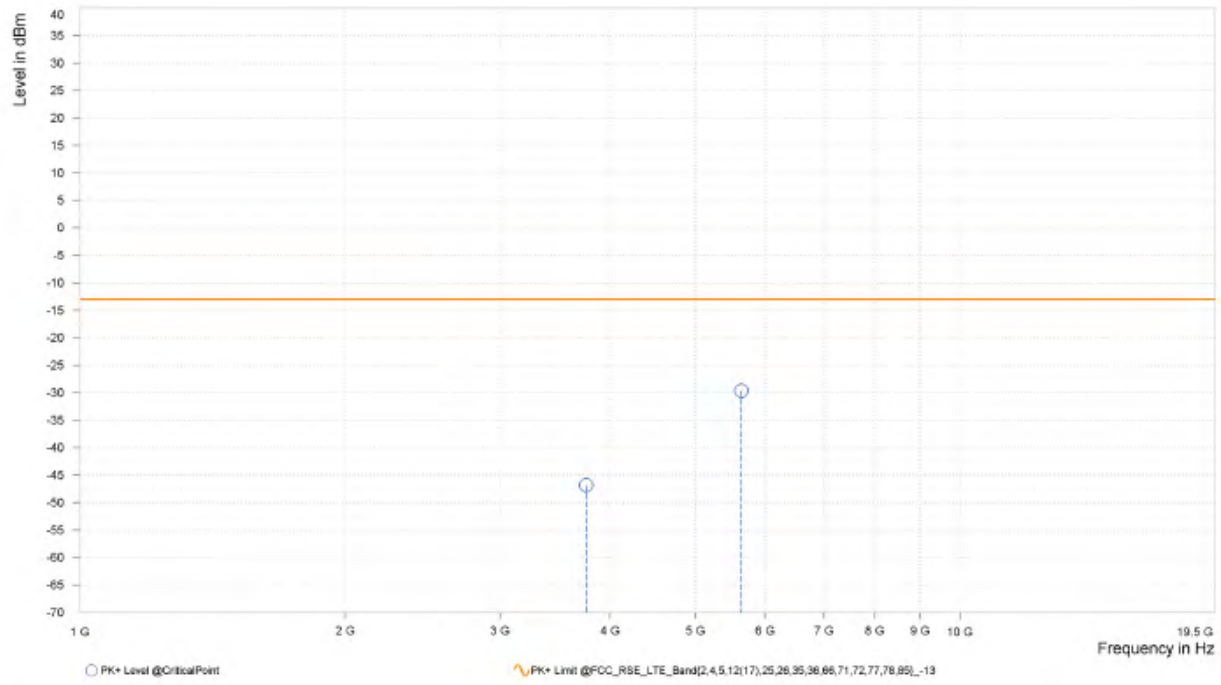
MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,756.000	-47.15	-13.00	34.15	15.40	H	1	2.00
2	5,634.000	-42.69	-13.00	29.69	18.54	H	94	1.00



MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

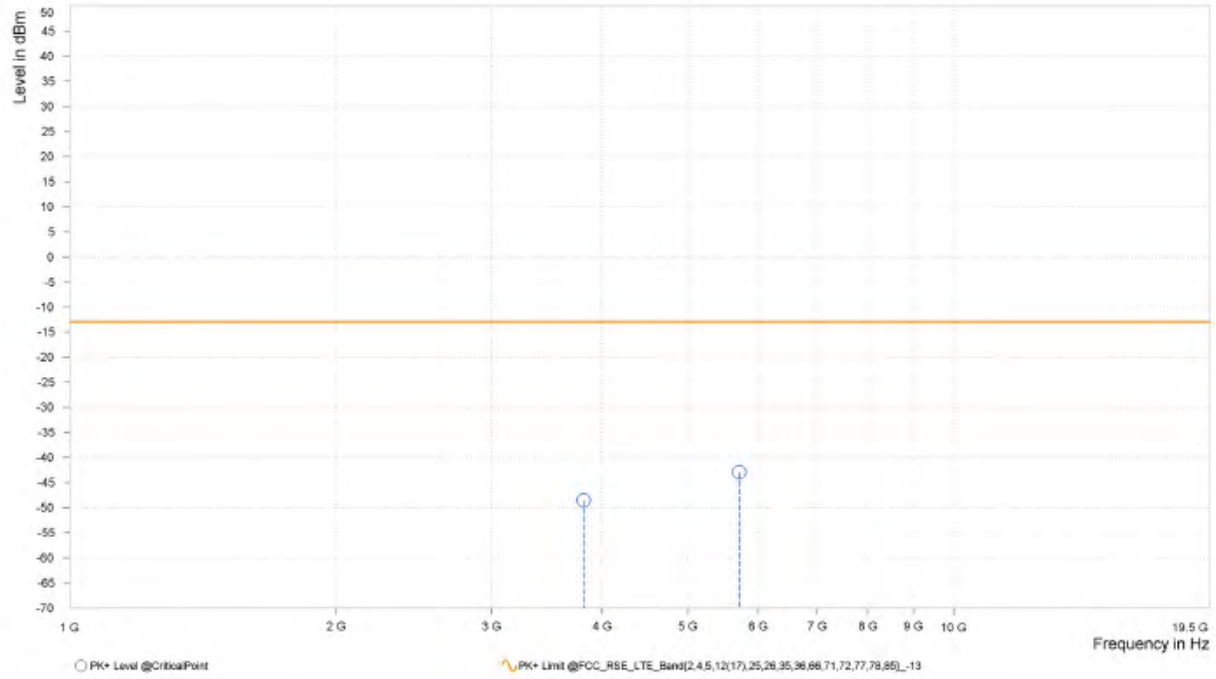
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,756.000	-46.85	-13.00	33.85	15.10	V	0.9	2.00
2	5,642.500	-29.63	-13.00	16.63	18.32	V	359	2.00



CH26640

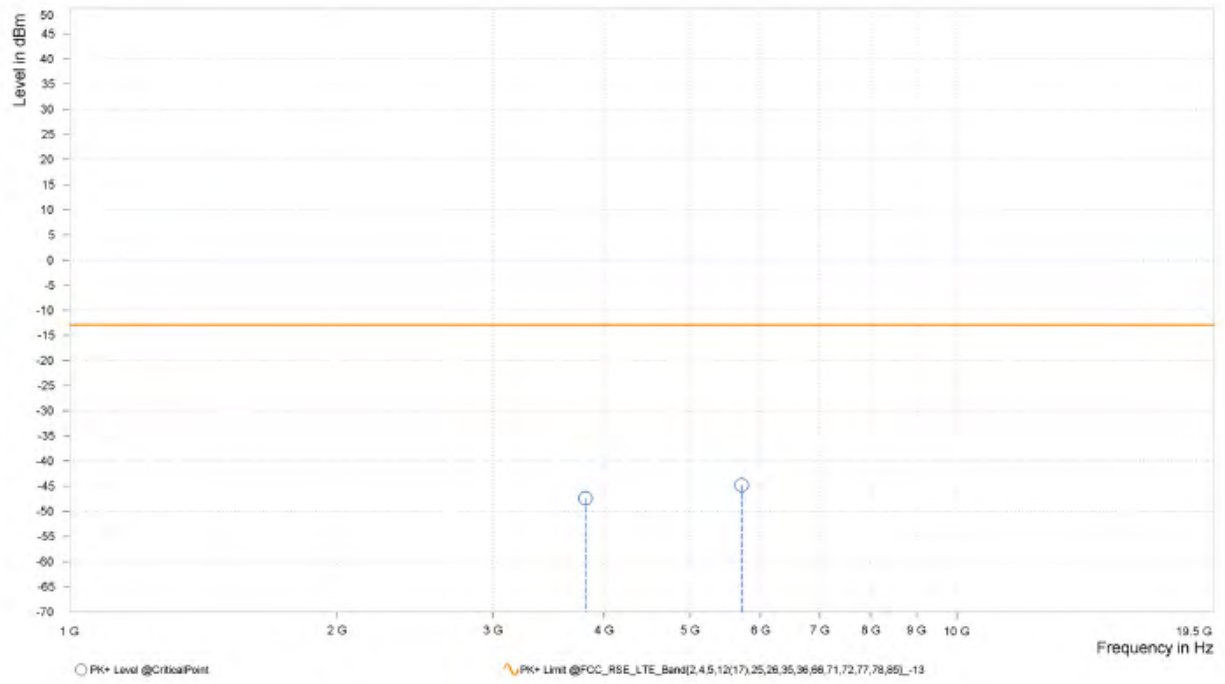
MODE	TX channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,811.000	-48.52	-13.00	35.52	15.84	H	359	2.00
2	5,716.500	-42.93	-13.00	29.93	18.93	H	359	2.00



MODE	TX channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

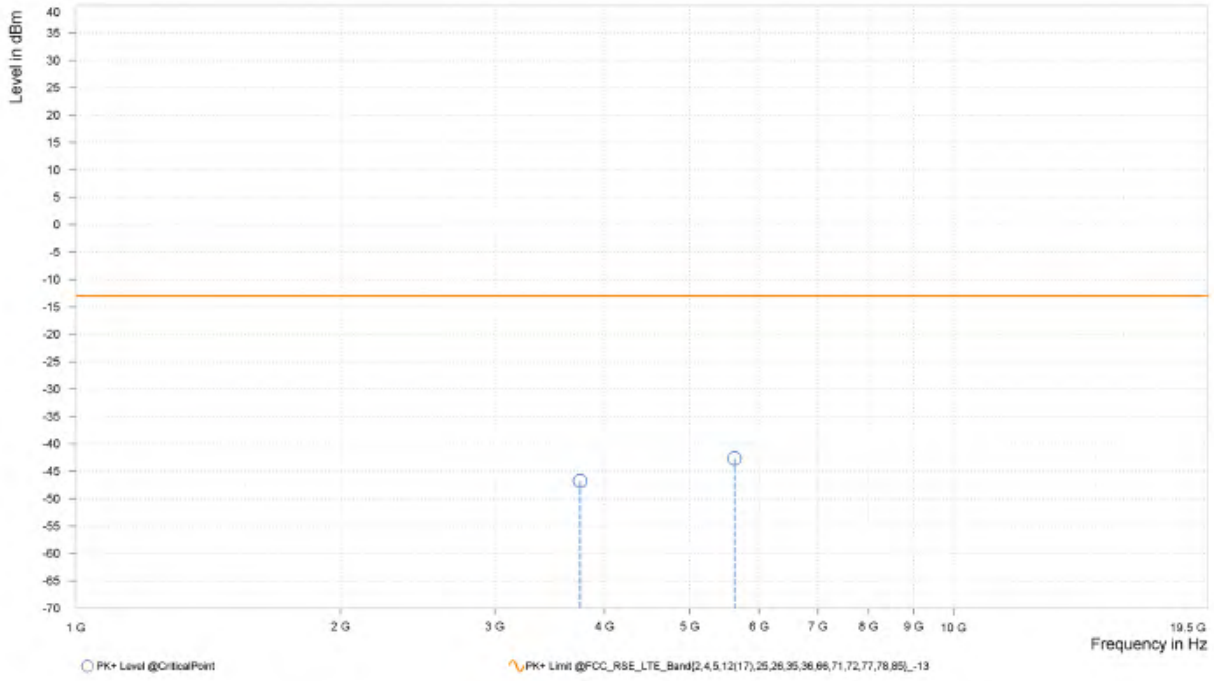
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,811.000	-47.40	-13.00	34.40	15.54	V	359	2.00
2	5,716.500	-44.76	-13.00	31.76	18.67	V	1	1.00



CHANNEL BANDWIDTH: 15MHz / QPSK

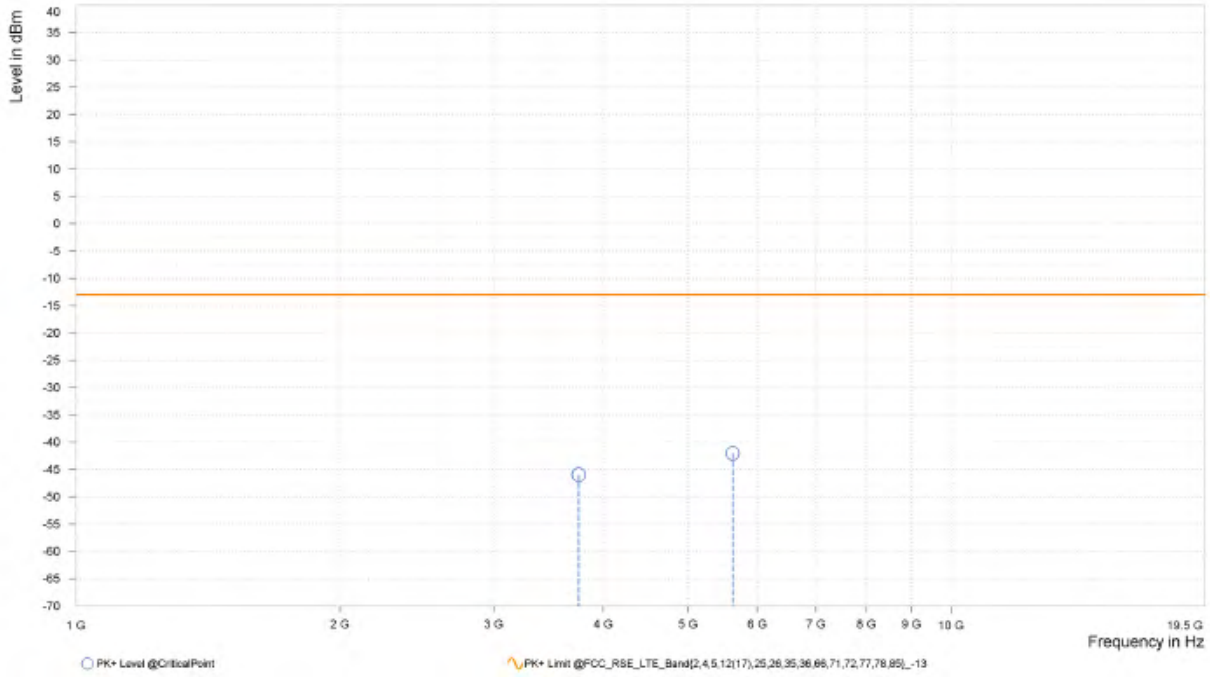
MODE	TX channel 26365	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,751.500	-46.78	-13.00	33.78	15.35	H	359	2.00
2	5,627.250	-42.68	-13.00	29.68	18.50	H	359	2.00



MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

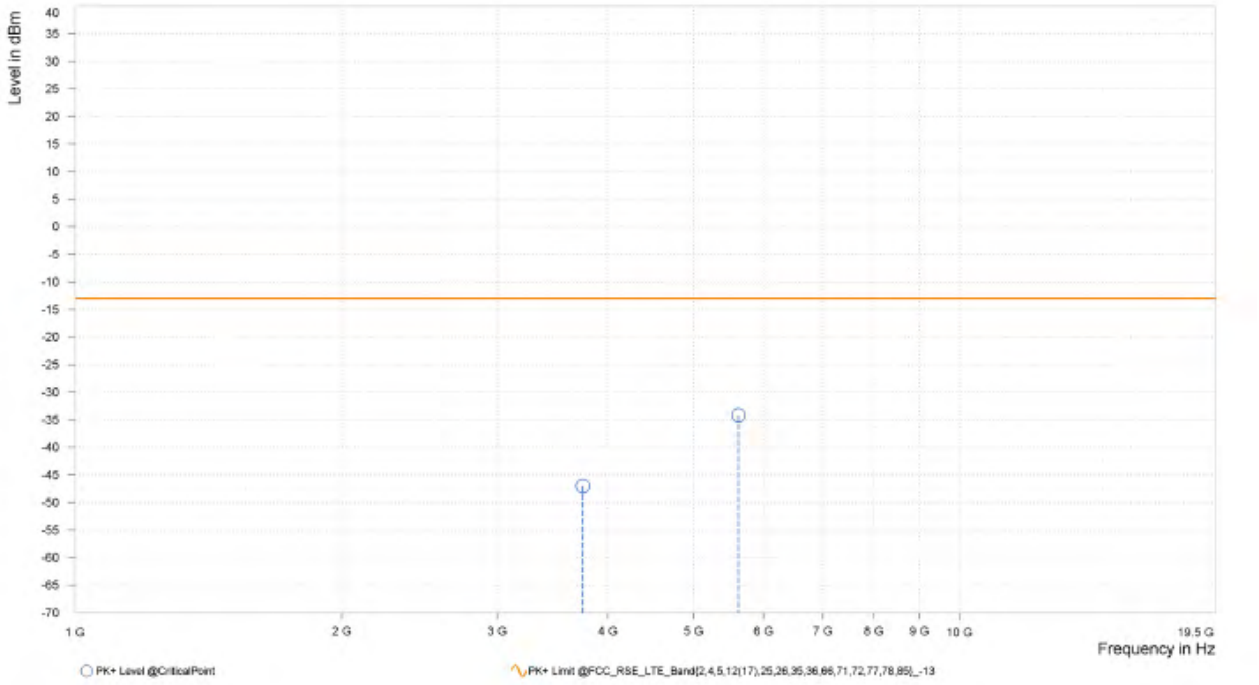
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,751.500	-45.96	-13.00	32.96	15.05	V	0.9	2.00
2	5,627.250	-42.04	-13.00	29.04	18.24	V	80.8	2.00



CHANNEL BANDWIDTH: 20MHz / QPSK

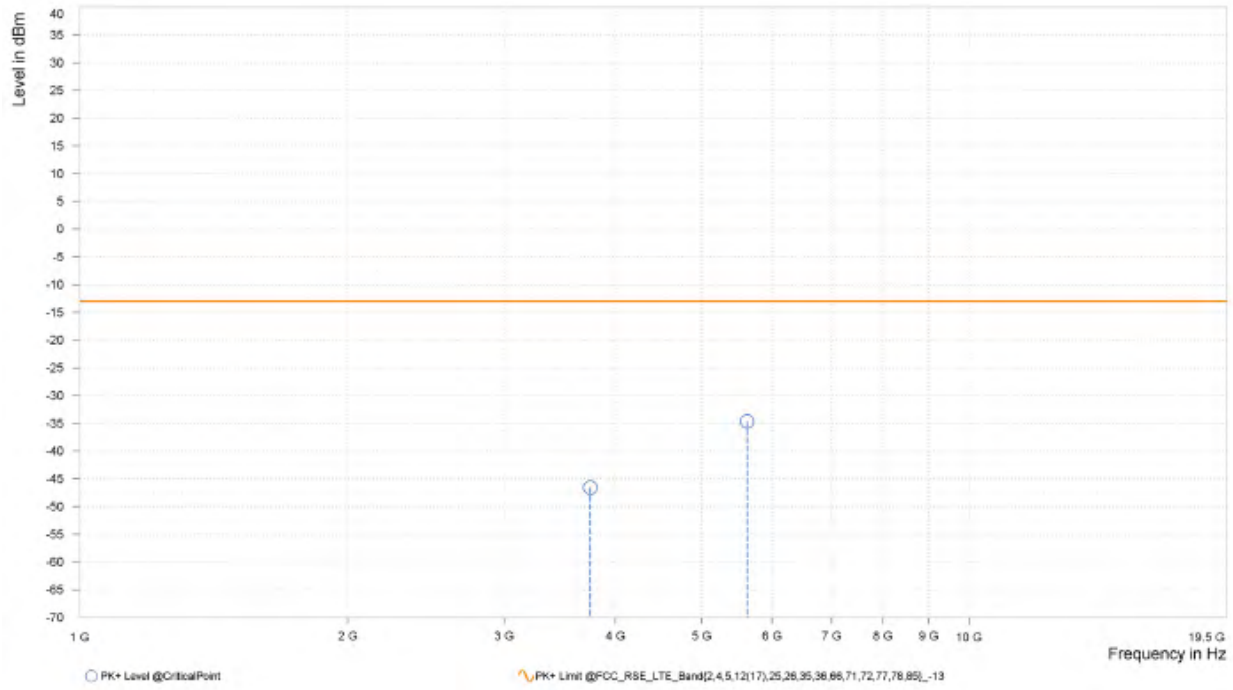
MODE	TX channel 26365	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,747.000	-46.98	-13.00	33.98	15.29	H	0.9	2.00
2	5,623.000	-34.19	-13.00	21.19	18.48	H	79.6	2.00



MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,747.000	-46.57	-13.00	33.57	15.01	V	359.1	1.00
2	5,624.500	-34.66	-13.00	21.66	18.23	V	359	2.00

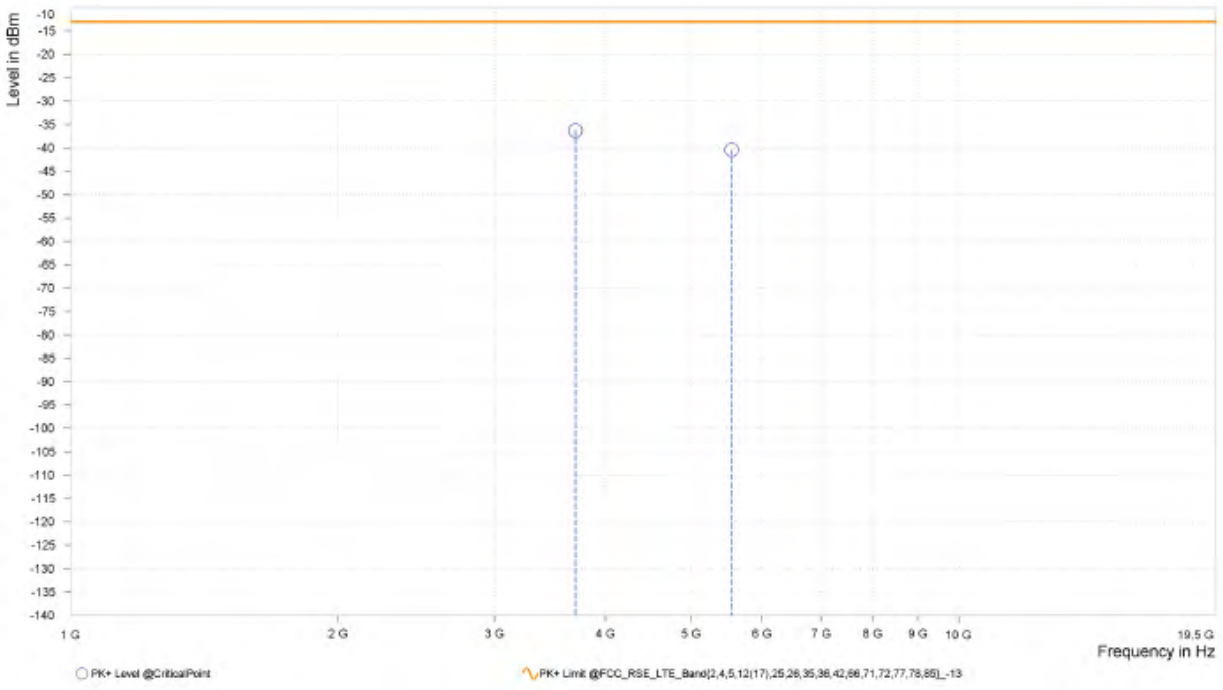


NB-IOT LTE Band 25

CHANNEL BANDWIDTH: QPSK

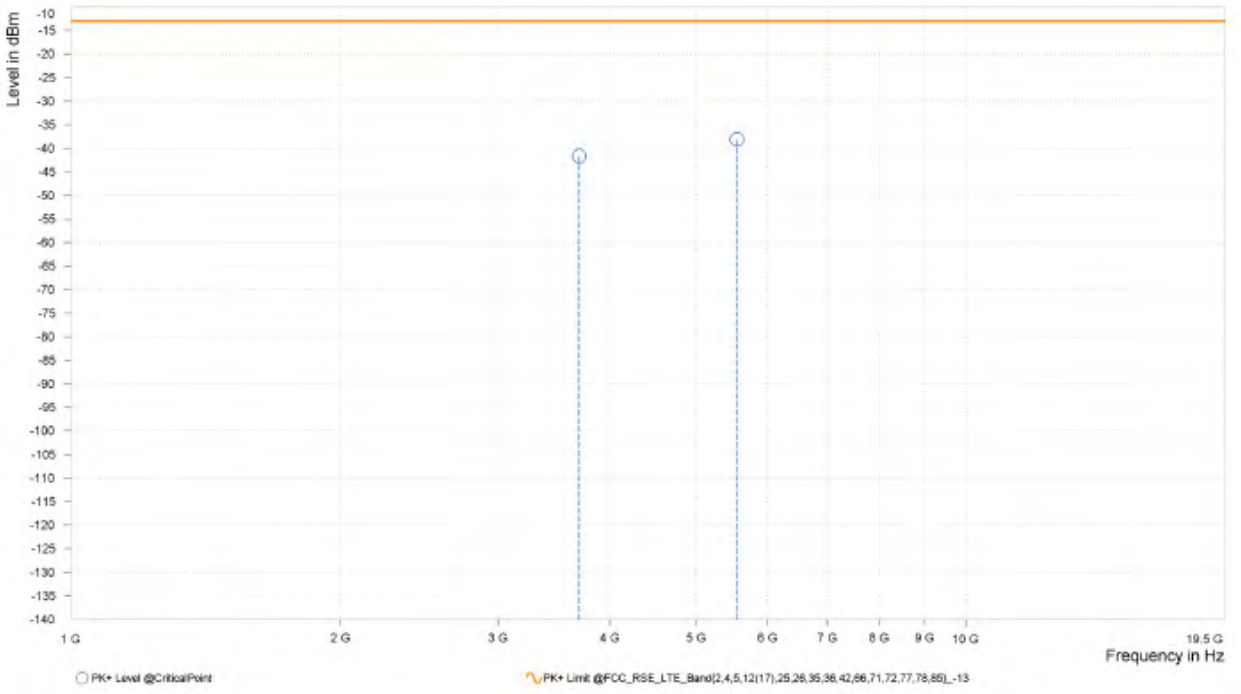
MODE	TX channel 26042	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,701.000	-36.27	-13.00	23.27	30.20	H	40.2	2.00
4	5,550.000	-40.42	-13.00	27.42	33.46	H	1	1.00



MODE	TX channel 26042	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

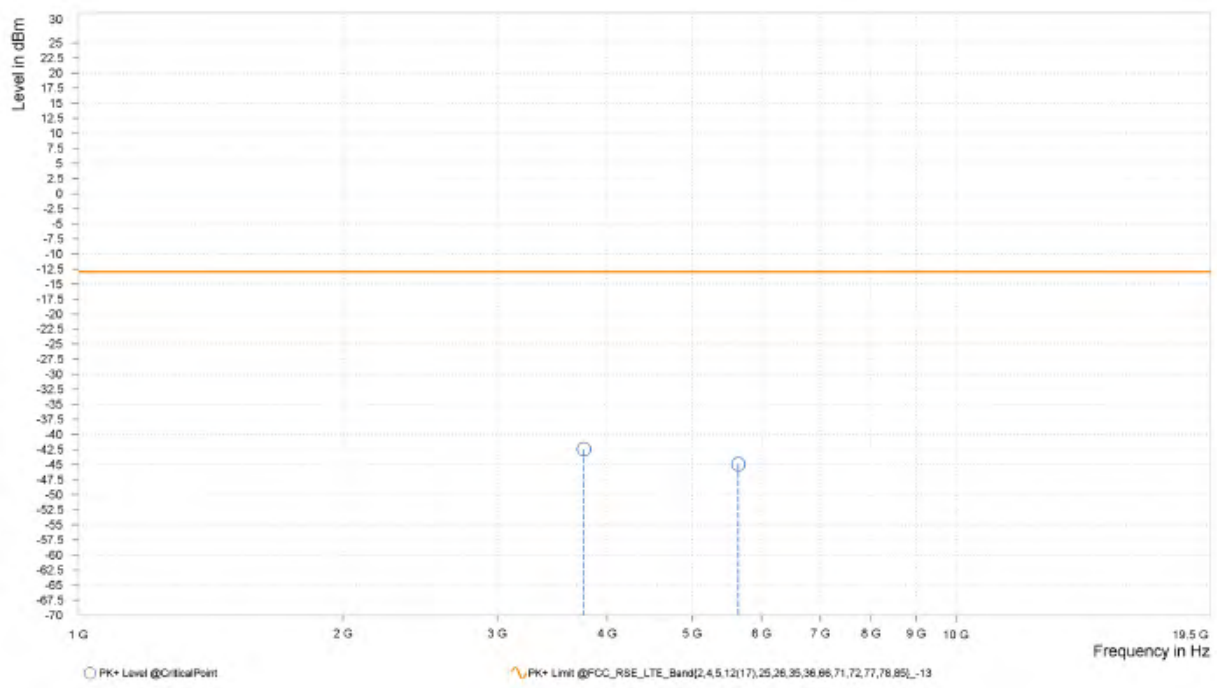
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,700.000	-41.68	-13.00	28.68	30.80	V	359	2.00
4	5,550.000	-38.12	-13.00	25.12	34.15	V	206.6	2.00



