

FCC TEST REPORT

(PART 27)

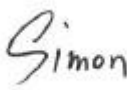
Applicant:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland

Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland
Product:	GSM/WCDMA/LTE Mobile Phone
Brand Name:	NOKIA
Model Name:	TA-1469
FCC ID:	2AJOTTA-1469
Date of tests:	Mar. 28, 2022 ~ Apr. 11, 2022

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

☒ **FCC Part 27** ☒ **ANSI/TIA/EIA-603-D**
☒ **FCC Part 2** ☒ **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: Apr. 11, 2022	Date: Apr. 11, 2022

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22030013RF03	Original release	Apr. 11, 2022

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2		
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT
§2.1046	Conducted Output Power	Compliance
§27.50(h)(2)	Equivalent Isotropically Radiated Power (Band 7)	Compliance
§2.1055 §27.54	Frequency Stability	Compliance
§2.1049	Occupied Bandwidth	Compliance
§2.1051 §27.53(m)(4)(6)	Conducted Band Edge Measurements (Band 7)	Compliance
§2.1051 §27.53(m)(4)(6)	Conducted Spurious Emissions (Band 7)	Compliance
§2.1053 §27.53(m)(4)(6)	Radiated Spurious Emissions (Band 7)	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 & Radiated Power (30MHz~1GMHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (1GMHz ~6GMHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GMHz ~18GMHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GMHz ~40GMHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
Band Edge Measurements	$\pm 4.70\text{dB}$

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	Apr. 22,21	Apr. 21,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Jun. 03,21	Jun. 02,22
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.05,21	Sep.04,22
Bilog Antenna	ETS-LINDGRE N	3143B	00161964	Feb. 24,22	Feb. 23,23
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. 25, 21	Aug. 24, 22
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 15,22	Feb. 14,23
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 03,21	Jun. 02,22
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 22,21	Apr. 21,22
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	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
Power Meter	Anritsu	N1914A	MY52180044	Feb.19,22	Feb.18,23
Power Sensor	Agilent	E9304A H18	MY52050011	Feb.20,22	Feb.19,23
Temperature Chamber	ESPEC	SH-242	93000855	Jun. 02,21	Jun. 01,22
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 04,22	Mar. 03,23
Power Divider	MCLI/USA	PS2-15	24880	N/A	N/A

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
 3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	GSM/WCDMA/LTE Mobile Phone	
BRAND NAME	NOKIA	
MODEL NAME	TA-1469	
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.8Vdc (Li-ion, battery)	
MODULATION TECHNOLOGY	LTE	QPSK, 16QAM
FREQUENCY RAN	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
MAX. EIRP POWER	LTE Band 7 Channel Bandwidth: 5MHz	334.97mW
	LTE Band 7 Channel Bandwidth: 10MHz	334.2mW
	LTE Band 7 Channel Bandwidth: 15MHz	337.29mW
	LTE Band 7 Channel Bandwidth: 20MHz	338.84mW
EMISSION DESIGNATOR	LTE Band 7 Channel Bandwidth: 5MHz	QPSK: 4M50G7D
		16QAM: 4M50W7D
	LTE Band 7 Channel Bandwidth: 10MHz	QPSK: 8M98G7D
		16QAM: 8M98W7D
	LTE Band 7 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
	LTE Band 7 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 18M0W7D
ANTENNA TYPE	Fixed Internal Antenna with 2 dBi gain for LTE7	
HW VERSION	FF618-MB-V0.2	



**BUREAU
VERITAS**

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SW VERSION	0.2214.11.06
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A
EXTREME TEMPERATURE	-10-55 °C
EXTREME VOLTAGE	3.38V - 4.35V

NOTE:

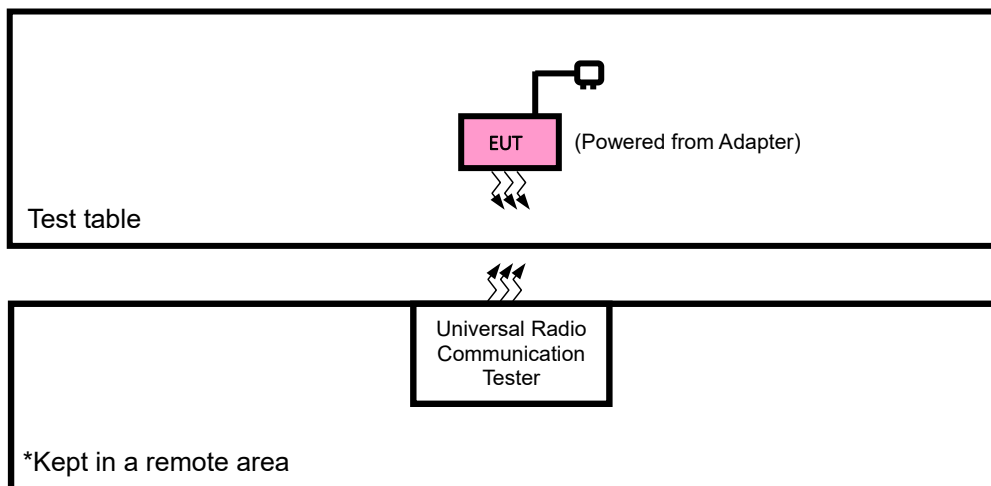
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	NOKIA	HuNan ADF Alternative Energy Technology Co., Ltd	BL-L4E	Capacity: 3.80 Vdc, 1450mAh
AC Adapter	NOKIA	Shenzhen Baijunda Electronic Co., Ltd	AC-18U	I/P: 100-240Vac, 0.1A, O/P: 5.0Vdc, 0.55A

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	LONG WEI	PS-6403D	010934269	N/A
2	Base station R&S CMW500	Rohde&Schwarz	CMW500	153084	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.8m

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 was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter + USB Cable with LTE link
B	EUT + Battery with LTE link

LTE BAND 7 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDT H	MODULATION	MODE
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	BAND EDGE	20775 to 21425	20775	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			21425	5MHz	QPSK, 16QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		20800 to 21400	20800	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			21400	10MHz	QPSK, 16QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		20825 to 21375	20825	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			21375	15MHz	QPSK, 16QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
A	CONDCUDE TED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	21100	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.



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TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP&EIRP	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.8V By Battery	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5V By Adapter	James Fu
BAND EDGE	23deg. C, 70%RH	DC 5V By Adapter	James Fu
CONDCUDED EMISSION	23deg. C, 70%RH	DC 5V By Adapter	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5V By Adapter	James Fu



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2.5 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 27

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

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

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

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

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{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:

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

3.1.3 TEST SETUP

CONDUCTED POWER MEASUREMENT:



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

3.1.4 TEST RESULTS

AVERAGE CONDUCTED OUTPUT POWER (dBm)

LTE Band 7

Band/BW	Modulation	RB Size	RB Offset	Low CH 20775	Mid CH 21100	High CH 21425	MPR
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz	
7/5	QPSK	1	0	23.19	23.15	22.98	0
		1	12	23.19	23.11	22.98	0
		1	24	23.25	23.20	23.08	0
		12	0	22.11	22.08	21.89	1
		12	6	22.08	22.13	21.90	1
		12	13	22.22	22.19	22.04	1
		25	0	22.06	22.08	21.86	1
	16QAM	1	0	22.41	22.41	22.25	1
		1	12	22.27	22.31	22.09	1
		1	24	22.42	22.34	22.21	1
		12	0	21.24	21.24	21.03	2
		12	6	21.24	21.26	21.03	2
		12	13	21.23	21.23	21.07	2
		25	0	21.28	21.25	21.08	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20800	Mid CH 21100	High CH 21400	MPR
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz	
7/ 10	QPSK	1	0	23.16	23.18	22.98	0
		1	24	23.19	23.11	22.99	0
		1	49	23.22	23.24	23.04	0
		25	0	22.12	22.07	21.92	1
		25	12	22.14	22.07	21.90	1
		25	25	22.20	22.16	22.03	1
		50	0	22.11	22.08	21.83	1
	16QAM	1	0	22.41	22.38	22.21	1
		1	24	22.32	22.27	22.12	1
		1	49	22.42	22.35	22.18	1
		25	0	21.26	21.22	21.09	2
		25	12	21.28	21.20	21.08	2
		25	25	21.22	21.24	21.04	2
		50	0	21.32	21.24	21.12	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20825	Mid CH 21100	High CH 21375	MPR
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz	
7/ 15	QPSK	1	0	23.23	23.18	22.95	0
		1	37	23.17	23.16	22.94	0
		1	74	23.28	23.27	23.05	0
		36	0	22.09	22.08	21.93	1
		36	19	22.15	22.12	21.90	1
		36	39	22.18	22.17	22.03	1
		75	0	22.11	22.06	21.88	1
	16QAM	1	0	22.45	22.45	22.21	1
		1	37	22.31	22.28	22.12	1
		1	74	22.38	22.40	22.20	1
		36	0	21.30	21.22	21.10	2
		36	19	21.22	21.24	21.04	2
		36	39	21.27	21.22	21.07	2
		75	0	21.33	21.27	21.05	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20850	Mid CH 21100	High CH 21350	MPR
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz	
7/ 20	QPSK	1	0	23.22	23.24	23.03	0
		1	50	23.19	23.21	23.00	0
		1	99	22.38	23.30	23.09	0
		50	0	22.13	22.15	21.94	1
		50	25	22.14	22.16	21.95	1
		50	50	22.24	22.26	22.05	1
		100	0	22.10	22.12	21.91	1
	16QAM	1	0	22.46	22.48	22.27	1
		1	50	22.33	22.35	22.14	1
		1	99	22.42	22.44	22.23	1
		50	0	21.30	21.32	21.11	2
		50	25	21.28	21.30	21.09	2
		50	50	21.28	21.30	21.09	2
		100	0	21.32	21.34	21.13	2

