

VARIANT FCC TEST REPORT

(PART 24)

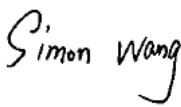
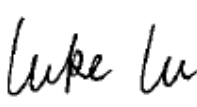
Applicant:	Nokia of America Corp
Address:	3201, Olympus Blvd, Dallas, TX 75019, USA

Manufacturer or Supplier:	Nokia of America Corp
Address:	3201, Olympus Blvd, Dallas, TX 75019, USA
Product:	Nokia Industrial 5G handheld HHRA501x
Brand Name:	Nokia
Model Name:	HHRA501a
Marketing Name:	Nokia Industrial 5G handheld HHRA501a
FCC ID:	2AVO2-HHRA501A
Date of tests:	Nov. 24, 2022 ~ Feb. 03, 2023

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 Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
	
Date: Oct. 23, 2023	Date: Oct. 23, 2023

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TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS	5
1.1 MEASUREMENT UNCERTAINTY	5
1.2 TEST SITE AND INSTRUMENTS	6
2 GENERAL INFORMATION	7
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 CONFIGURATION OF SYSTEM UNDER TEST	11
2.3 DESCRIPTION OF SUPPORT UNITS	12
2.4 TEST ITEM AND TEST CONFIGURATION.....	12
2.5 EUT OPERATING CONDITIONS	16
2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS	16
3 TEST TYPES AND RESULTS	17
3.1 OUTPUT POWER MEASUREMENT	17
3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	17
3.1.2 TEST PROCEDURES.....	17
3.1.3 TEST SETUP	18
3.1.4 TEST RESULTS.....	18
3.2 FREQUENCY STABILITY MEASUREMENT	44
3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	44
3.2.2 TEST PROCEDURE	44
3.2.3 TEST SETUP	44
3.2.4 TEST RESULTS	45
3.3 OCCUPIED BANDWIDTH MEASUREMENT	46
3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT	46
3.3.2 TEST SETUP	46
3.3.3 TEST PROCEDURES.....	46
3.3.4 TEST RESULTS	47
3.4 BAND EDGE MEASUREMENTC	48
3.4.1 LIMITS OF BAND EDGE MEASUREMENT	48
3.4.2 TEST SETUP	48
3.4.3 TEST PROCEDURES.....	49
3.4.4. TEST RESULTS.....	50
3.5 CONDUCTED SPURIOUS EMISSIONS.....	51
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	51
3.5.2 TEST PROCEDURE	51
3.5.3 TEST SETUP	51
3.5.4 TEST RESULTS	52
3.6 RADIATED EMISSION MEASUREMENT	53
3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT	53
3.6.2 TEST PROCEDURES.....	53



**BUREAU
VERITAS**

Test Report No.: W7L-P23100014RF05

3.6.3 DEVIATION FROM TEST STANDARD	53
3.6.4 TEST SETUP	54
3.6.5 TEST RESULTS	56
3.7 PEAK TO AVERAGE RATIO	92
3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT	92
3.7.2 TEST SETUP	92
3.7.3 TEST PROCEDURES	92
3.7.4 TEST RESULTS	93
4 INFORMATION ON THE TESTING LABORATORIES	94
5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	95
6 APPENDIX	96
GSM1900	96
WCDMA BAND2	113
LTE BAND25	126



Test Report No.: W7L-P23100014RF05

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22110036RF05	Original release	Feb. 03, 2023
W7L-P23100014RF05	Based on the original product changing the model name and FCC ID, brand name, marketing name, product name, battery model, applicant and manufacturer information.	Oct. 23, 2023

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
§2.1046	Coducted Output Power	Compliance
§24.232(c)	Equivalent Isotropic Radiated Power	Compliance
§2.1055 §24.235	Frequency Stability	Compliance
§2.1049	Occupied Bandwidth	Compliance
§24.232(d)	Peak to average ratio	Compliance
§24.238(a)(b)	Band Edge Measurements	Compliance
§2.1051 §24.238(a)(b)	Conducted Spurious Emissions	Compliance
§2.1053 §24.238(a)(b)	Radiated Spurious Emissions	Compliance

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 (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions & Radiated Power (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (1GHz ~6GHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GHz ~18GHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GHz ~40GHz)	$\pm 4.12\text{dB}$
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. 21,22	Feb. 20,23
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 Microwave 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

- NOTE:** 1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GREGT/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 525120; The Designation No. is CN1171.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Nokia Industrial 5G handheld HHRA501x	
BRAND NAME	Nokia	
MODEL NAME	HHRA501a	
MARKETING NAME	Nokia Industrial 5G handheld HHRA501a	
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.7Vdc (Li-ion, battery)	
MODULATION TYPE	GSM: GMSK EDGE: 8PSK WCDMA: BPSK, QPSK LTE Band 2/25: QPSK, 16QAM, 64QAM	
FREQUENCY RANGE	GSM, EDGE	1850.2MHz ~ 1909.8MHz
	WCDMA	1852.4MHz ~ 1907.6MHz
	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

MAX. EIRP POWER	GSM	739.61mW
	EDGE	312.61mW
	WCDMA	194.09mW
	LTE Band 2 Channel Bandwidth: 1.4MHz	172.58mW
	LTE Band 2 Channel Bandwidth: 3MHz	172.19mW
	LTE Band 2 Channel Bandwidth: 5MHz	172.19mW
	LTE Band 2 Channel Bandwidth: 10MHz	174.18mW
	LTE Band 2 Channel Bandwidth: 15MHz	171.4mW
	LTE Band 2 Channel Bandwidth: 20MHz	174.58mW
	LTE Band 25 Channel Bandwidth: 1.4MHz	179.47mW
	LTE Band 25 Channel Bandwidth: 3MHz	177.42mW
	LTE Band 25 Channel Bandwidth: 5MHz	177.42mW
	LTE Band 25 Channel Bandwidth: 10MHz	178.65mW
	LTE Band 25 Channel Bandwidth: 15MHz	178.65mW
	LTE Band 25 Channel Bandwidth: 20MHz	179.89mW
EMISSION DESIGNATOR	GSM	246KGXW
	EDGE	244KG7W
	WCDMA	4M17F9W
	LTE Band 25 Channel Bandwidth: 1.4MHz	QPSK: 1M71G7D
		16QAM: 1M09W7D
		64QAM: 1M09W7D
	LTE Band 25 Channel Bandwidth: 3MHz	QPSK: 2M69G7D
		16QAM: 2M70W7D
		64QAM: 2M70W7D

EMISSION DESIGNATOR	LTE Band 25 Channel Bandwidth: 5MHz	QPSK: 4M50G7D
		16QAM: 4M50W7D
		64QAM: 4M50W7D
	LTE Band 25 Channel Bandwidth: 10MHz	QPSK: 9M00G7D
		16QAM: 9M00W7D
		64QAM: 8M98W7D
	LTE Band 25 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
	LTE Band 25 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 17M9W7D
		64QAM: 17M9W7D
ANTENNA TYPE	PIFA Antenna with -0.5dBi gain for GSM1900/ WCDMA II/LTE B2/ LTE B25	
HW VERSION	V02	
SW VERSION	IS540_ROW_00.00_1_20221017	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter	
EXTREME TEMPERATURE	-10-50 °C	
EXTREME VOLTAGE	3.6V - 4.2V	

NOTE:

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

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

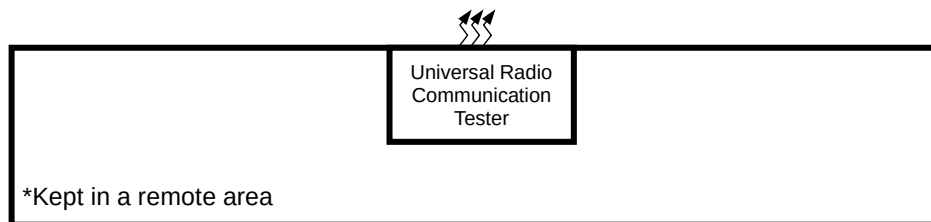
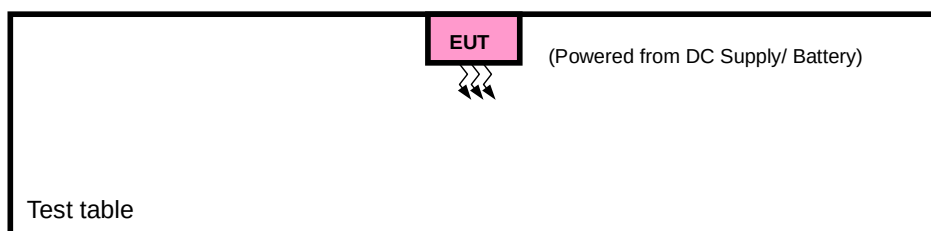
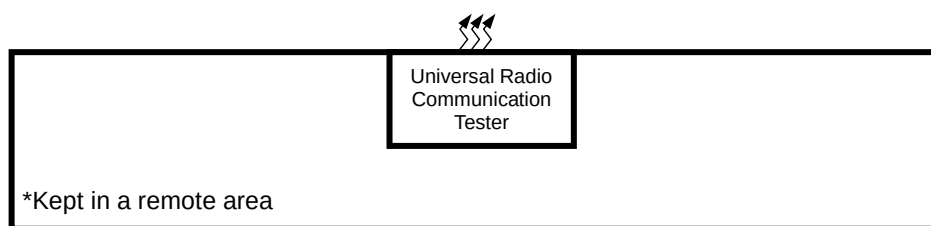
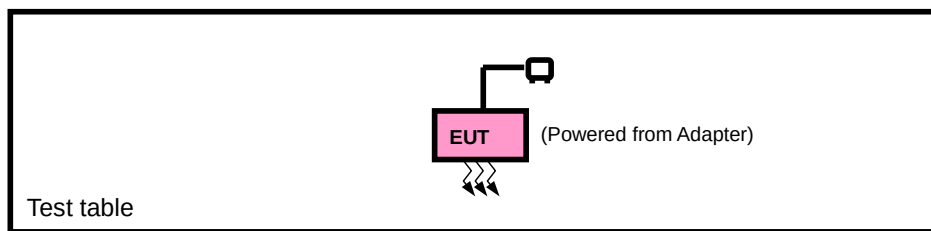
- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	N/A	FPR Connectivity Technology Inc.	BL440ACP	Capacity : 3.7Vdc, 4400mAh
AC Adapter	N/A	SHENZHEN SHI YINGYUAN POWER SUPPLY TECHNOLOGY CO., LTD.	ICP12-050-2000B	I/P: 100-240Vac, 0.3A, O/P: 5.0Vdc, 2A
USB Cable 1	N/A	Winpower Technology Co., LTD	PROTECTOR 2.0	Signal Line,1.0meter
USB Cable 2	N/A	Winpower Technology Co., LTD	USB2.0	Signal Line,1.0meter

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	DC source	Kikusui/JP	PMX18-5A	0000001	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC 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 with GSM or WCDMA or LTE link
B	EUT + DC Supply with GSM or WCDMA or LTE link

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	512 to 810	512, 661, 810	GSM,EDGE
B	FREQUENCY STABILITY	512 to 810	512, 661, 810	GSM,EDGE
A	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM,EDGE
A	PEAK TO AVERAGE RATIO	512 to 810	512, 661, 810	GSM,EDGE
A	BAND EDGE	512 to 810	512, 810	GSM,EDGE
A	CONDUCTED EMISSION	512 to 810	512, 661, 810	GSM,EDGE
A	RADIATED EMISSION	512 to 810	512, 661, 810	GSM,EDGE

WCDMA

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
B	FREQUENCY STABILITY	9262 to 9538	9262, 9400, 9538	WCDMA
A	OCCUPIED BANDWIDTH	9262 to 9538	9262, 9400, 9538	WCDMA
A	PEAK TO AVERAGE RATIO	9262 to 9538	9262, 9400, 9538	WCDMA
A	BAND EDGE	9262 to 9538	9262, 9538	WCDMA
A	CONDCUDED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA
A	RADIATED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA

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,64QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM,64QAM	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

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	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	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	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 6 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 15 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
		26090 to 26640	26090, 26365, 26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
		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
A	CONDCUDED 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.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	DC 5V By Adapter	Jace Hu
FREQUENCY STABILITY	23deg. C, 61%RH	DC 3.6V/3.7V/4.2V By DC Supply	James Fu
OCCUPIED BANDWIDTH	23deg. C, 61%RH	DC5V By Adapter	James Fu
PEAK TO AVERAGE RATIO	23deg. C, 61%RH	DC 5V By Adapter	James Fu
BAND EDGE	23deg. C, 61%RH	DC5V By Adapter	James Fu
CONDCUDED EMISSION	23deg. C, 61%RH	DC5V By Adapter	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC5V By Adapter	Jace Hu

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:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_c$$

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.

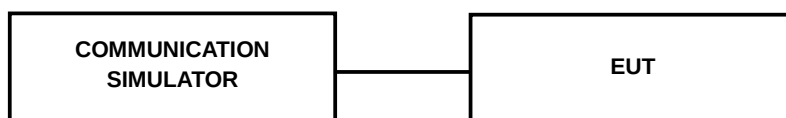
CONDUCTED POWER MEASUREMENT:

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)

Band	GSM1900		
Channel	512	661	810
Frequency	1850.2	1880	1909.8
GSM	29.01	29.19	29.11
GPRS (GMSK, 1Tx-slot)	29.00	29.16	29.09
GPRS (GMSK, 2Tx-slot)	27.27	27.09	27.16
GPRS (GMSK, 3Tx-slot)	25.56	25.54	25.50
GPRS (GMSK, 4Tx-slot)	23.56	24.05	24.01
EDGE (8PSK, 1Tx-slot)	25.17	25.45	25.29
EDGE (8PSK, 2Tx-slot)	25.00	25.30	25.18
EDGE (8PSK, 3Tx-slot)	21.14	21.40	21.36
EDGE (8PSK, 4Tx-slot)	20.21	20.10	20.23

Band	WCDMA II		
Channel	9262	9400	9538
Frequency	1852.4	1880	1907.6
RMC 12.2K	23.35	23.38	23.26
HSDPA Subtest-1	22.31	22.33	22.21
HSDPA Subtest-2	22.27	22.37	22.21
HSDPA Subtest-3	21.81	21.83	21.75
HSDPA Subtest-4	21.79	21.86	21.71
DC-HSDPA Subtest-1	22.28	22.33	22.24
DC-HSDPA Subtest-2	22.27	22.36	22.21
DC-HSDPA Subtest-3	21.83	21.80	21.74
DC-HSDPA Subtest-4	21.77	21.82	21.68
HSUPA Subtest-1	19.79	19.83	19.79
HSUPA Subtest-2	19.77	19.81	19.80
HSUPA Subtest-3	19.79	19.78	19.80
HSUPA Subtest-4	19.71	19.75	19.77
HSUPA Subtest-5	22.27	22.35	22.20

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	22.87	22.80	22.77
		1	2	22.80	22.52	22.67
		1	5	22.76	22.66	22.63
		3	0	22.70	22.49	22.60
		3	1	22.83	22.59	22.54
		3	3	22.64	22.44	22.55
		6	0	22.15	21.95	21.84
	16QAM	1	0	22.13	21.96	21.99
		1	2	22.04	21.79	21.90
		1	5	22.08	21.82	21.90
		3	0	21.94	21.76	21.85
		3	1	22.01	21.83	21.90
		3	3	21.90	21.84	21.83
		6	0	21.04	20.83	20.91
	64QAM	1	0	21.07	20.98	21.06
		1	2	20.81	20.72	20.60
		1	5	20.97	20.80	20.93
		3	0	21.06	20.89	20.86
		3	1	20.29	20.24	20.07
		3	3	20.45	20.27	20.37
		6	0	20.02	19.78	19.83

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	22.86	22.79	22.80
		1	7	22.81	22.50	22.67
		1	14	22.73	22.65	22.67
		8	0	22.02	21.82	21.87
		8	3	22.06	21.90	21.87
		8	7	21.95	21.77	21.90
		15	0	22.10	21.99	21.81
	16QAM	1	0	22.11	21.98	22.02
		1	7	21.98	21.85	21.87
		1	14	22.11	21.82	21.89
		8	0	20.90	20.75	20.82
		8	3	21.03	20.82	20.89
		8	7	20.87	20.84	20.82
		15	0	21.04	20.78	20.91
	64QAM	1	0	21.07	20.98	21.06
		1	7	20.81	20.72	20.59
		1	14	20.91	20.87	20.93
		8	0	20.10	19.90	19.86
		8	3	19.27	19.25	19.11
		8	7	19.46	19.30	19.30
		15	0	20.00	19.81	19.85

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	22.86	22.85	22.76
		1	12	22.76	22.53	22.67
		1	24	22.72	22.66	22.63
		12	0	21.99	21.82	21.90
		12	6	22.06	21.89	21.86
		12	13	21.91	21.81	21.89
		25	0	22.12	21.96	21.78
	16QAM	1	0	22.10	22.02	22.02
		1	12	22.01	21.82	21.88
		1	24	22.11	21.82	21.90
		12	0	20.90	20.77	20.85
		12	6	21.06	20.78	20.93
		12	13	20.92	20.82	20.79
		25	0	21.04	20.77	20.94
	64QAM	1	0	21.13	21.01	21.00
		1	12	20.84	20.66	20.59
		1	24	20.98	20.82	20.93
		12	0	20.09	19.93	19.87
		12	6	19.33	19.18	19.12
		12	13	19.42	19.31	19.33
		25	0	20.04	19.75	19.87

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	22.91	22.83	22.74
		1	24	22.79	22.55	22.63
		1	49	22.76	22.72	22.64
		25	0	22.00	21.82	21.91
		25	12	22.13	21.89	21.87
		25	25	21.91	21.75	21.89
		50	0	22.15	21.97	21.83
	16QAM	1	0	22.15	22.02	21.98
		1	24	22.02	21.82	21.90
		1	49	22.07	21.88	21.88
		25	0	20.96	20.73	20.89
		25	12	21.01	20.80	20.90
		25	25	20.91	20.83	20.82
		50	0	21.09	20.80	20.88
	64QAM	1	0	21.08	21.00	21.04
		1	24	20.87	20.67	20.60
		1	49	20.93	20.80	20.93
		25	0	20.13	19.93	19.86
		25	12	19.28	19.18	19.07
		25	25	19.48	19.34	19.34
		50	0	20.04	19.75	19.87

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	22.84	22.83	22.77
		1	37	22.81	22.50	22.68
		1	74	22.70	22.69	22.63
		36	0	22.03	21.81	21.90
		36	19	22.12	21.84	21.87
		36	39	21.93	21.74	21.89
		75	0	22.15	21.99	21.78
	16QAM	1	0	22.11	21.95	21.98
		1	37	22.03	21.81	21.90
		1	74	22.11	21.83	21.86
		36	0	20.92	20.73	20.88
		36	19	21.07	20.76	20.94
		36	39	20.86	20.85	20.79
		75	0	21.08	20.77	20.95
	64QAM	1	0	21.08	20.98	21.07
		1	37	20.88	20.72	20.60
		1	74	20.91	20.81	20.93
		36	0	20.13	19.91	19.91
		36	19	19.32	19.25	19.07
		36	39	19.46	19.30	19.36
		75	0	20.05	19.77	19.86

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	22.92	22.87	22.82
		1	50	22.83	22.58	22.69
		1	99	22.78	22.73	22.68
		50	0	22.06	21.87	21.92
		50	25	22.14	21.91	21.92
		50	50	21.99	21.82	21.91
		100	0	22.16	22.01	21.86
	16QAM	1	0	22.18	22.03	22.04
		1	50	22.06	21.87	21.92
		1	99	22.13	21.90	21.91
		50	0	20.98	20.81	20.90
		50	25	21.09	20.84	20.95
		50	50	20.94	20.89	20.84
		100	0	21.10	20.85	20.96
	64QAM	1	0	21.14	21.03	21.08
		1	50	20.89	20.74	20.65
		1	99	20.99	20.88	20.95
		50	0	20.14	19.95	19.94
		50	25	19.35	19.26	19.13
		50	50	19.50	19.35	19.38
		100	0	20.06	19.83	19.88



**BUREAU
VERITAS**

Test Report No.: W7L-P23100014RF05

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	23.04	22.98	22.94
		1	2	22.98	22.91	22.88
		1	5	22.90	22.83	22.90
		3	0	22.86	22.78	22.79
		3	1	22.92	22.85	22.84
		3	3	22.84	22.77	22.85
		6	0	22.18	22.18	22.15
	16QAM	1	0	22.35	22.33	22.34
		1	2	22.20	22.20	22.21
		1	5	22.20	22.18	22.17
		3	0	22.19	22.14	22.12
		3	1	22.16	22.22	22.16
		3	3	22.19	22.05	22.11
		6	0	21.12	21.09	21.11
	64QAM	1	0	21.49	21.49	21.37
		1	2	21.36	21.29	21.36
		1	5	21.34	21.31	21.26
		3	0	21.10	21.03	21.06
		3	1	21.19	21.13	21.16
		3	3	21.14	21.02	21.14
		6	0	20.17	20.09	20.18

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	22.99	22.93	22.97
		1	7	22.96	22.94	22.92
		1	14	22.83	22.87	22.86
		8	0	22.13	22.14	22.12
		8	3	22.20	22.18	22.08
		8	7	22.11	22.14	22.14
		15	0	22.17	22.18	22.16
	16QAM	1	0	22.41	22.26	22.38
		1	7	22.16	22.21	22.17
		1	14	22.23	22.14	22.20
		8	0	21.24	21.12	21.09
		8	3	21.18	21.16	21.19
		8	7	21.20	21.11	21.05
		15	0	21.15	21.07	21.13
	64QAM	1	0	21.54	21.45	21.41
		1	7	21.36	21.35	21.30
		1	14	21.36	21.28	21.30
		8	0	20.10	20.05	20.09
		8	3	20.19	20.13	20.17
		8	7	20.11	20.09	20.13
		15	0	20.17	20.09	20.19

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	22.97	22.99	22.97
		1	12	22.99	22.94	22.93
		1	24	22.85	22.87	22.87
		12	0	22.14	22.10	22.12
		12	6	22.16	22.21	22.11
		12	13	22.17	22.07	22.14
		25	0	22.14	22.17	22.12
	16QAM	1	0	22.37	22.32	22.33
		1	12	22.17	22.20	22.20
		1	24	22.20	22.13	22.17
		12	0	21.19	21.14	21.12
		12	6	21.16	21.22	21.15
		12	13	21.13	21.12	21.11
		25	0	21.16	21.10	21.11
	64QAM	1	0	21.47	21.50	21.41
		1	12	21.37	21.32	21.29
		1	24	21.32	21.34	21.28
		12	0	20.10	20.07	20.09
		12	6	20.13	20.20	20.16
		12	13	20.12	20.05	20.13
		25	0	20.13	20.15	20.17

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	22.99	22.92	23.00
		1	24	23.02	22.97	22.86
		1	49	22.84	22.81	22.86
		25	0	22.18	22.09	22.12
		25	12	22.22	22.16	22.11
		25	25	22.13	22.07	22.14
		50	0	22.20	22.15	22.19
	16QAM	1	0	22.35	22.30	22.34
		1	24	22.22	22.17	22.21
		1	49	22.18	22.16	22.17
		25	0	21.23	21.13	21.12
		25	12	21.22	21.17	21.16
		25	25	21.15	21.05	21.11
		50	0	21.19	21.13	21.11
	64QAM	1	0	21.50	21.43	21.37
		1	24	21.40	21.31	21.35
		1	49	21.32	21.28	21.29
		25	0	20.10	20.05	20.09
		25	12	20.18	20.15	20.16
		25	25	20.16	20.04	20.13
		50	0	20.17	20.10	20.15

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	22.99	22.95	23.01
		1	37	23.02	22.97	22.89
		1	74	22.83	22.82	22.90
		36	0	22.20	22.11	22.11
		36	19	22.21	22.22	22.10
		36	39	22.15	22.10	22.14
		75	0	22.16	22.21	22.17
	16QAM	1	0	22.41	22.26	22.38
		1	37	22.16	22.21	22.17
		1	74	22.23	22.14	22.20
		36	0	21.25	21.14	21.06
		36	19	21.18	21.21	21.17
		36	39	21.19	21.06	21.08
		75	0	21.14	21.07	21.17
	64QAM	1	0	21.54	21.49	21.35
		1	37	21.34	21.29	21.31
		1	74	21.36	21.35	21.27
		36	0	20.16	20.01	20.13
		36	19	20.15	20.18	20.14
		36	39	20.17	20.02	20.14
		75	0	20.11	20.10	20.18

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	23.05	23.00	23.02
		1	50	23.03	22.99	22.94
		1	99	22.91	22.89	22.92
		50	0	22.21	22.15	22.14
		50	25	22.24	22.23	22.16
		50	50	22.19	22.15	22.16
		100	0	22.22	22.23	22.20
	16QAM	1	0	22.43	22.34	22.39
		1	50	22.24	22.25	22.22
		1	99	22.26	22.20	22.22
		50	0	21.26	21.19	21.14
		50	25	21.24	21.24	21.21
		50	50	21.21	21.13	21.13
		100	0	21.20	21.15	21.19
	64QAM	1	0	21.55	21.51	21.43
		1	50	21.41	21.37	21.37
		1	99	21.38	21.36	21.31
		50	0	20.18	20.09	20.14
		50	25	20.21	20.21	20.18
		50	50	20.19	20.10	20.15
		100	0	20.19	20.17	20.20



**BUREAU
VERITAS**

Test Report No.: W7L-P23100014RF05

EIRP POWER (dBm)

GSM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
512	1850.2	29.01	-0.5	28.51	709.58	2
661	1880.0	29.19	-0.5	28.69	739.61	2
810	1909.8	29.11	-0.5	28.61	726.11	2

EDGE

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
512	1850.2	25.17	-0.5	24.67	293.09	2
661	1880.0	25.45	-0.5	24.95	312.61	2
810	1909.8	25.29	-0.5	24.79	301.3	2

WCDMA

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
9262	1852.4	23.35	-0.5	22.85	192.75	2
9400	1880	23.38	-0.5	22.88	194.09	2
9538	1907.6	23.26	-0.5	22.76	188.8	2

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	22.87	-0.5	22.37	172.58	2
18900	1880.0	22.8	-0.5	22.3	169.82	2
19193	1909.3	22.77	-0.5	22.27	168.66	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	22.13	-0.5	21.63	145.55	2
18900	1880.0	21.96	-0.5	21.46	139.96	2
19193	1909.3	21.99	-0.5	21.49	140.93	2

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	21.07	-0.5	20.57	114.02	2
18900	1880.0	20.98	-0.5	20.48	111.69	2
19193	1908.3	21.06	-0.5	20.56	113.76	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	22.86	-0.5	22.36	172.19	2
18900	1880.0	22.79	-0.5	22.29	169.43	2
19185	1908.5	22.8	-0.5	22.3	169.82	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	22.11	-0.5	21.61	144.88	2
18900	1880.0	21.98	-0.5	21.48	140.6	2
19185	1908.5	22.02	-0.5	21.52	141.91	2

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	21.07	-0.5	20.57	114.02	2
18900	1880.0	20.98	-0.5	20.48	111.69	2
19185	1908.5	21.06	-0.5	20.56	113.76	2



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Test Report No.: W7L-P23100014RF05

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	22.86	-0.5	22.36	172.19	2
18900	1880.0	22.85	-0.5	22.35	171.79	2
19175	1907.5	22.76	-0.5	22.26	168.27	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	22.11	-0.5	21.61	144.88	2
18900	1880.0	22.02	-0.5	21.52	141.91	2
19175	1907.5	22.02	-0.5	21.52	141.91	2

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	21.13	-0.5	20.63	115.61	2
18900	1880.0	21.01	-0.5	20.51	112.46	2
19175	1907.5	21	-0.5	20.5	112.2	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	22.91	-0.5	22.41	174.18	2
18900	1880.0	22.83	-0.5	22.33	171	2
19150	1905.0	22.74	-0.5	22.24	167.49	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	22.15	-0.5	21.65	146.22	2
18900	1880.0	22.02	-0.5	21.52	141.91	2
19150	1905.0	21.98	-0.5	21.48	140.6	2

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	21.08	-0.5	20.58	114.29	2
18900	1880.0	21	-0.5	20.5	112.2	2
19150	1905.0	21.04	-0.5	20.54	113.24	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	22.84	-0.5	22.34	171.4	2
18900	1880.0	22.83	-0.5	22.33	171	2
19125	1902.5	22.77	-0.5	22.27	168.66	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	22.11	-0.5	21.61	144.88	2
18900	1880.0	21.95	-0.5	21.45	139.64	2
19125	1902.5	21.98	-0.5	21.48	140.6	2

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	21.08	-0.5	20.58	114.29	2
18900	1880.0	20.98	-0.5	20.48	111.69	2
19125	1902.5	21.07	-0.5	20.57	114.02	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	22.92	-0.5	22.42	174.58	2
18900	1880	22.87	-0.5	22.37	172.58	2
19100	1900	22.82	-0.5	22.32	170.61	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	22.18	-0.5	21.68	147.23	2
18900	1880	22.03	-0.5	21.53	142.23	2
19100	1900	22.04	-0.5	21.54	142.56	2

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	21.14	-0.5	20.64	115.88	2
18900	1880	21.03	-0.5	20.53	112.98	2
19100	1900	21.08	-0.5	20.58	114.29	2

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

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	23.04	-0.5	22.54	179.47	2
26365	1882.5	22.98	-0.5	22.48	177.01	2
26683	1914.3	22.94	-0.5	22.44	175.39	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	22.35	-0.5	21.85	153.11	2
26365	1882.5	22.33	-0.5	21.83	152.41	2
26683	1914.3	22.34	-0.5	21.84	152.76	2

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26047	1850.7	21.49	-0.5	20.99	125.6	2
26365	1882.5	21.49	-0.5	20.99	125.6	2
26683	1914.3	21.37	-0.5	20.87	122.18	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	22.99	-0.5	22.49	177.42	2
26365	1882.5	22.94	-0.5	22.44	175.39	2
26675	1913.5	22.97	-0.5	22.47	176.6	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	22.41	-0.5	21.91	155.24	2
26365	1882.5	22.26	-0.5	21.76	149.97	2
26675	1913.5	22.38	-0.5	21.88	154.17	2

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26047	1851.5	21.54	-0.5	21.04	127.06	2
26365	1882.5	21.45	-0.5	20.95	124.45	2
26683	1913.5	21.41	-0.5	20.91	123.31	2



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VERITAS**

Test Report No.: W7L-P23100014RF05

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	22.99	-0.5	22.49	177.42	2
26365	1882.5	22.99	-0.5	22.49	177.42	2
26665	1912.5	22.97	-0.5	22.47	176.6	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	22.37	-0.5	21.87	153.82	2
26365	1882.5	22.32	-0.5	21.82	152.05	2
26665	1912.5	22.33	-0.5	21.83	152.41	2

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	21.47	-0.5	20.97	125.03	2
26365	1882.5	21.5	-0.5	21	125.89	2
26665	1912.5	21.41	-0.5	20.91	123.31	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	23.02	-0.5	22.52	178.65	2
26365	1882.5	22.97	-0.5	22.47	176.6	2
26640	1910	23	-0.5	22.5	177.83	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	22.35	-0.5	21.85	153.11	2
26365	1882.5	22.3	-0.5	21.8	151.36	2
26640	1910	22.34	-0.5	21.84	152.76	2

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	21.5	-0.5	21	125.89	2
26365	1882.5	21.43	-0.5	20.93	123.88	2
26640	1910	21.37	-0.5	20.87	122.18	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	23.02	-0.5	22.52	178.65	2
26365	1882.5	22.97	-0.5	22.47	176.6	2
26615	1907.5	23.01	-0.5	22.51	178.24	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	22.41	-0.5	21.91	155.24	2
26365	1882.5	22.26	-0.5	21.76	149.97	2
26615	1907.5	22.38	-0.5	21.88	154.17	2

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26115	1857.5	21.54	-0.5	21.04	127.06	2
26365	1882.5	21.49	-0.5	20.99	125.6	2
26615	1907.5	21.35	-0.5	20.85	121.62	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	23.05	-0.5	22.55	179.89	2
26365	1882.5	23	-0.5	22.5	177.83	2
26590	1905	23.02	-0.5	22.52	178.65	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	22.43	-0.5	21.93	155.96	2
26365	1882.5	22.34	-0.5	21.84	152.76	2
26590	1905	22.39	-0.5	21.89	154.53	2

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	21.55	-0.5	21.05	127.35	2
26365	1882.5	21.51	-0.5	21.01	126.18	2
26590	1905	21.43	-0.5	20.93	123.88	2

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

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

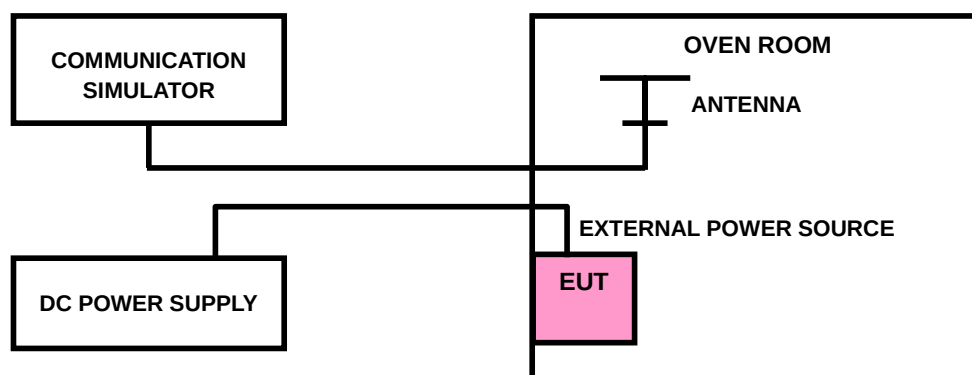
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.2.2 TEST PROCEDURE

- 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.
- 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.
- 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





Test Report No.: W7L-P23100014RF05

3.2.4 TEST RESULTS

Please Refer to Appendix Of this test report.