CHANNEL BANDWIDTH: QPSK

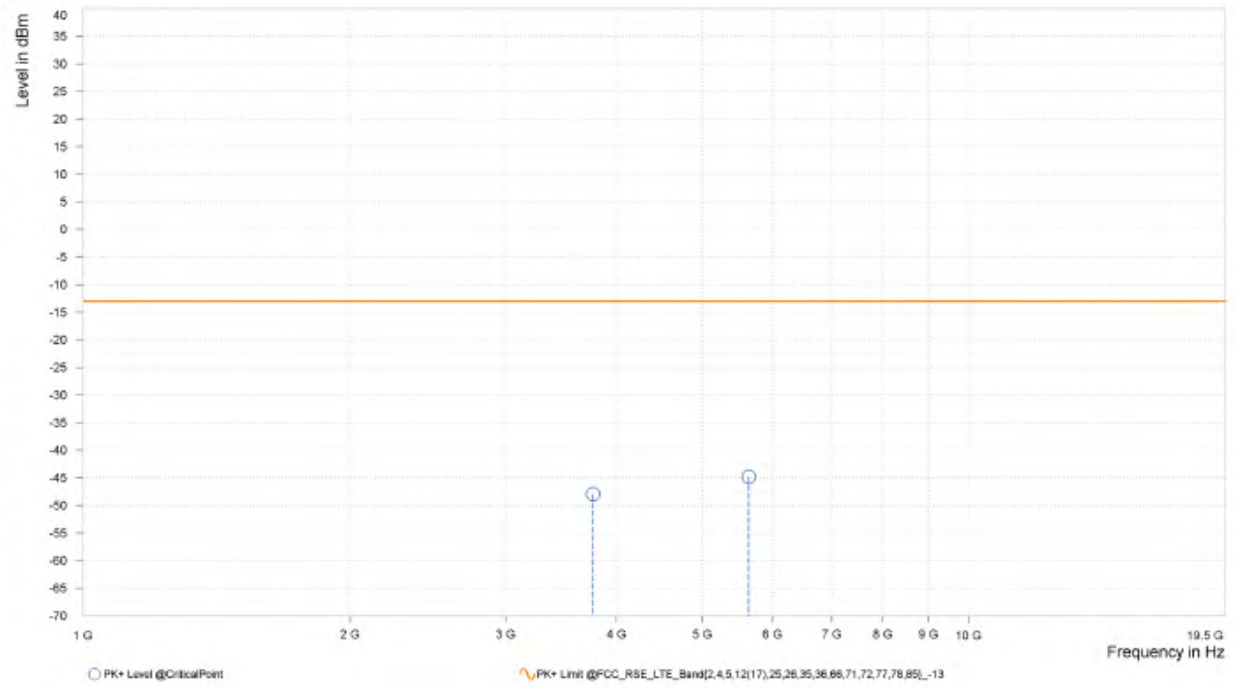
MODE	TX channel 26365	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,765.000	-42.44	-13.00	29.44	15.50	H	279.3	1.00
2	5,647.500	-44.93	-13.00	31.93	18.61	H	1	2.00



MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,765.000	-47.94	-13.00	34.94	15.18	V	359	2.00
2	5,647.500	-44.80	-13.00	31.80	18.35	V	267.2	2.00

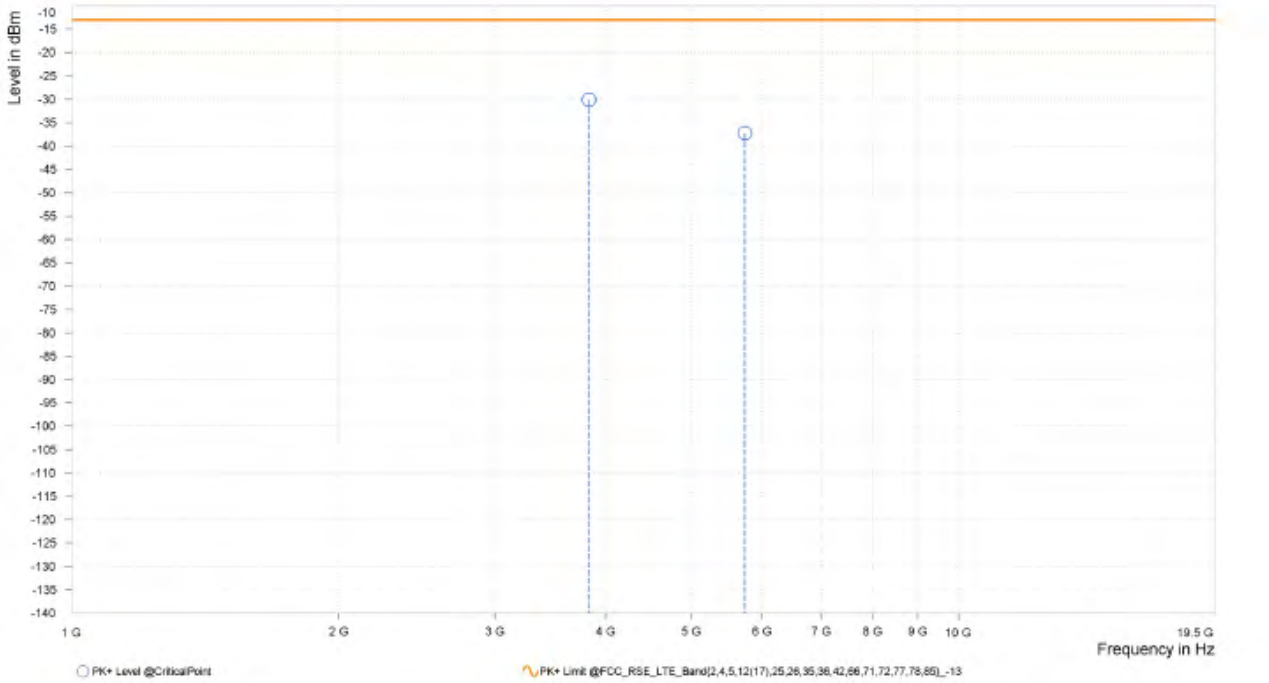


CHANNEL BANDWIDTH: QPSK

CH 26688

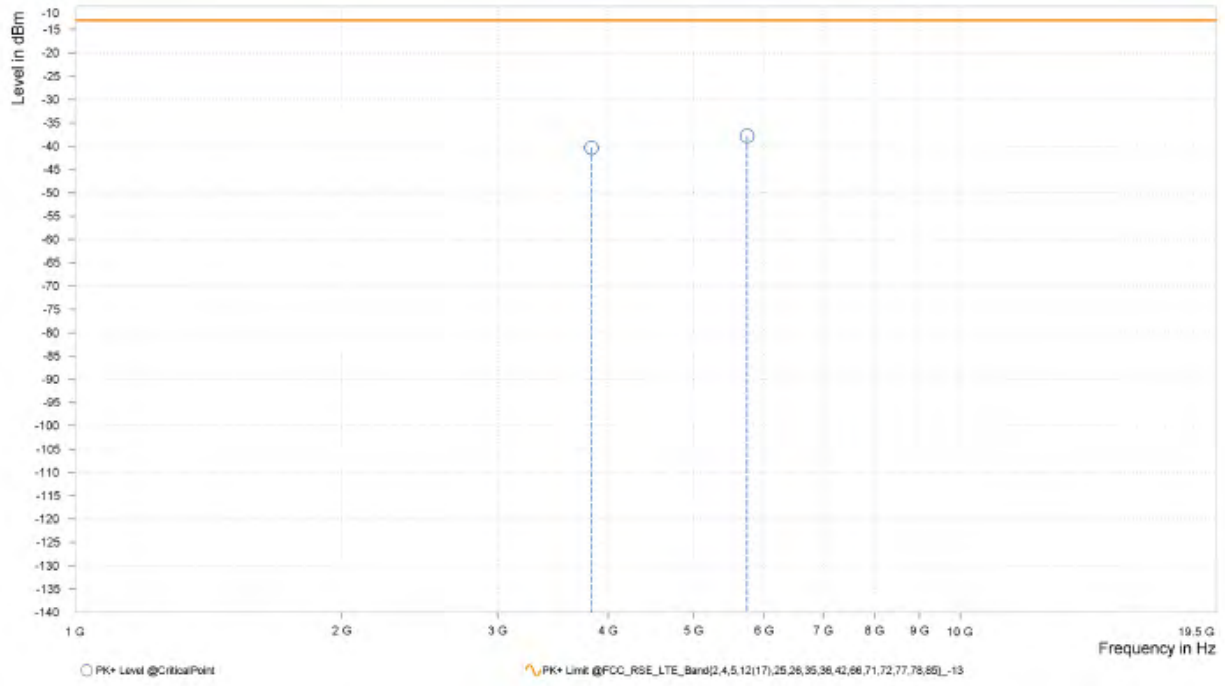
MODE	TX channel 26688	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,829.800	-30.09	-13.00	17.09	31.26	H	41.5	2.00
4	5,744.700	-37.25	-13.00	24.25	34.14	H	41.5	2.00



MODE	TX channel 26688	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,829.800	-40.33	-13.00	27.33	31.61	V	206.5	2.00
4	5,744.700	-37.85	-13.00	24.85	34.61	V	52.3	2.00

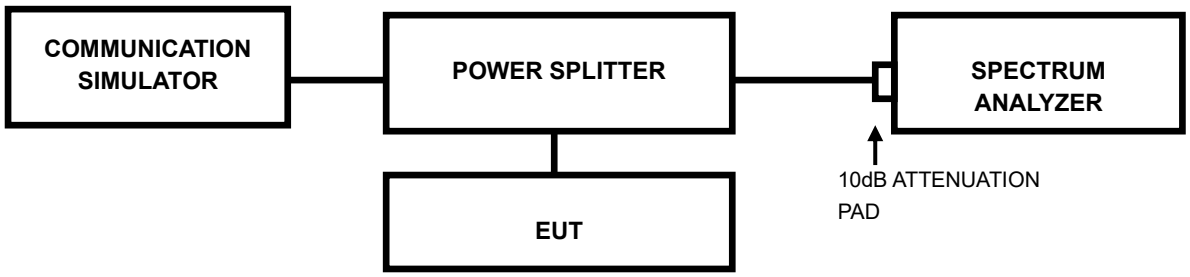


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

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

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

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

3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.

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

5 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.

6 Appendix

CAT-M: LTE BAND25(INCLUDING LTE BAND2)

PEAK-TO-AVERAGE RATIO(CCDF)

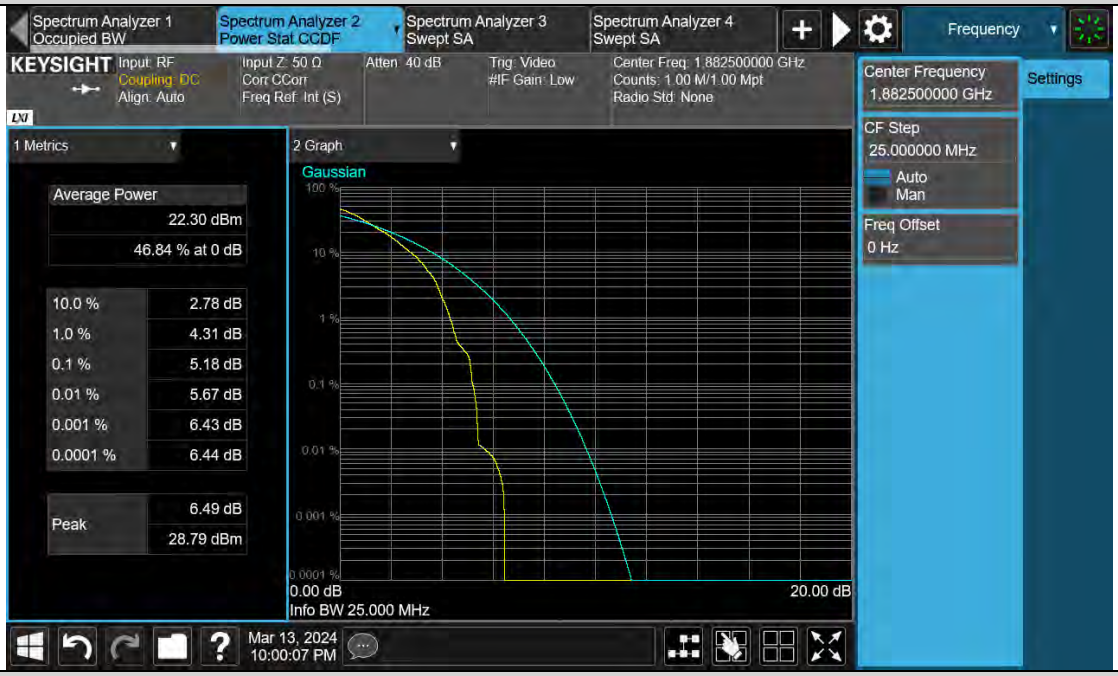
Test Result

Band	Bandwidth	Modulation	Channel	Result(dB)	Limit(dB)	Verdict
Band25	1.4MHz	QPSK	26047	5.28	13	PASS
Band25	1.4MHz	QPSK	26365	5.18	13	PASS
Band25	1.4MHz	QPSK	26683	4.72	13	PASS
Band25	1.4MHz	16QAM	26047	6.24	13	PASS
Band25	1.4MHz	16QAM	26365	6.51	13	PASS
Band25	1.4MHz	16QAM	26683	6.35	13	PASS
Band25	3MHz	QPSK	26055	4.81	13	PASS
Band25	3MHz	QPSK	26365	5.75	13	PASS
Band25	3MHz	QPSK	26675	4.71	13	PASS
Band25	3MHz	16QAM	26055	6.33	13	PASS
Band25	3MHz	16QAM	26365	6.60	13	PASS
Band25	3MHz	16QAM	26675	6.47	13	PASS
Band25	5MHz	QPSK	26065	7.21	13	PASS
Band25	5MHz	QPSK	26365	6.71	13	PASS
Band25	5MHz	QPSK	26665	5.47	13	PASS
Band25	5MHz	16QAM	26065	6.16	13	PASS
Band25	5MHz	16QAM	26365	7.43	13	PASS
Band25	5MHz	16QAM	26665	7.00	13	PASS
Band25	10MHz	QPSK	26090	5.60	13	PASS
Band25	10MHz	QPSK	26365	5.33	13	PASS
Band25	10MHz	QPSK	26640	5.60	13	PASS
Band25	10MHz	16QAM	26090	6.13	13	PASS
Band25	10MHz	16QAM	26365	6.54	13	PASS
Band25	10MHz	16QAM	26640	6.34	13	PASS
Band25	15MHz	QPSK	26115	5.75	13	PASS
Band25	15MHz	QPSK	26365	5.75	13	PASS
Band25	15MHz	QPSK	26615	5.71	13	PASS
Band25	15MHz	16QAM	26115	6.42	13	PASS
Band25	15MHz	16QAM	26365	6.43	13	PASS
Band25	15MHz	16QAM	26615	6.33	13	PASS
Band25	20MHz	QPSK	26140	5.70	13	PASS
Band25	20MHz	QPSK	26365	5.98	13	PASS
Band25	20MHz	QPSK	26590	5.74	13	PASS
Band25	20MHz	16QAM	26140	6.17	13	PASS
Band25	20MHz	16QAM	26365	6.43	13	PASS
Band25	20MHz	16QAM	26590	6.45	13	PASS