EIRP

LTE BAND 7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	23.25	2	25.25	334.97	2
21100	2535.0	23.2	2	25.2	331.13	2
21425	2567.5	23.08	2	25.08	322.11	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	22.42	2	24.42	276.69	2
21100	2535.0	22.41	2	24.41	276.06	2
21425	2567.5	22.25	2	24.25	266.07	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505.0	23.22	2	25.22	332.66	2
21100	2535.0	23.24	2	25.24	334.2	2
21400	2565.0	23.04	2	25.04	319.15	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505.0	22.42	2	24.42	276.69	2
21100	2535.0	22.38	2	24.38	274.16	2
21400	2565.0	22.21	2	24.21	263.63	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	23.28	2	25.28	337.29	2
21100	2535.0	23.27	2	25.27	336.51	2
21375	2562.5	23.05	2	25.05	319.89	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	22.45	2	24.45	278.61	2
21100	2535.0	22.45	2	24.45	278.61	2
21375	2562.5	22.21	2	24.21	263.63	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	23.22	2	25.22	332.66	2
21100	2535.0	23.3	2	25.3	338.84	2
21350	2560.0	23.09	2	25.09	322.85	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	22.46	2	24.46	279.25	2
21100	2535.0	22.48	2	24.48	280.54	2
21350	2560.0	22.27	2	24.27	267.3	2

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

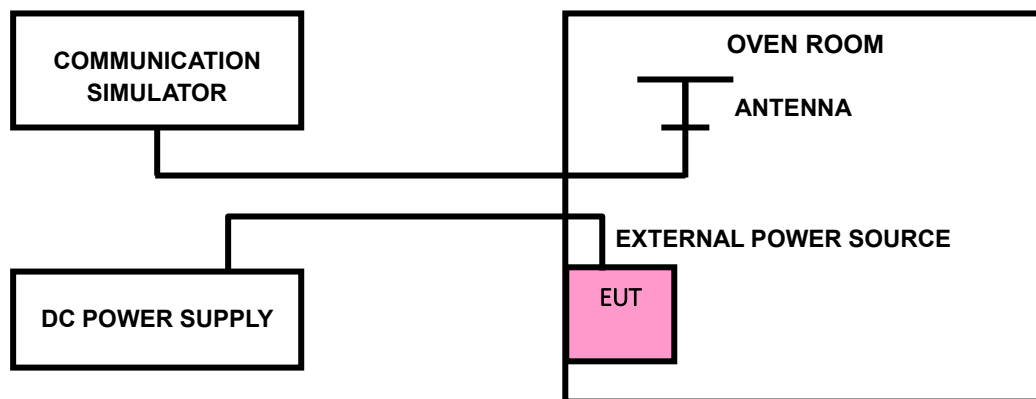
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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