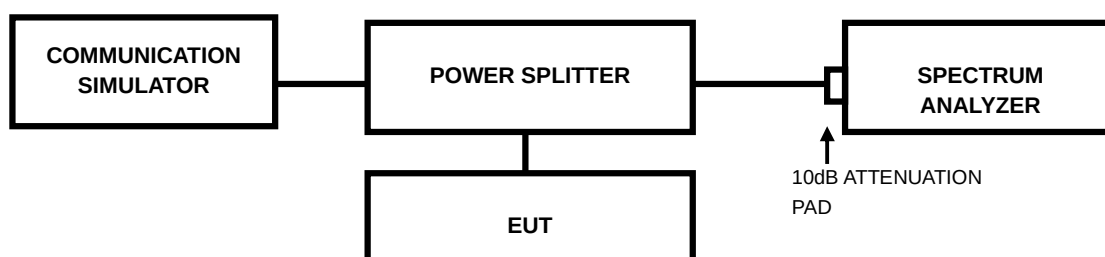
Note: VL = Low voltage(3.6V); VN/NV = Normal voltage(3.7V); VH = High voltage(4.2V);
NT = Normal temperature (25°C)

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

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



Test Report No.: W7L-P23100014RF05

3.3.4 TEST RESULTS

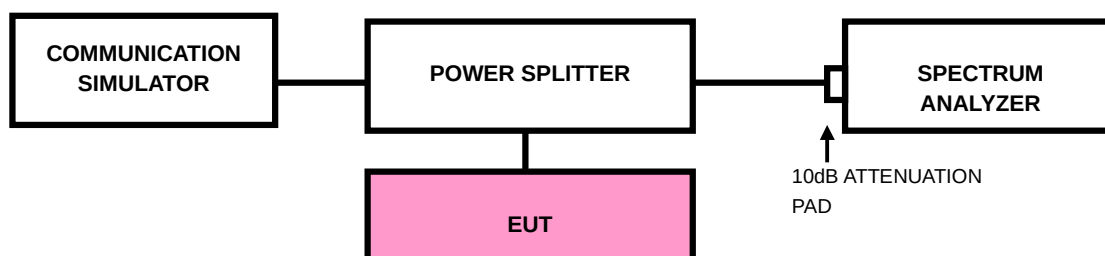
Please Refer to Appendix Of this test report.

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) $\geq 1\%$ 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 $\geq 3 \times$ 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.



Test Report No.: W7L-P23100014RF05

3.4.4. TEST RESULTS

Please Refer to Appendix Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

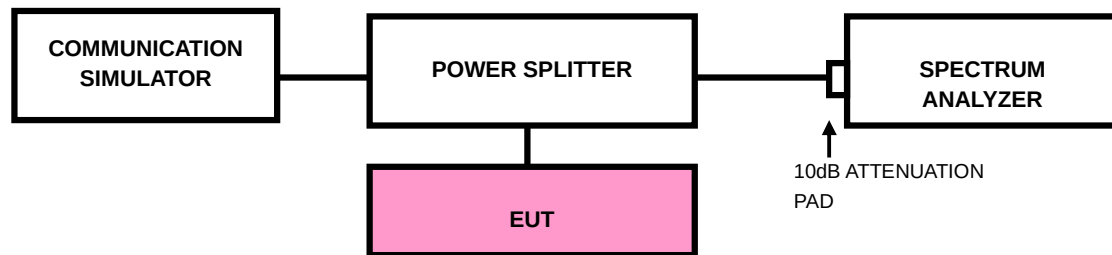
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 10th 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.: W7L-P23100014RF05

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

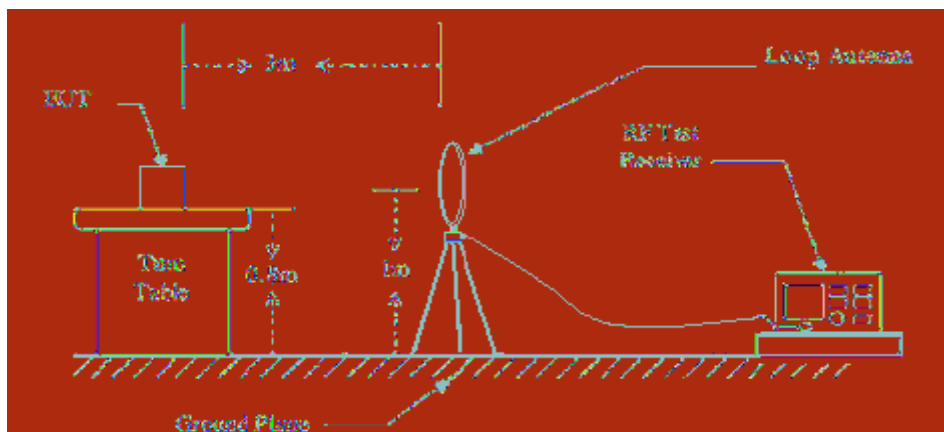
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

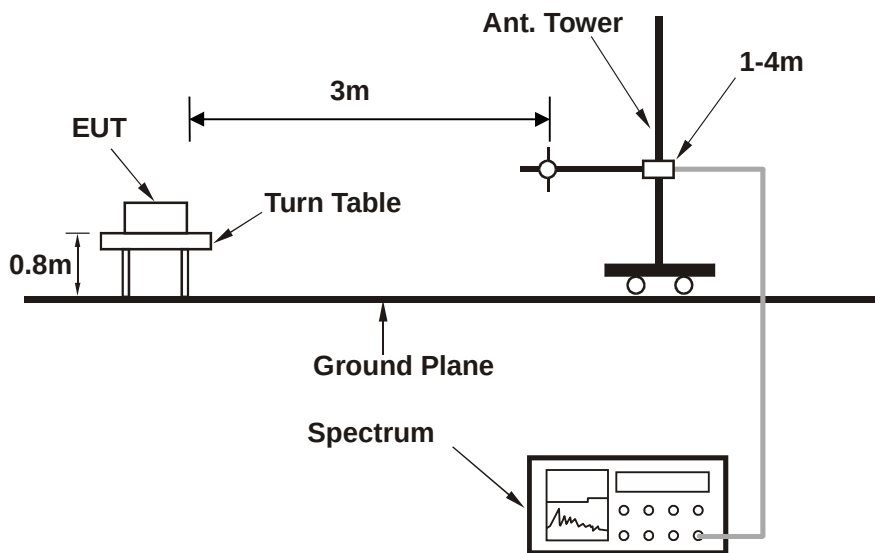
No deviation

3.6.4 TEST SETUP

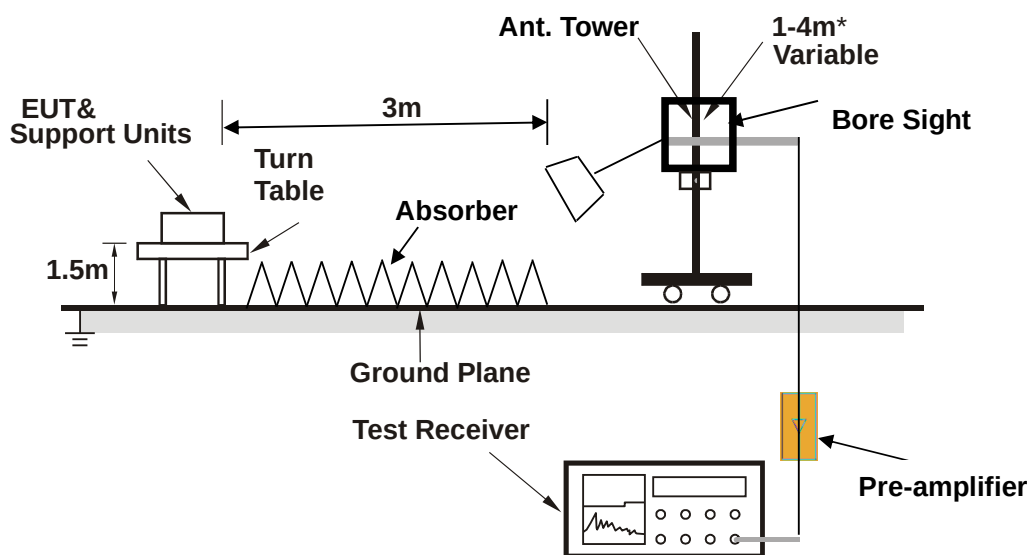
< Frequency Range below 30MHz >



< 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

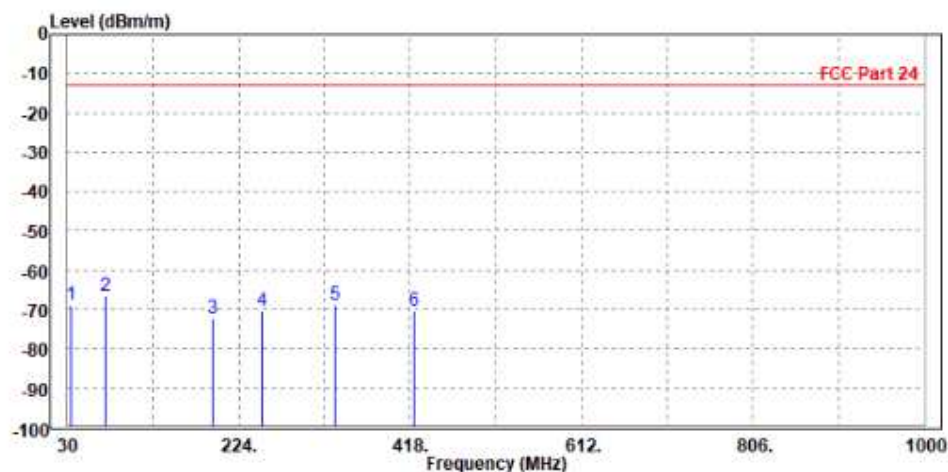
30 MHz – 1GHz data:

LTE Band 25:

CHANNEL BANDWIDTH: 10MHz / QPSK

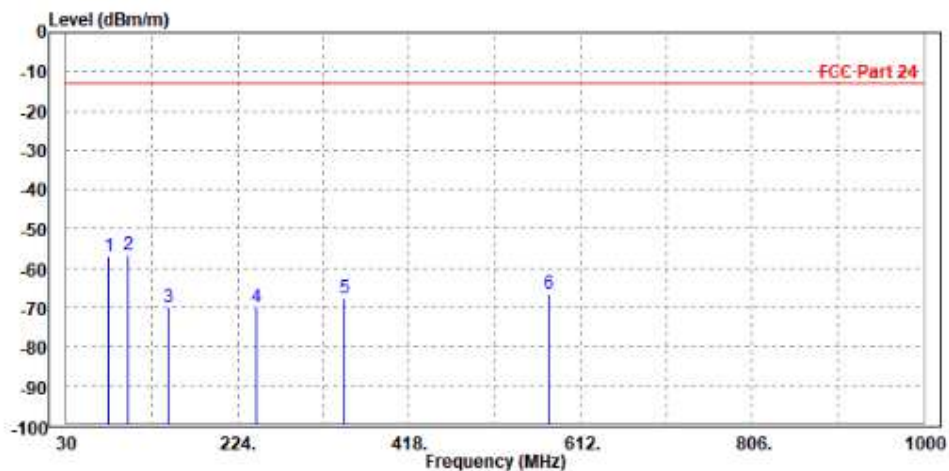
MODE	TX channel 26640	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	34.850	-68.72	-56.68	-13.00	-55.72	-12.04	Peak	Horizontal
2 PP	73.650	-66.51	-45.21	-13.00	-53.51	-21.30	Peak	Horizontal
3	194.900	-72.07	-53.95	-13.00	-59.07	-18.12	Peak	Horizontal
4	250.190	-70.35	-58.89	-13.00	-57.35	-11.46	Peak	Horizontal
5	333.610	-68.66	-57.02	-13.00	-55.66	-11.64	Peak	Horizontal
6	422.850	-70.23	-60.61	-13.00	-57.23	-9.62	Peak	Horizontal



MODE	TX channel 26640	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	78.500	-57.21	-37.54	-13.00	-44.21	-19.67	Peak	Vertical
2 PP	99.840	-56.62	-50.11	-13.00	-43.62	-6.51	Peak	Vertical
3	145.430	-69.94	-54.14	-13.00	-56.94	-15.80	Peak	Vertical
4	245.340	-69.94	-55.93	-13.00	-56.94	-14.01	Peak	Vertical
5	345.250	-67.66	-57.67	-13.00	-54.66	-9.99	Peak	Vertical
6	576.110	-66.38	-59.78	-13.00	-53.38	-6.60	Peak	Vertical





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Test Report No.: W7L-P23100014RF05

ABOVE 1GHz DATA

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

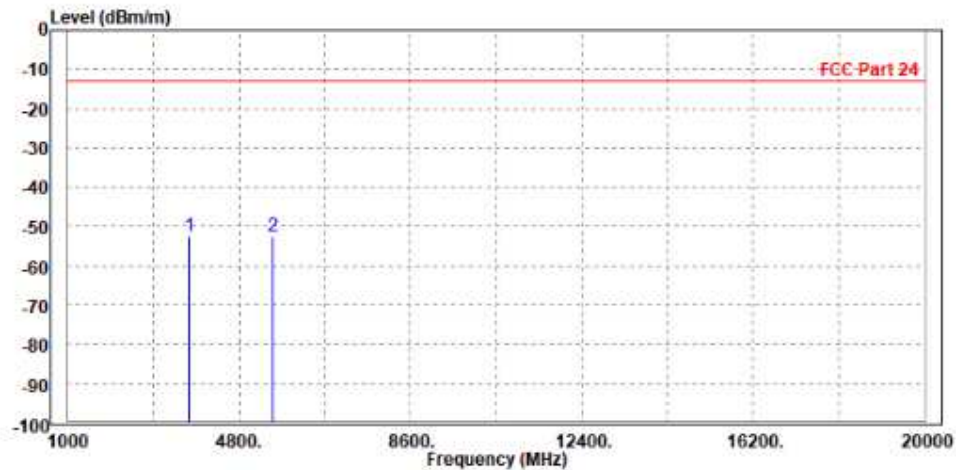
WORST-CASE DATA

GSM 1900:

CH 512

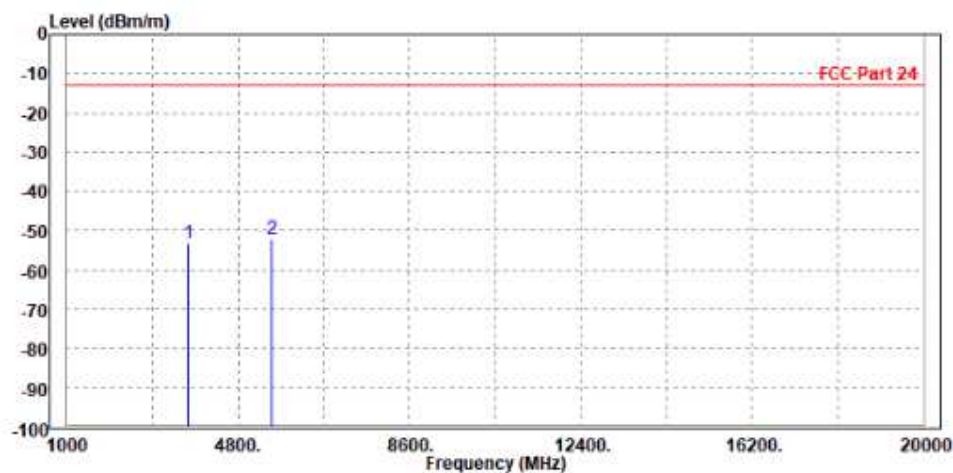
MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHZ
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3698.000	-52.64	-60.47	-13.00	-39.64	7.83	Peak	Horizontal
2 PP	5550.600	-52.35	-62.92	-13.00	-39.35	10.57	Peak	Horizontal



MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHZ
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

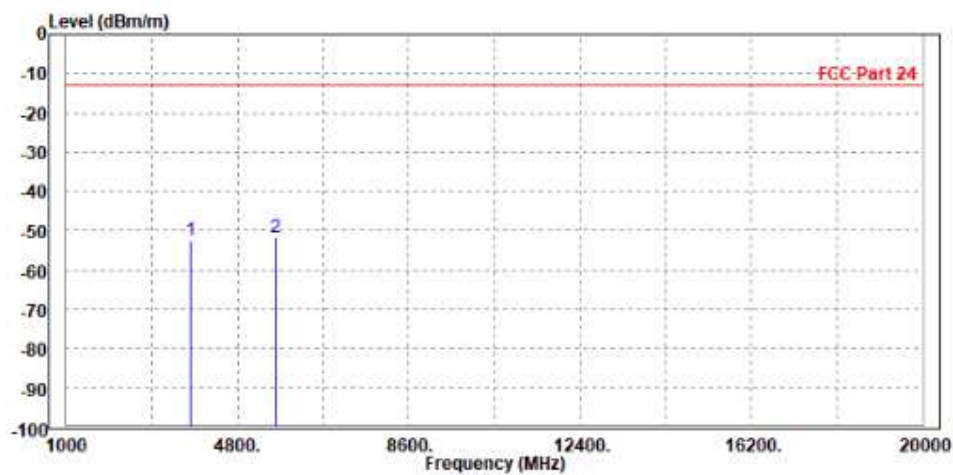
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3700.400	-53.12	-60.73	-13.00	-40.12	7.61	Peak	Vertical
2 PP	5560.000	-52.11	-63.01	-13.00	-39.11	10.90	Peak	Vertical



CH 661

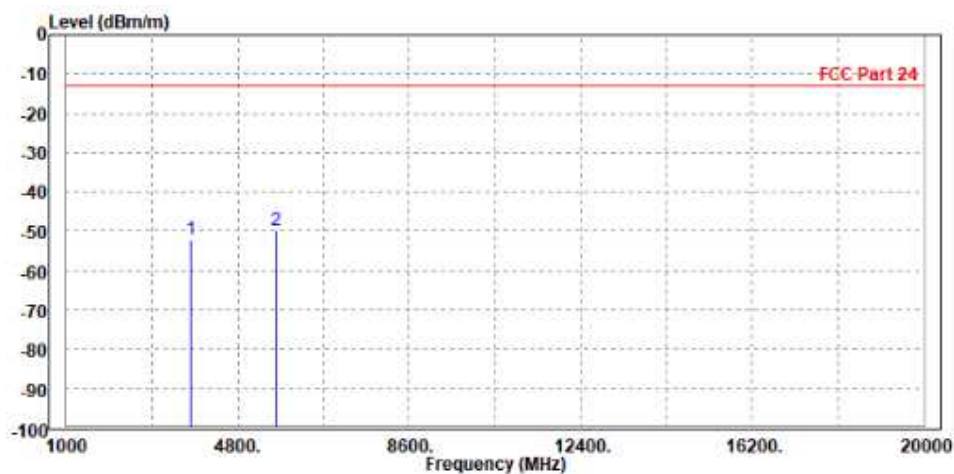
MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-52.58	-60.57	-13.00	-39.58	7.99	Peak	Horizontal
2 PP	5636.000	-51.62	-62.35	-13.00	-38.62	10.73	Peak	Horizontal



MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3755.000	-52.20	-59.89	-13.00	-39.20	7.69	Peak	Vertical
2	PP 5640.000	-49.82	-60.95	-13.00	-36.82	11.13	Peak	Vertical





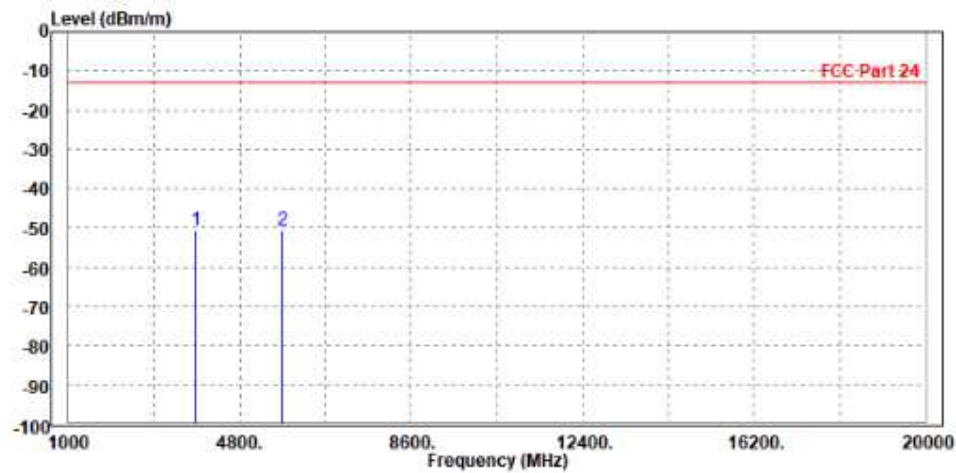
BUREAU
VERITAS

Test Report No.: W7L-P23100014RF05

CH 810

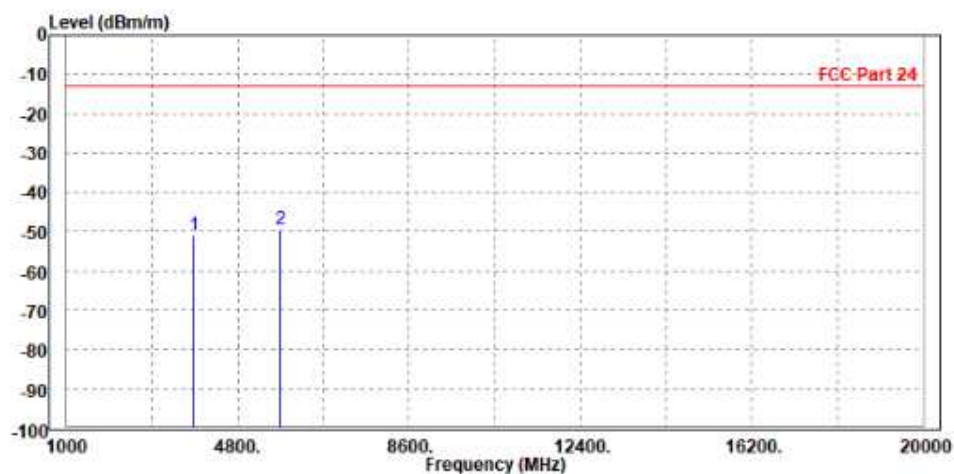
MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3819.600	-50.72	-58.86	-13.00	-37.72	8.14	Peak	Horizontal
2 PP	5731.000	-50.58	-61.49	-13.00	-37.58	10.91	Peak	Horizontal



MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3812.000	-50.92	-58.69	-13.00	-37.92	7.77	Peak	Vertical
2 PP	5729.400	-49.36	-60.74	-13.00	-36.36	11.38	Peak	Vertical





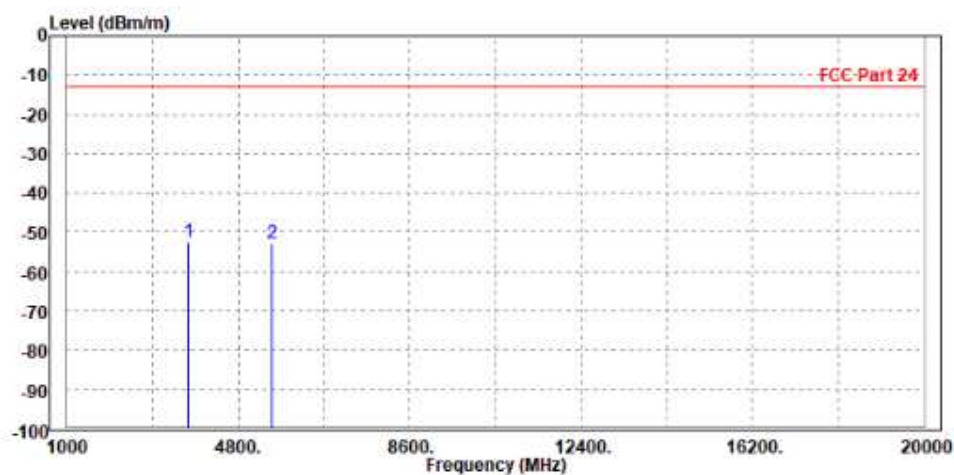
Test Report No.: W7L-P23100014RF05

EDGE 1900:

CH 512

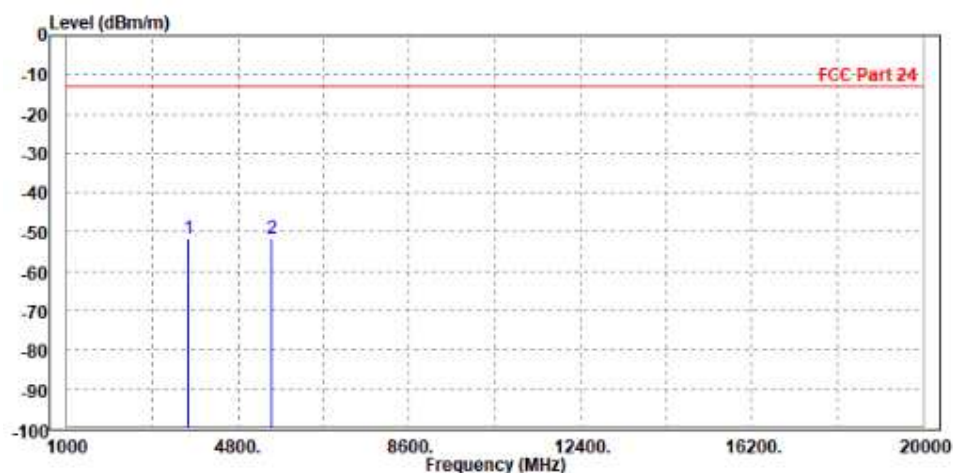
MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHZ
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	3700.400	-52.40	-60.24	-13.00	-39.40	7.84	Peak	Horizontal
2	5560.000	-52.88	-63.47	-13.00	-39.88	10.59	Peak	Horizontal



MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

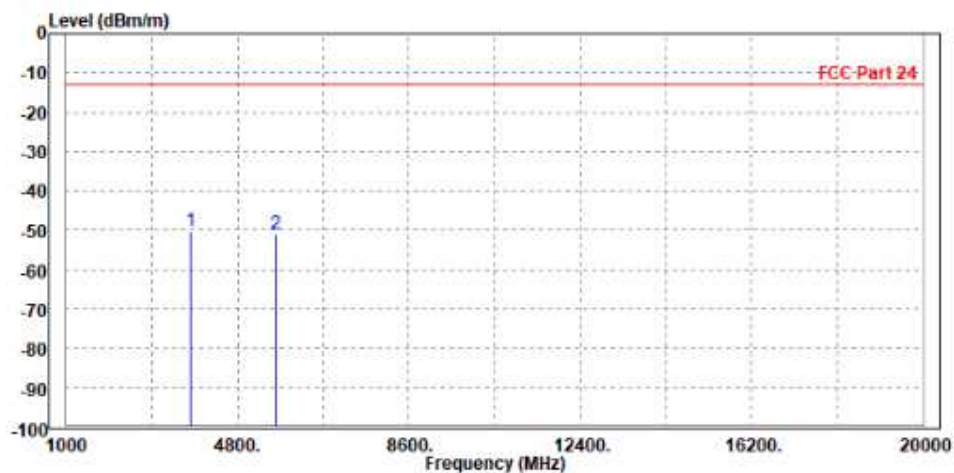
		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	3698.000	-51.83	-59.44	-13.00	-38.83	7.61	Peak	Vertical
2		5550.600	-51.87	-62.74	-13.00	-38.87	10.87	Peak	Vertical