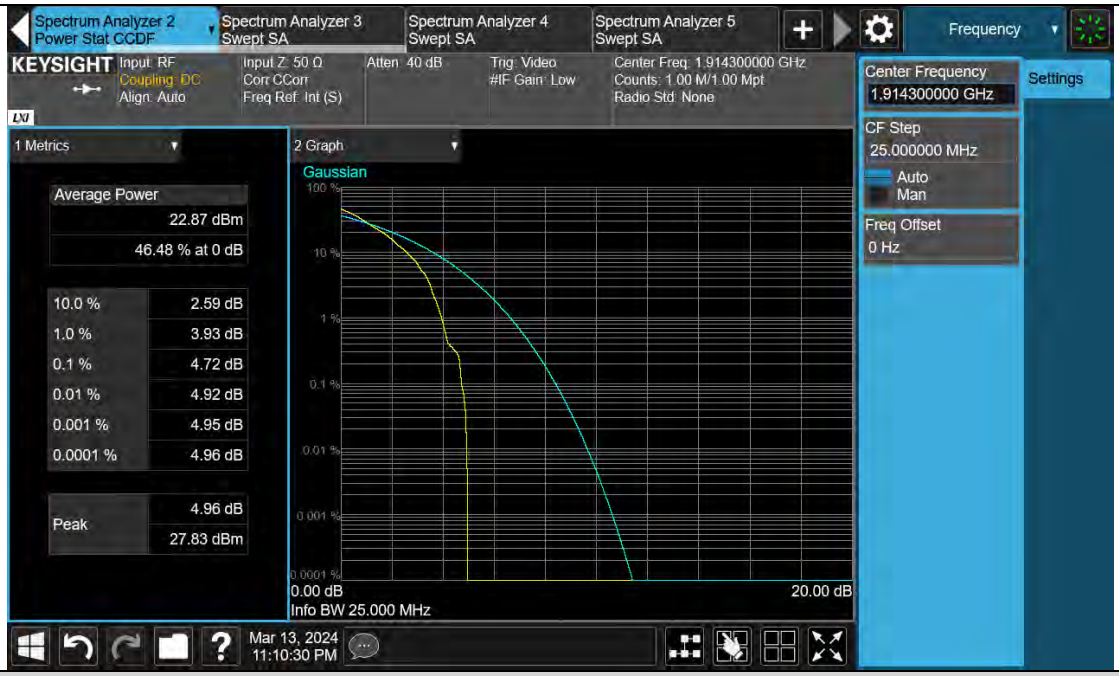
Test Graphs

Band25-1.4MHz-QPSK-26047

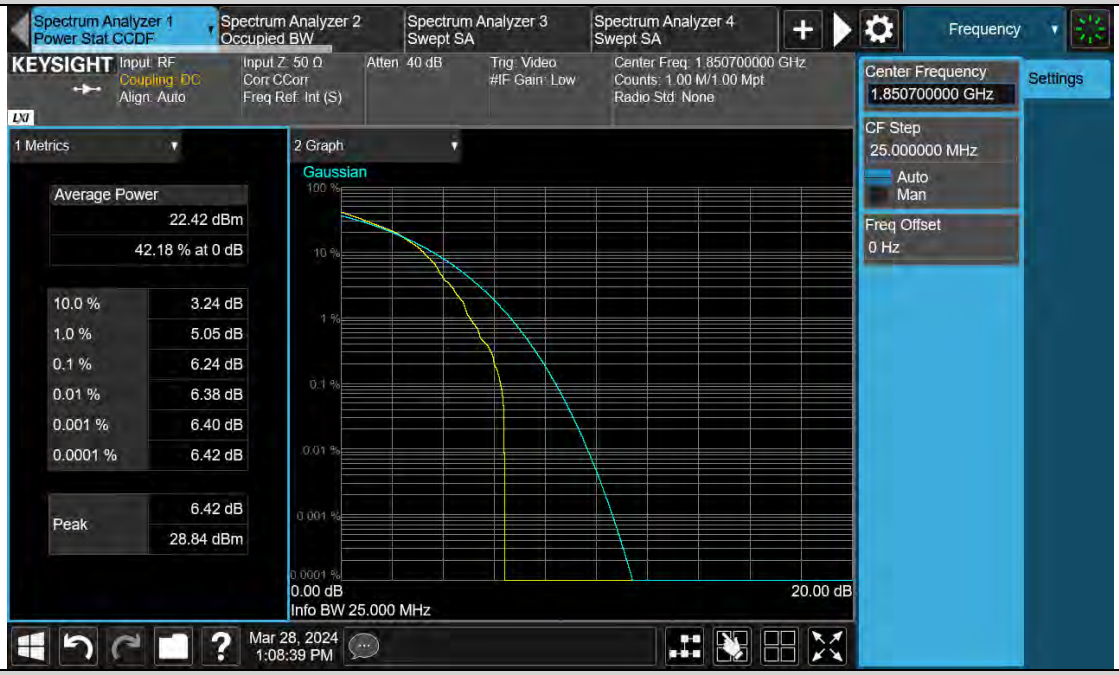
Band25-1.4MHz-QPSK-26365



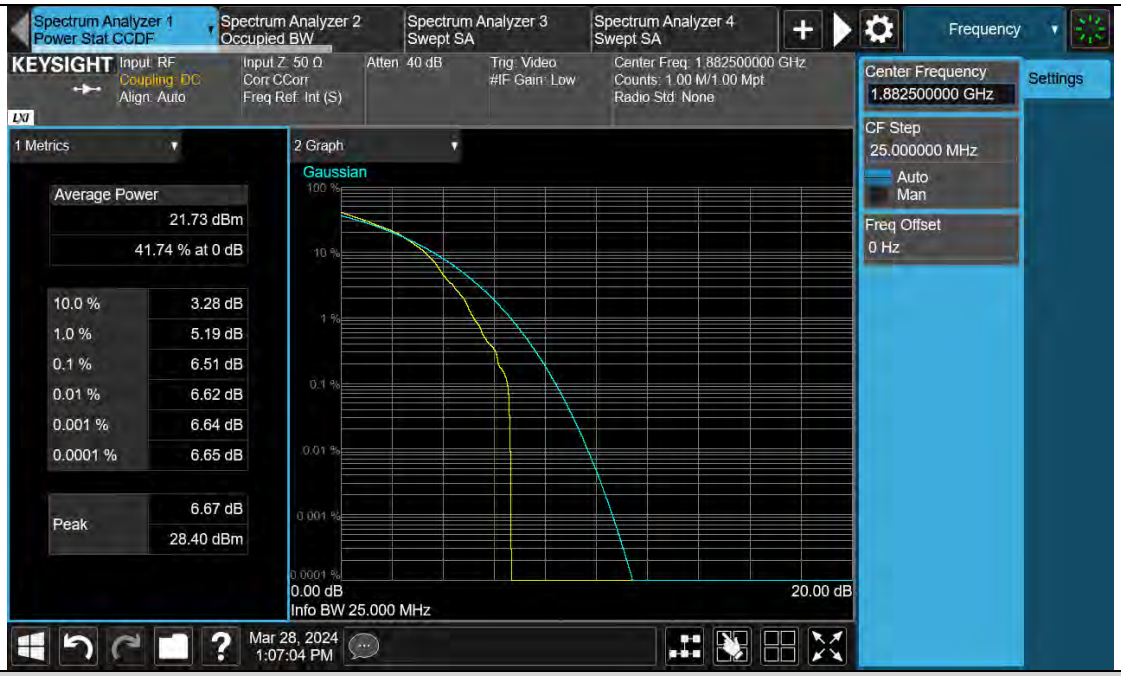
Band25-1.4MHz-QPSK-26683



Band25-1.4MHz-16QAM-26047



Band25-1.4MHz-16QAM-26365

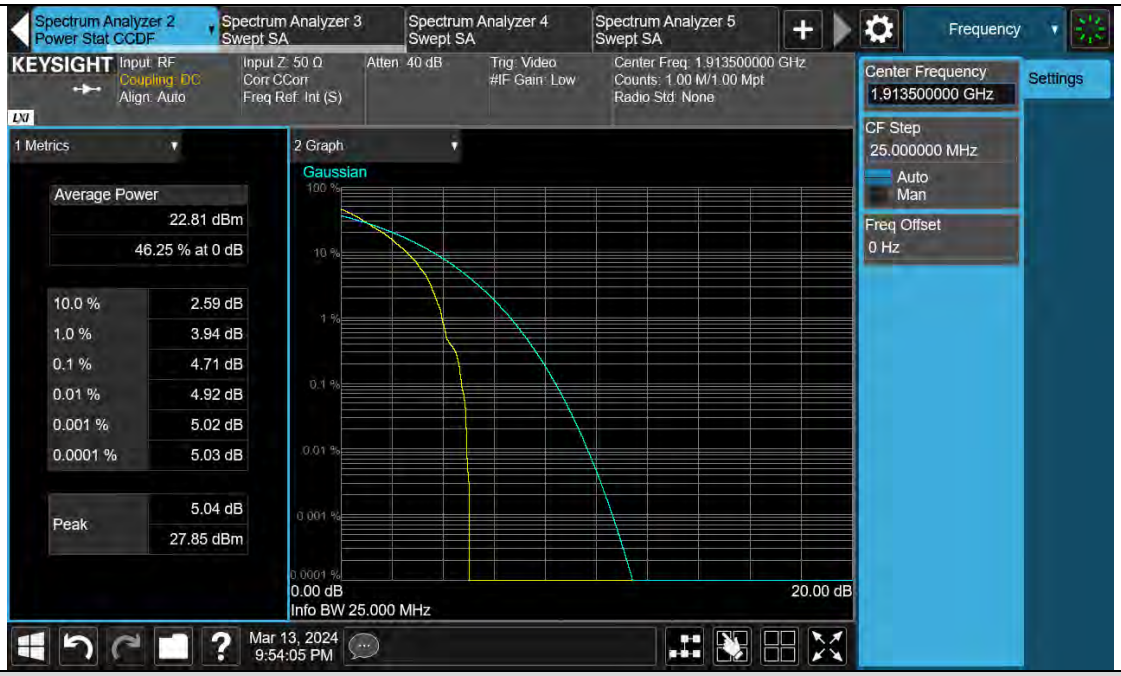


Band25-1.4MHz-16QAM-26683

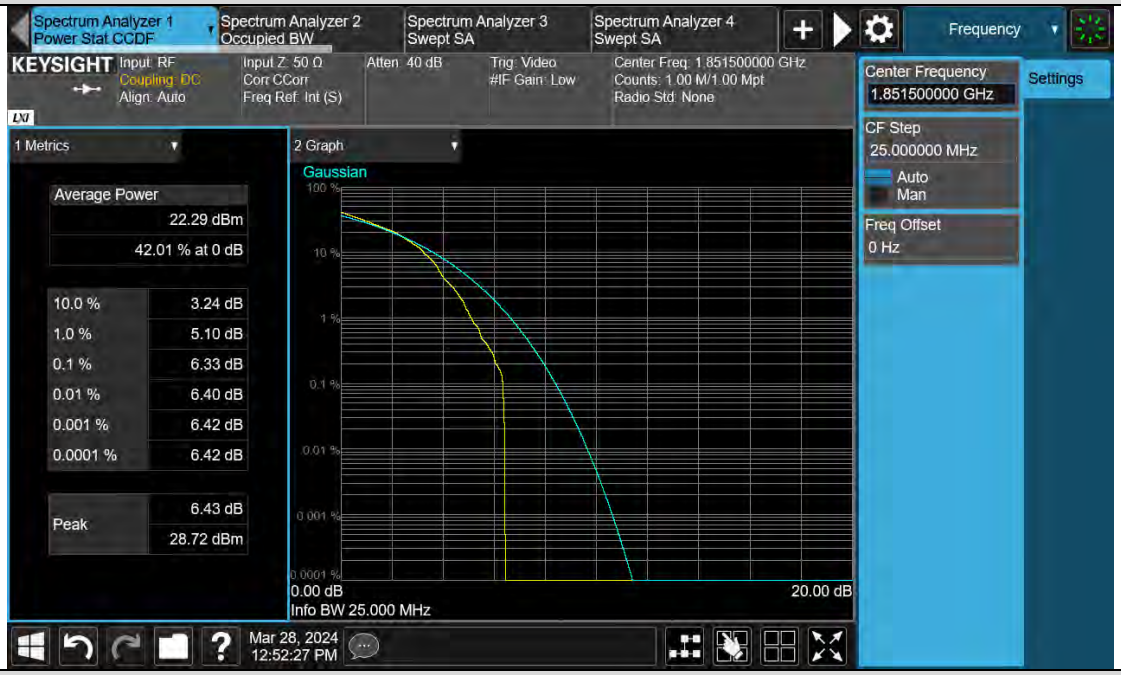
Band25-3MHz-QPSK-26055

Band25-3MHz-QPSK-26365

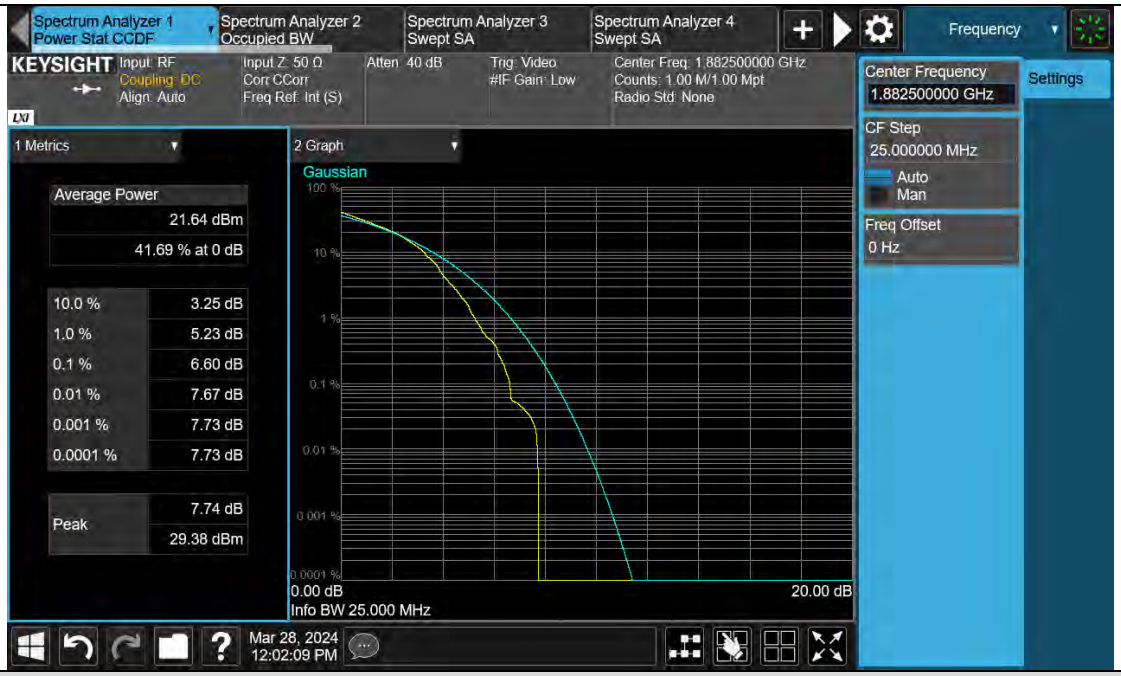
Band25-3MHz-QPSK-26675



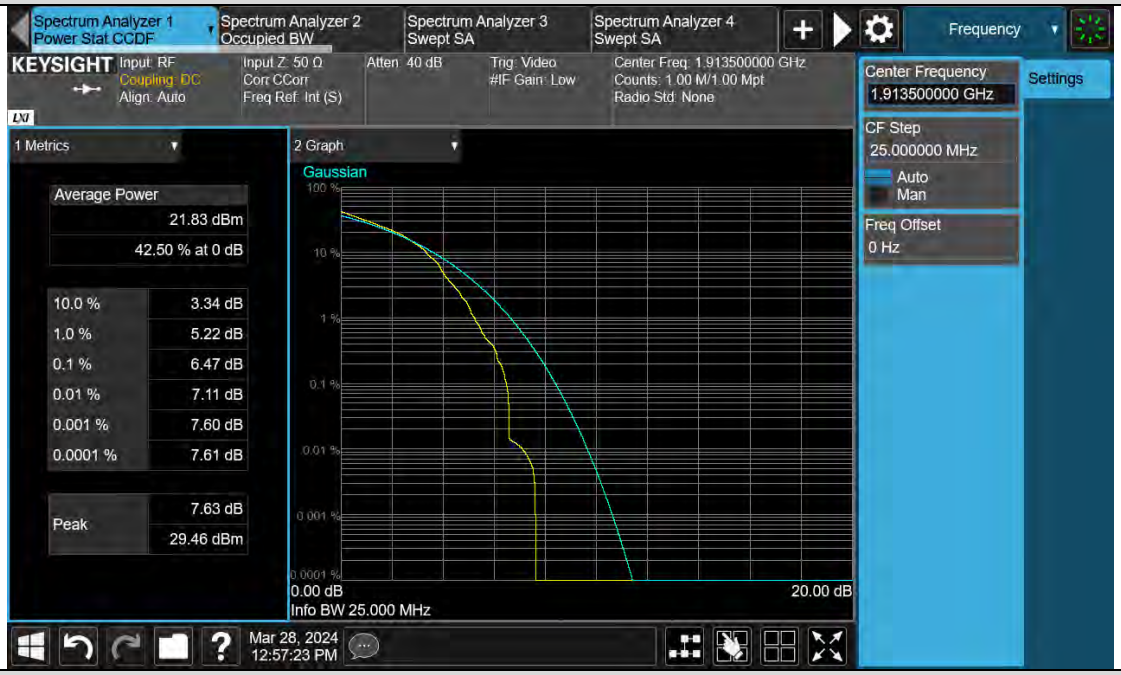
Band25-3MHz-16QAM-26055



Band25-3MHz-16QAM-26365

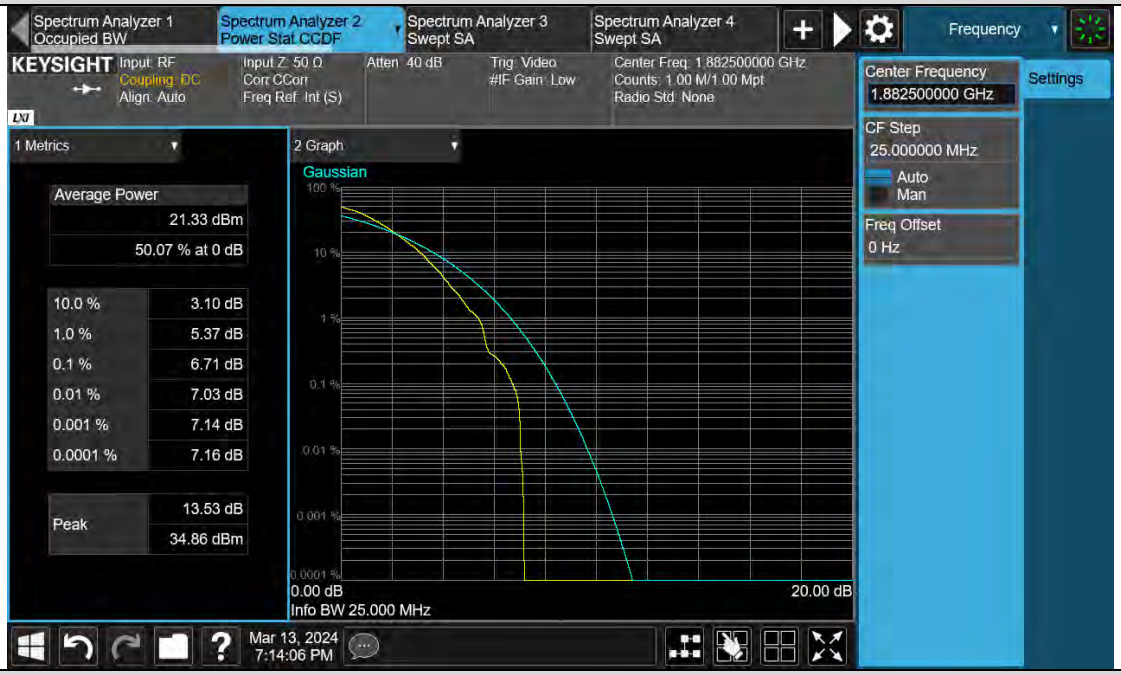


Band25-3MHz-16QAM-26675

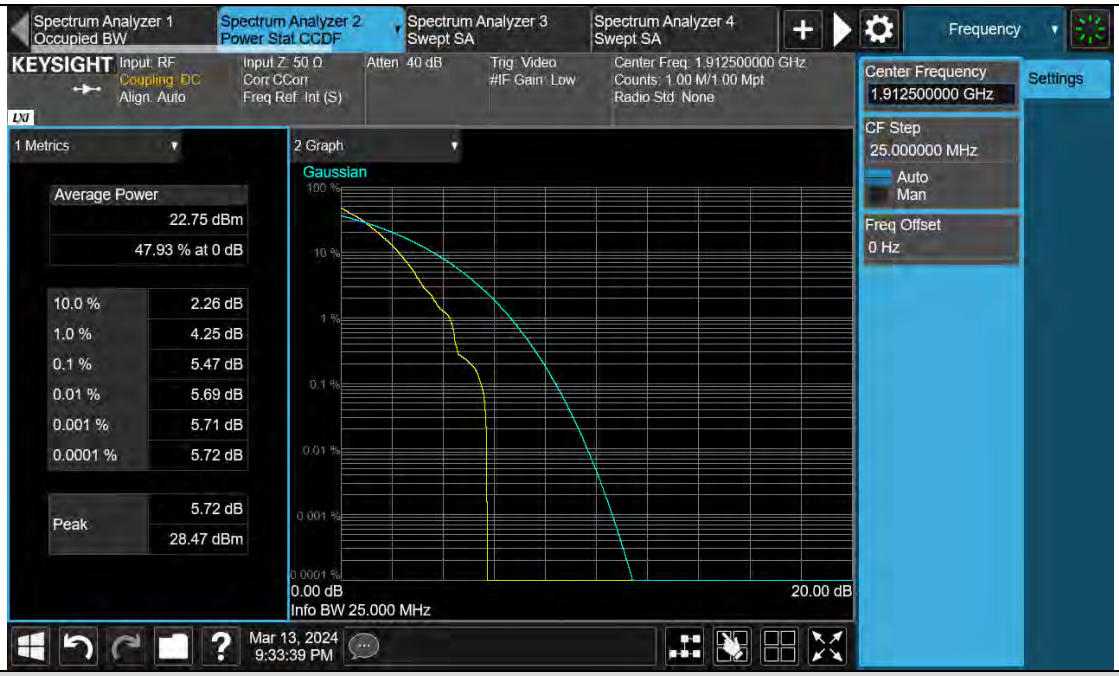


Band25-5MHz-QPSK-26065

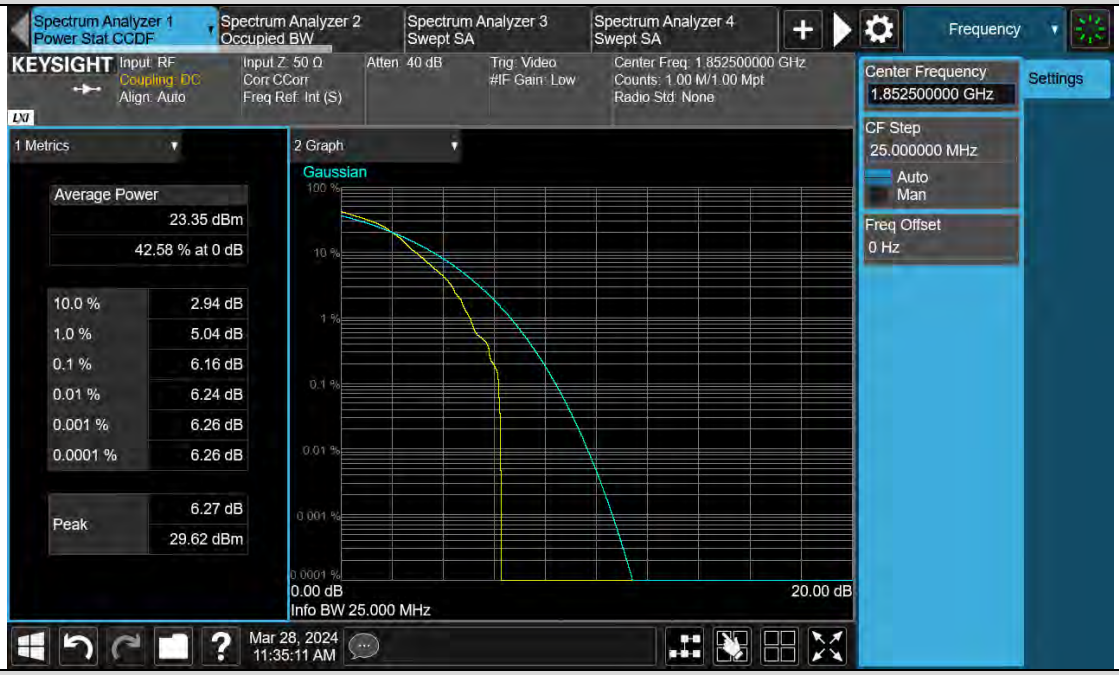
Band25-5MHz-QPSK-26365



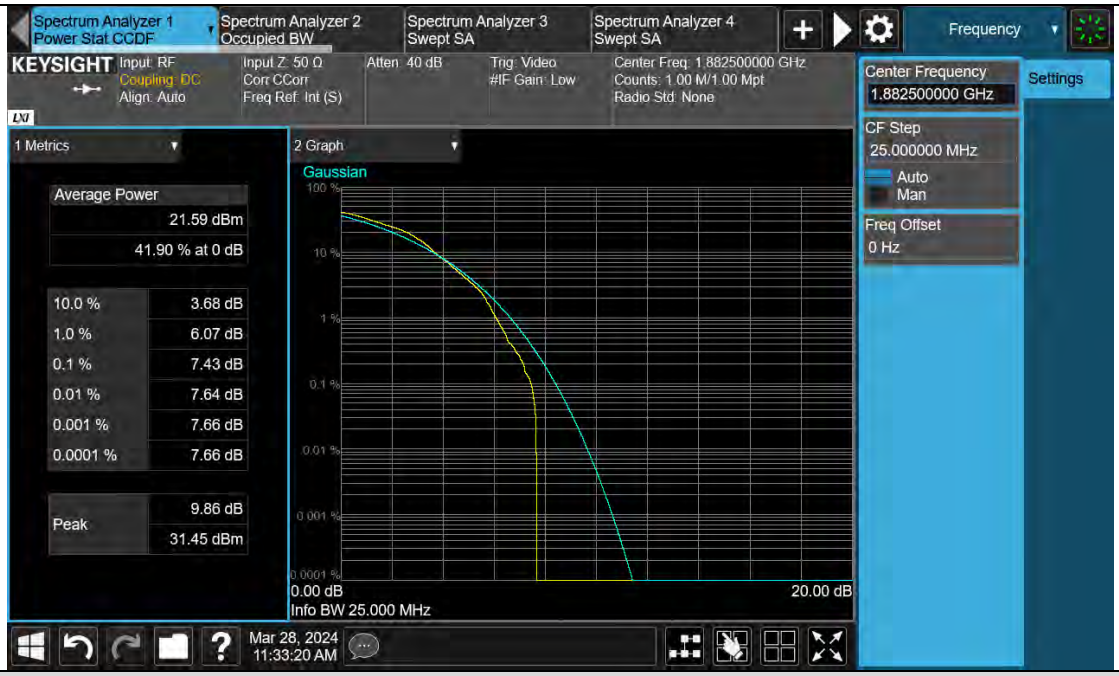
Band25-5MHz-QPSK-26665