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3.2.4 TEST RESULTS

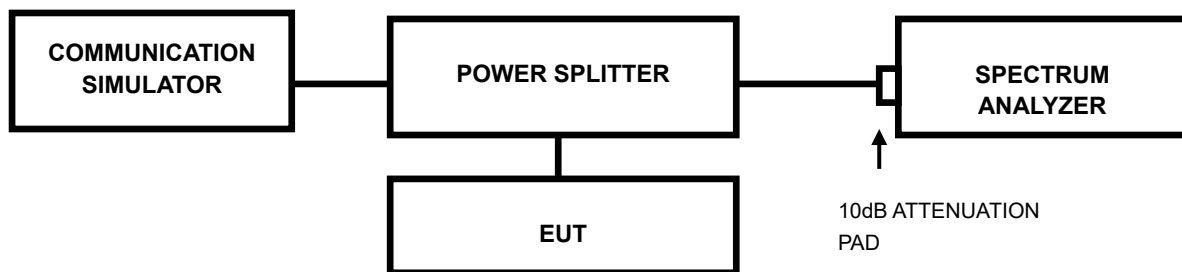
Please Refer to Appendix Of this test report.

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-P22030013RF03

3.3.4 TEST RESULTS

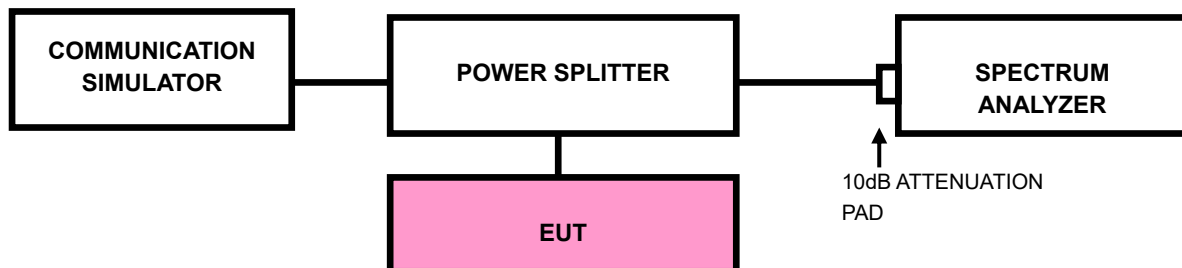
Please Refer to Appendix Of this test report.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. For mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (LTE bandwidth for (1.4M/3M/5M/10M/15M/20M)1RB/0RB&1RB/MAXRB).
- The center frequency of spectrum is the band edge frequency and span is 10MHz.
RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).



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- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is $\geq 1\% \cdot \text{EBW}$ kHz and VBW of the spectrum is $3 \cdot \text{RBW}$ kHz. (LTE bandwidth 1.4M/3M/5M/10M/15M/20MHz).
- e. Record the max trace plot into the test report.



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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

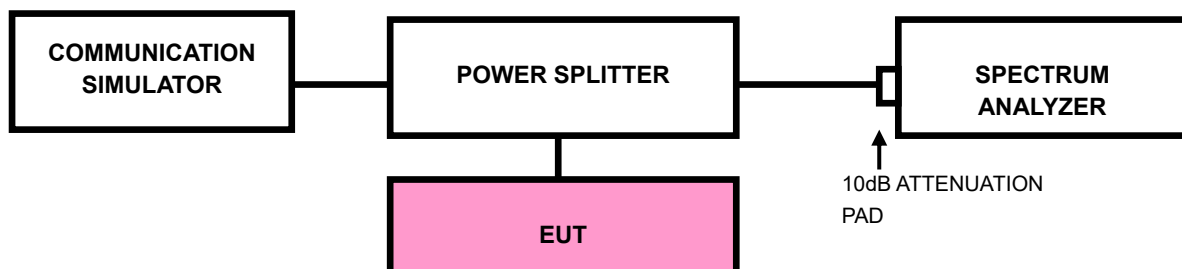
For: LTE Band7

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $55 + 10 \log_{10}(P)$ dB. The limit of emission is equal to -25dBm.

3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9kHz up to a frequency including its 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





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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

For: LTE Band7

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $55 + 10 \log_{10}(P)$ dB. The limit of emission is equal to -25dBm.