CH 661

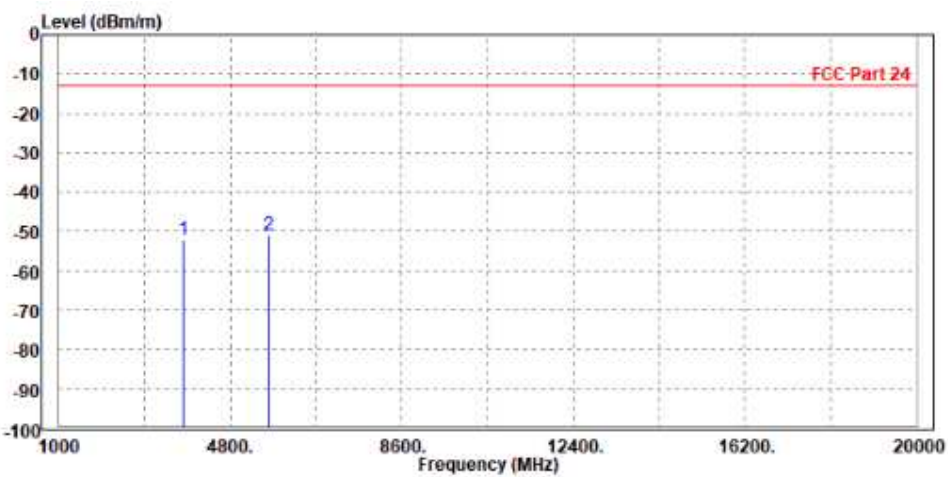
MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 3755.000	-50.31	-58.29	-13.00	-37.31	7.98	Peak	Horizontal
2	5640.000	-50.82	-61.56	-13.00	-37.82	10.74	Peak	Horizontal



MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

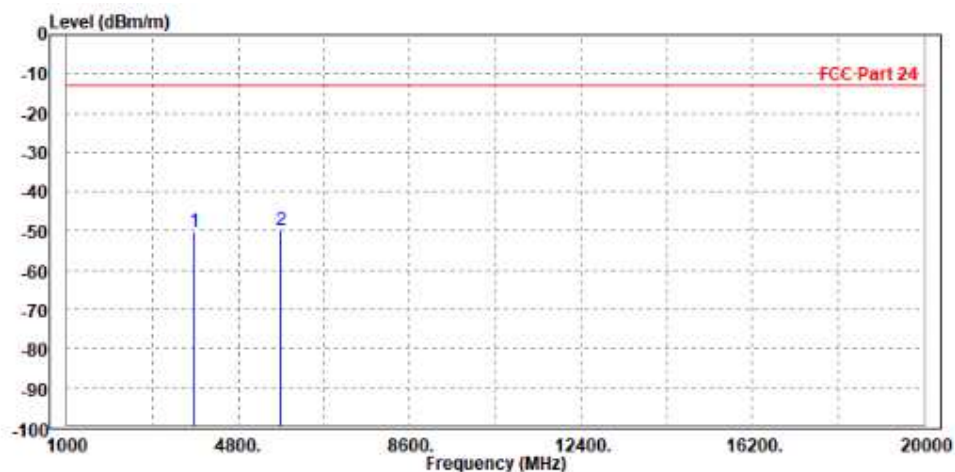
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-52.18	-59.88	-13.00	-39.18	7.70	Peak	Vertical
2 PP	5636.000	-50.77	-61.89	-13.00	-37.77	11.12	Peak	Vertical



CH 810

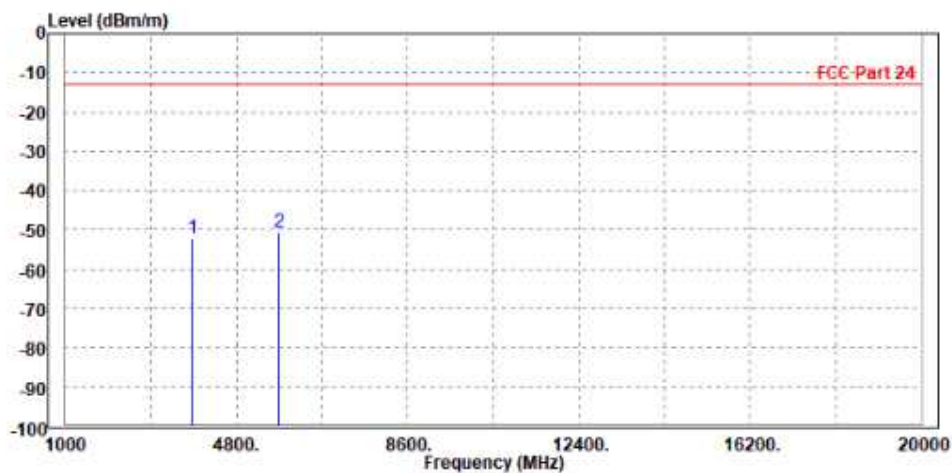
MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3812.000	-50.33	-58.45	-13.00	-37.33	8.12	Peak	Horizontal
2 PP	5731.000	-49.84	-60.75	-13.00	-36.84	10.91	Peak	Horizontal



MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3819.600	-52.08	-59.86	-13.00	-39.08	7.78	Peak	Vertical
2 PP	5731.000	-50.63	-62.02	-13.00	-37.63	11.39	Peak	Vertical

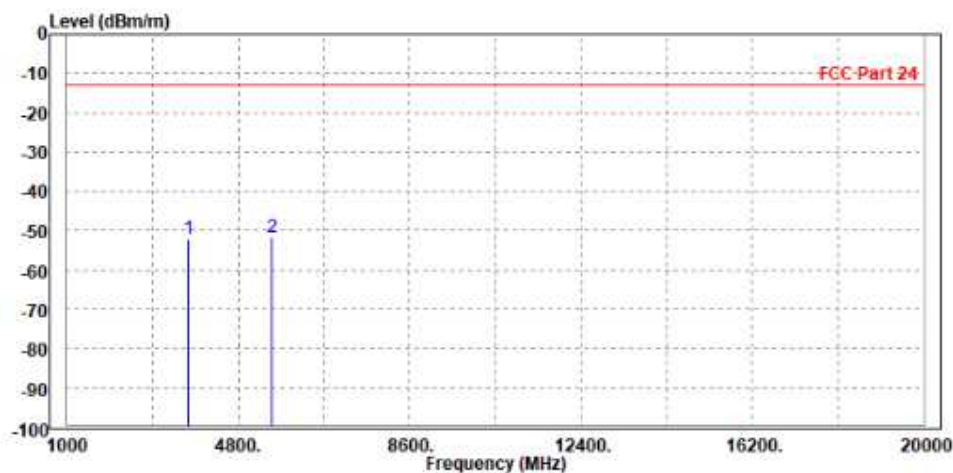


WCDMA Band II

CH 9262

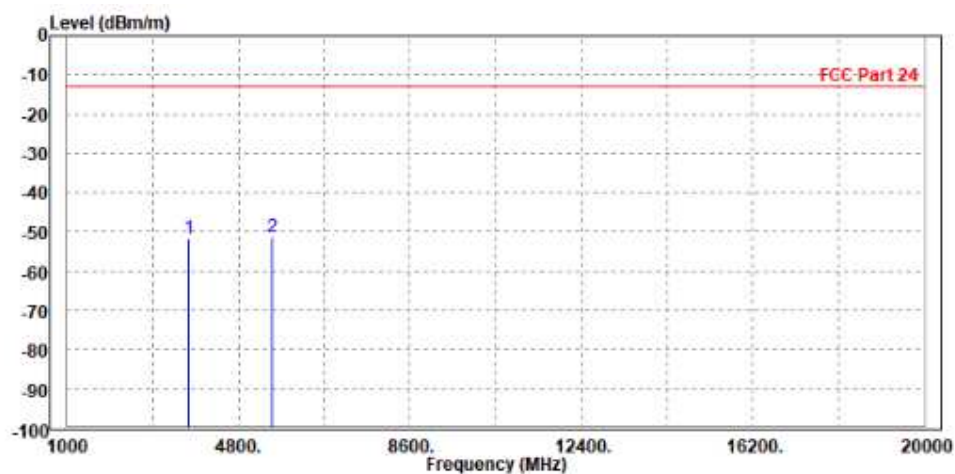
MODE	TX channel 9262	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3698.000	-52.07	-59.90	-13.00	-39.07	7.83	Peak	Horizontal
2 PP	5557.200	-51.63	-62.21	-13.00	-38.63	10.58	Peak	Horizontal



MODE	TX channel 9262	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

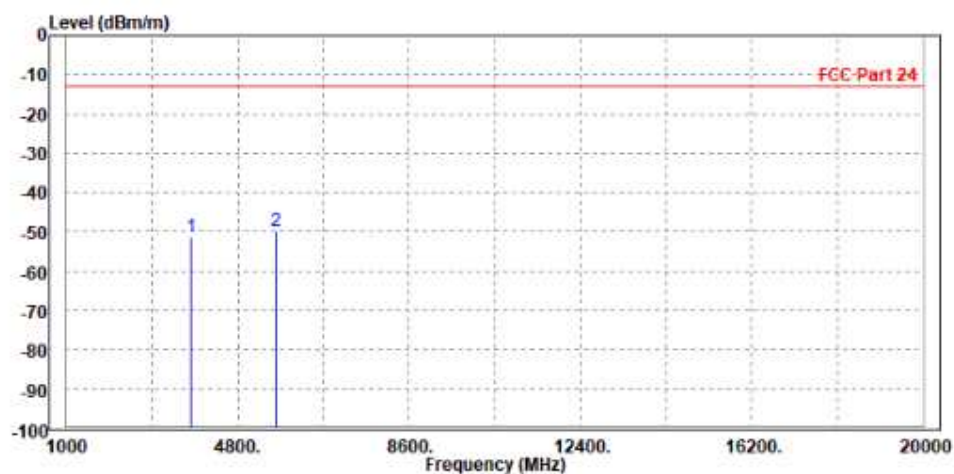
	Freq	Level	Read	Limit	Over			
	MHz	dBm/m	Level	Line	Limit	Factor	Remark	Pol/Phase
			dBm	dBm/m	dB	dB/m		
1	3704.800	-51.90	-59.52	-13.00	-38.90	7.62	Peak	Vertical
2 PP	5560.000	-51.33	-62.23	-13.00	-38.33	10.90	Peak	Vertical



CH 9400

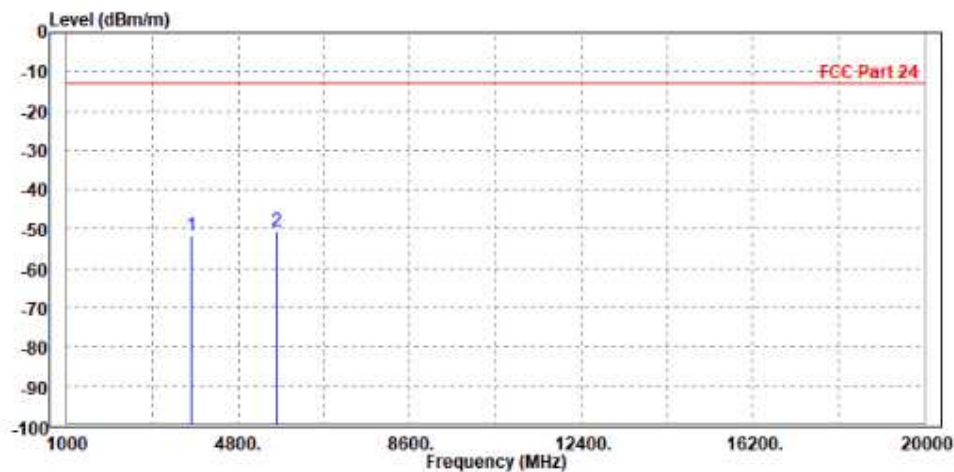
MODE	TX channel 9400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-51.30	-59.29	-13.00	-38.30	7.99	Peak	Horizontal
2 PP	5636.000	-49.95	-60.68	-13.00	-36.95	10.73	Peak	Horizontal



MODE	TX channel 9400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

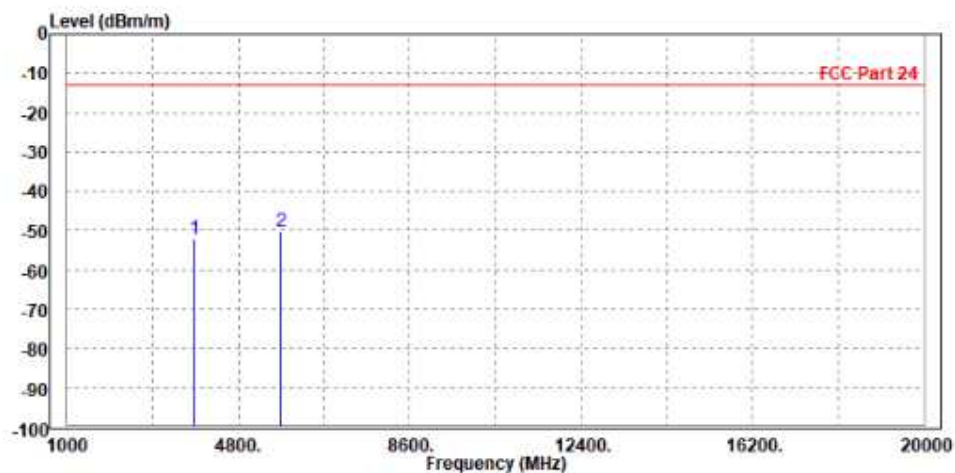
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3755.000	-51.89	-59.58	-13.00	-38.89	7.69	Peak	Vertical
2 PP	5640.000	-50.58	-61.71	-13.00	-37.58	11.13	Peak	Vertical



CH 9538

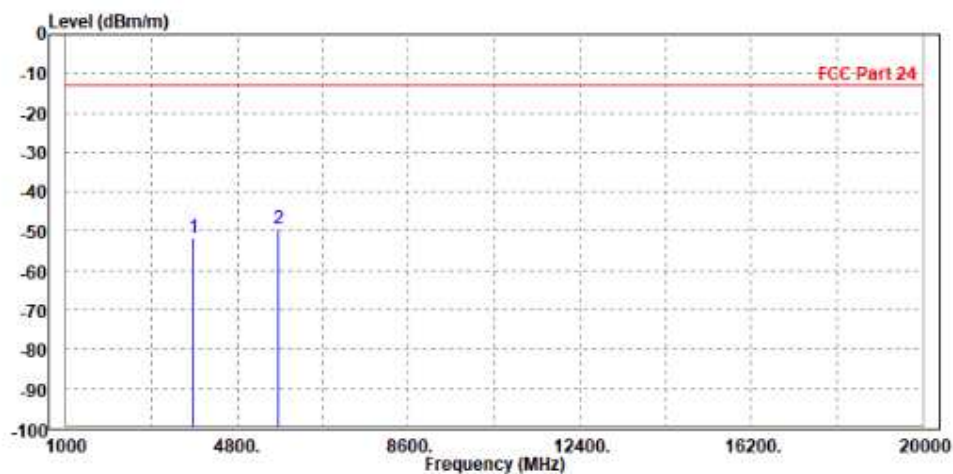
MODE	TX channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3815.200	-52.10	-60.23	-13.00	-39.10	8.13	Peak	Horizontal
2 PP	5731.000	-50.14	-61.05	-13.00	-37.14	10.91	Peak	Horizontal



MODE	TX channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3812.000	-51.65	-59.42	-13.00	-38.65	7.77	Peak	Vertical
2 PP	5722.800	-49.30	-60.66	-13.00	-36.30	11.36	Peak	Vertical

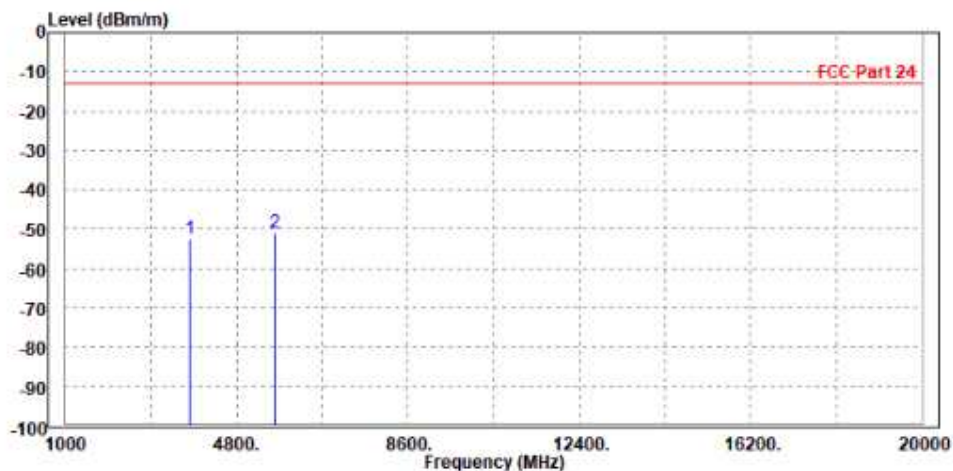


LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK

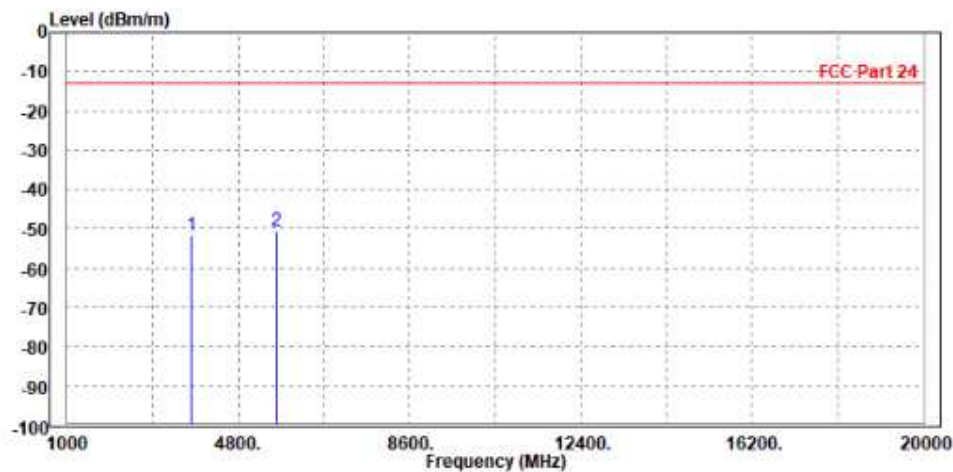
MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-52.63	-60.63	-13.00	-39.63	8.00	Peak	Horizontal
2 PP	5655.000	-50.82	-61.59	-13.00	-37.82	10.77	Peak	Horizontal



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-51.81	-59.53	-13.00	-38.81	7.72	Peak	Vertical
2 PP	5647.500	-50.46	-61.61	-13.00	-37.46	11.15	Peak	Vertical





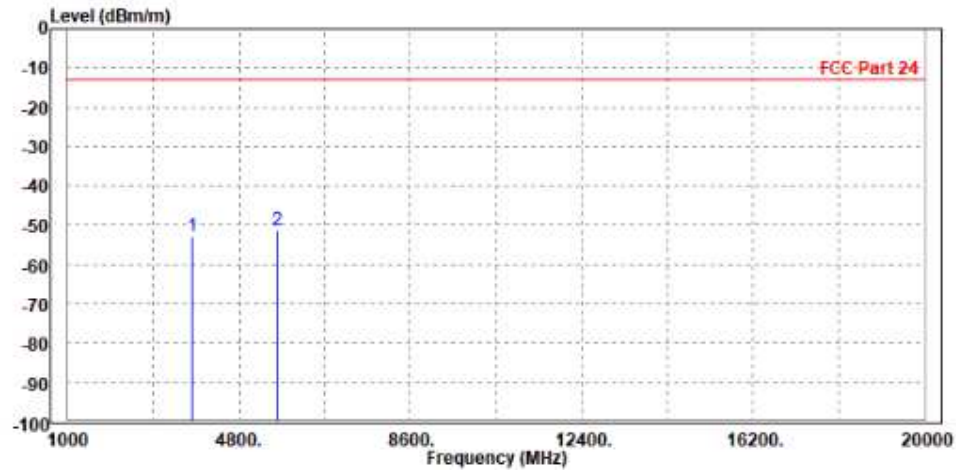
**BUREAU
VERITAS**

Test Report No.: W7L-P23100014RF05

CHANNEL BANDWIDTH: 3MHz / QPSK

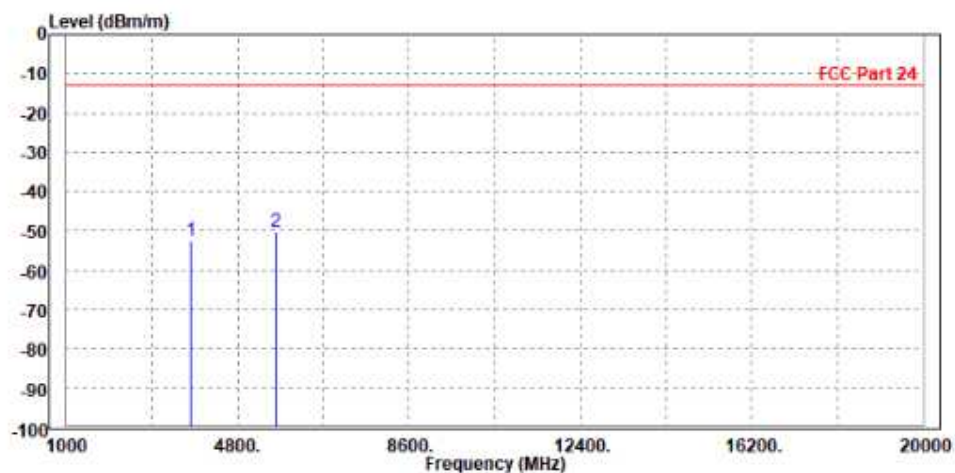
MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-53.02	-61.04	-13.00	-40.02	8.02	Peak	Horizontal
2 PP	5647.500	-51.20	-61.96	-13.00	-38.20	10.76	Peak	Horizontal



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

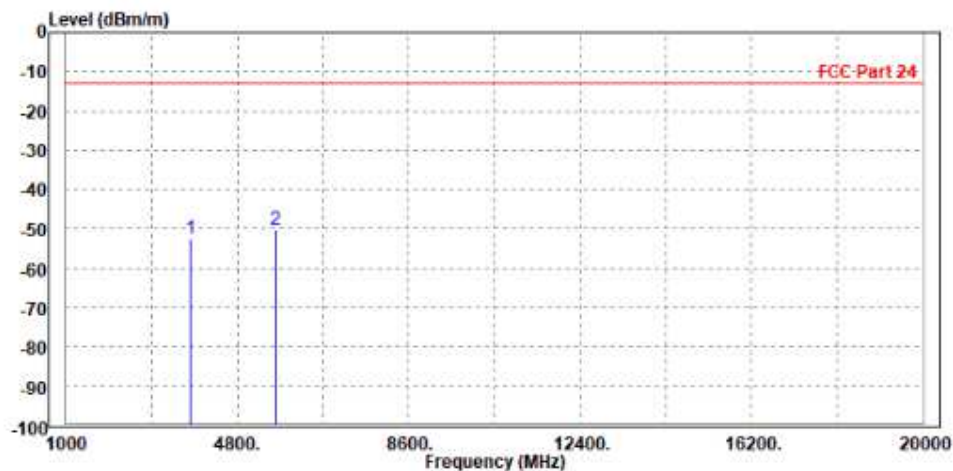
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-52.43	-60.13	-13.00	-39.43	7.70	Peak	Vertical
2 PP	5655.000	-50.02	-61.19	-13.00	-37.02	11.17	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

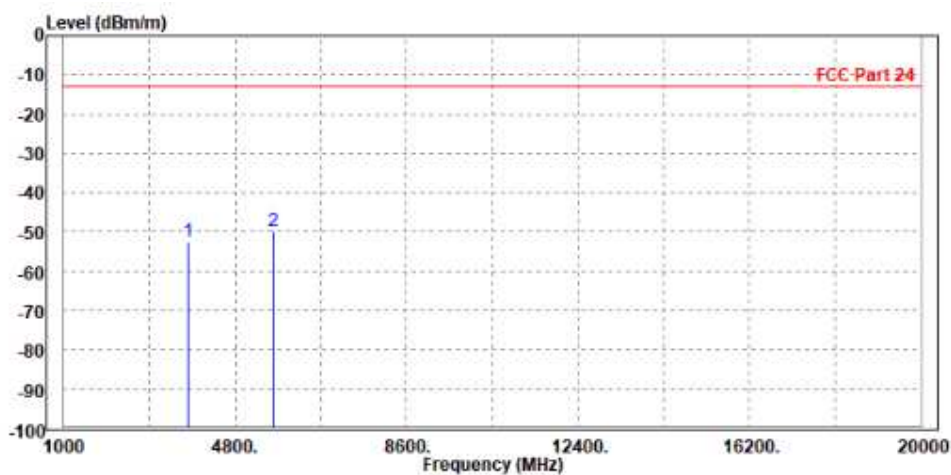
MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-52.65	-60.65	-13.00	-39.65	8.00	Peak	Horizontal
2 PP	5655.000	-50.16	-60.93	-13.00	-37.16	10.77	Peak	Horizontal



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-52.48	-60.20	-13.00	-39.48	7.72	Peak	Vertical
2 PP	5647.500	-49.92	-61.07	-13.00	-36.92	11.15	Peak	Vertical

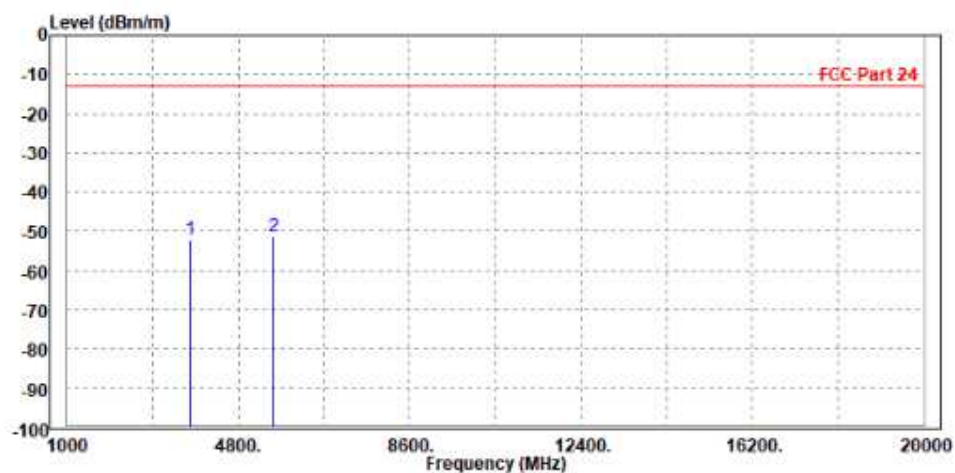


CHANNEL BANDWIDTH: 10MHz / QPSK

CH26090

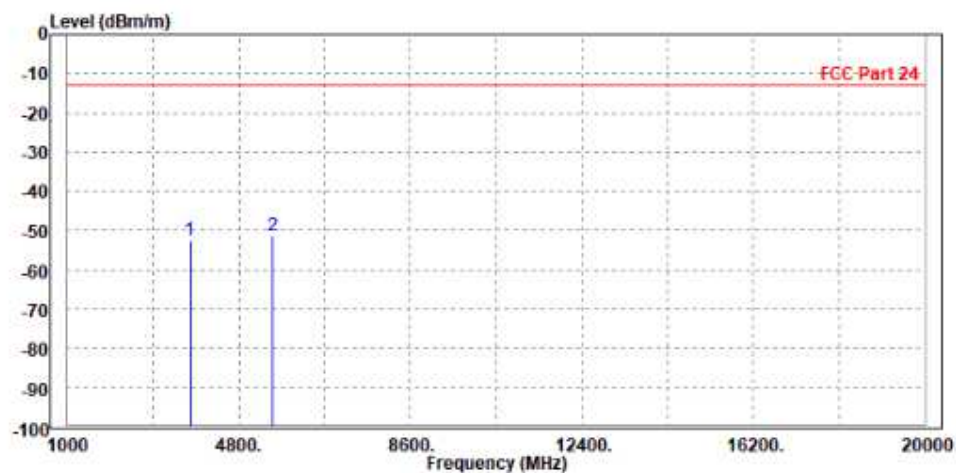
MODE	TX channel 26090	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3717.000	-52.16	-60.04	-13.00	-39.16	7.88	Peak	Horizontal
2 PP	5565.000	-51.15	-61.75	-13.00	-38.15	10.60	Peak	Horizontal



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

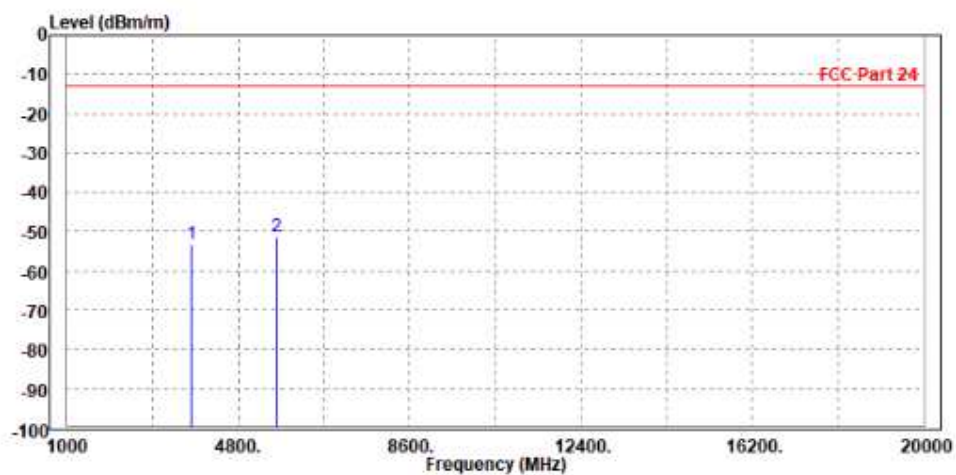
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3710.000	-52.45	-60.07	-13.00	-39.45	7.62	Peak	Vertical
2 PP	5560.000	-51.32	-62.22	-13.00	-38.32	10.90	Peak	Vertical