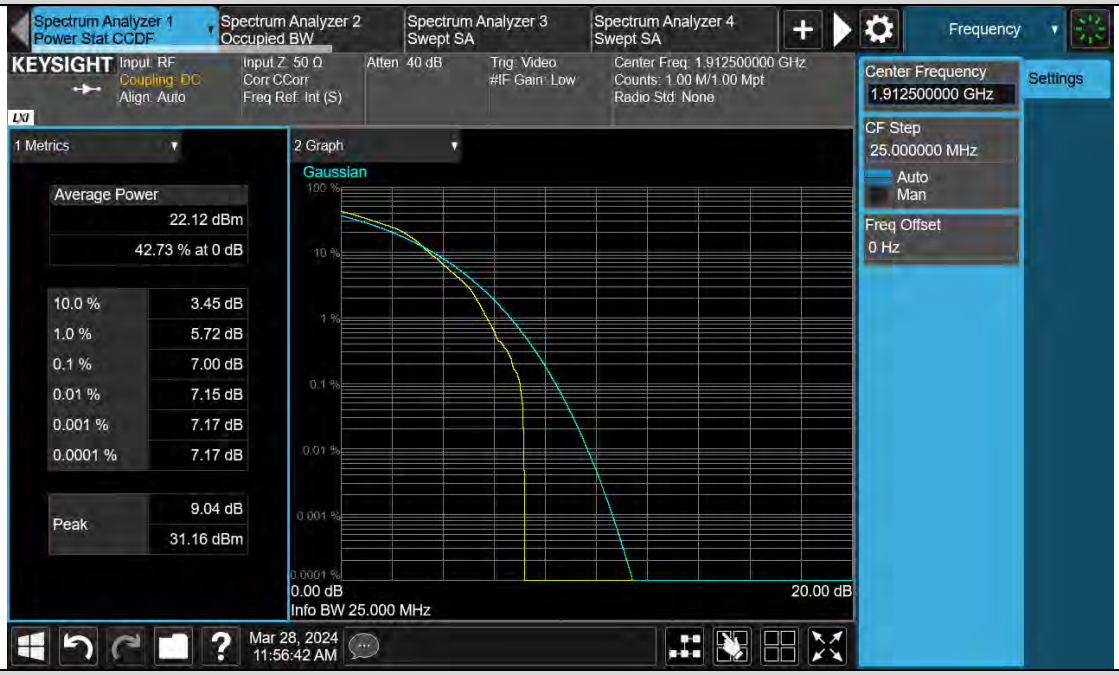
Band25-5MHz-16QAM-26065



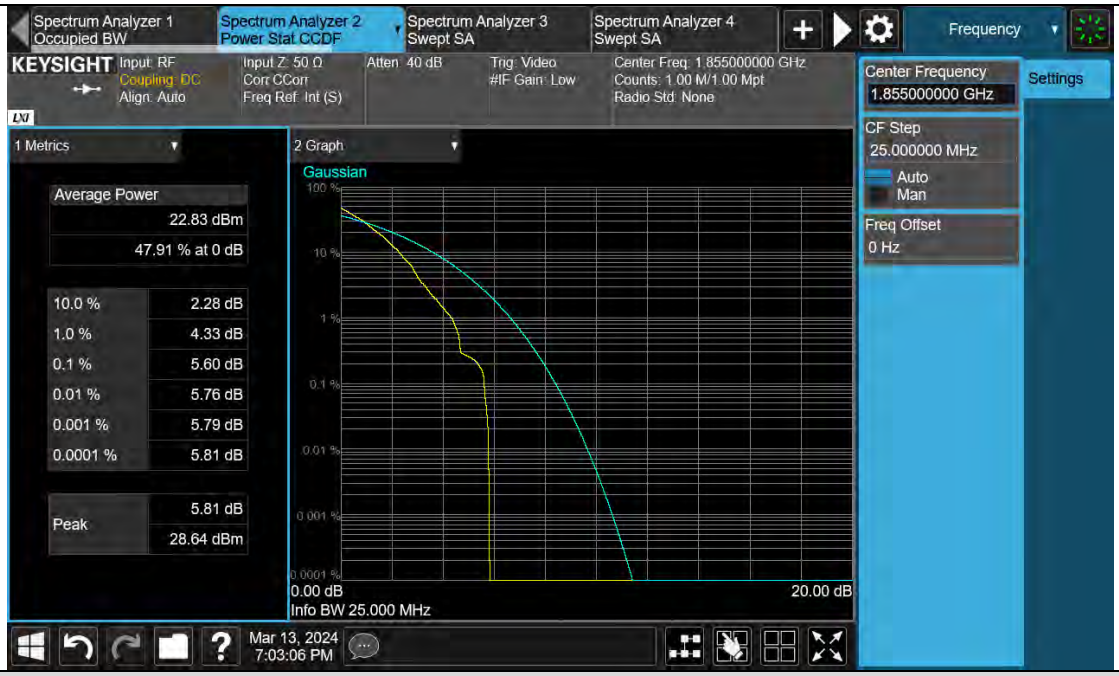
Band25-5MHz-16QAM-26365



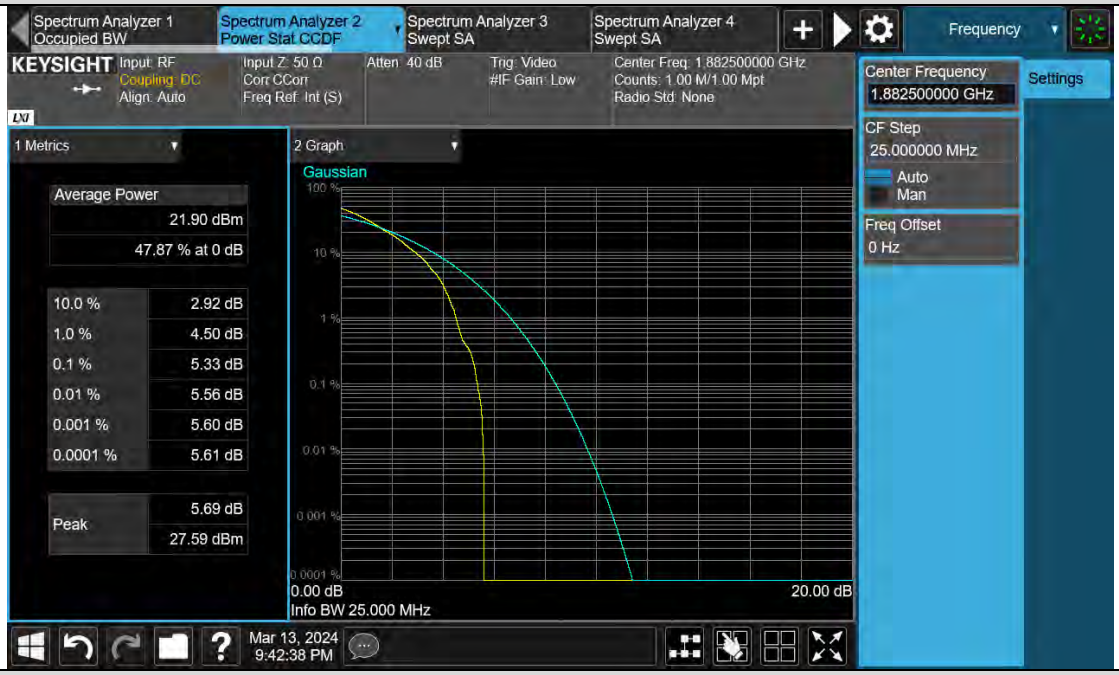
Band25-5MHz-16QAM-26665



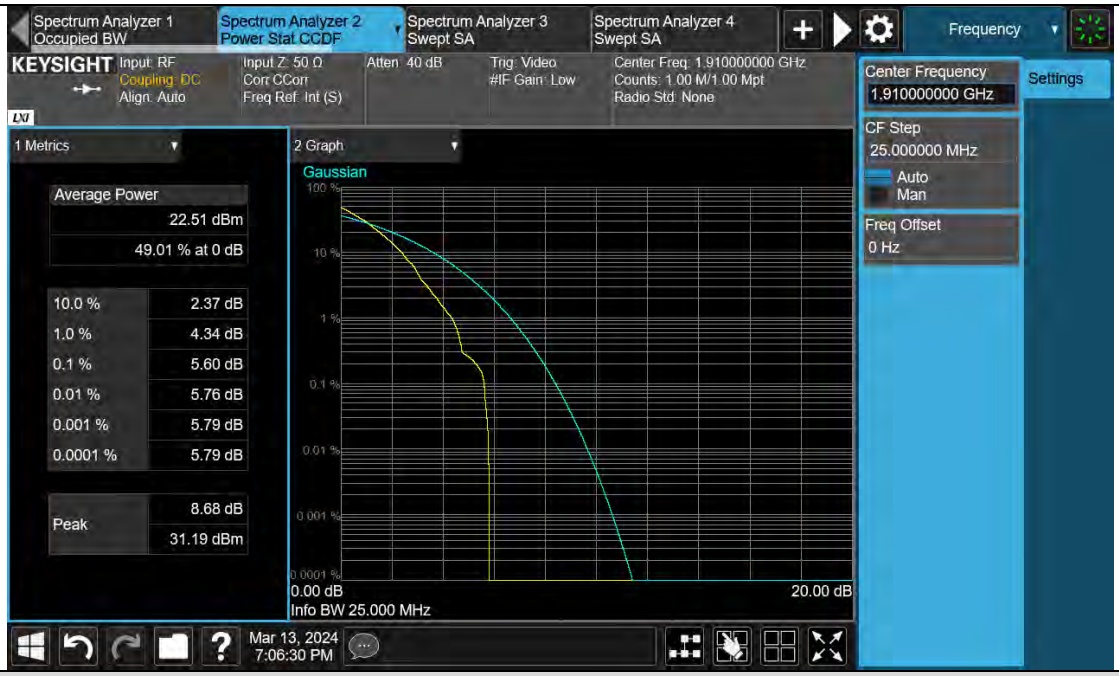
Band25-10MHz-QPSK-26090



Band25-10MHz-QPSK-26365

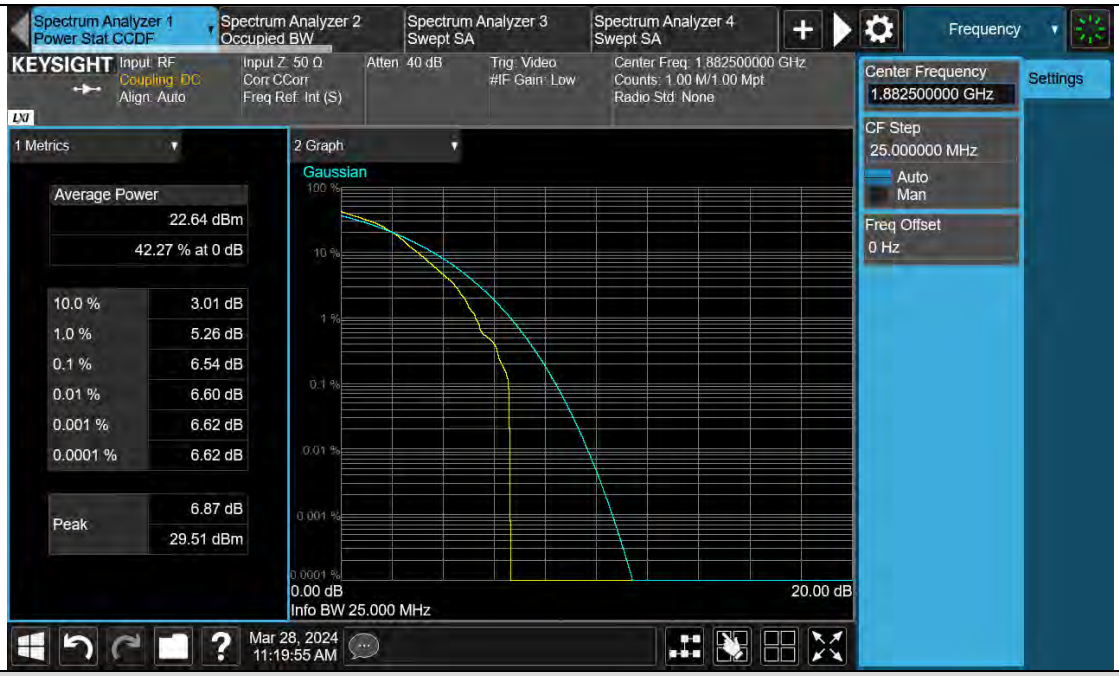


Band25-10MHz-QPSK-26640

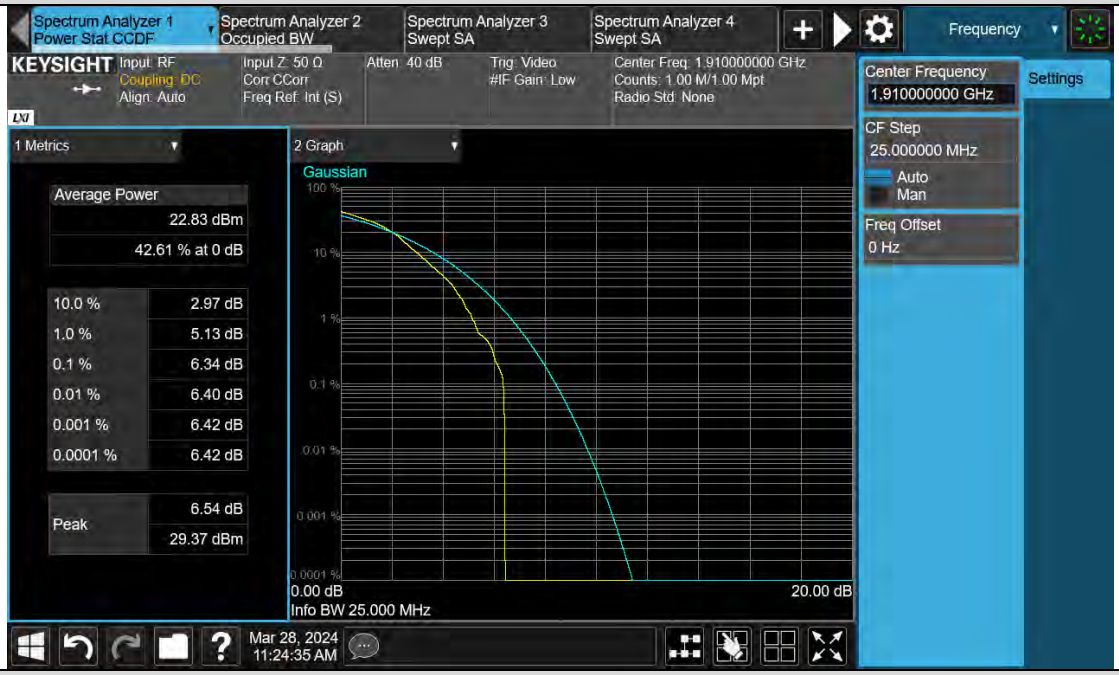


Band25-10MHz-16QAM-26090

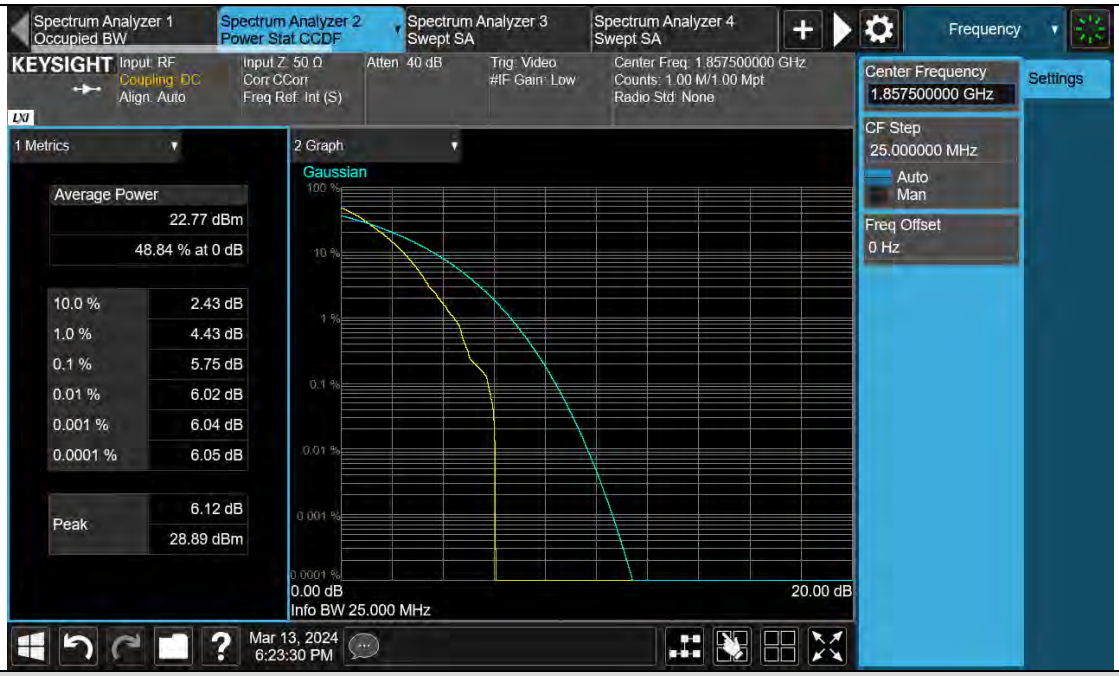
Band25-10MHz-16QAM-26365



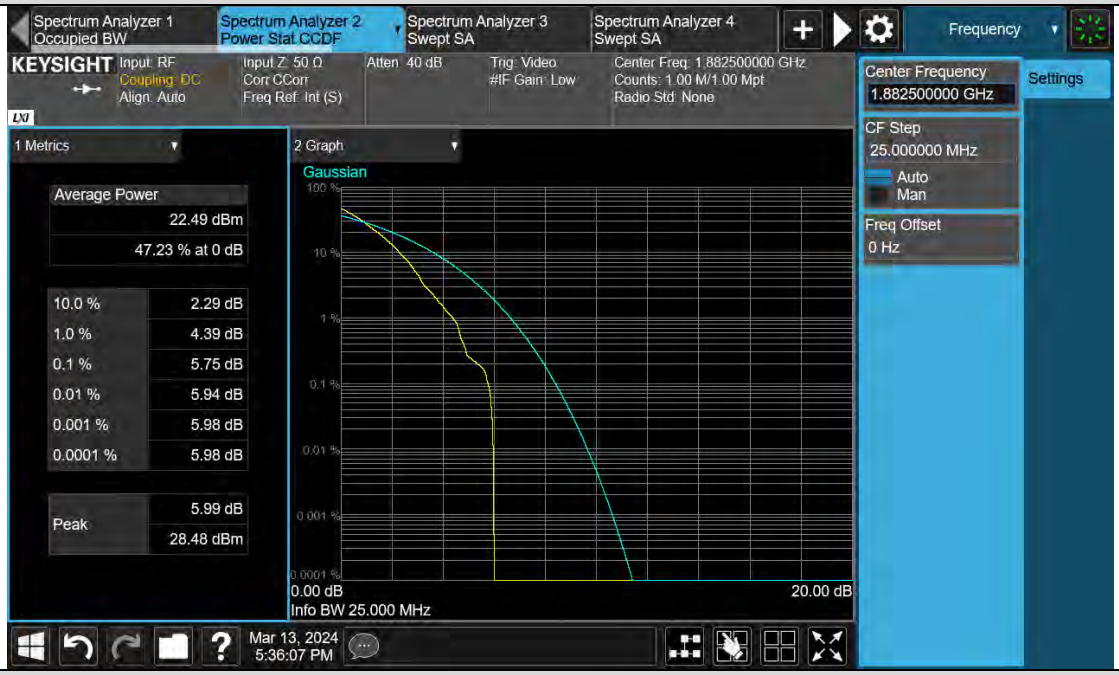
Band25-10MHz-16QAM-26640



Band25-15MHz-QPSK-26115

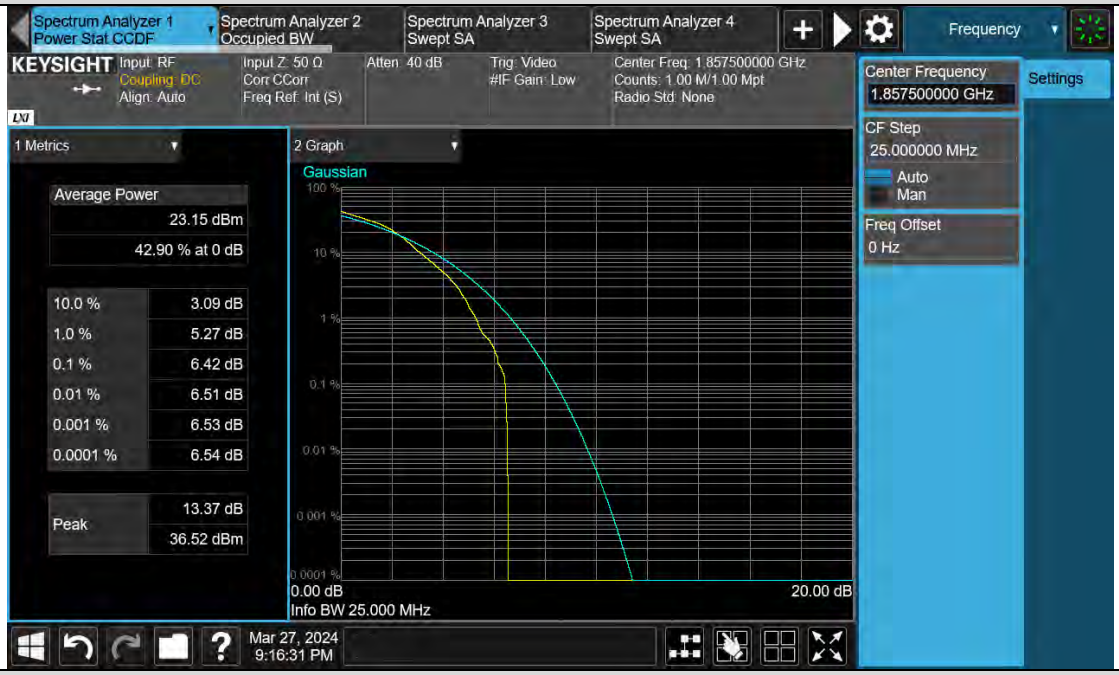


Band25-15MHz-QPSK-26365



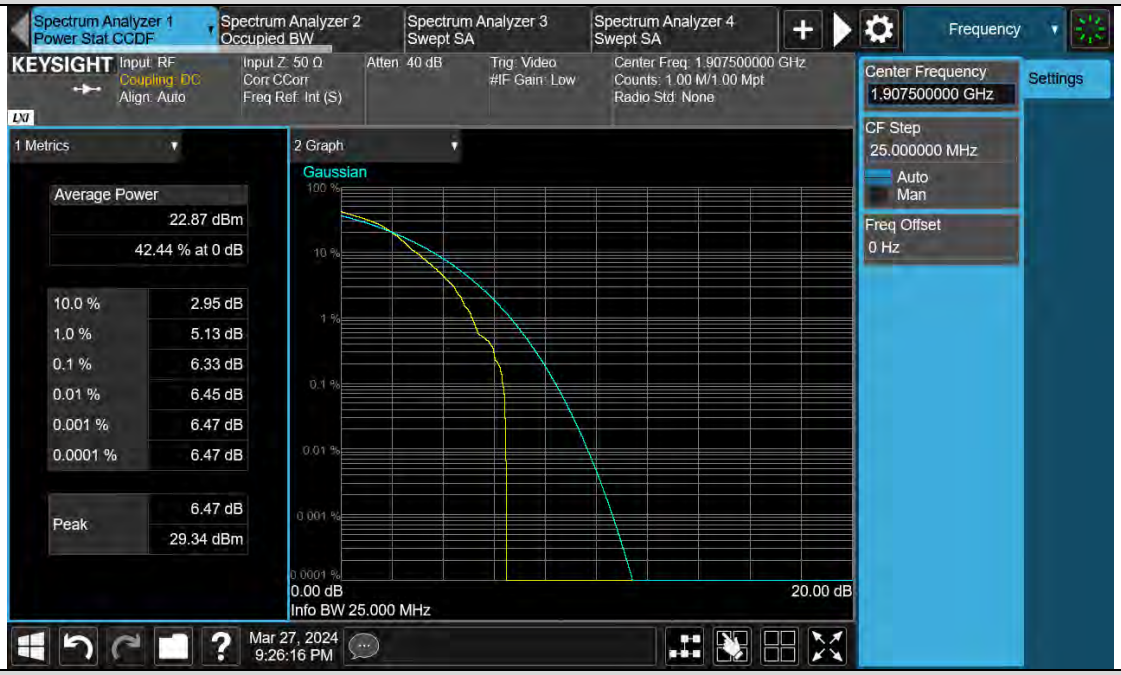
Band25-15MHz-QPSK-26615

Band25-15MHz-16QAM-26115

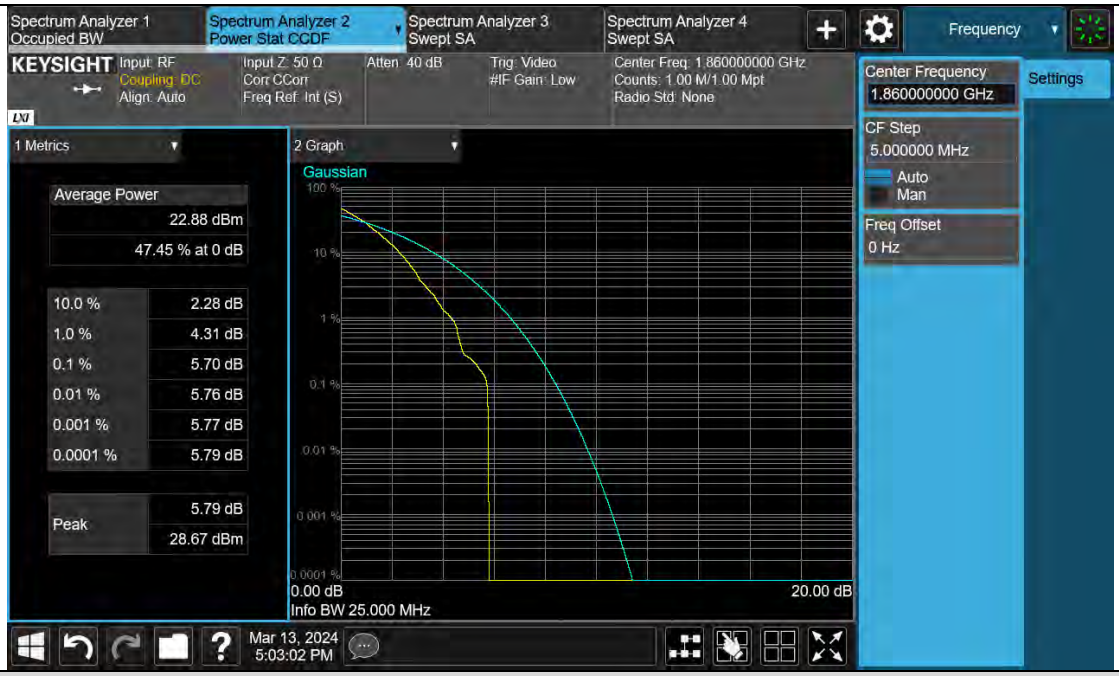


Band25-15MHz-16QAM-26365

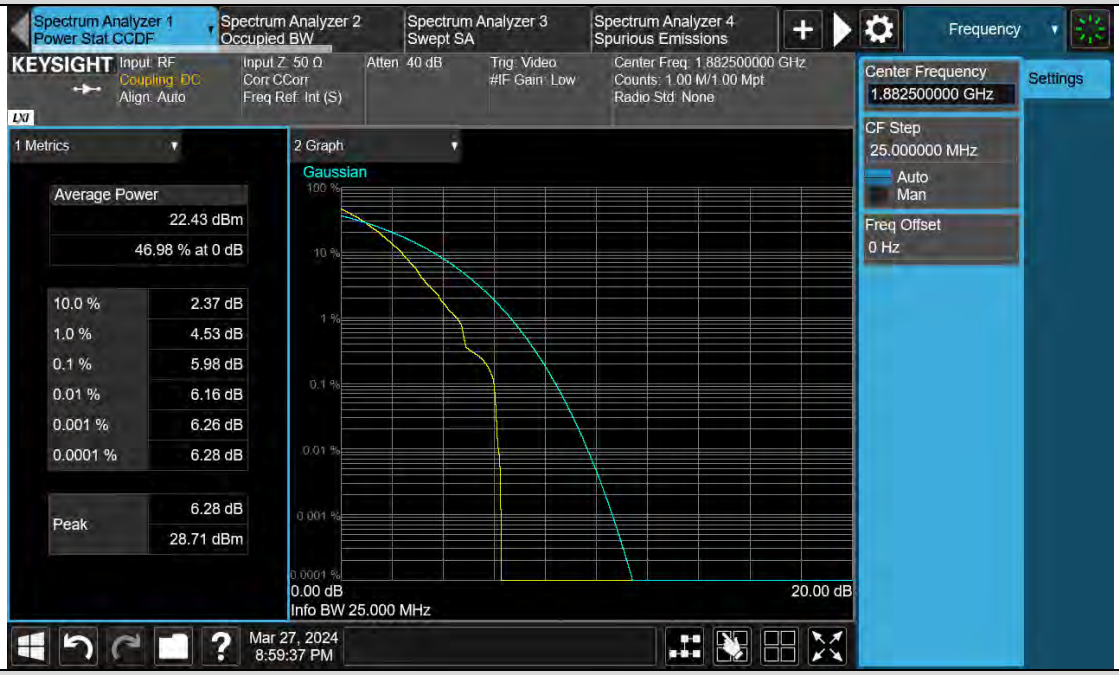