3.6.2 TEST PROCEDURES

- 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.
- 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.
- $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$
- E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi.}$

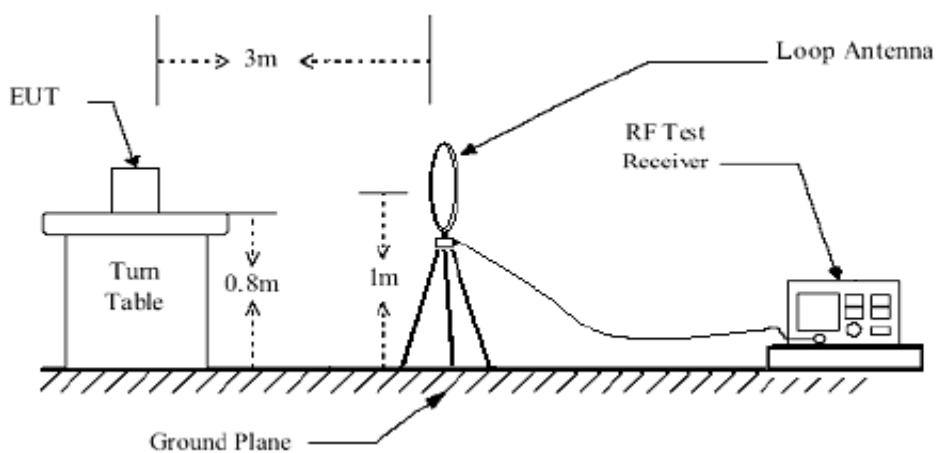
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.6.3 DEVIATION FROM TEST STANDARD