CH26365

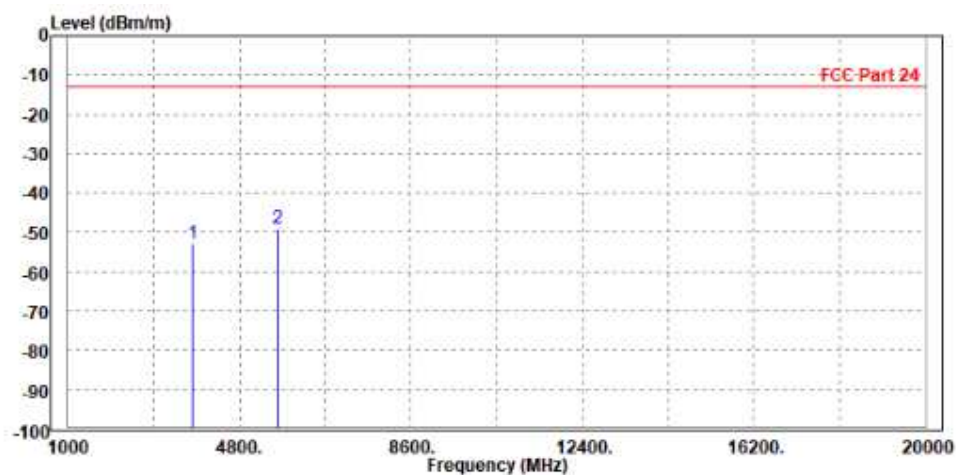
MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-53.05	-61.05	-13.00	-40.05	8.00	Peak	Horizontal
2 PP	5655.000	-51.40	-62.17	-13.00	-38.40	10.77	Peak	Horizontal



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

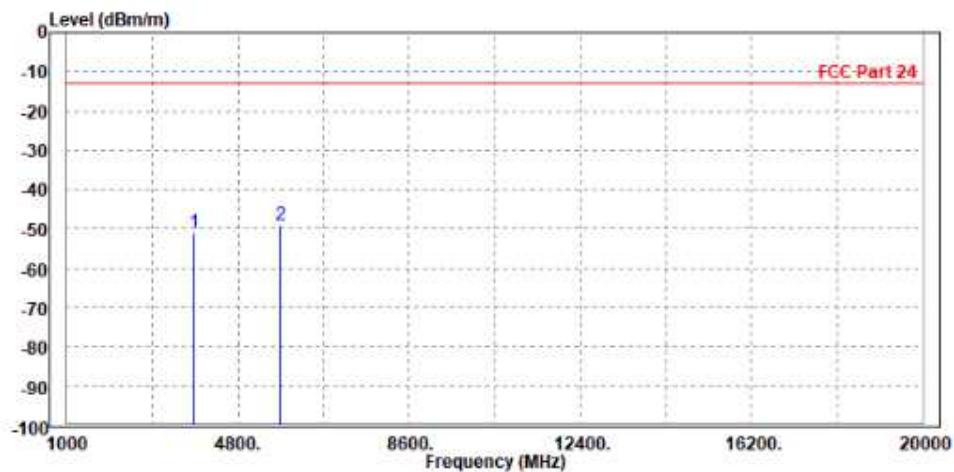
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-52.82	-60.54	-13.00	-39.82	7.72	Peak	Vertical
2 PP	5655.000	-49.20	-60.37	-13.00	-36.20	11.17	Peak	Vertical



CH26640

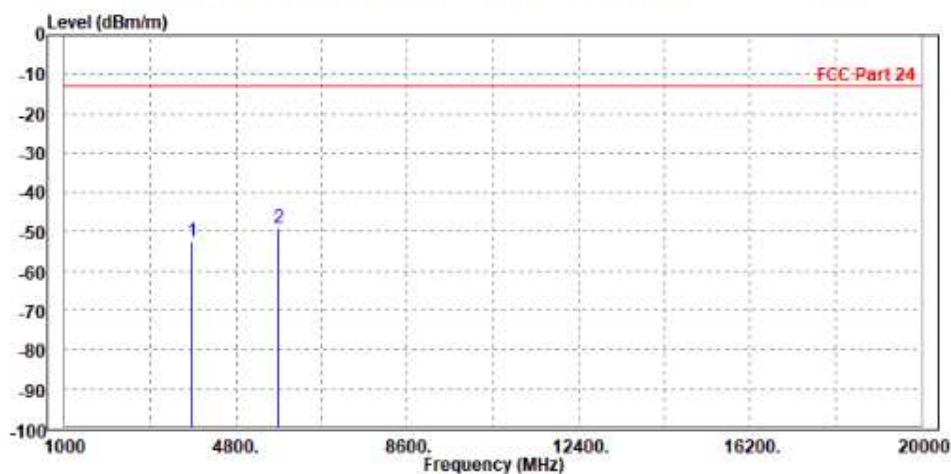
MODE	TX channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3820.000	-50.84	-58.98	-13.00	-37.84	8.14	Peak	Horizontal
2 PP	5731.000	-48.87	-59.78	-13.00	-35.87	10.91	Peak	Horizontal



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

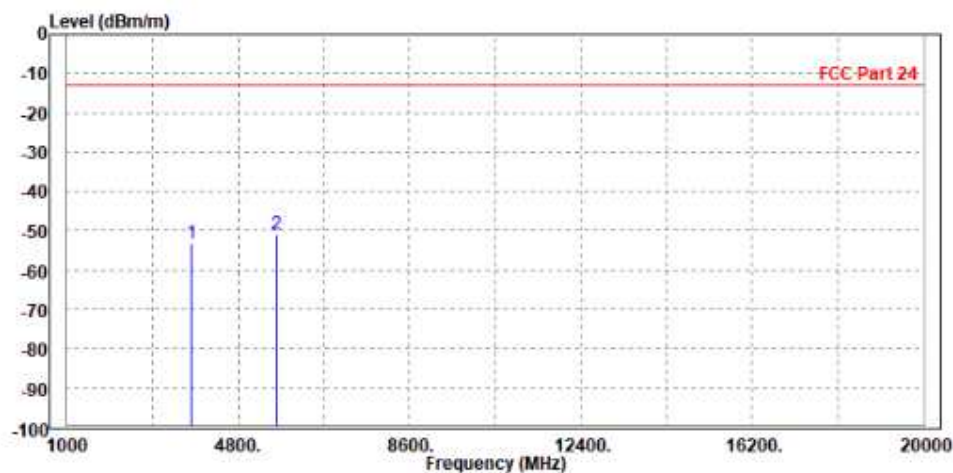
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3812.000	-52.35	-60.12	-13.00	-39.35	7.77	Peak	Vertical
2 PP	5730.000	-48.96	-60.34	-13.00	-35.96	11.38	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

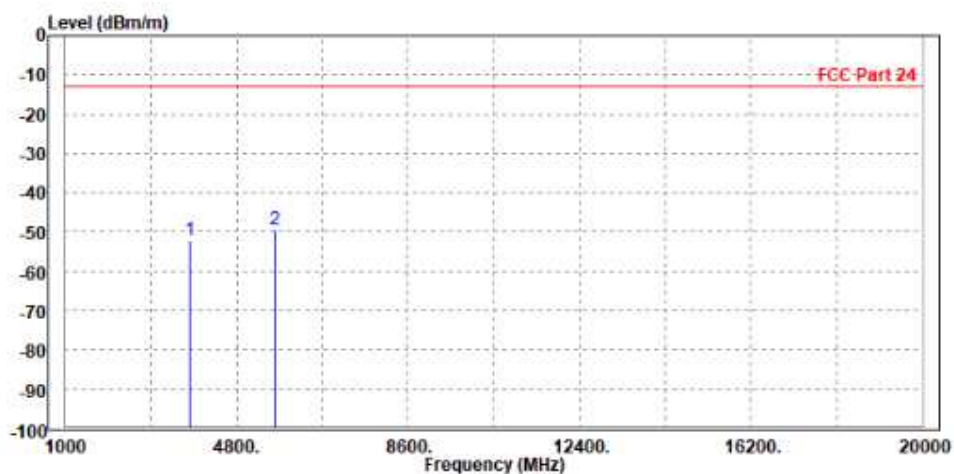
MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-53.04	-61.06	-13.00	-40.04	8.02	Peak	Horizontal
2	PP 5647.500	-50.81	-61.57	-13.00	-37.81	10.76	Peak	Horizontal



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

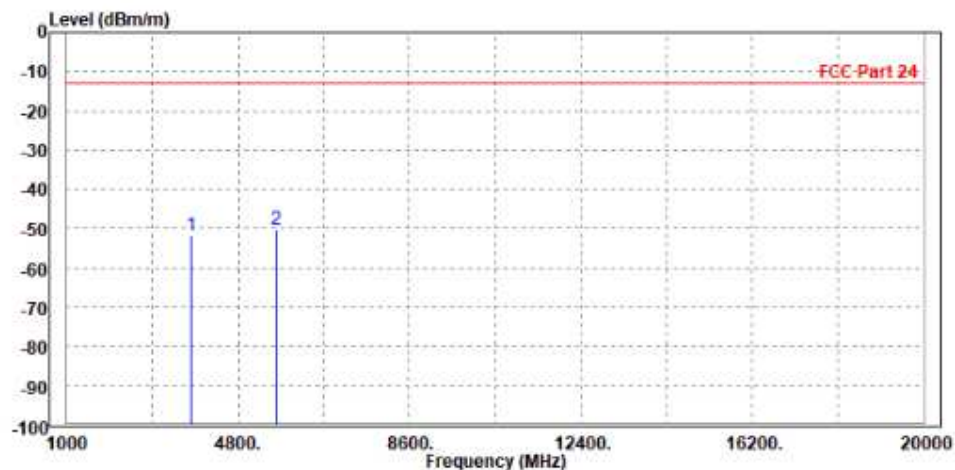
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-52.09	-59.79	-13.00	-39.09	7.70	Peak	Vertical
2 PP	5655.000	-49.26	-60.43	-13.00	-36.26	11.17	Peak	Vertical



CHANNEL BANDWIDTH: 20MHz / QPSK

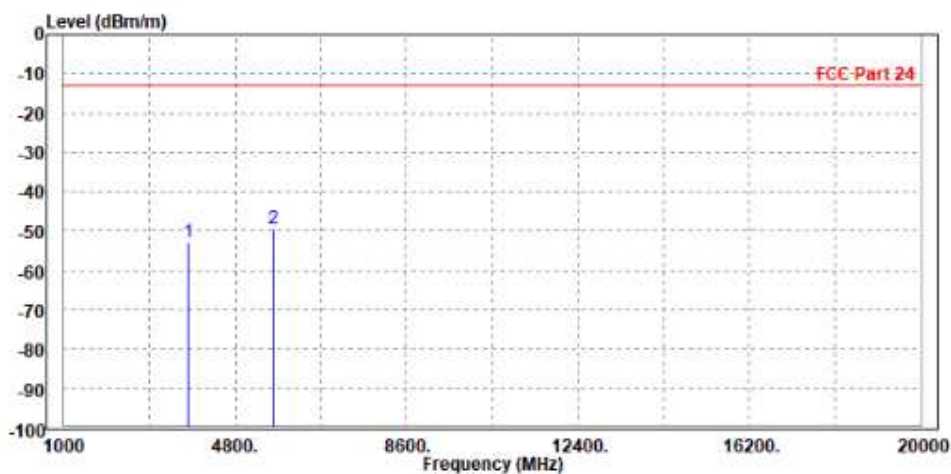
MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-51.57	-59.57	-13.00	-38.57	8.00	Peak	Horizontal
2 PP	5655.000	-50.17	-60.94	-13.00	-37.17	10.77	Peak	Horizontal



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-53.04	-60.76	-13.00	-40.04	7.72	Peak	Vertical
2 PP	5647.500	-49.54	-60.69	-13.00	-36.54	11.15	Peak	Vertical

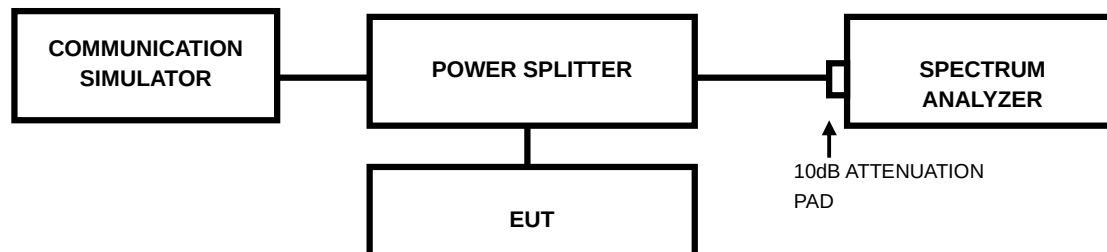


3.7 PEAK TO AVERAGE RATIO

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.: W7L-P23100014RF05

3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.



Test Report No.: W7L-P23100014RF05

4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 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:

Shenzhen EMC/RF Lab:

Tel: +86-755-88696566

Fax: +86-755-88696577

Email: customerservice.sw@bureauveritas.com

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.



Test Report No.: W7L-P23100014RF05

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

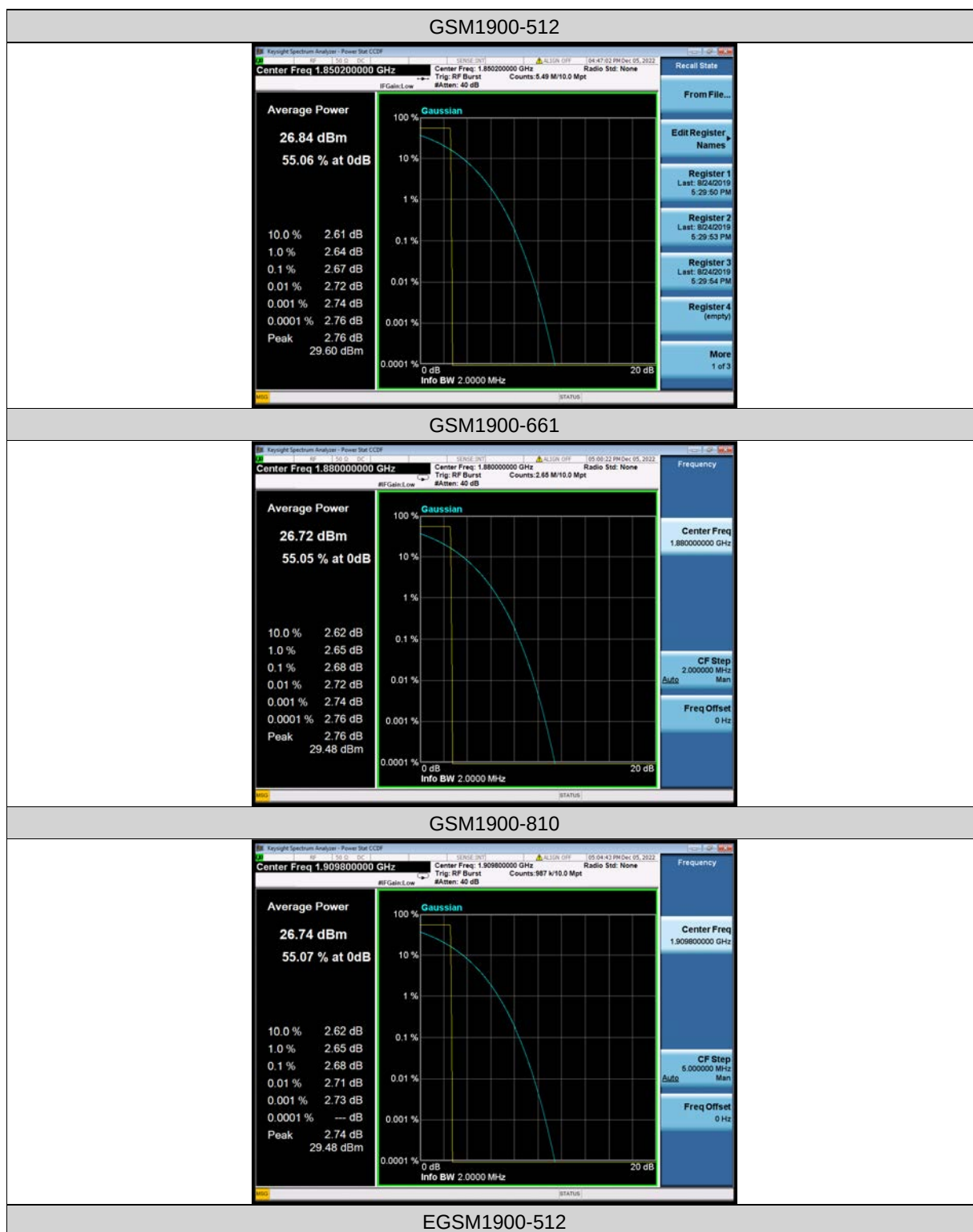
GSM1900

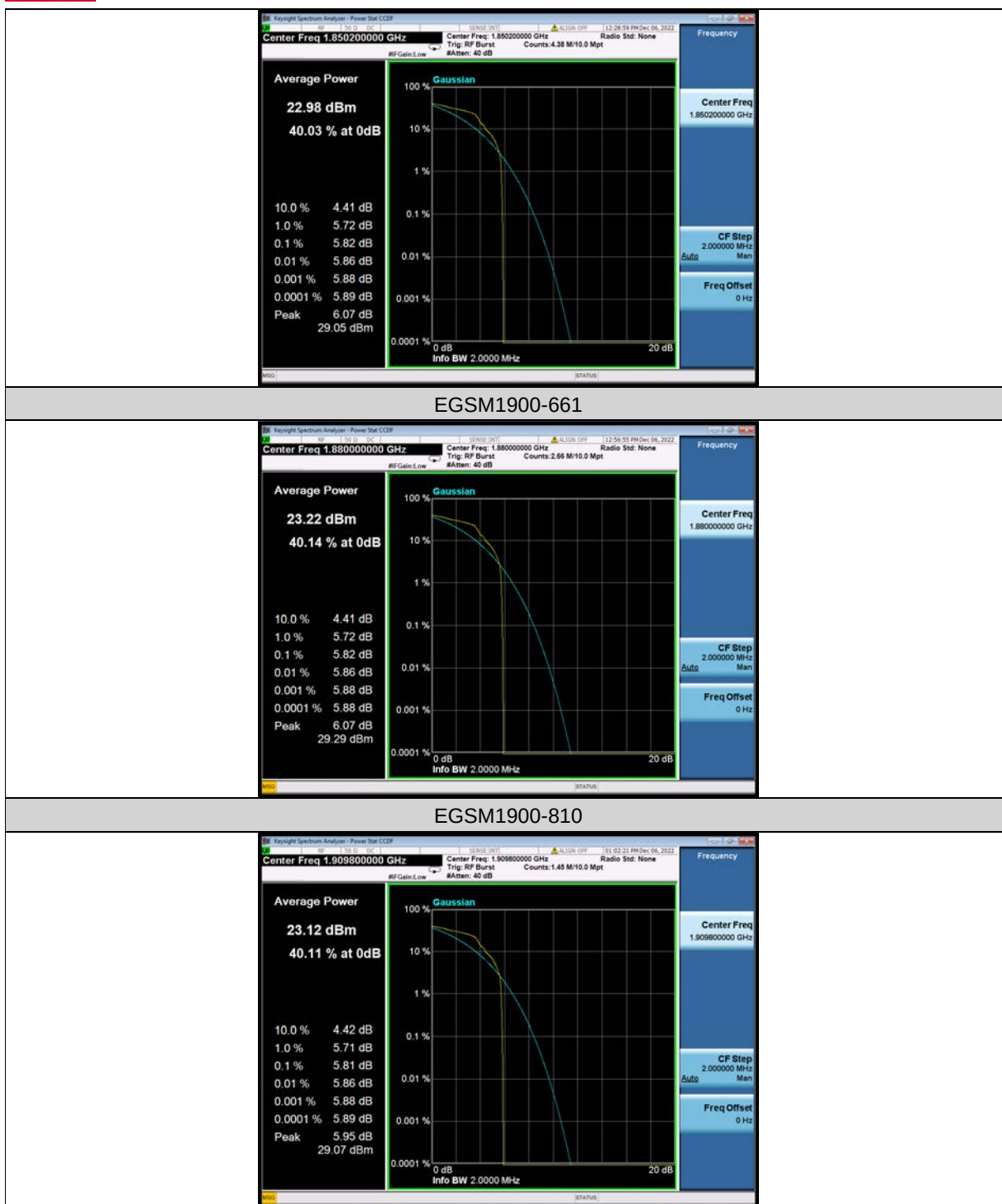
PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM1900	512	2.67	13	PASS
GSM1900	661	2.68	13	PASS
GSM1900	810	2.68	13	PASS
EGSM1900	512	5.82	13	PASS
EGSM1900	661	5.82	13	PASS
EGSM1900	810	5.81	13	PASS

Test Graphs



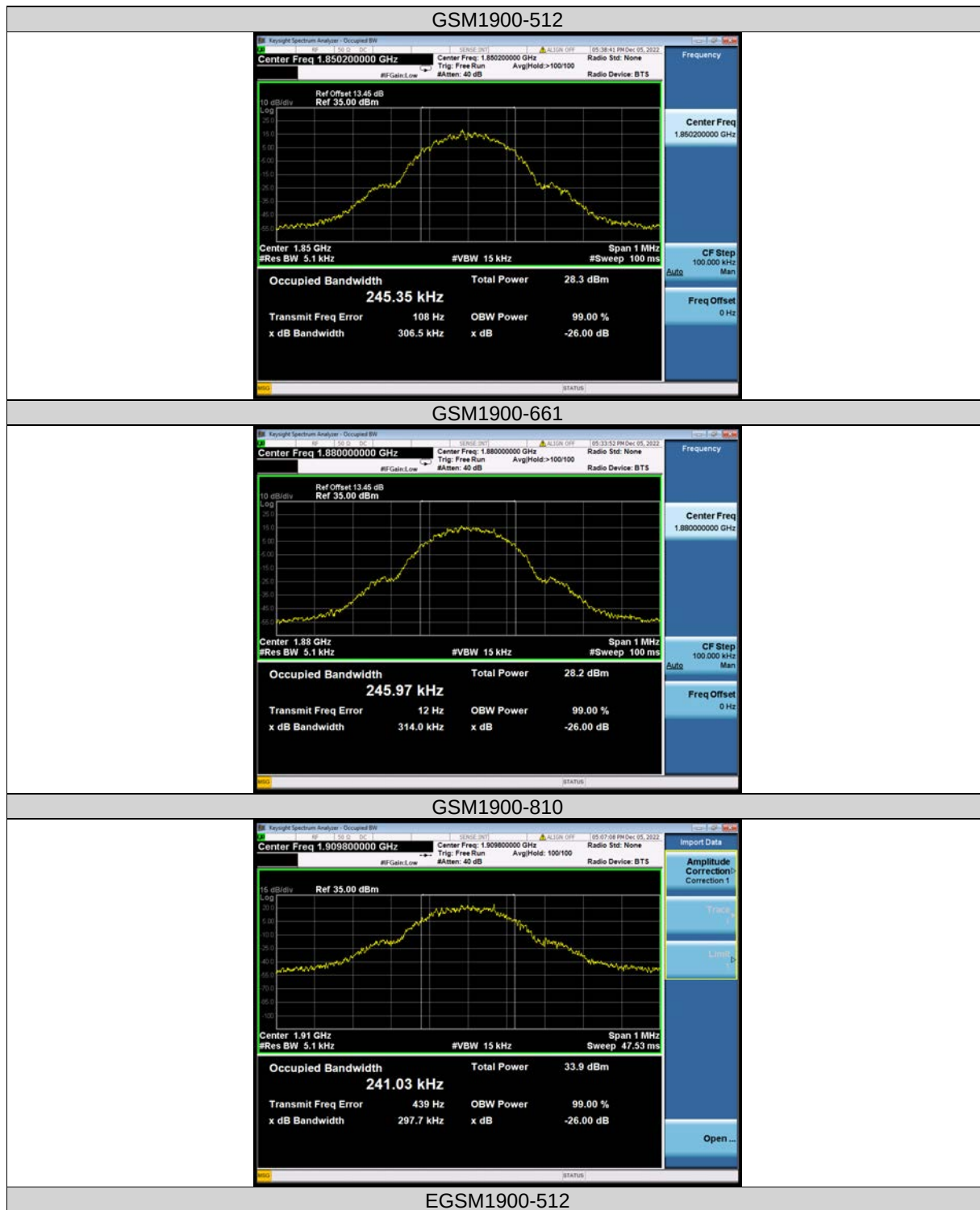


26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM1900	512	0.24535	0.3065	---	PASS
GSM1900	661	0.24597	0.3140	---	PASS
GSM1900	810	0.24103	0.2977	---	PASS
EGSM1900	512	0.24142	0.3093	---	PASS
EGSM1900	661	0.24407	0.3051	---	PASS
EGSM1900	810	0.24215	0.3079	---	PASS

Test Graphs





EGSM1900-661



EGSM1900-810





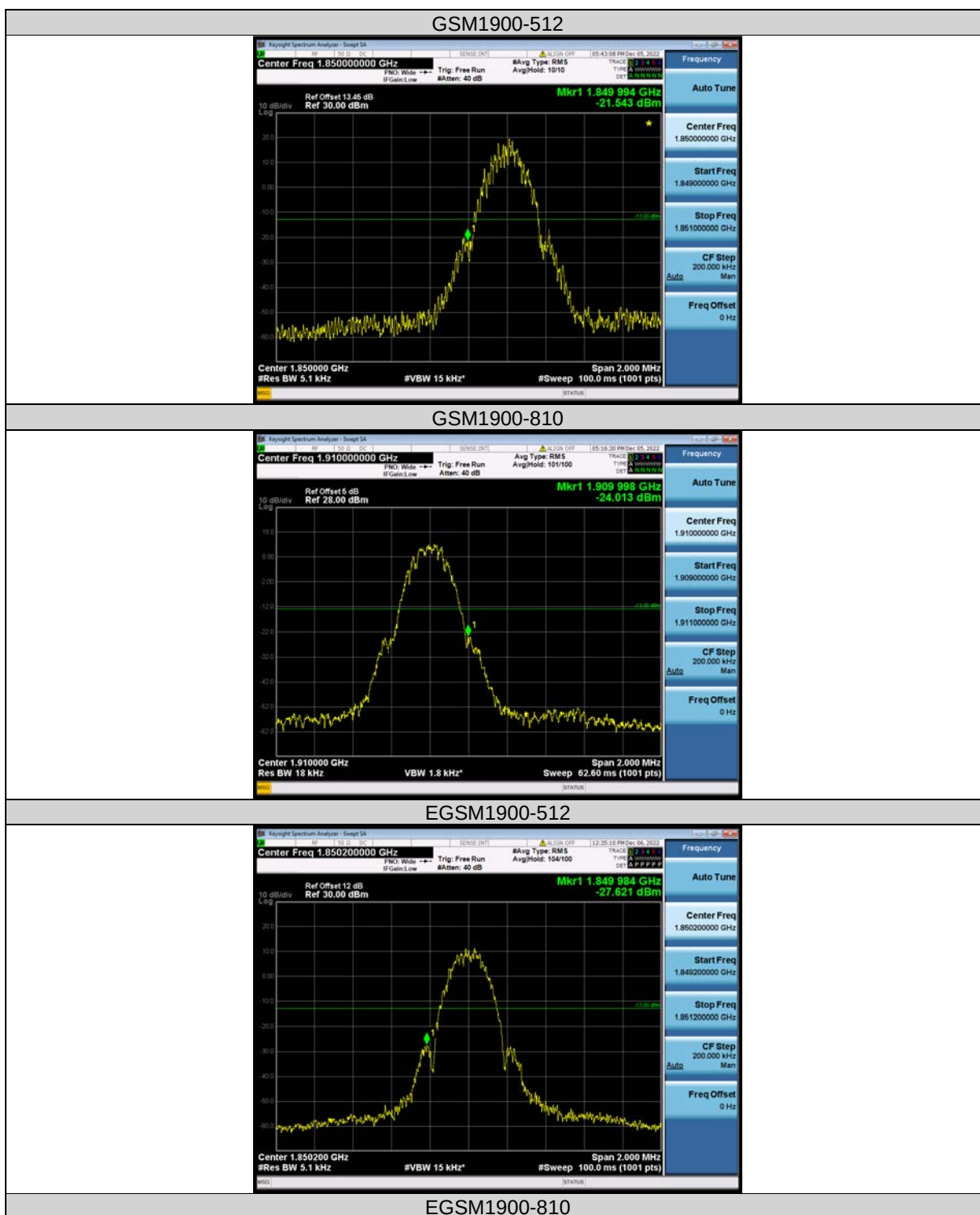
Test Report No.: W7L-P23100014RF05

BAND EDGE

Test Result

Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM1900	512	1849.99	-21.54	-13	PASS
GSM1900	810	1910.00	-24.01	-13	PASS
EGSM1900	512	1849.98	-27.62	-13	PASS
EGSM1900	810	1910.00	-26.73	-13	PASS