Band25-15MHz-16QAM-26615



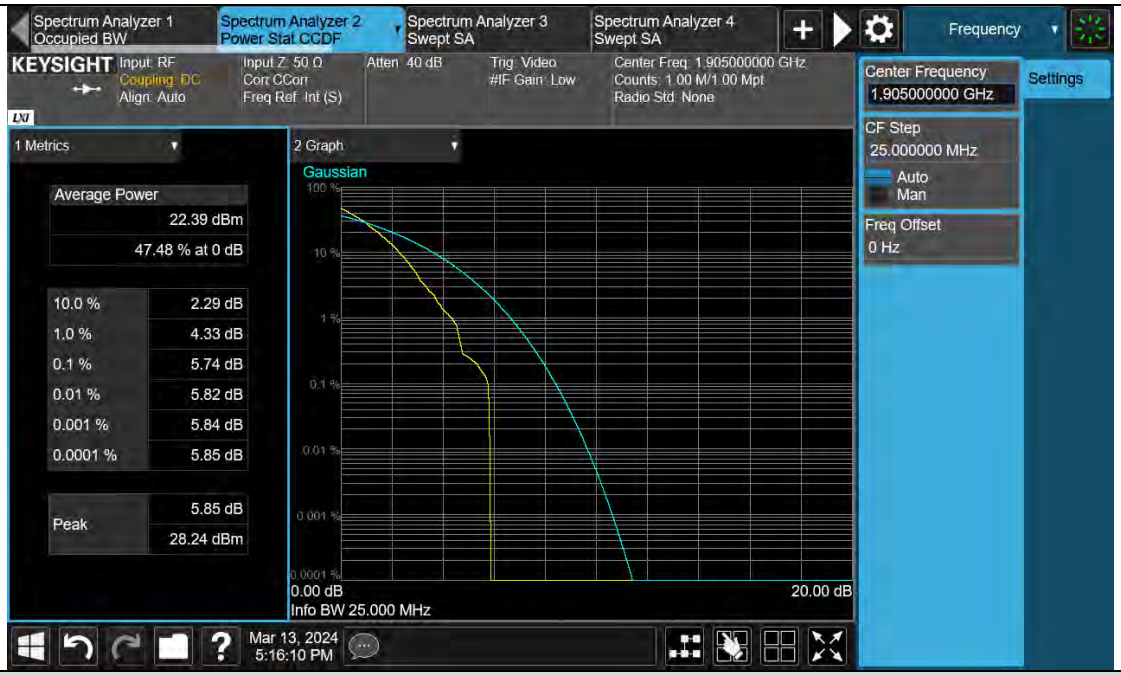
Band25-20MHz-QPSK-26140



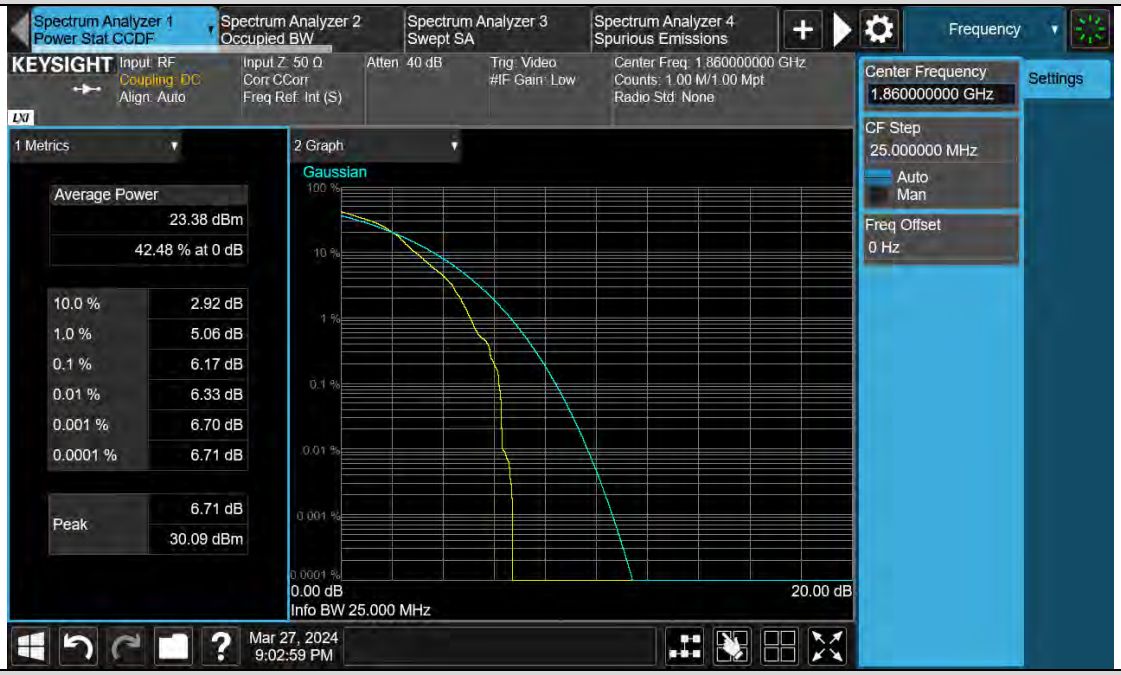
Band25-20MHz-QPSK-26365



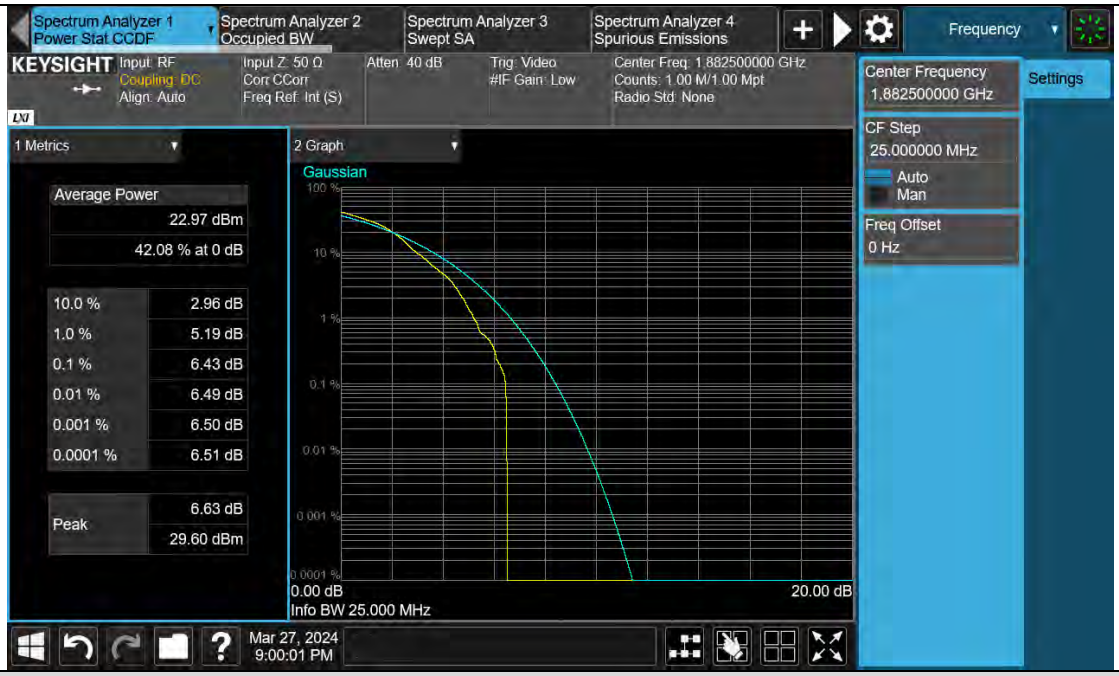
Band25-20MHz-QPSK-26590



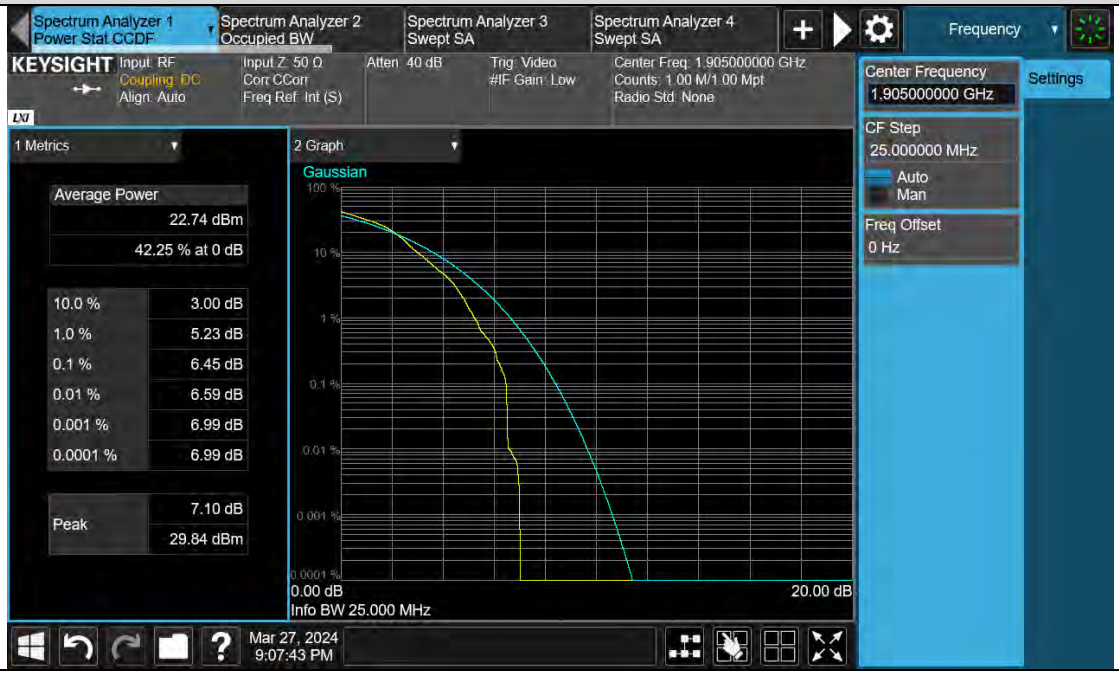
Band25-20MHz-16QAM-26140



Band25-20MHz-16QAM-26365



Band25-20MHz-16QAM-26590



26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band25	1.4MHz	QPSK	26047	6RB#0	1.0860	1.264	PASS
Band25	1.4MHz	QPSK	26365	6RB#0	1.0773	1.266	PASS
Band25	1.4MHz	QPSK	26683	6RB#0	1.0738	1.246	PASS
Band25	1.4MHz	16QAM	26047	6RB#0	1.0757	1.251	PASS
Band25	1.4MHz	16QAM	26365	6RB#0	1.0715	1.256	PASS
Band25	1.4MHz	16QAM	26683	6RB#0	1.0706	1.278	PASS
Band25	3MHz	QPSK	26055	6RB#0	1.0793	1.274	PASS
Band25	3MHz	QPSK	26365	6RB#0	1.0763	1.273	PASS
Band25	3MHz	QPSK	26675	6RB#0	1.0771	1.263	PASS
Band25	3MHz	16QAM	26055	6RB#0	1.0807	1.256	PASS