Test Graphs



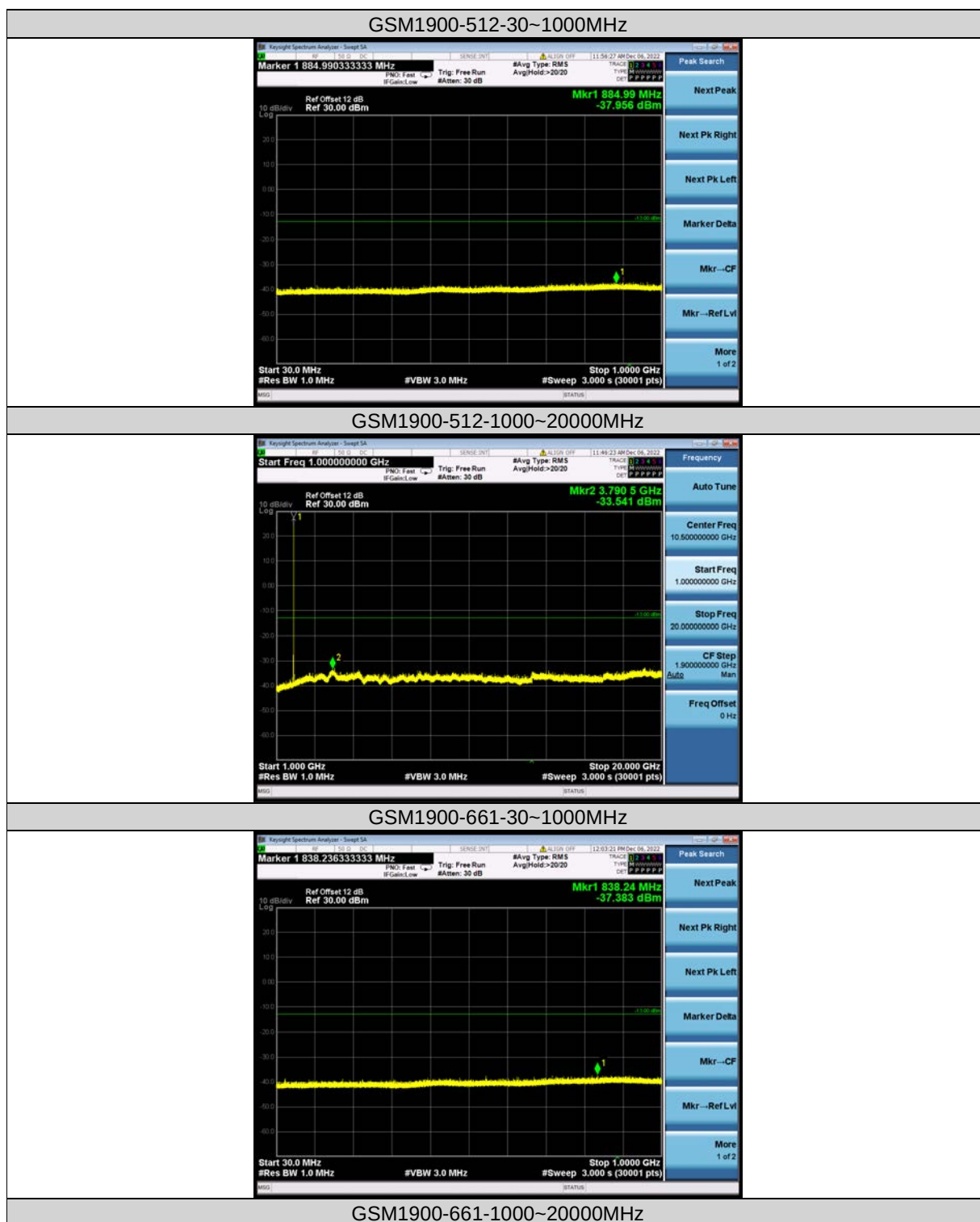


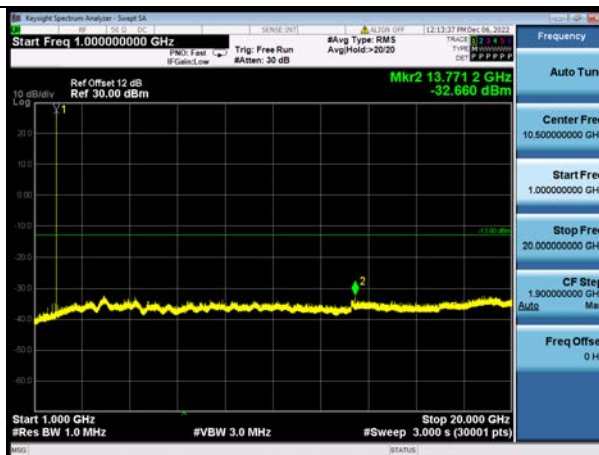
CONDUCTED SPURIOUS EMISSION

Test Result

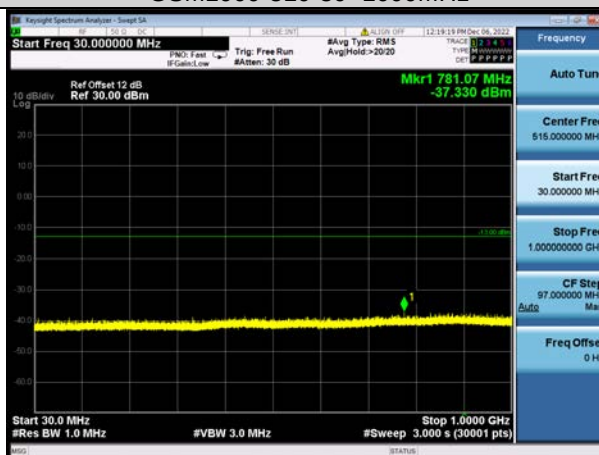
Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GSM1900	512	30~1000MHz	884.99	-37.96	-13	PASS
GSM1900	512	1000~20000MHz	3790.5	-33.54	-13	PASS
GSM1900	661	30~1000MHz	838.24	-37.38	-13	PASS
GSM1900	661	1000~20000MHz	13771.2	-32.66	-13	PASS
GSM1900	810	30~1000MHz	781.07	-37.33	-13	PASS
GSM1900	810	1000~20000MHz	13669.8	-35.54	-13	PASS
EGSM1900	512	30~1000MHz	960.78	-38.62	-13	PASS
EGSM1900	512	1000~20000MHz	3819.6	-32.47	-13	PASS
EGSM1900	661	30~1000MHz	866.08	-37.44	-13	PASS
EGSM1900	661	1000~20000MHz	3841.1	-32.81	-13	PASS
EGSM1900	810	30~1000MHz	771.82	-40.10	-13	PASS
EGSM1900	810	1000~20000MHz	3846.8	-32.99	-13	PASS

Test Graphs

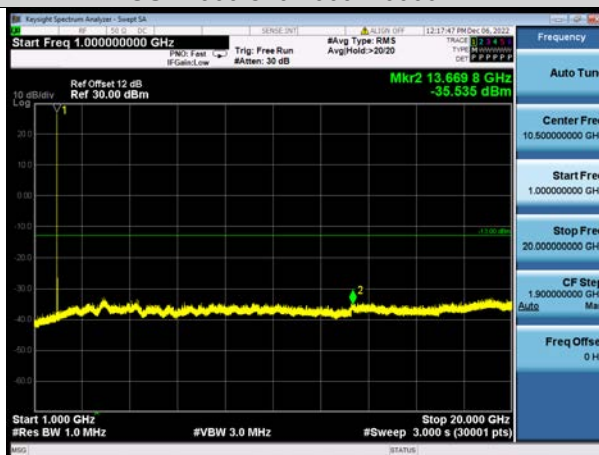




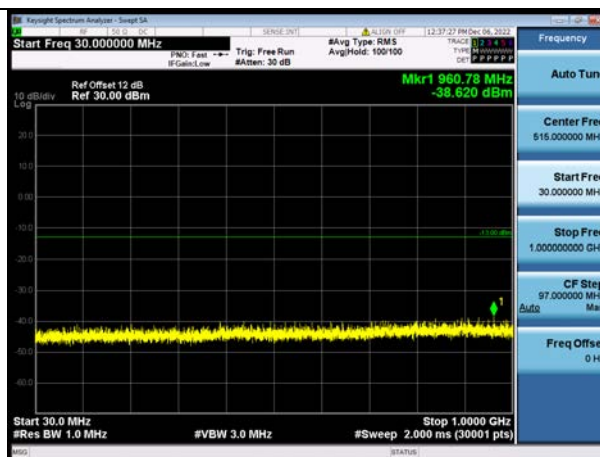
GSM1900-810-30~1000MHz



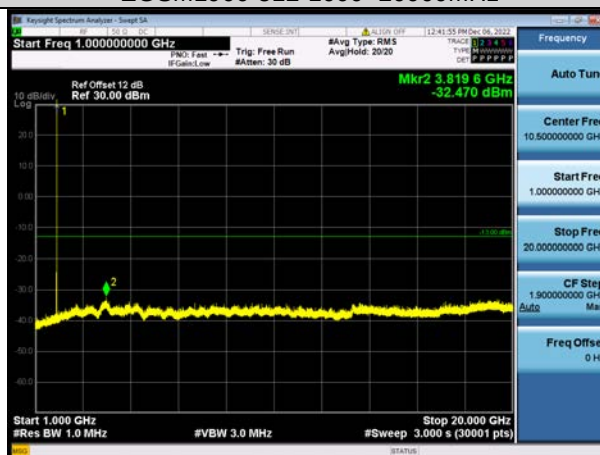
GSM1900-810-1000~20000MHz



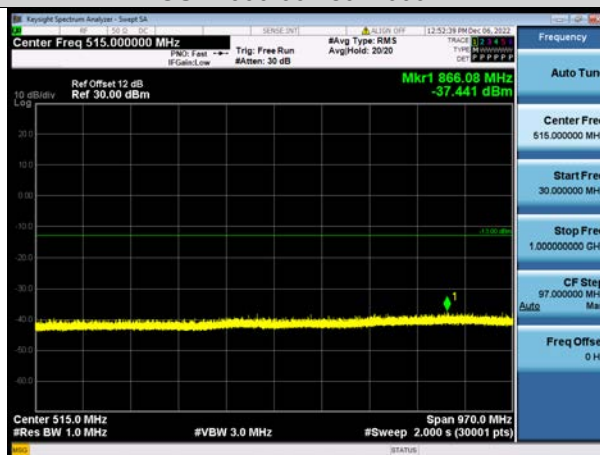
EGSM1900-512-30~1000MHz



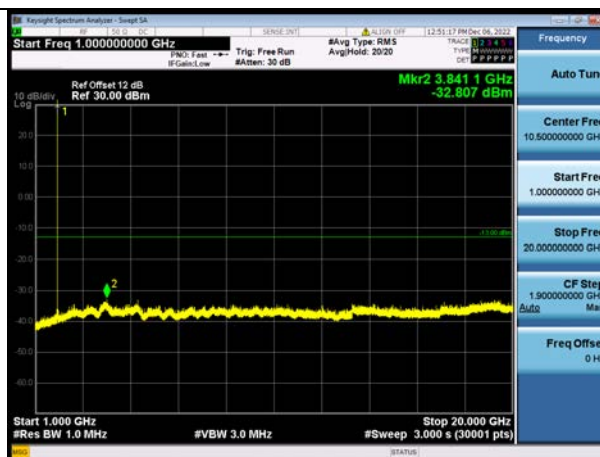
EGSM1900-512-1000~20000MHz



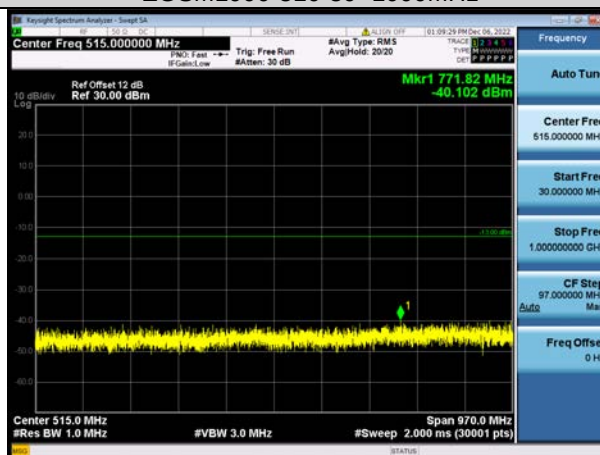
EGSM1900-661-30~1000MHz



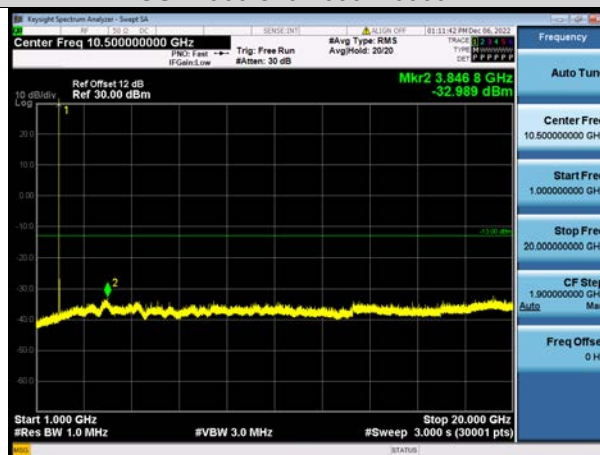
EGSM1900-661-1000~20000MHz



EGSM1900-810-30~1000MHz



EGSM1900-810-1000~20000MHz



FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	VL	NT	28.45	0.015374	±2.5	PASS
GSM1900	512	VN	NT	27.94	0.015100	±2.5	PASS
GSM1900	512	VH	NT	32.80	0.017728	±2.5	PASS
GSM1900	661	VL	NT	38.63	0.020549	±2.5	PASS
GSM1900	661	VN	NT	38.59	0.020528	±2.5	PASS
GSM1900	661	VH	NT	31.49	0.016750	±2.5	PASS
GSM1900	810	VL	NT	19.85	0.010396	±2.5	PASS
GSM1900	810	VN	NT	30.89	0.016173	±2.5	PASS
GSM1900	810	VH	NT	17.44	0.009129	±2.5	PASS
EGSM1900	512	VL	NT	35.86	0.019380	±2.5	PASS
EGSM1900	512	VN	NT	37.24	0.020128	±2.5	PASS
EGSM1900	512	VH	NT	39.94	0.021588	±2.5	PASS
EGSM1900	661	VL	NT	31.17	0.016579	±2.5	PASS
EGSM1900	661	VN	NT	33.85	0.018006	±2.5	PASS
EGSM1900	661	VH	NT	36.42	0.019374	±2.5	PASS
EGSM1900	810	VL	NT	30.38	0.015907	±2.5	PASS
EGSM1900	810	VN	NT	29.84	0.015626	±2.5	PASS
EGSM1900	810	VH	NT	25.90	0.013560	±2.5	PASS



Test Report No.: W7L-P23100014RF05

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	NV	-30	26.42	0.014634	±2.5	PASS
GSM1900	512	NV	-20	41.98	0.023253	±2.5	PASS
GSM1900	512	NV	-10	35.92	0.019900	±2.5	PASS
GSM1900	512	NV	0	38.40	0.021271	±2.5	PASS
GSM1900	512	NV	10	38.32	0.021226	±2.5	PASS
GSM1900	512	NV	20	24.58	0.013616	±2.5	PASS
GSM1900	512	NV	30	27.07	0.014997	±2.5	PASS
GSM1900	512	NV	40	38.32	0.021228	±2.5	PASS
GSM1900	512	NV	50	32.85	0.018198	±2.5	PASS
GSM1900	661	NV	-30	40.44	0.021508	±2.5	PASS
GSM1900	661	NV	-20	42.75	0.022738	±2.5	PASS
GSM1900	661	NV	-10	43.80	0.023298	±2.5	PASS
GSM1900	661	NV	0	40.76	0.021681	±2.5	PASS
GSM1900	661	NV	10	33.07	0.017590	±2.5	PASS
GSM1900	661	NV	20	39.96	0.021257	±2.5	PASS
GSM1900	661	NV	30	44.74	0.023798	±2.5	PASS
GSM1900	661	NV	40	35.14	0.018694	±2.5	PASS
GSM1900	661	NV	50	27.48	0.014616	±2.5	PASS
GSM1900	810	NV	-30	24.02	0.012579	±2.5	PASS
GSM1900	810	NV	-20	29.25	0.015318	±2.5	PASS
GSM1900	810	NV	-10	26.08	0.013656	±2.5	PASS
GSM1900	810	NV	0	20.13	0.010540	±2.5	PASS
GSM1900	810	NV	10	29.59	0.015496	±2.5	PASS
GSM1900	810	NV	20	30.52	0.015981	±2.5	PASS
GSM1900	810	NV	30	27.43	0.014360	±2.5	PASS
GSM1900	810	NV	40	29.10	0.015238	±2.5	PASS
GSM1900	810	NV	50	29.04	0.015206	±2.5	PASS
EGSM1900	512	NV	-30	28.95	0.016035	±2.5	PASS
EGSM1900	512	NV	-20	39.40	0.021825	±2.5	PASS
EGSM1900	512	NV	-10	32.34	0.017914	±2.5	PASS
EGSM1900	512	NV	0	24.45	0.013543	±2.5	PASS
EGSM1900	512	NV	10	24.15	0.013377	±2.5	PASS
EGSM1900	512	NV	20	36.21	0.020060	±2.5	PASS
EGSM1900	512	NV	30	21.27	0.011785	±2.5	PASS
EGSM1900	512	NV	40	27.81	0.015405	±2.5	PASS
EGSM1900	512	NV	50	39.36	0.021804	±2.5	PASS
EGSM1900	661	NV	-30	37.23	0.019802	±2.5	PASS
EGSM1900	661	NV	-20	28.86	0.015350	±2.5	PASS
EGSM1900	661	NV	-10	22.65	0.012048	±2.5	PASS
EGSM1900	661	NV	0	35.85	0.019071	±2.5	PASS
EGSM1900	661	NV	10	29.72	0.015809	±2.5	PASS
EGSM1900	661	NV	20	31.35	0.016678	±2.5	PASS
EGSM1900	661	NV	30	32.88	0.017491	±2.5	PASS
EGSM1900	661	NV	40	32.01	0.017026	±2.5	PASS
EGSM1900	661	NV	50	40.05	0.021304	±2.5	PASS



BUREAU
VERITAS

Test Report No.: W7L-P23100014RF05

EGSM1900	810	NV	-30	28.55	0.014948	±2.5	PASS
EGSM1900	810	NV	-20	33.00	0.017279	±2.5	PASS
EGSM1900	810	NV	-10	20.28	0.010621	±2.5	PASS
EGSM1900	810	NV	0	14.76	0.007727	±2.5	PASS
EGSM1900	810	NV	10	23.49	0.012301	±2.5	PASS
EGSM1900	810	NV	20	18.57	0.009722	±2.5	PASS
EGSM1900	810	NV	30	31.15	0.016313	±2.5	PASS
EGSM1900	810	NV	40	16.13	0.008446	±2.5	PASS



Test Report No.: W7L-P23100014RF05

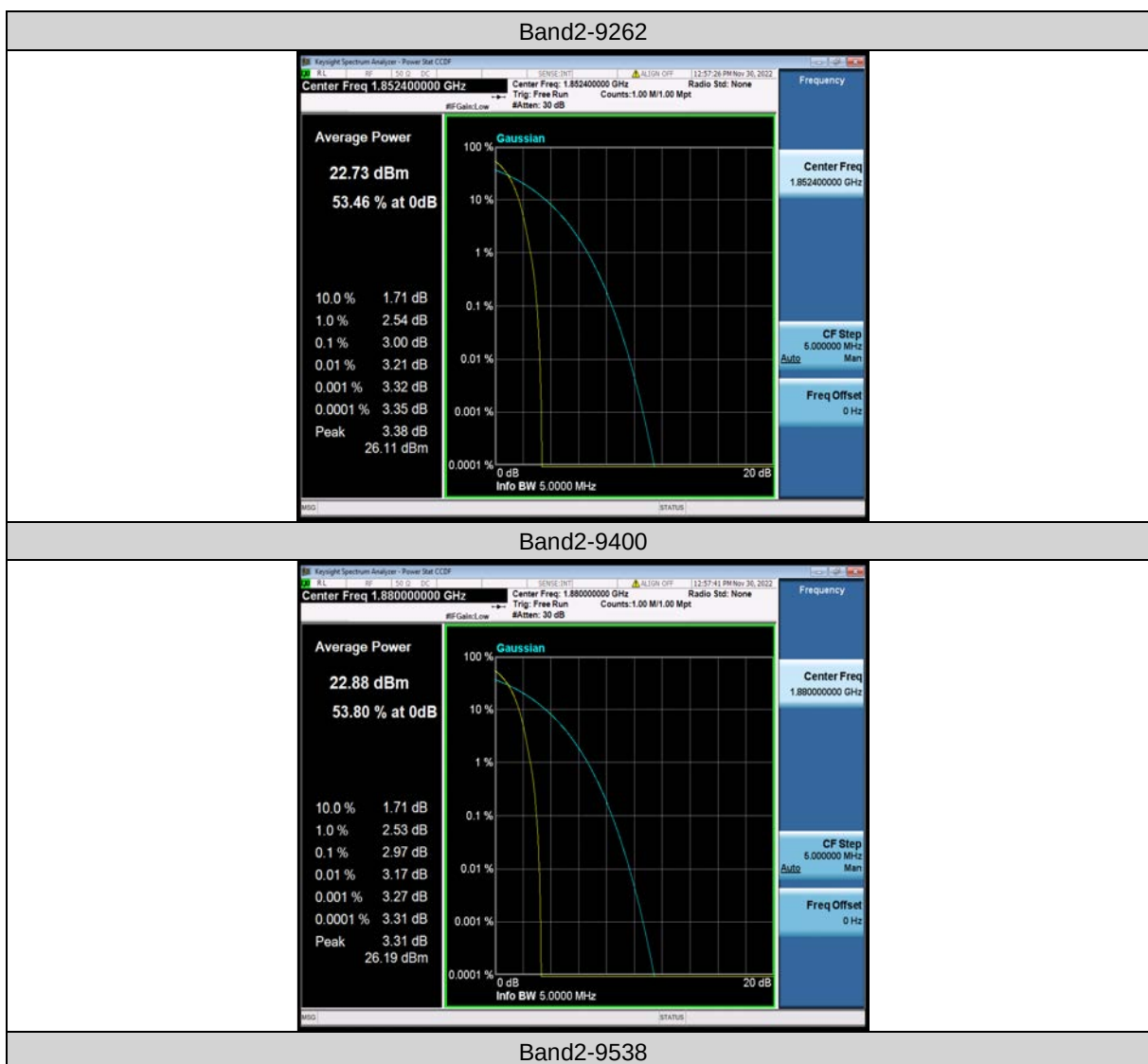
WCDMA BAND2

PEAK-TO-AVERAGE RATIO

Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band2	9262	3.00	13	PASS
Band2	9400	2.97	13	PASS
Band2	9538	2.97	13	PASS

Test Graphs





BUREAU
VERITAS

Test Report No.: W7L-P23100014RF05

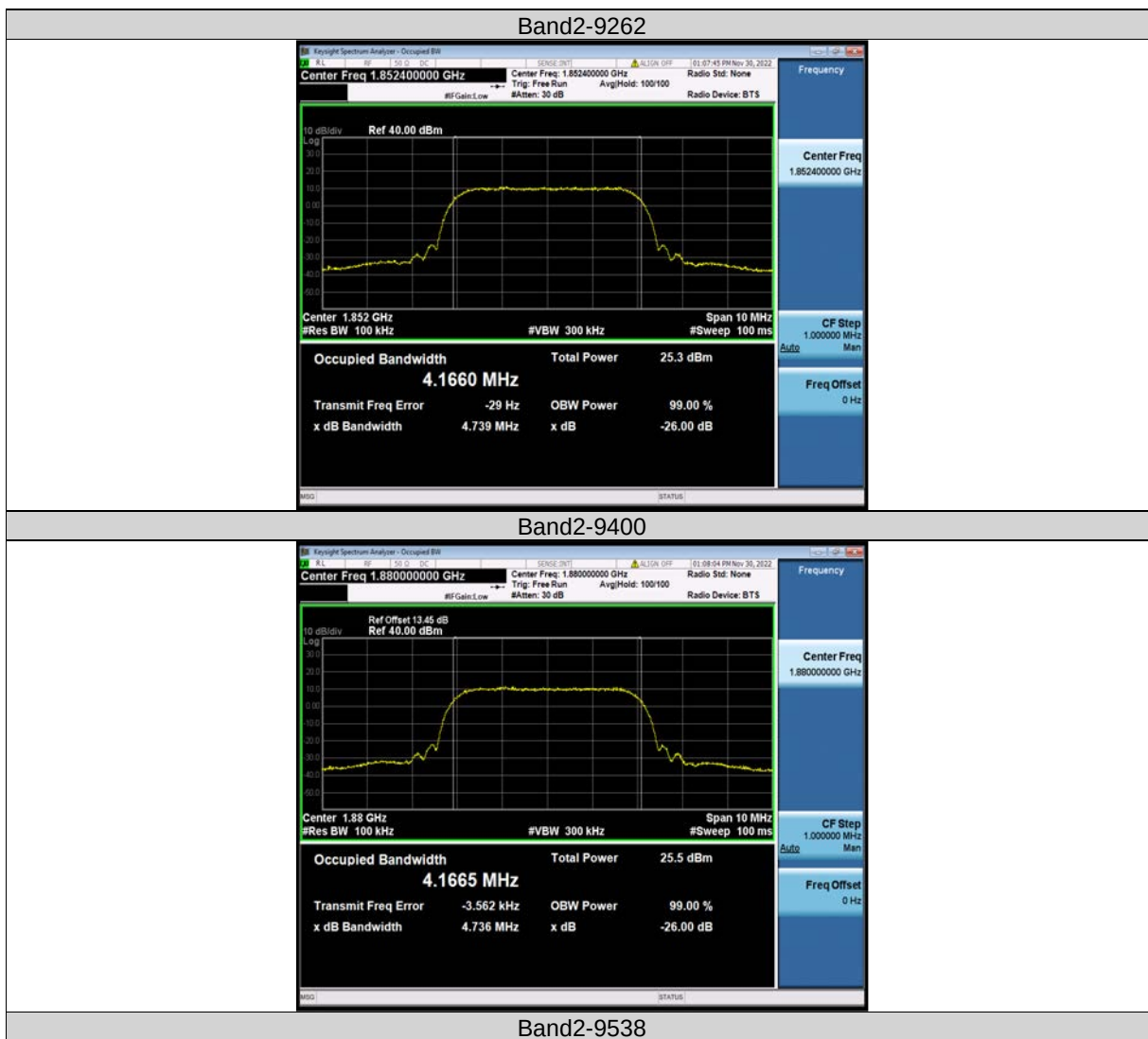


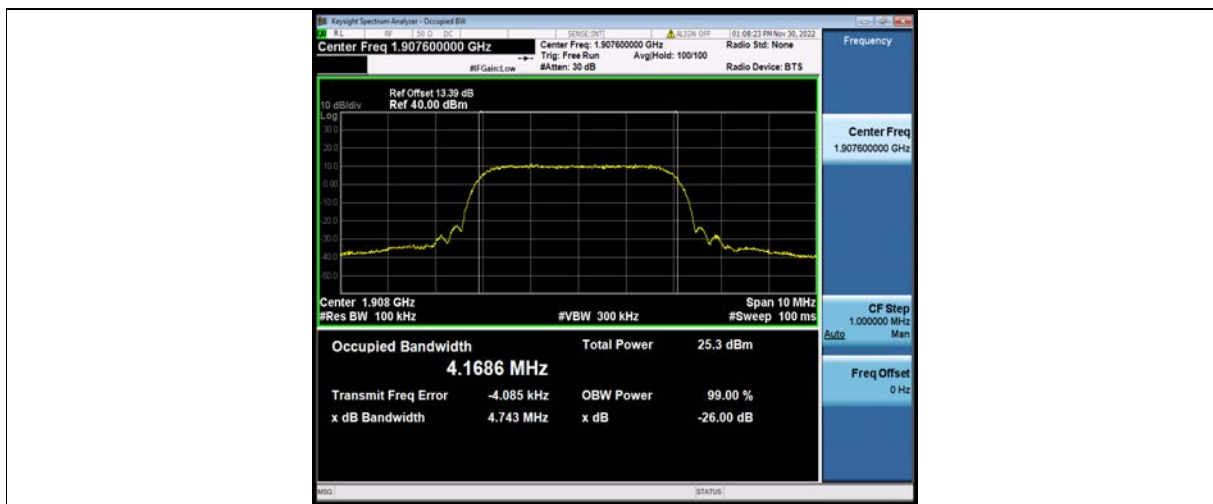
26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(MHz)	Verdict
Band2	9262	4.1660	4.739	---	PASS
Band2	9400	4.1665	4.736	---	PASS
Band2	9538	4.1686	4.743	---	PASS

Test Graphs







Test Report No.: W7L-P23100014RF05

BAND EDGE

Test Result

Band	Channel	Frequency (MHz)	Result (dBm)	Limit(dBm)	Verdict
Band2	9262	1850.00	-27.34	-13	PASS
Band2	9538	1910.00	-26.78	-13	PASS

Test Graphs

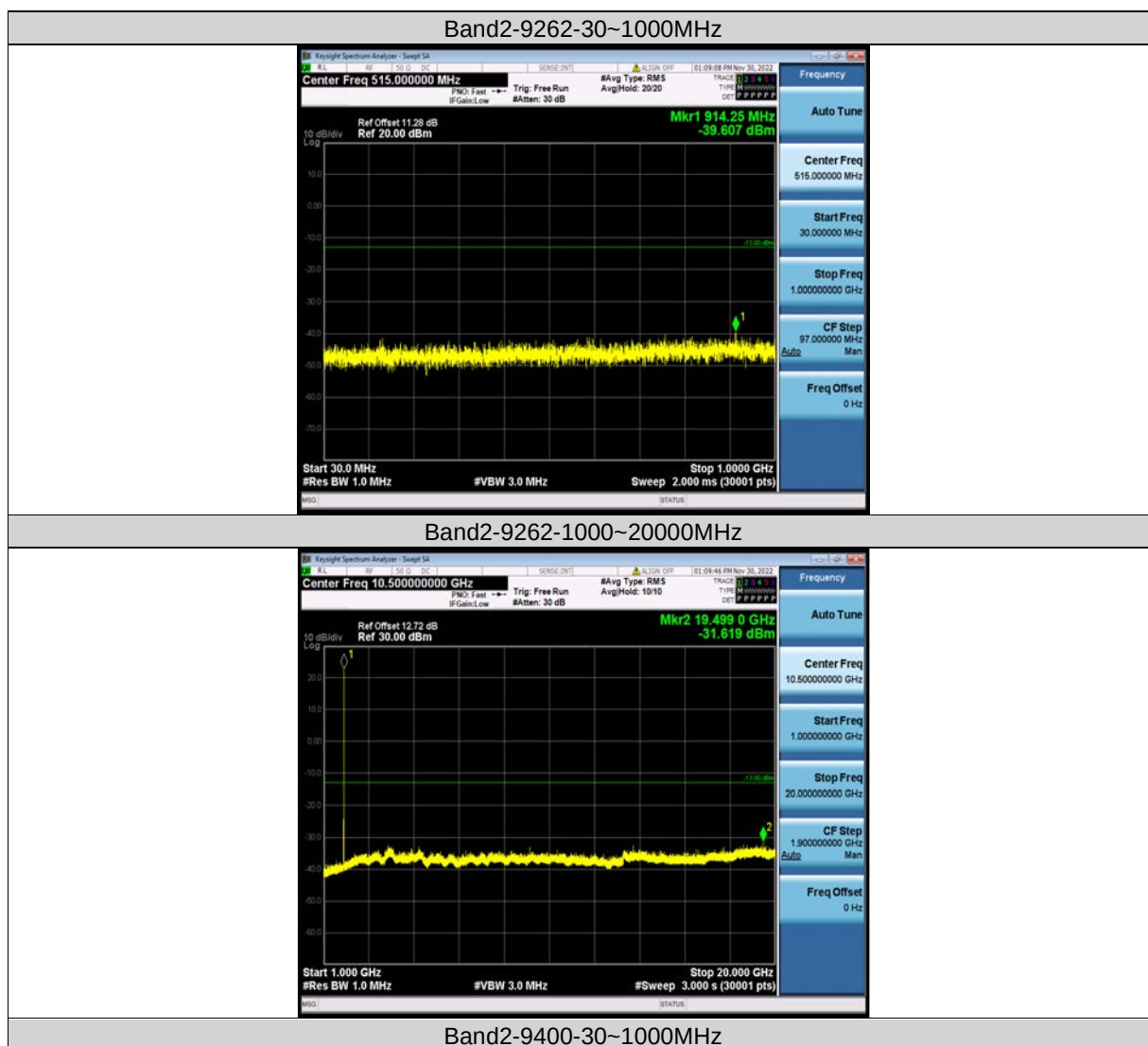


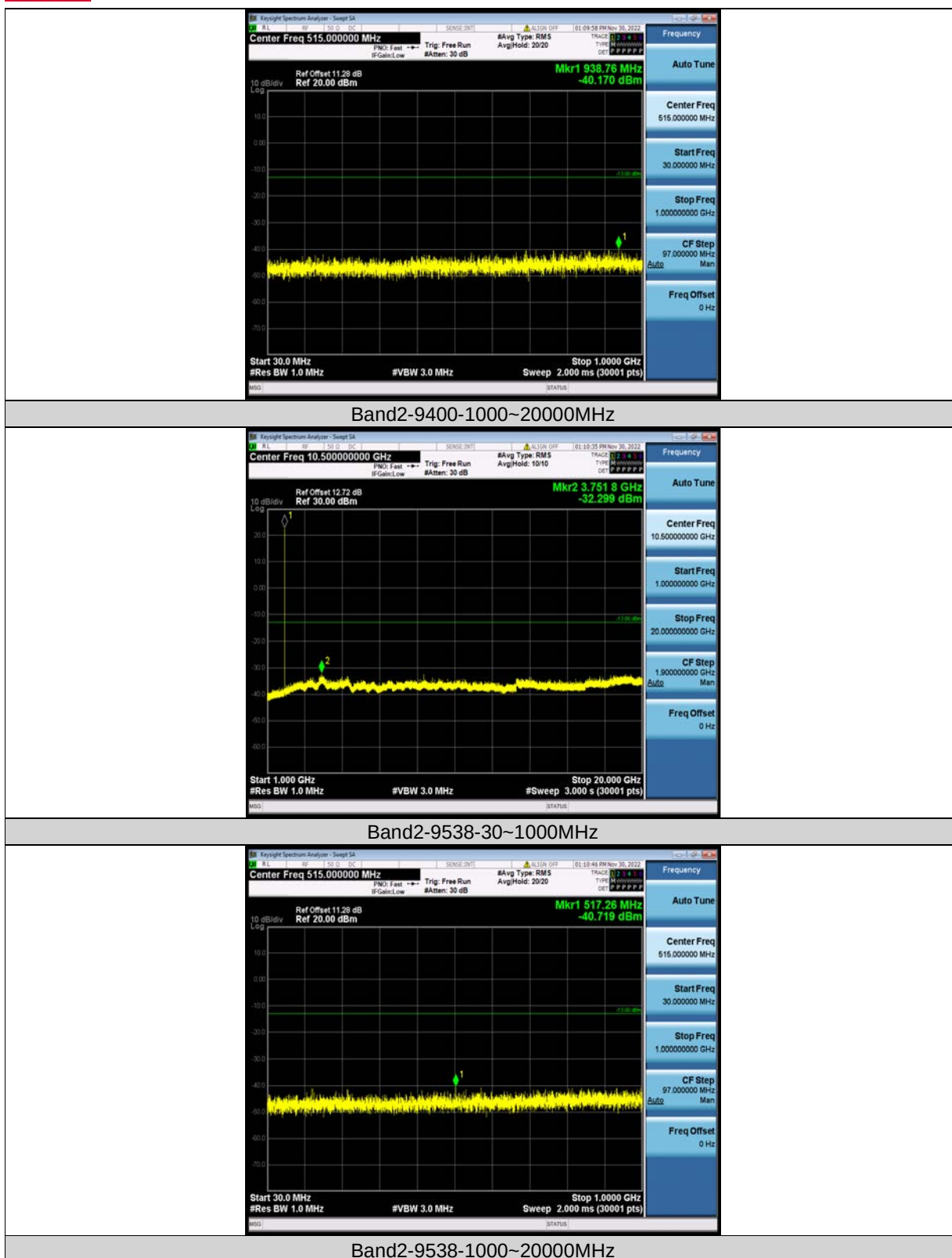
CONDUCTED SPURIOUS EMISSION

Test Result

Band	Channel	Frequency Range (Mhz)	Frequency (dBm)	Result (dBm)	Limit (dBm)	Verdict
Band2	9262	30~1000MHz	914.25	-39.61	-13	PASS
Band2	9262	1000~20000MHz	19499.03	-31.62	-13	PASS
Band2	9400	30~1000MHz	938.76	-40.17	-13	PASS
Band2	9400	1000~20000MHz	3751.83	-32.3	-13	PASS
Band2	9538	30~1000MHz	517.26	-40.72	-13	PASS
Band2	9538	1000~20000MHz	19366.67	-32.03	-13	PASS

Test Graphs







FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	VL	NT	2.62	0.001414	±2.5	PASS
Band2	9262	VN	NT	2.42	0.001306	±2.5	PASS
Band2	9262	VH	NT	2.83	0.001528	±2.5	PASS
Band2	9400	VL	NT	2.42	0.001287	±2.5	PASS
Band2	9400	VN	NT	2.62	0.001394	±2.5	PASS
Band2	9400	VH	NT	2.57	0.001367	±2.5	PASS
Band2	9538	VL	NT	0.67	0.000351	±2.5	PASS
Band2	9538	VN	NT	0.74	0.000388	±2.5	PASS
Band2	9538	VH	NT	0.53	0.000278	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	NV	-30	2.74	0.001479	±2.5	PASS
Band2	9262	NV	-20	3.10	0.001674	±2.5	PASS
Band2	9262	NV	-10	3.55	0.001916	±2.5	PASS
Band2	9262	NV	0	3.35	0.001808	±2.5	PASS
Band2	9262	NV	10	3.35	0.001808	±2.5	PASS
Band2	9262	NV	20	3.55	0.001916	±2.5	PASS
Band2	9262	NV	30	3.71	0.002003	±2.5	PASS
Band2	9262	NV	40	3.65	0.001970	±2.5	PASS
Band2	9262	NV	50	3.78	0.002041	±2.5	PASS
Band2	9400	NV	-30	2.62	0.001394	±2.5	PASS
Band2	9400	NV	-20	2.54	0.001351	±2.5	PASS
Band2	9400	NV	-10	2.63	0.001399	±2.5	PASS
Band2	9400	NV	0	2.63	0.001399	±2.5	PASS
Band2	9400	NV	10	2.65	0.001410	±2.5	PASS
Band2	9400	NV	20	2.45	0.001303	±2.5	PASS
Band2	9400	NV	30	2.68	0.001426	±2.5	PASS
Band2	9400	NV	40	2.44	0.001298	±2.5	PASS
Band2	9400	NV	50	2.75	0.001463	±2.5	PASS
Band2	9538	NV	-30	0.46	0.000241	±2.5	PASS
Band2	9538	NV	-20	0.59	0.000309	±2.5	PASS
Band2	9538	NV	-10	0.16	0.000084	±2.5	PASS
Band2	9538	NV	0	0.10	0.000052	±2.5	PASS
Band2	9538	NV	10	0.34	0.000178	±2.5	PASS
Band2	9538	NV	20	0.17	0.000089	±2.5	PASS
Band2	9538	NV	30	0.16	0.000084	±2.5	PASS
Band2	9538	NV	40	0.12	0.000063	±2.5	PASS



Test Report No.: W7L-P23100014RF05

Band2	9538	NV	50	0.09	0.000047	±2.5	PASS
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LTE BAND25

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band25	1.4MHz	QPSK	26047	1RB#0	3.59	13	PASS
Band25	1.4MHz	QPSK	26047	6RB#0	4.84	13	PASS
Band25	1.4MHz	QPSK	26365	1RB#0	3.47	13	PASS
Band25	1.4MHz	QPSK	26365	6RB#0	4.60	13	PASS
Band25	1.4MHz	QPSK	26683	1RB#0	3.54	13	PASS
Band25	1.4MHz	QPSK	26683	6RB#0	4.72	13	PASS
Band25	1.4MHz	16QAM	26047	1RB#0	5.07	13	PASS
Band25	1.4MHz	16QAM	26047	6RB#0	5.71	13	PASS
Band25	1.4MHz	16QAM	26365	1RB#0	4.92	13	PASS
Band25	1.4MHz	16QAM	26365	6RB#0	5.46	13	PASS
Band25	1.4MHz	16QAM	26683	1RB#0	5.09	13	PASS
Band25	1.4MHz	16QAM	26683	6RB#0	5.58	13	PASS
Band25	1.4MHz	64QAM	26047	1RB#0	6.08	13	PASS
Band25	1.4MHz	64QAM	26047	6RB#0	6.56	13	PASS
Band25	1.4MHz	64QAM	26365	1RB#0	5.87	13	PASS
Band25	1.4MHz	64QAM	26365	6RB#0	6.31	13	PASS
Band25	1.4MHz	64QAM	26683	1RB#0	6.09	13	PASS
Band25	1.4MHz	64QAM	26683	6RB#0	6.36	13	PASS
Band25	3MHz	QPSK	26055	1RB#0	3.47	13	PASS
Band25	3MHz	QPSK	26055	15RB#0	4.80	13	PASS
Band25	3MHz	QPSK	26365	1RB#0	3.20	13	PASS
Band25	3MHz	QPSK	26365	15RB#0	4.61	13	PASS
Band25	3MHz	QPSK	26675	1RB#0	3.38	13	PASS
Band25	3MHz	QPSK	26675	15RB#0	4.71	13	PASS
Band25	3MHz	16QAM	26055	1RB#0	4.90	13	PASS
Band25	3MHz	16QAM	26055	15RB#0	5.69	13	PASS
Band25	3MHz	16QAM	26365	1RB#0	4.52	13	PASS
Band25	3MHz	16QAM	26365	15RB#0	5.50	13	PASS
Band25	3MHz	16QAM	26675	1RB#0	4.91	13	PASS
Band25	3MHz	16QAM	26675	15RB#0	5.61	13	PASS
Band25	3MHz	64QAM	26055	1RB#0	5.74	13	PASS
Band25	3MHz	64QAM	26055	15RB#0	6.43	13	PASS
Band25	3MHz	64QAM	26365	1RB#0	5.67	13	PASS
Band25	3MHz	64QAM	26365	15RB#0	6.29	13	PASS
Band25	3MHz	64QAM	26675	1RB#0	6.09	13	PASS
Band25	3MHz	64QAM	26675	15RB#0	6.45	13	PASS
Band25	5MHz	QPSK	26065	1RB#0	3.40	13	PASS
Band25	5MHz	QPSK	26065	25RB#0	4.74	13	PASS
Band25	5MHz	QPSK	26365	1RB#0	3.13	13	PASS
Band25	5MHz	QPSK	26365	25RB#0	4.65	13	PASS



Test Report No.: W7L-P23100014RF05

Band25	5MHz	QPSK	26665	1RB#0	8.47	13	PASS
Band25	5MHz	QPSK	26665	25RB#0	4.81	13	PASS
Band25	5MHz	16QAM	26065	1RB#0	4.88	13	PASS
Band25	5MHz	16QAM	26065	25RB#0	5.56	13	PASS
Band25	5MHz	16QAM	26365	1RB#0	4.54	13	PASS
Band25	5MHz	16QAM	26365	25RB#0	5.48	13	PASS
Band25	5MHz	16QAM	26665	1RB#0	4.69	13	PASS
Band25	5MHz	16QAM	26665	25RB#0	5.66	13	PASS
Band25	5MHz	64QAM	26065	1RB#0	6.01	13	PASS
Band25	5MHz	64QAM	26065	25RB#0	6.42	13	PASS
Band25	5MHz	64QAM	26365	1RB#0	5.78	13	PASS
Band25	5MHz	64QAM	26365	25RB#0	6.17	13	PASS
Band25	5MHz	64QAM	26665	1RB#0	8.44	13	PASS
Band25	5MHz	64QAM	26665	25RB#0	6.37	13	PASS
Band25	10MHz	QPSK	26090	1RB#0	3.31	13	PASS
Band25	10MHz	QPSK	26090	50RB#0	4.76	13	PASS
Band25	10MHz	QPSK	26365	1RB#0	3.00	13	PASS
Band25	10MHz	QPSK	26365	50RB#0	4.12	13	PASS
Band25	10MHz	QPSK	26640	1RB#0	3.39	13	PASS
Band25	10MHz	QPSK	26640	50RB#0	4.71	13	PASS
Band25	10MHz	16QAM	26090	1RB#0	4.80	13	PASS
Band25	10MHz	16QAM	26090	50RB#0	5.58	13	PASS
Band25	10MHz	16QAM	26365	1RB#0	4.16	13	PASS
Band25	10MHz	16QAM	26365	50RB#0	4.97	13	PASS
Band25	10MHz	16QAM	26640	1RB#0	4.89	13	PASS
Band25	10MHz	16QAM	26640	50RB#0	5.57	13	PASS
Band25	10MHz	64QAM	26090	1RB#0	5.94	13	PASS
Band25	10MHz	64QAM	26090	50RB#0	6.45	13	PASS
Band25	10MHz	64QAM	26365	1RB#0	5.71	13	PASS
Band25	10MHz	64QAM	26365	50RB#0	6.20	13	PASS
Band25	10MHz	64QAM	26640	1RB#0	6.26	13	PASS
Band25	10MHz	64QAM	26640	50RB#0	6.43	13	PASS
Band25	15MHz	QPSK	26115	1RB#0	3.33	13	PASS
Band25	15MHz	QPSK	26115	75RB#0	5.05	13	PASS
Band25	15MHz	QPSK	26365	1RB#0	3.02	13	PASS
Band25	15MHz	QPSK	26365	75RB#0	5.01	13	PASS
Band25	15MHz	QPSK	26615	1RB#0	3.37	13	PASS
Band25	15MHz	QPSK	26615	75RB#0	5.08	13	PASS
Band25	15MHz	16QAM	26115	1RB#0	4.74	13	PASS
Band25	15MHz	16QAM	26115	75RB#0	5.80	13	PASS
Band25	15MHz	16QAM	26365	1RB#0	4.83	13	PASS
Band25	15MHz	16QAM	26365	75RB#0	5.75	13	PASS
Band25	15MHz	16QAM	26615	1RB#0	7.11	13	PASS
Band25	15MHz	16QAM	26615	75RB#0	5.84	13	PASS
Band25	15MHz	64QAM	26115	1RB#0	5.89	13	PASS
Band25	15MHz	64QAM	26115	75RB#0	6.51	13	PASS
Band25	15MHz	64QAM	26365	1RB#0	5.79	13	PASS
Band25	15MHz	64QAM	26365	75RB#0	6.34	13	PASS
Band25	15MHz	64QAM	26615	1RB#0	6.60	13	PASS
Band25	15MHz	64QAM	26615	75RB#0	6.52	13	PASS
Band25	20MHz	QPSK	26140	1RB#0	3.38	13	PASS
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Band25	20MHz	QPSK	26365	1RB#0	3.40	13	PASS



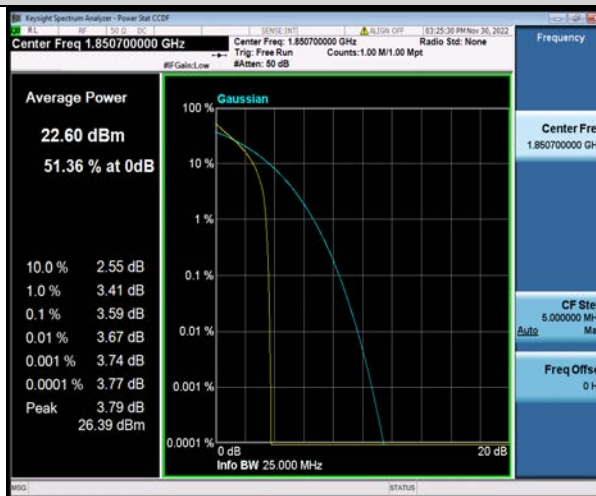
BUREAU
VERITAS

Test Report No.: W7L-P23100014RF05

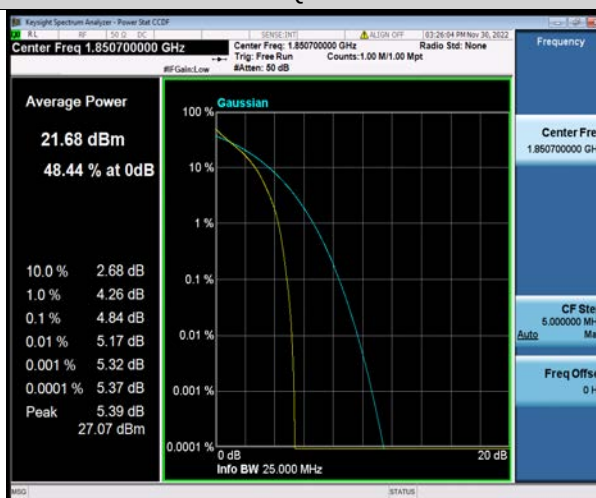
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Band25	20MHz	16QAM	26140	1RB#0	5.01	13	PASS
Band25	20MHz	16QAM	26140	100RB#0	5.78	13	PASS
Band25	20MHz	16QAM	26365	1RB#0	4.88	13	PASS
Band25	20MHz	16QAM	26365	100RB#0	5.38	13	PASS
Band25	20MHz	16QAM	26590	1RB#0	5.10	13	PASS
Band25	20MHz	16QAM	26590	100RB#0	5.84	13	PASS
Band25	20MHz	64QAM	26140	1RB#0	8.60	13	PASS
Band25	20MHz	64QAM	26140	100RB#0	6.56	13	PASS
Band25	20MHz	64QAM	26365	1RB#0	6.23	13	PASS
Band25	20MHz	64QAM	26365	100RB#0	6.43	13	PASS
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Test Graphs

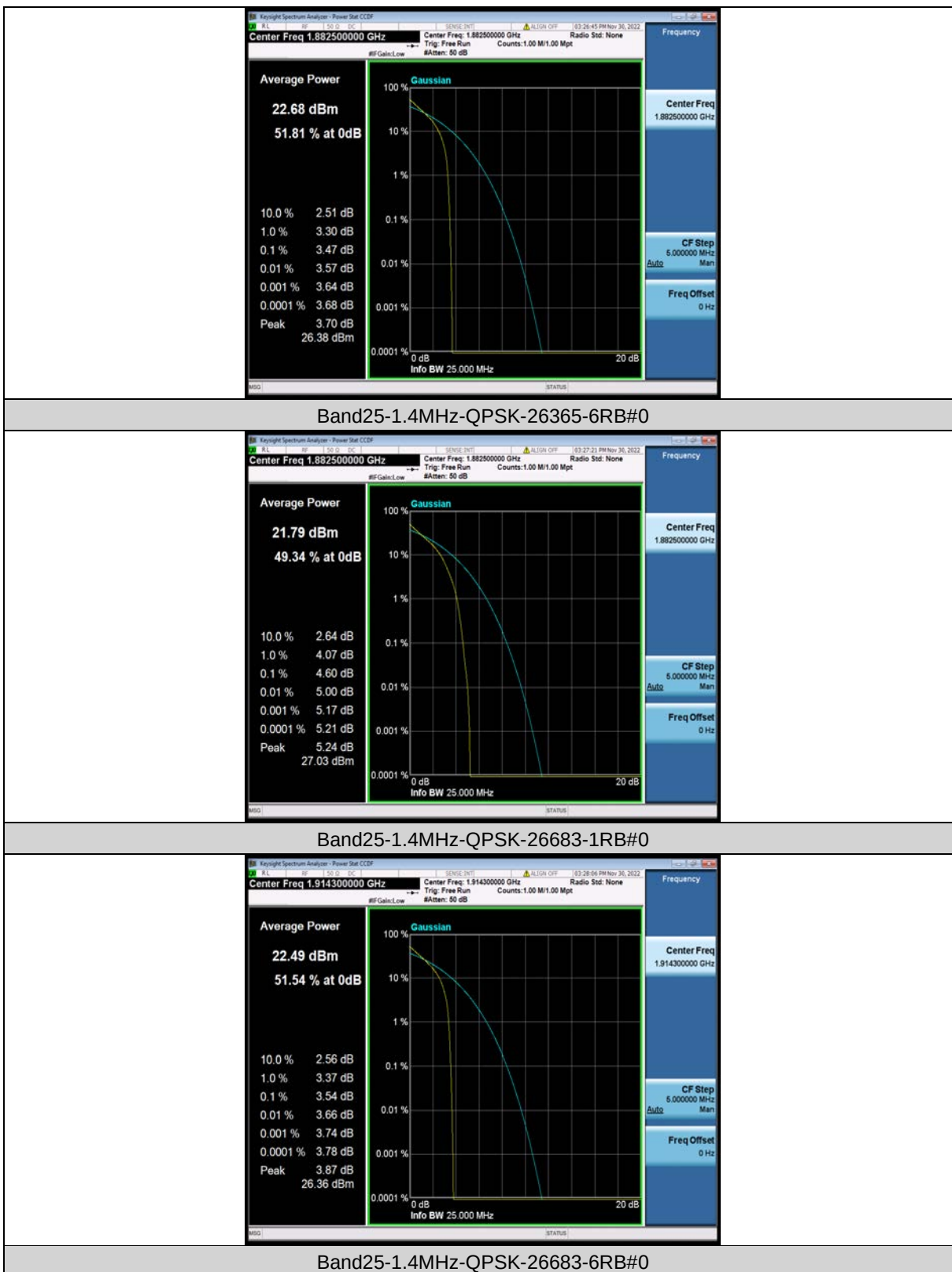
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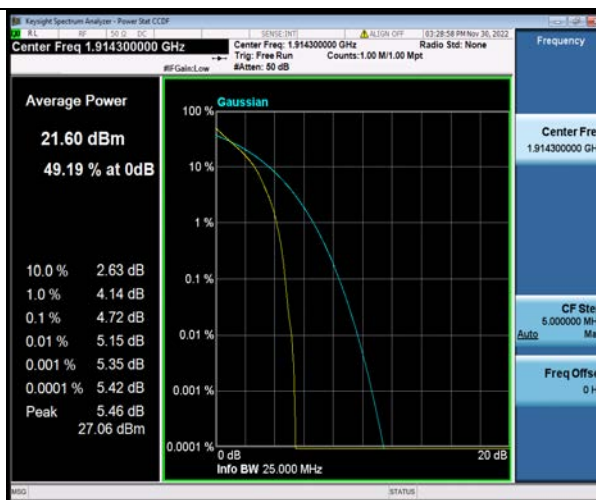


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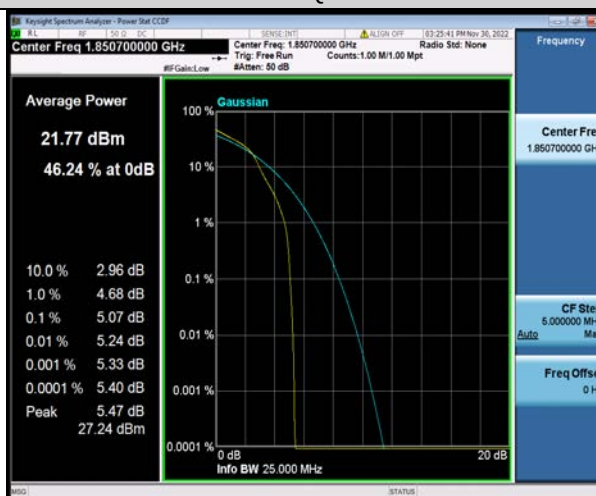


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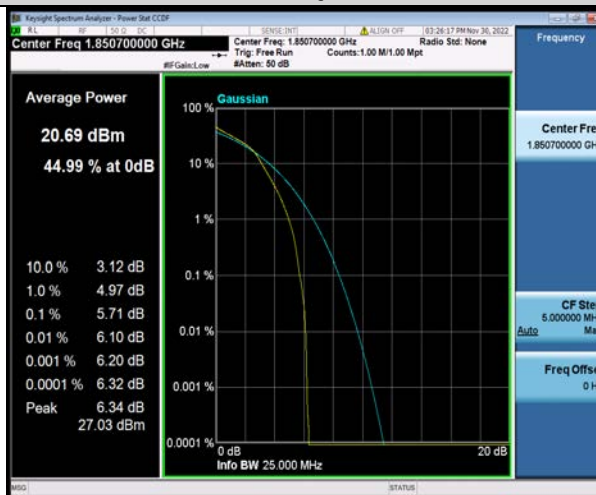




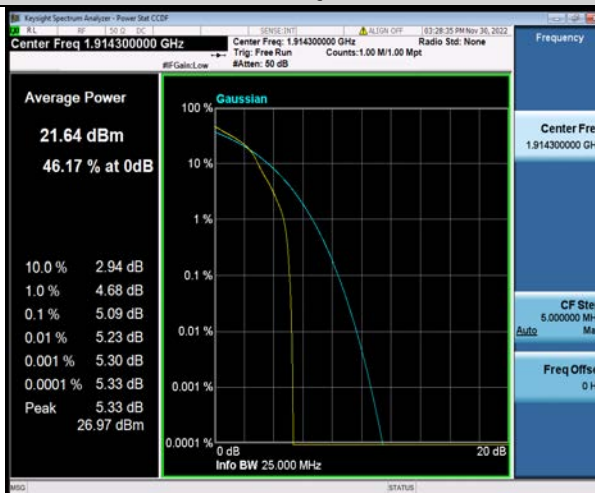
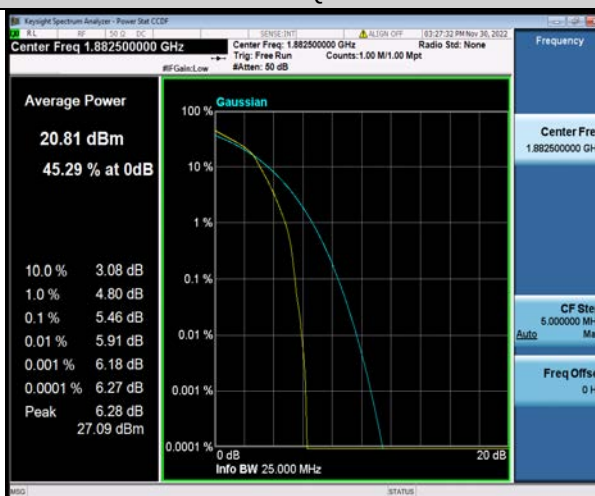
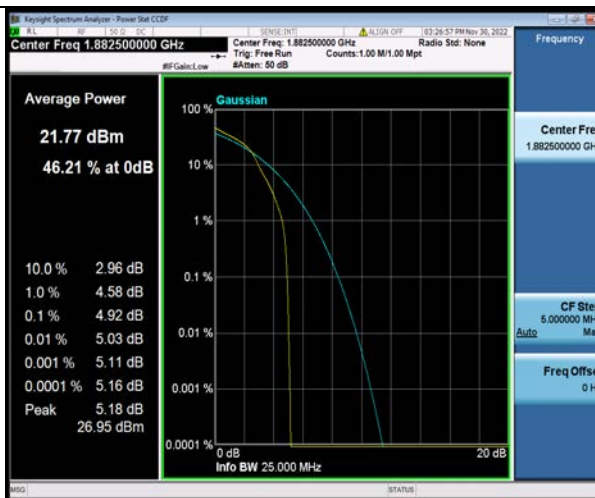
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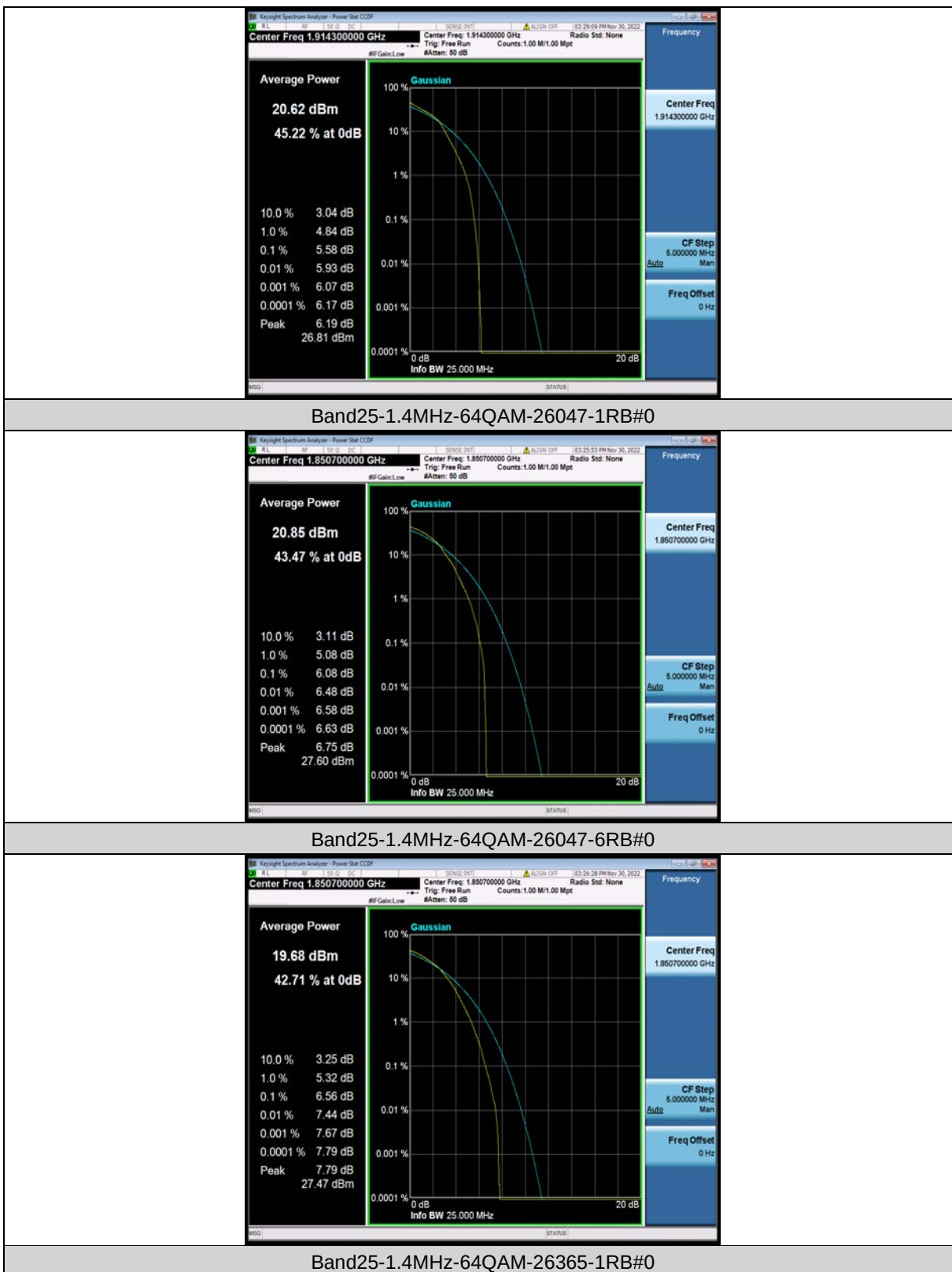