Band25	3MHz	16QAM	26365	6RB#0	1.0742	1.277	PASS
Band25	3MHz	16QAM	26675	6RB#0	1.0711	1.269	PASS
Band25	5MHz	QPSK	26065	6RB#0	1.0816	1.261	PASS
Band25	5MHz	QPSK	26365	6RB#0	1.0786	1.272	PASS
Band25	5MHz	QPSK	26665	6RB#0	1.0863	1.264	PASS
Band25	5MHz	16QAM	26065	6RB#0	1.0780	1.287	PASS
Band25	5MHz	16QAM	26365	6RB#0	1.0794	1.281	PASS
Band25	5MHz	16QAM	26665	6RB#0	1.0757	1.274	PASS
Band25	10MHz	QPSK	26090	6RB#0	1.0780	1.271	PASS
Band25	10MHz	QPSK	26365	6RB#0	1.0766	1.262	PASS
Band25	10MHz	QPSK	26640	6RB#0	1.0725	1.266	PASS
Band25	10MHz	16QAM	26090	6RB#0	1.0737	1.286	PASS
Band25	10MHz	16QAM	26365	6RB#0	1.0763	1.288	PASS
Band25	10MHz	16QAM	26640	6RB#0	1.0795	1.266	PASS
Band25	15MHz	QPSK	26115	6RB#0	1.0854	1.254	PASS
Band25	15MHz	QPSK	26365	6RB#0	1.0747	1.259	PASS
Band25	15MHz	QPSK	26615	6RB#0	1.0890	1.272	PASS
Band25	15MHz	16QAM	26115	6RB#0	1.0831	1.258	PASS