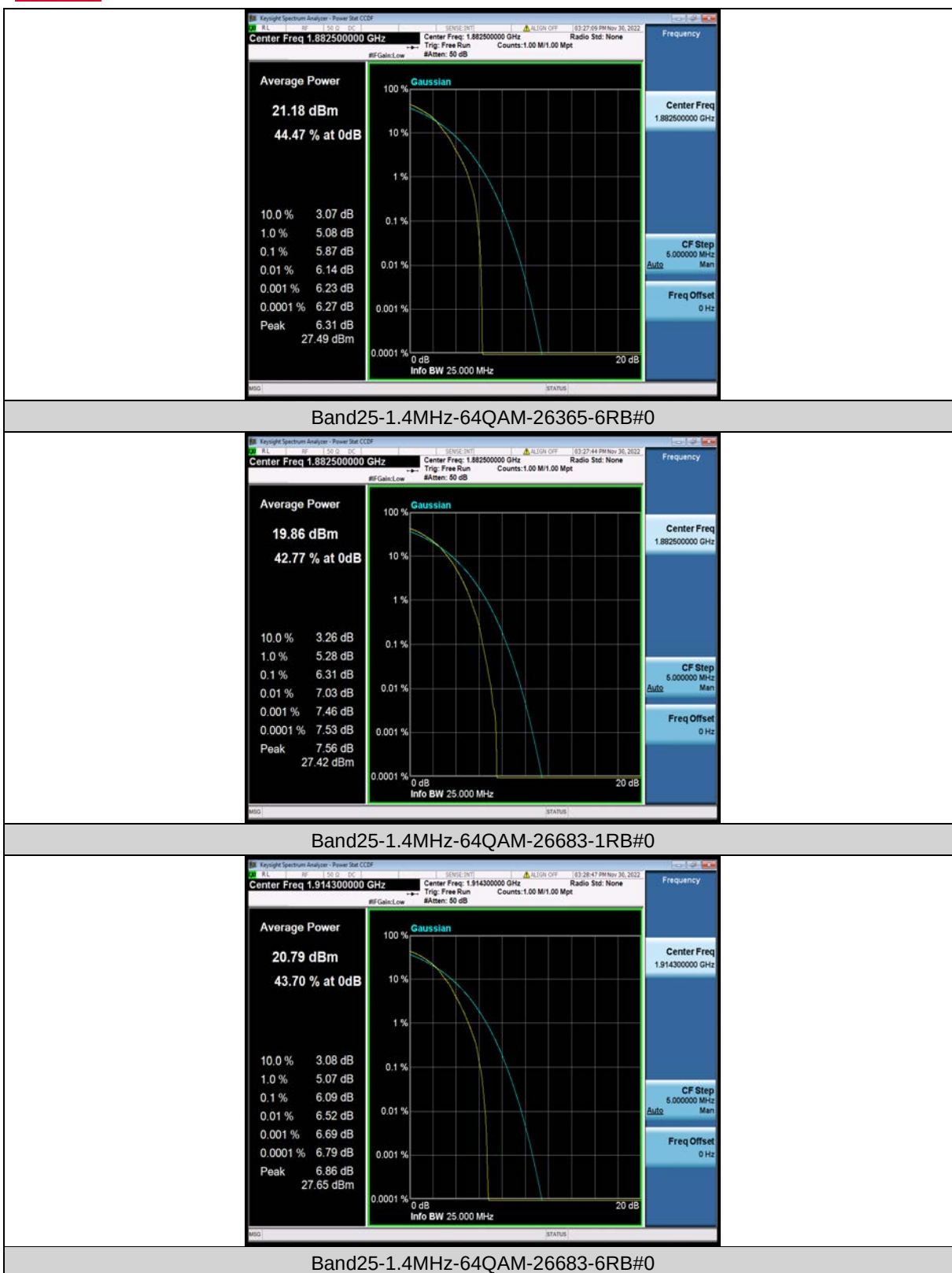
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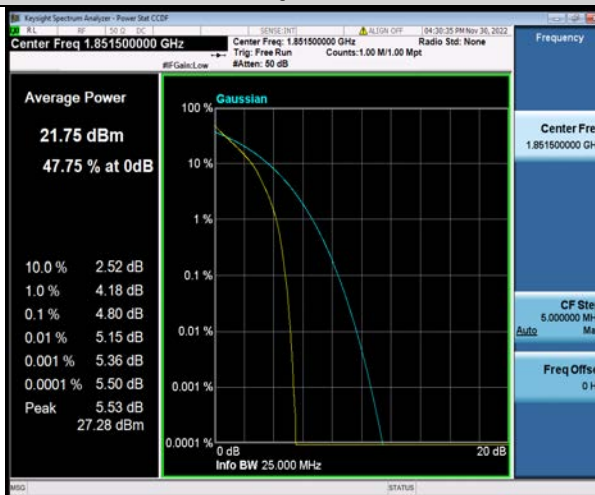
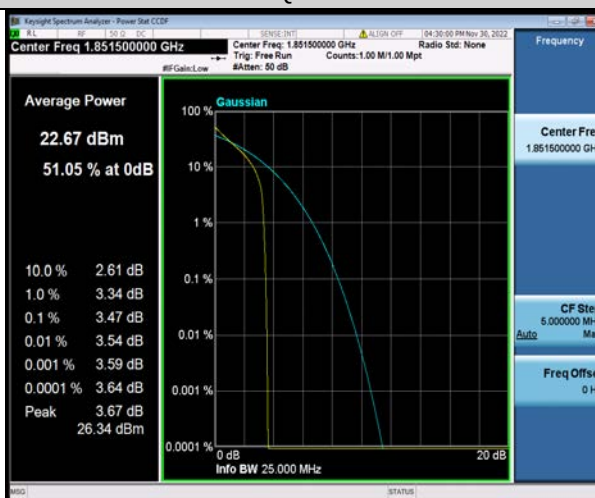
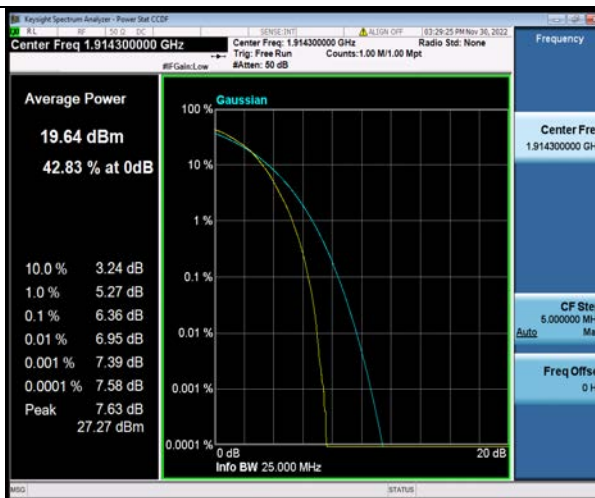


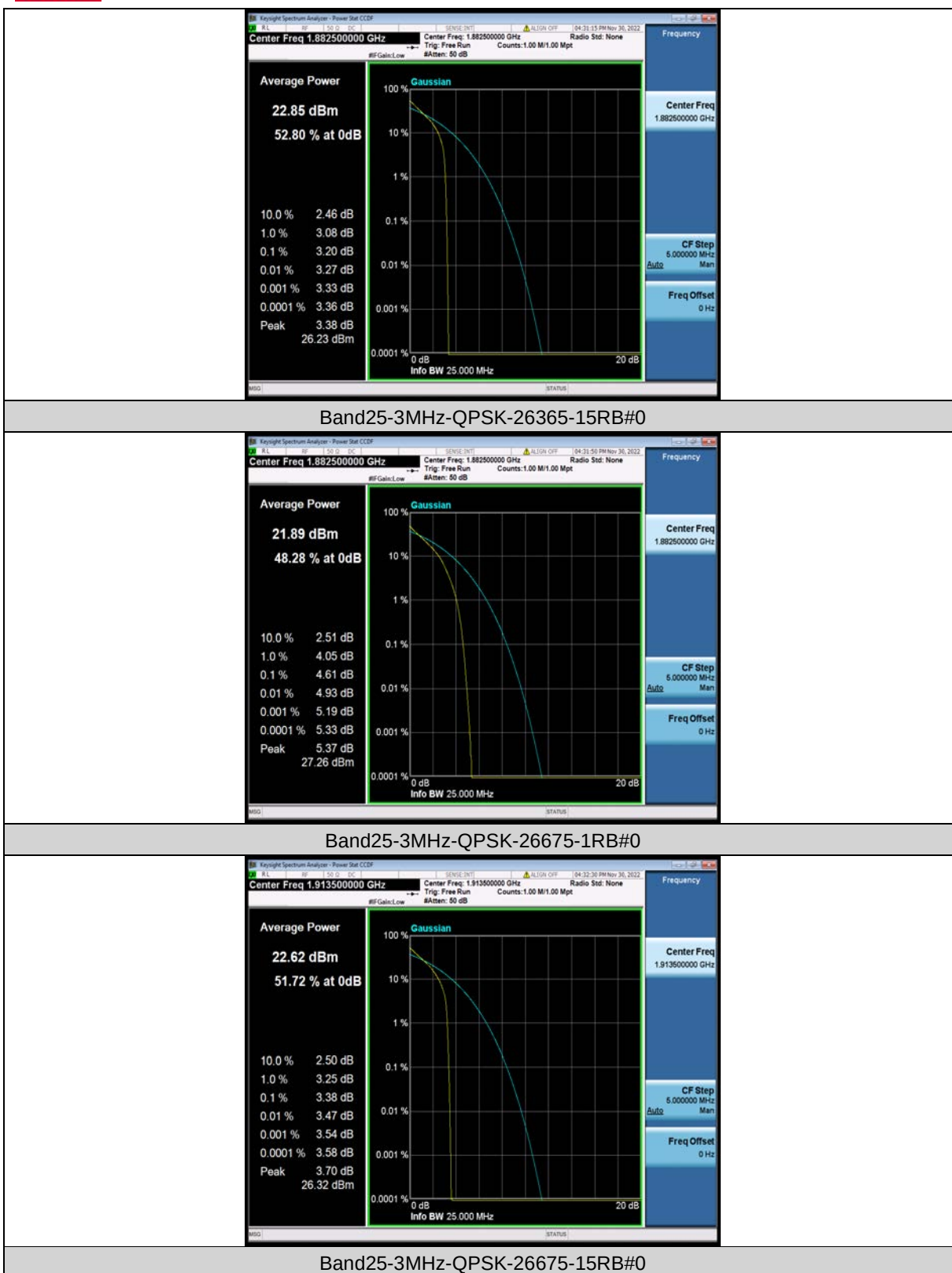
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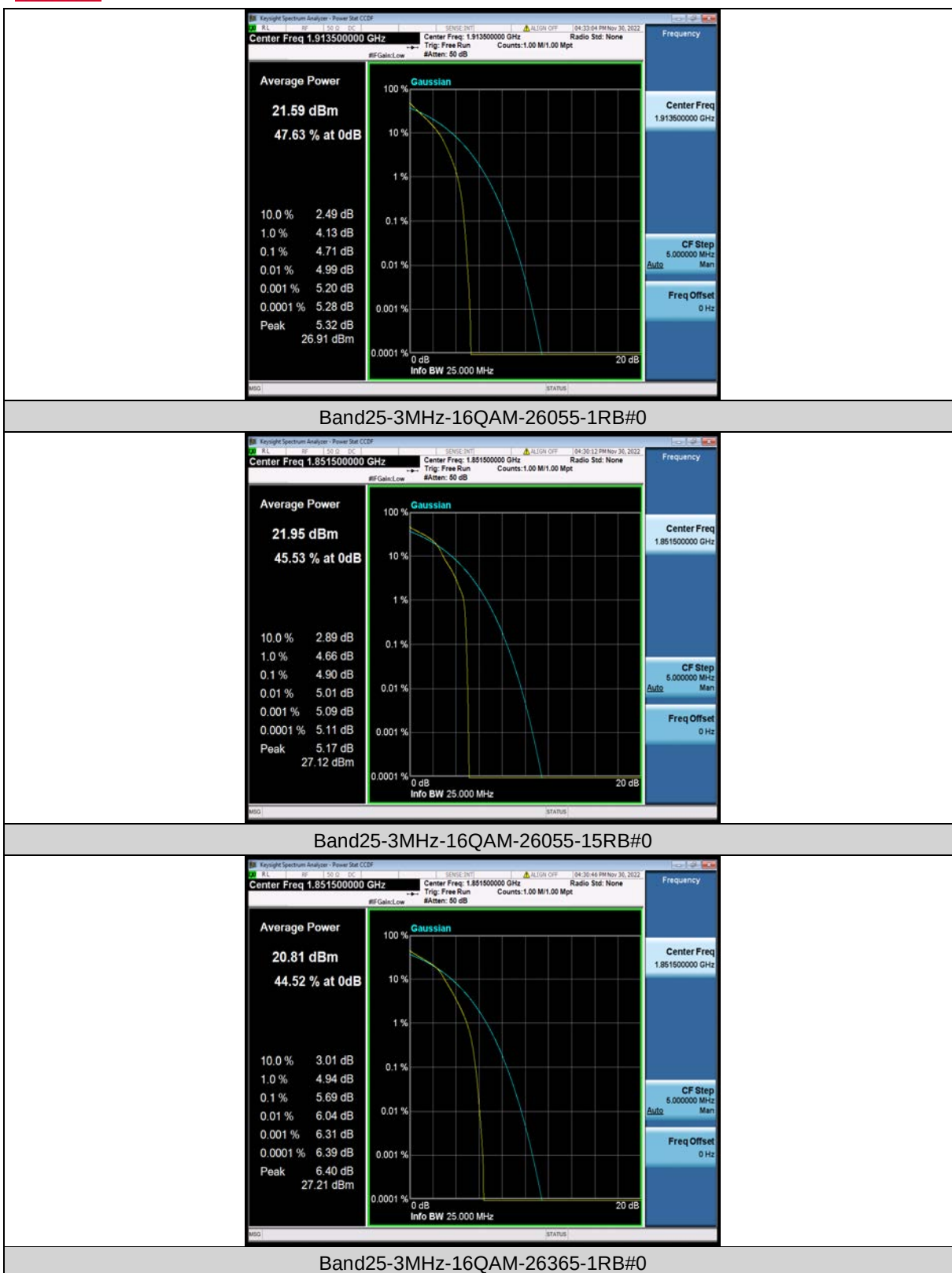


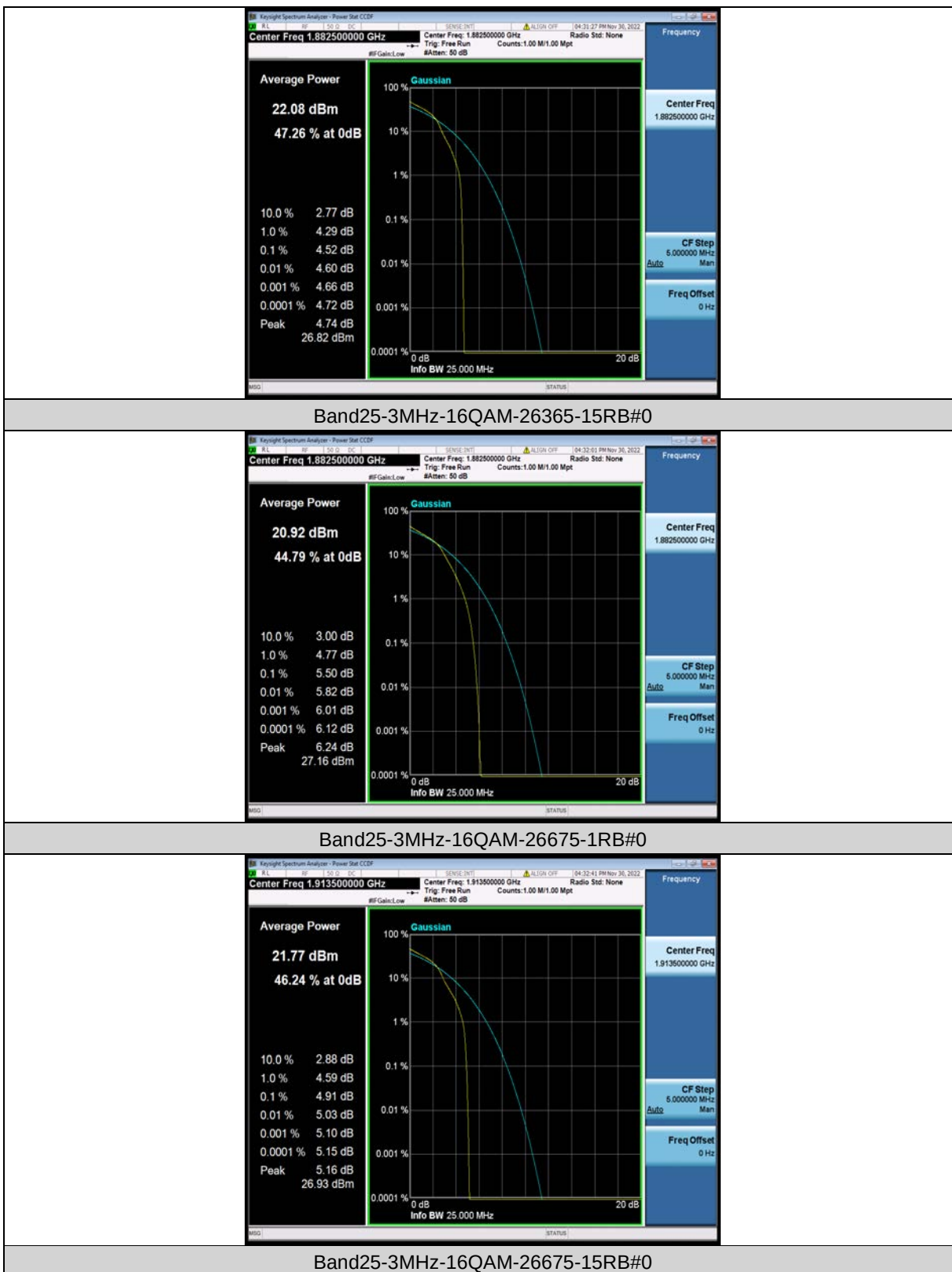


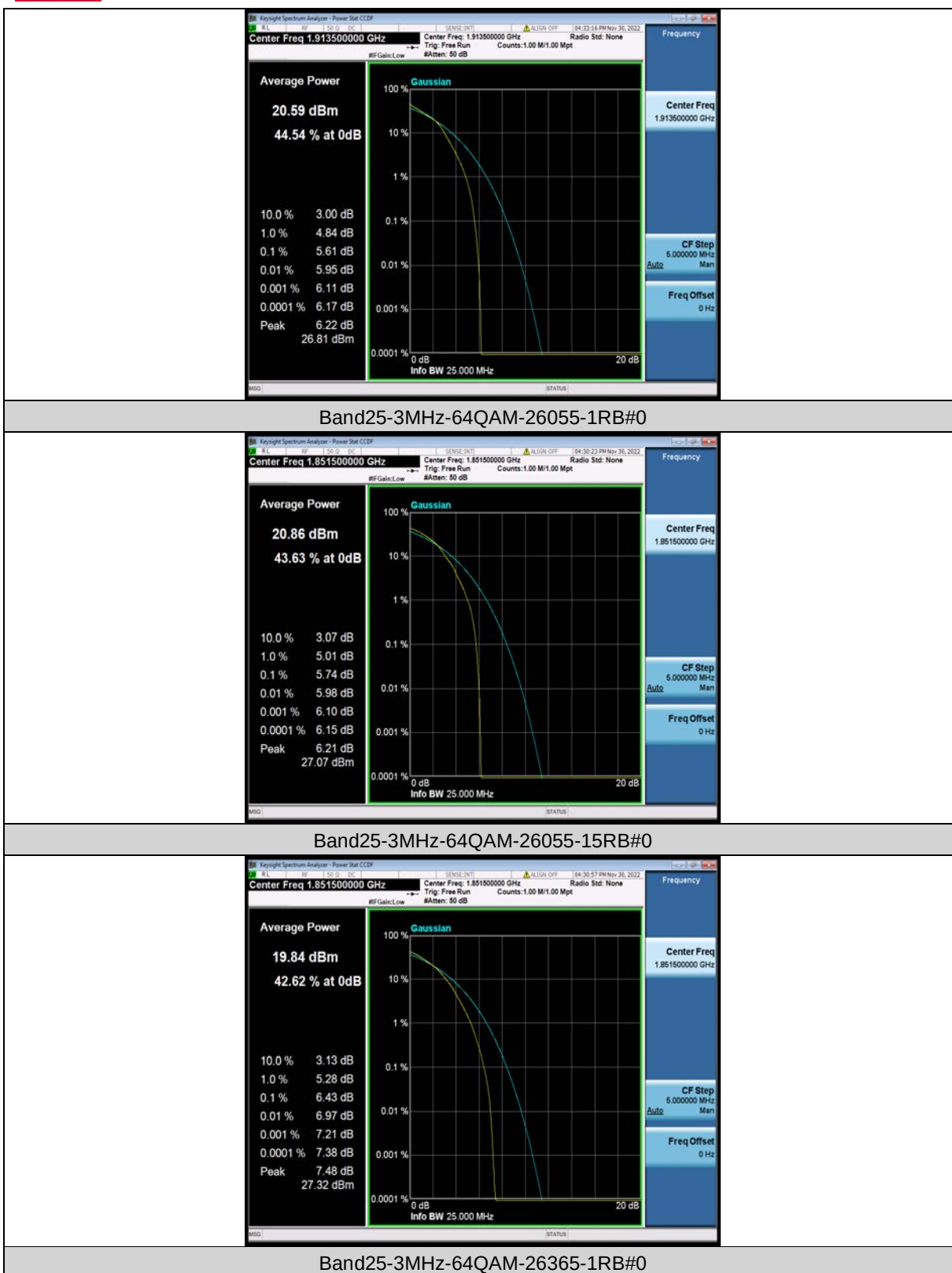


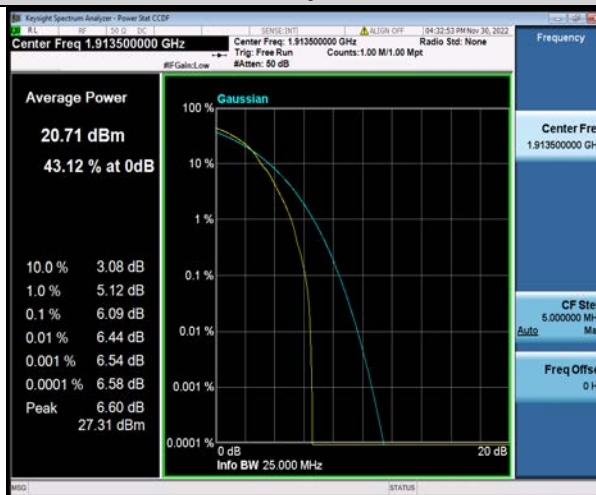
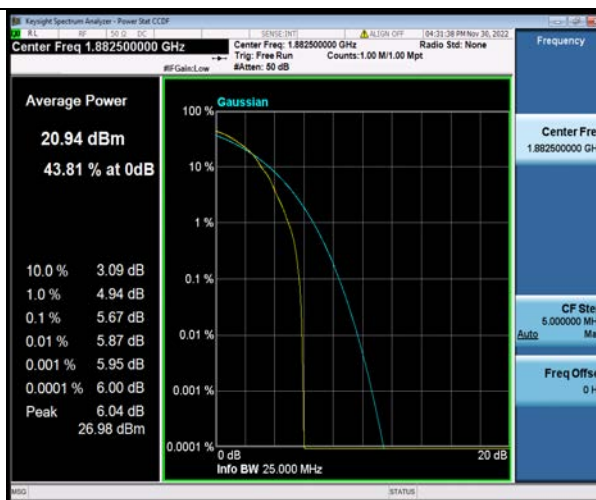


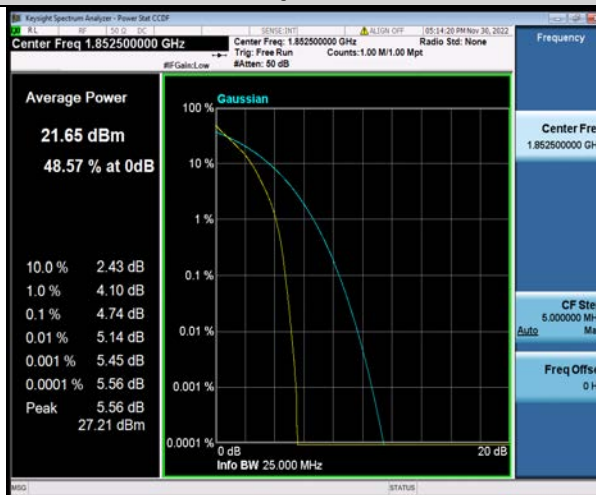
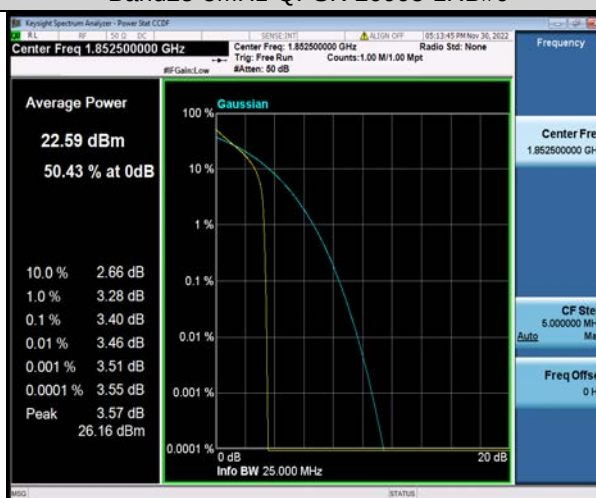
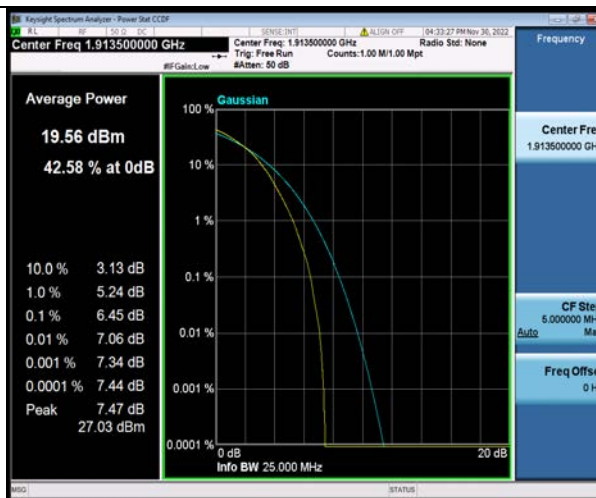


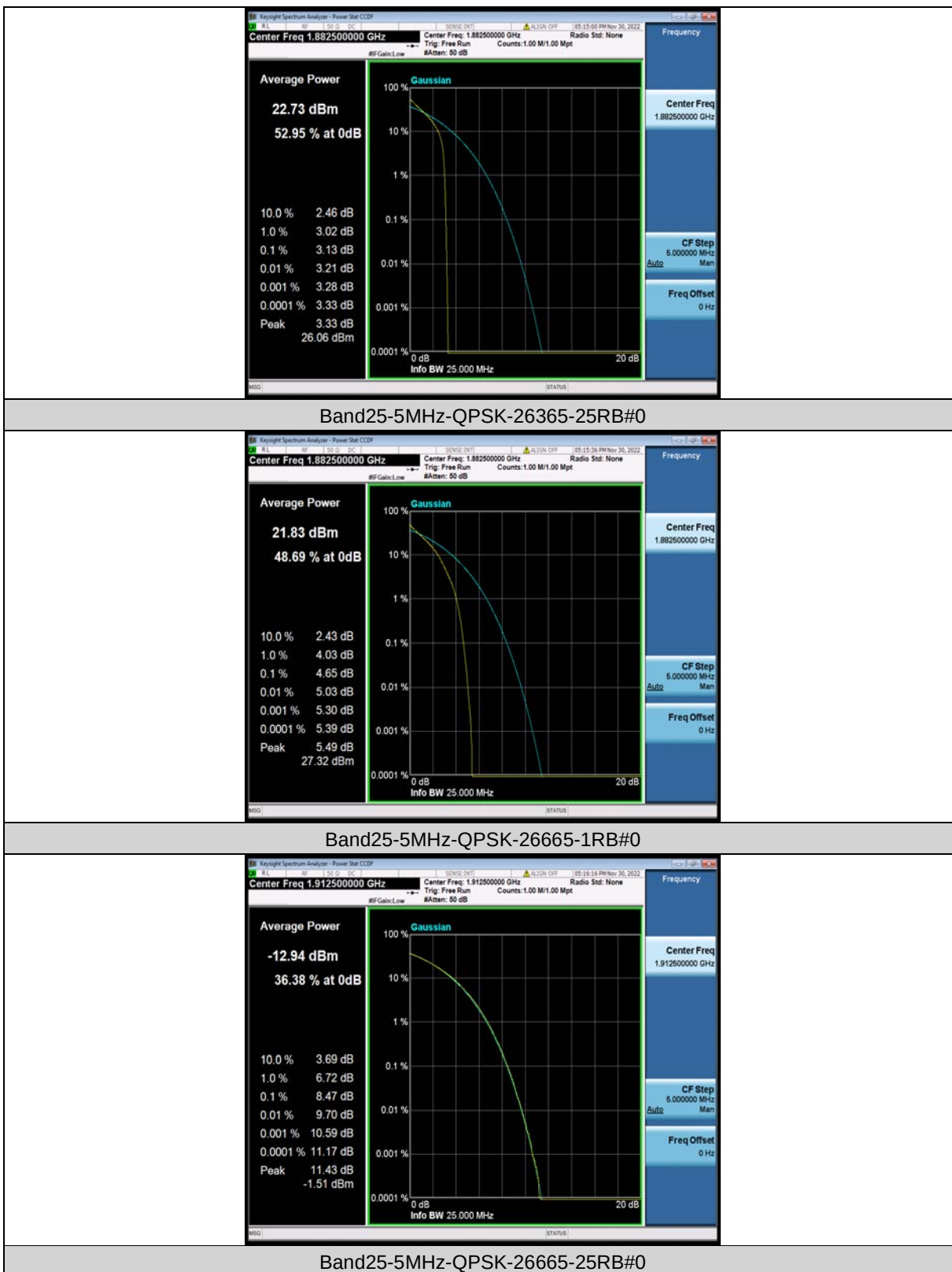


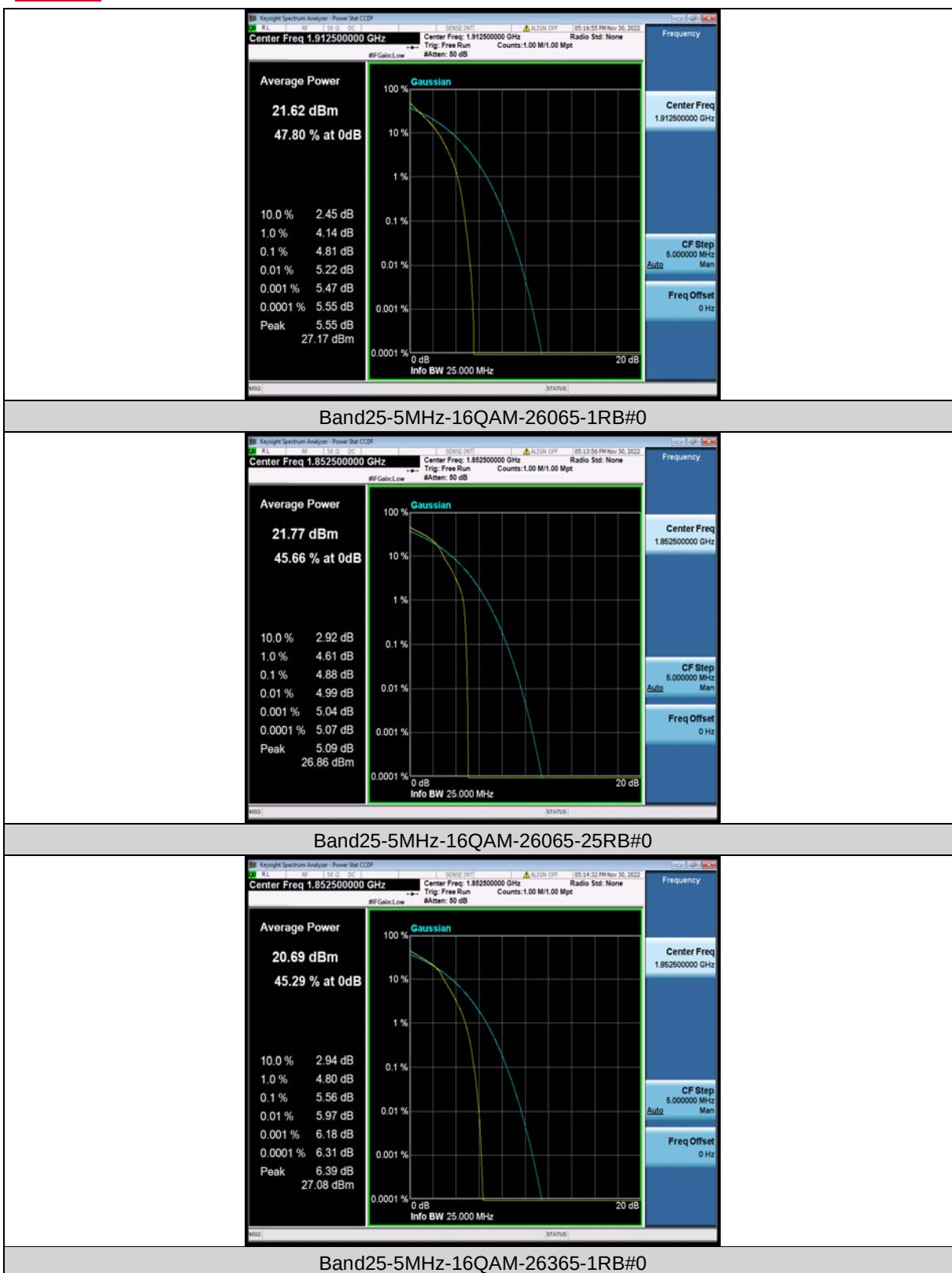


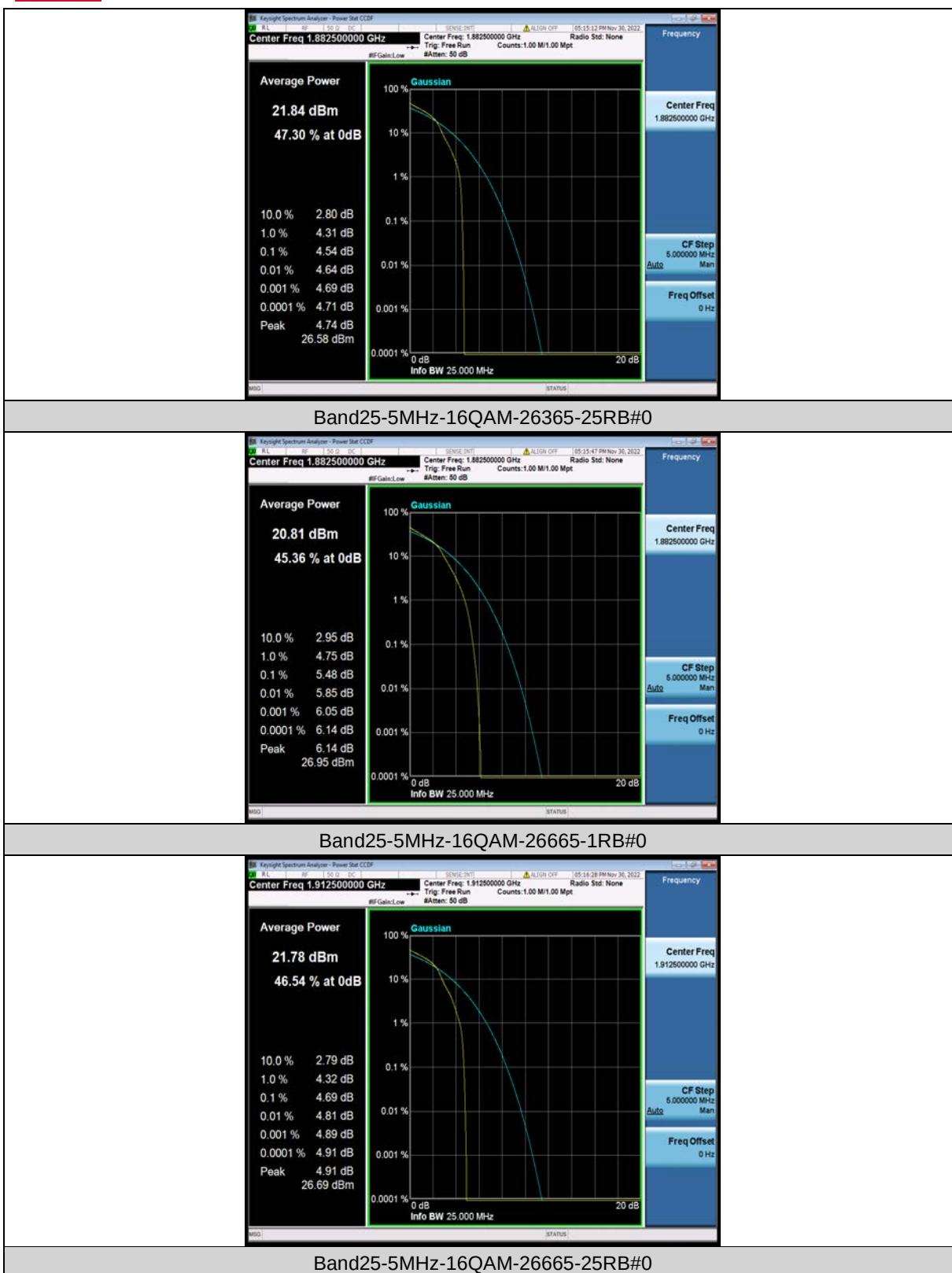


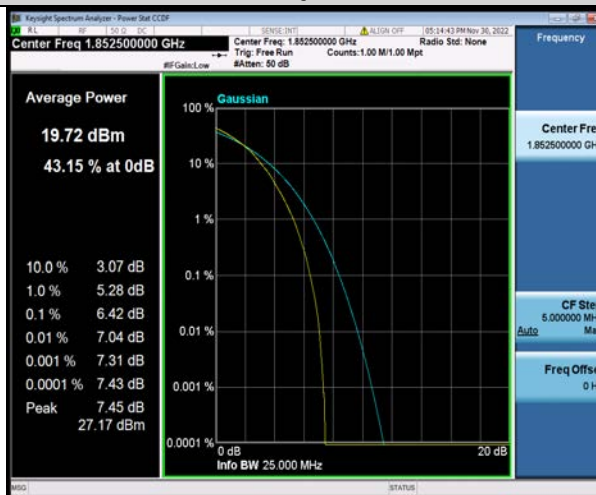
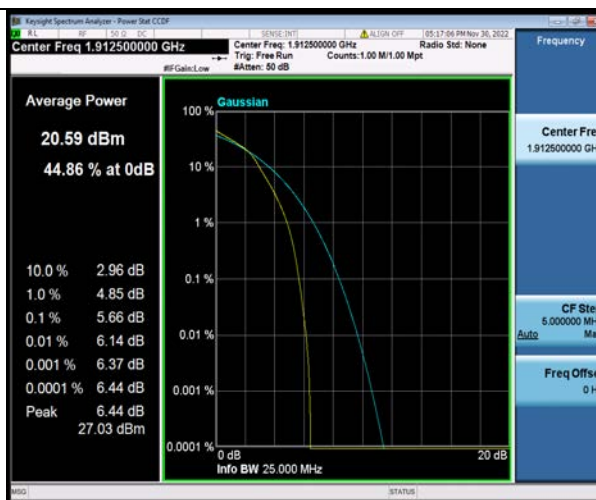


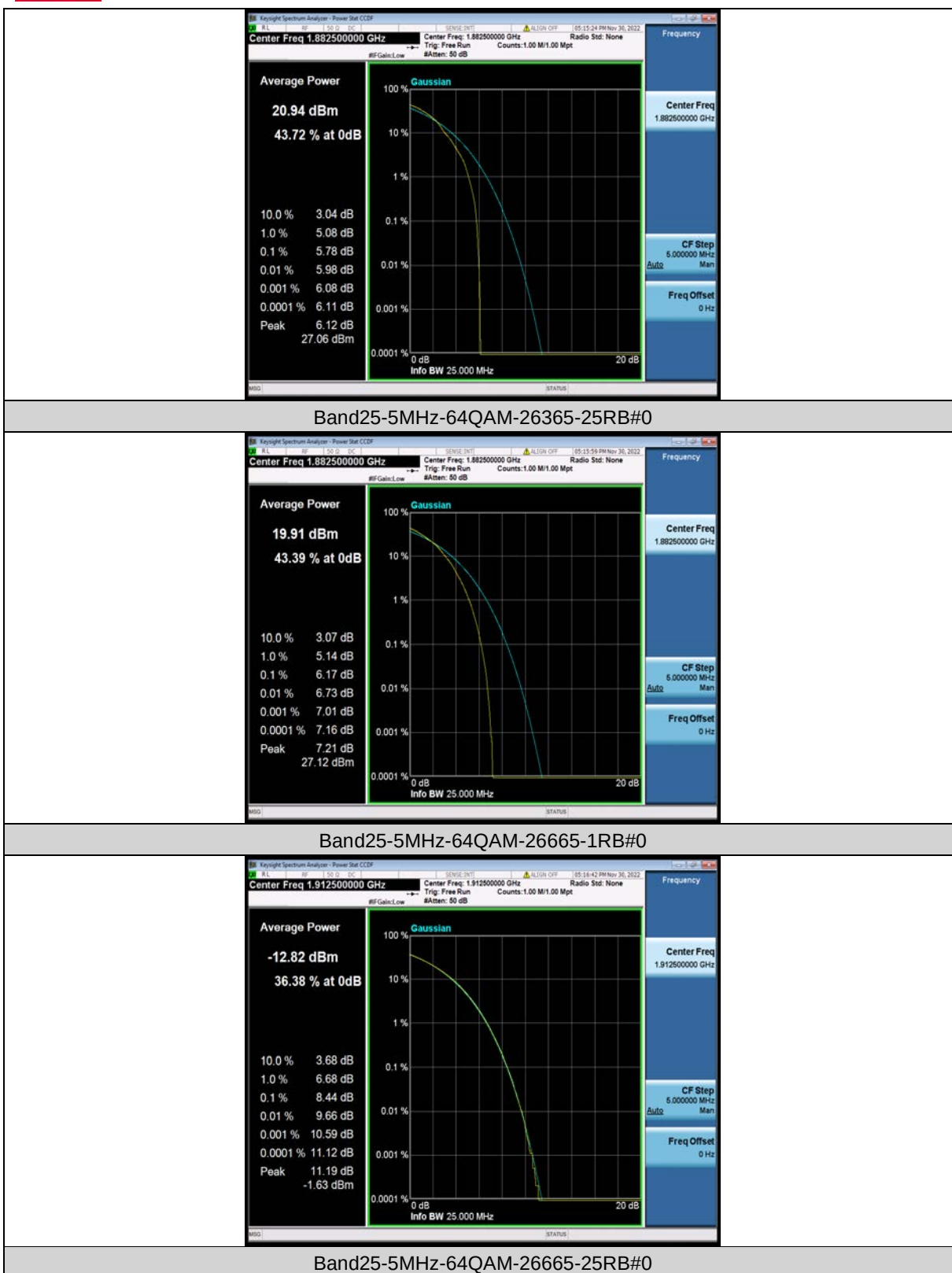


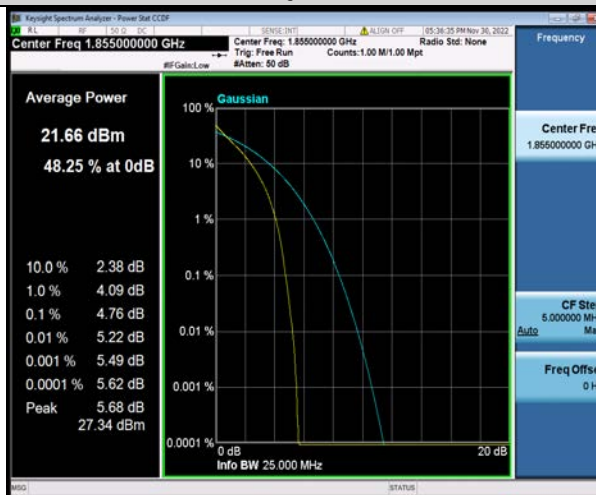
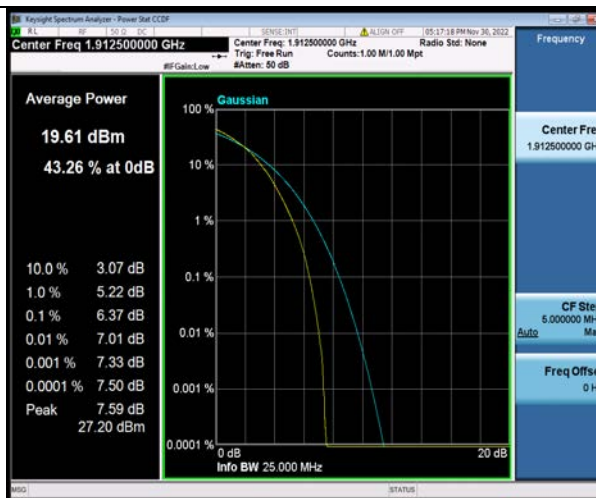




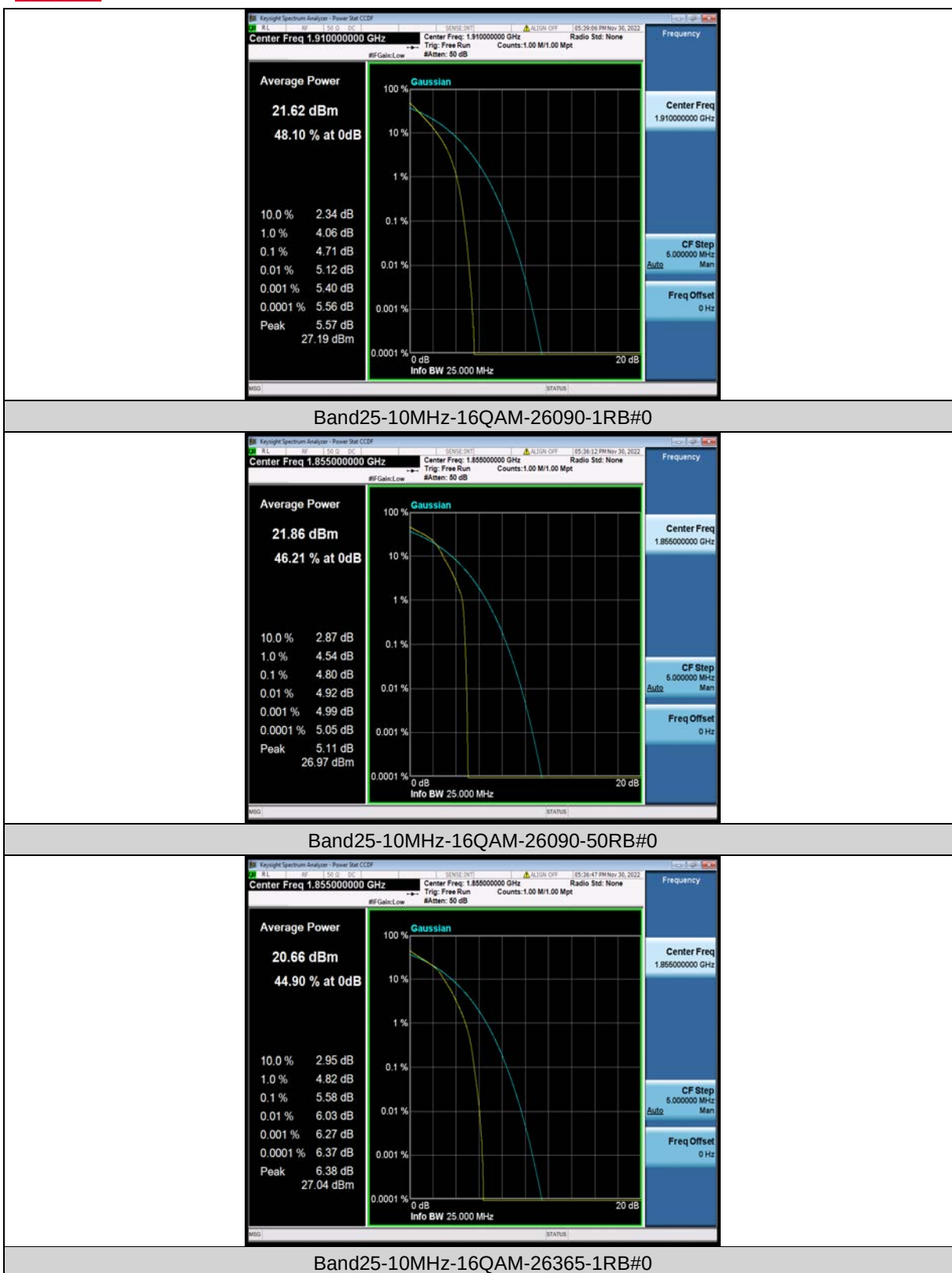


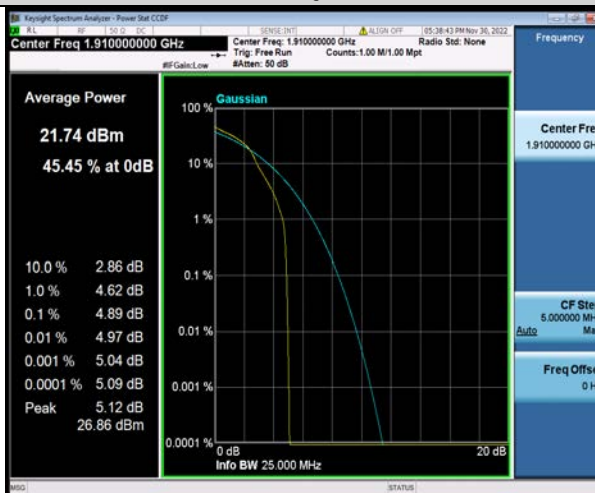
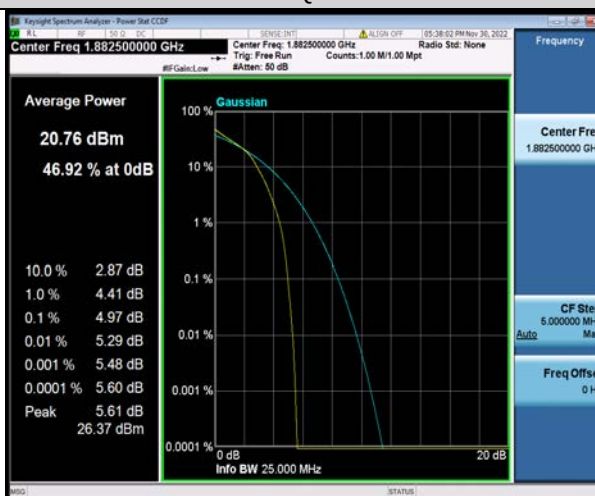


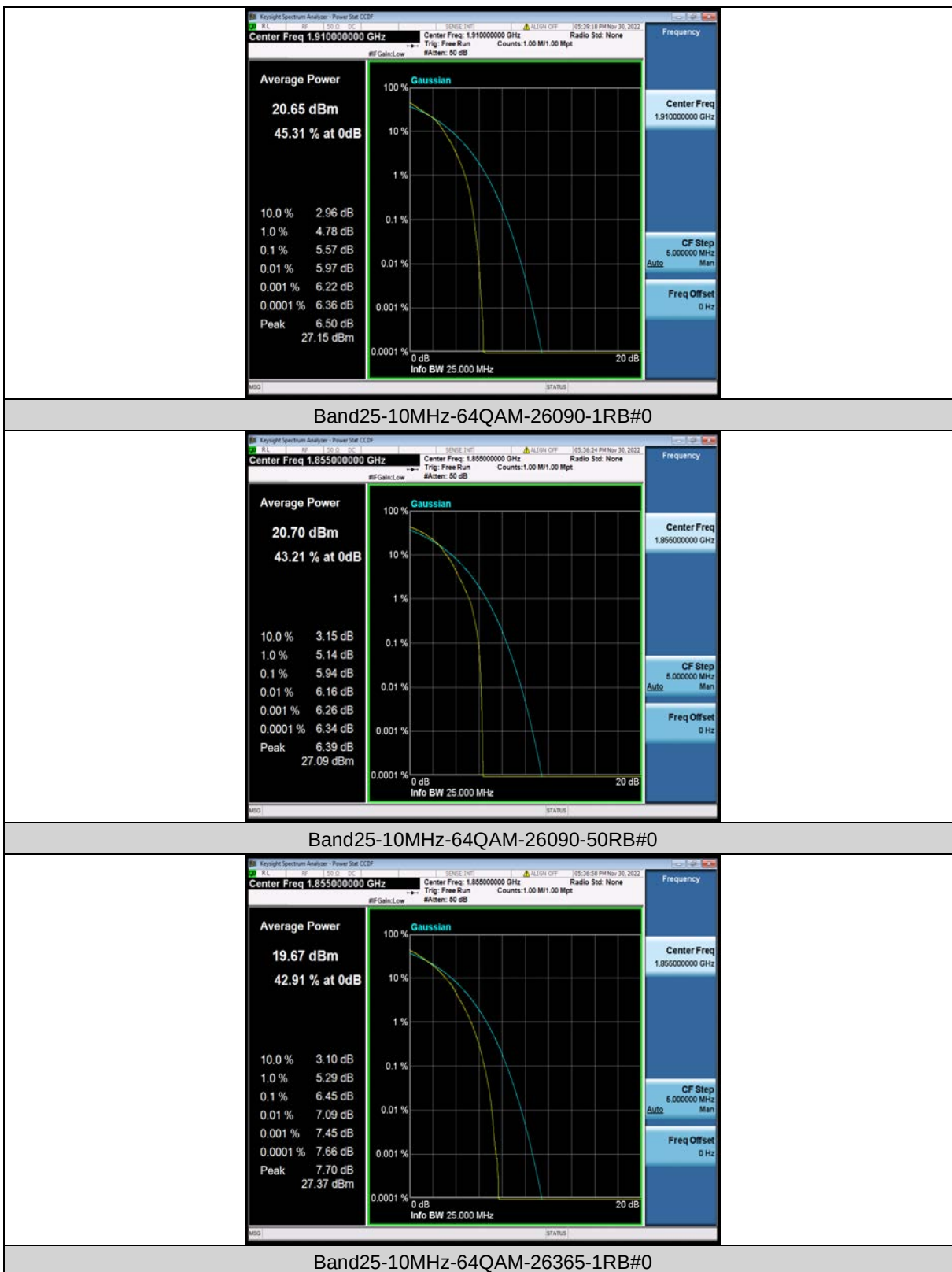


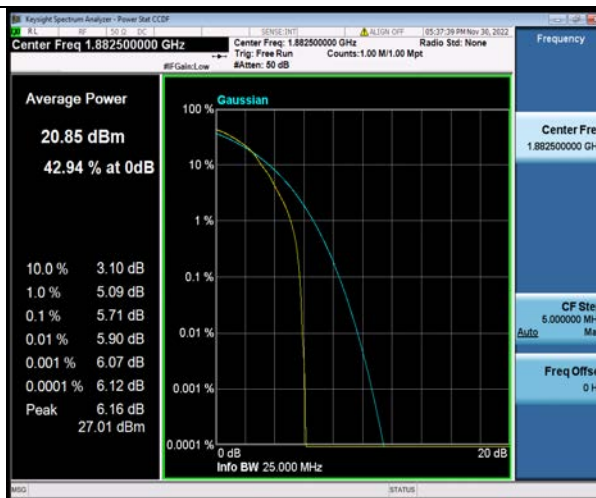




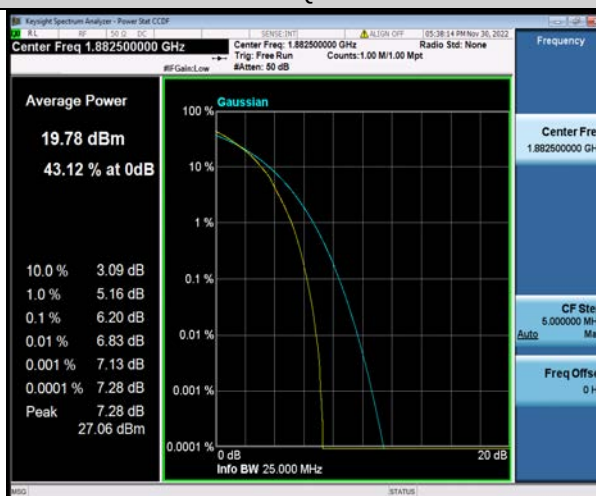




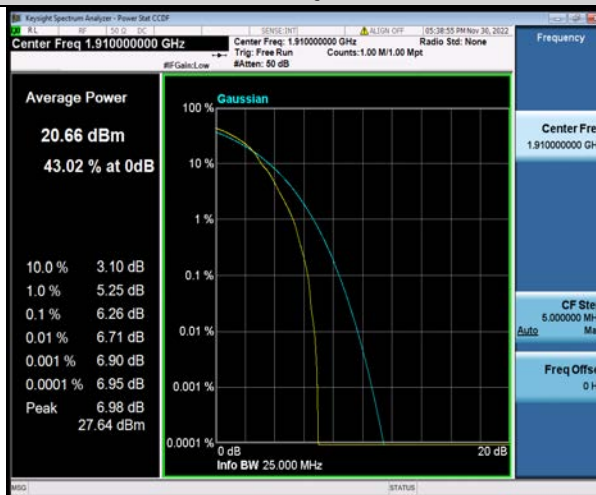




Band25-10MHz-64QAM-26365-50RB#0



Band25-10MHz-64QAM-26640-1RB#0



Band25-10MHz-64QAM-26640-50RB#0