Band25	15MHz	16QAM	26365	6RB#0	1.0805	1.267	PASS
Band25	15MHz	16QAM	26615	6RB#0	1.0782	1.293	PASS
Band25	20MHz	QPSK	26140	6RB#0	1.0899	1.262	PASS
Band25	20MHz	QPSK	26365	6RB#0	1.0785	1.273	PASS
Band25	20MHz	QPSK	26590	6RB#0	1.0800	1.281	PASS
Band25	20MHz	16QAM	26140	6RB#0	1.0897	1.272	PASS
Band25	20MHz	16QAM	26365	6RB#0	1.0767	1.273	PASS
Band25	20MHz	16QAM	26590	6RB#0	1.0762	1.269	PASS

Test Graphs

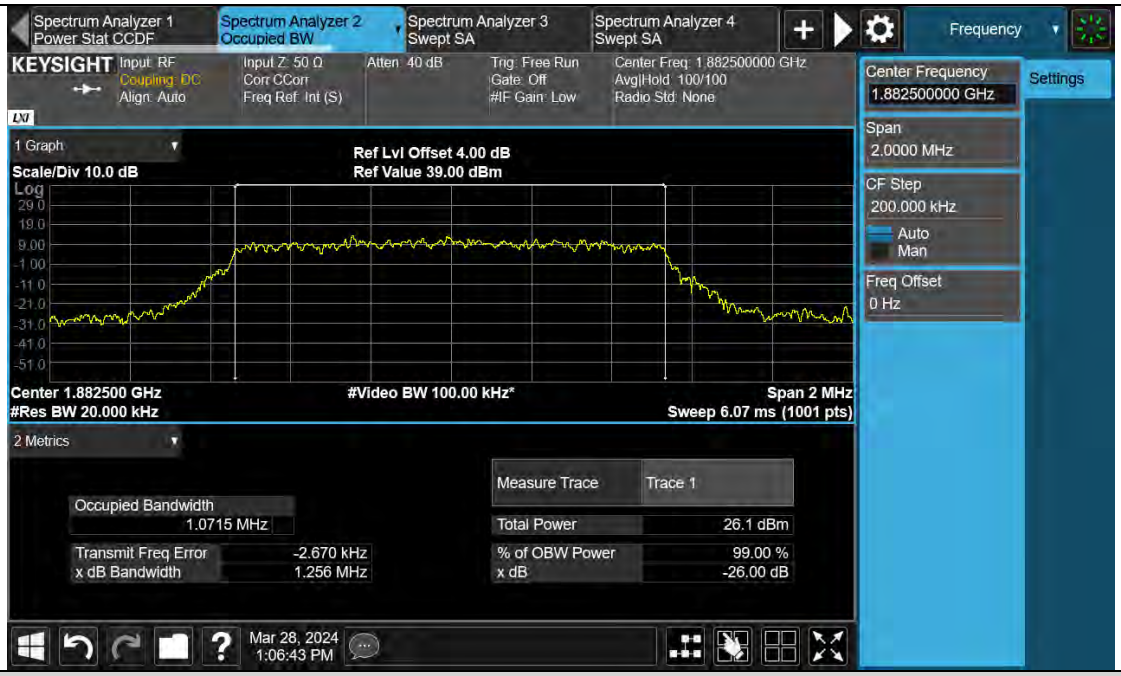
Band25-1.4MHz-QPSK-26047-6RB#0

Band25-1.4MHz-QPSK-26365-6RB#0

Band25-1.4MHz-QPSK-26683-6RB#0

Band25-1.4MHz-16QAM-26047-6RB#0

Band25-1.4MHz-16QAM-26365-6RB#0



Band25-1.4MHz-16QAM-26683-6RB#0

Band25-3MHz-QPSK-26055-6RB#0

Band25-3MHz-QPSK-26365-6RB#0

Band25-3MHz-QPSK-26675-6RB#0

Band25-3MHz-16QAM-26055-6RB#0

Band25-3MHz-16QAM-26365-6RB#0

Band25-3MHz-16QAM-26675-6RB#0

Band25-5MHz-QPSK-26065-6RB#0