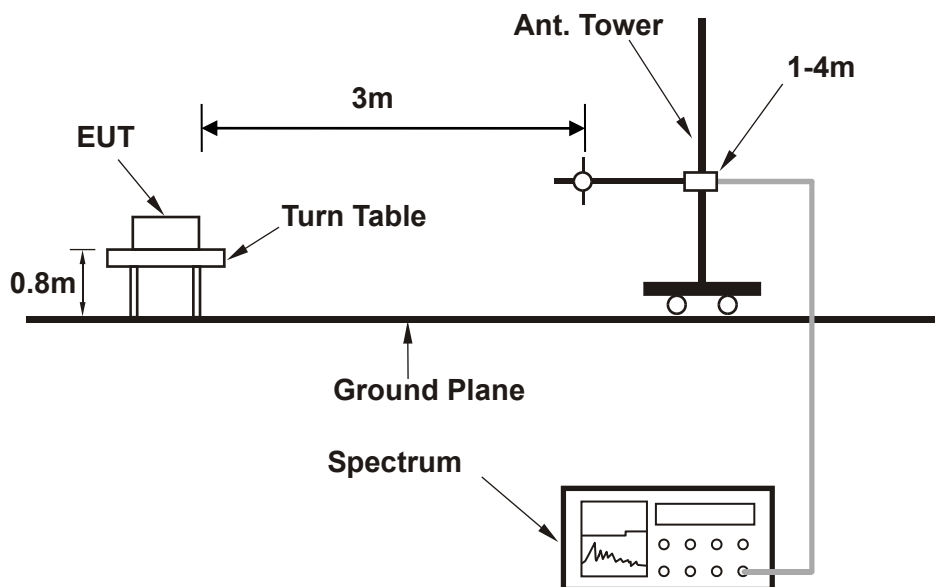
No deviation

3.6.4 TEST SETUP

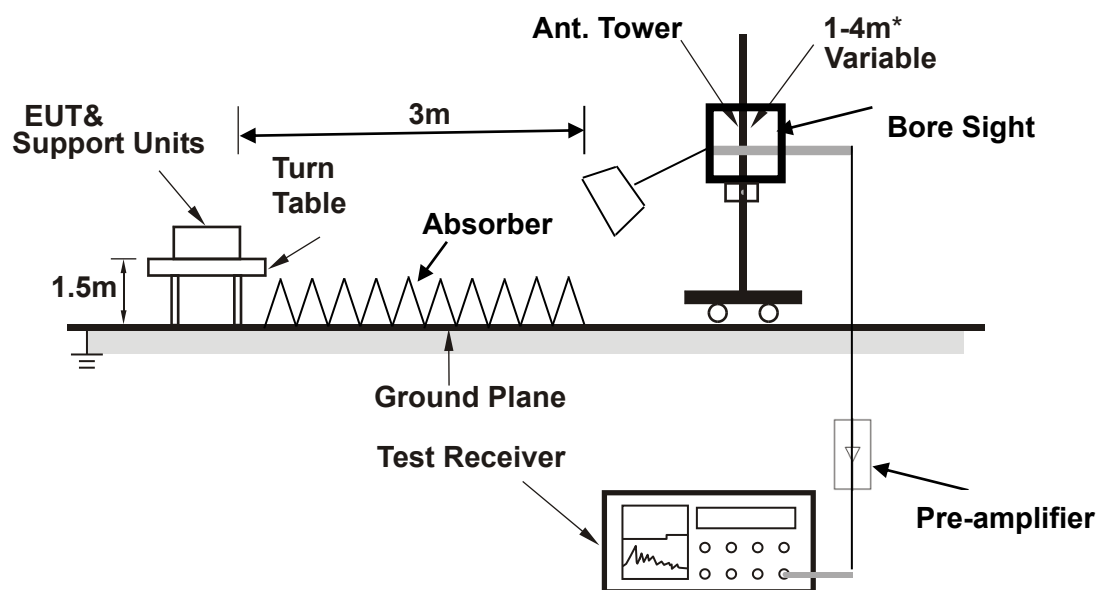
< Frequency Range below 30MHz >



< 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

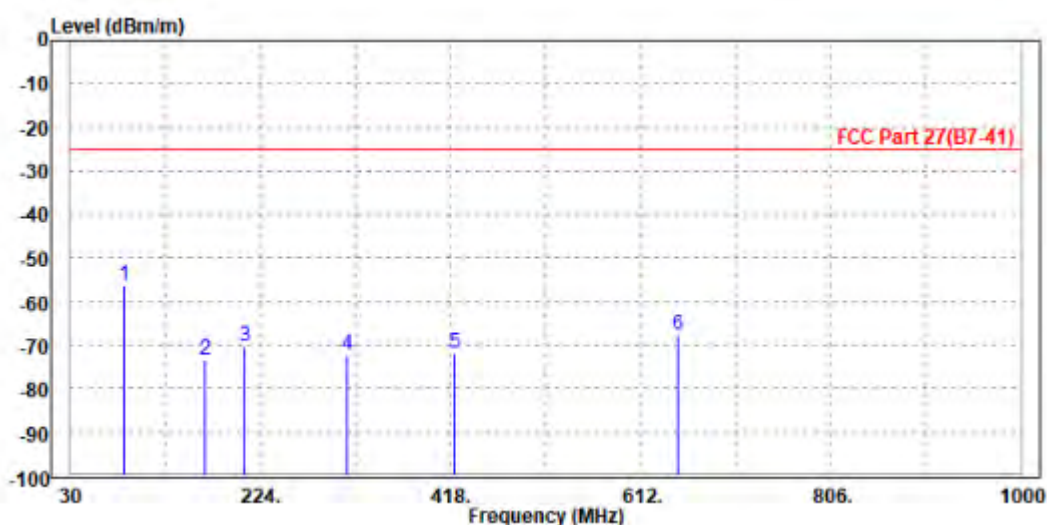
30 MHz – 1GHz data:

LTE Band 7

CHANNEL BANDWIDTH: 5MHz / QPSK

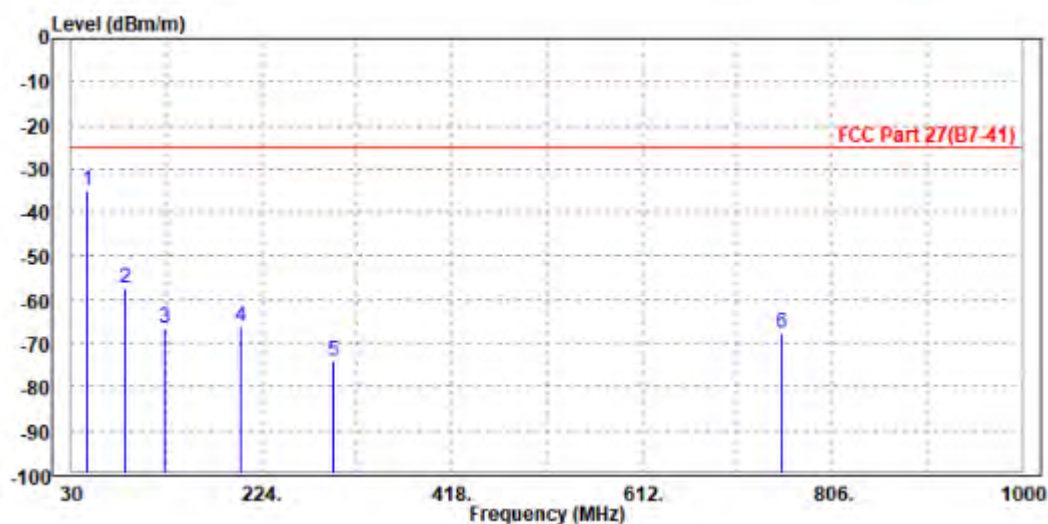
MODE	TX channel 21425	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	84.320	-56.11	-47.86	-25.00	-31.11	-8.25	Peak	Horizontal
2	166.770	-73.48	-55.25	-25.00	-48.48	-18.23	Peak	Horizontal
3	207.510	-70.49	-53.40	-25.00	-45.49	-17.09	Peak	Horizontal
4	312.270	-72.06	-58.66	-25.00	-47.06	-13.40	Peak	Horizontal
5	422.850	-71.76	-61.32	-25.00	-46.76	-10.44	Peak	Horizontal
6	650.800	-67.54	-60.54	-25.00	-42.54	-7.00	Peak	Horizontal



MODE	TX channel 21425	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	Limit	Over			
	MHz	dBm/m	Level	Line	Limit	Factor	Remark	Pol/Phase
			dBm	dBm/m	dB	dB/m		
1 PP	45.520	-35.04	-31.70	-25.00	-10.04	-3.34	Peak	Vertical
2	85.290	-57.37	-46.97	-25.00	-32.37	-10.40	Peak	Vertical
3	125.060	-66.59	-54.38	-25.00	-41.59	-12.21	Peak	Vertical
4	203.630	-66.28	-55.58	-25.00	-41.28	-10.70	Peak	Vertical
5	297.720	-73.99	-62.69	-25.00	-48.99	-11.30	Peak	Vertical
6	754.590	-67.74	-62.04	-25.00	-42.74	-5.70	Peak	Vertical





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Test Report No.: W7L-P22030013RF03

ABOVE 1GHz

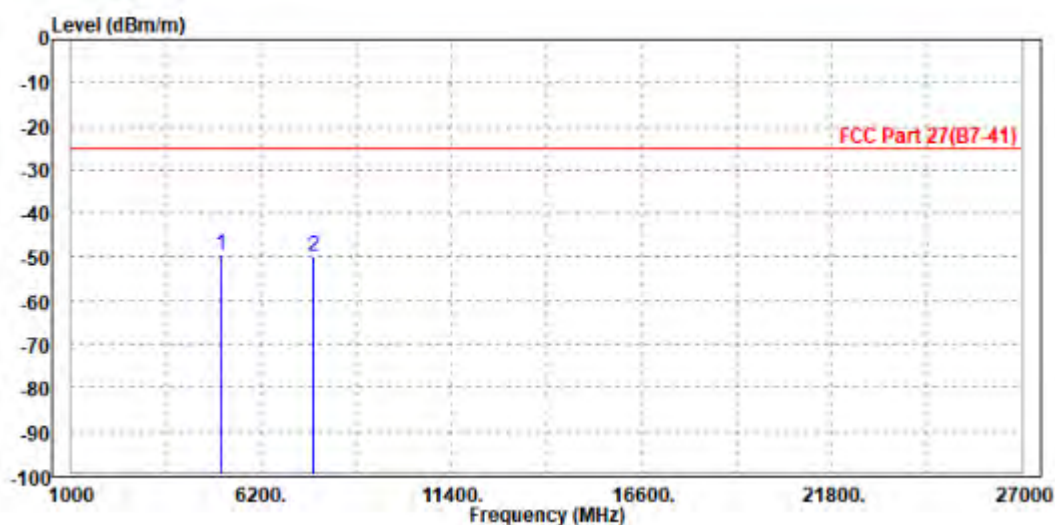
Note: For higher frequency, the emission is too low to be detected.

LTE Band 7

CHANNEL BANDWIDTH: 5MHz / QPSK

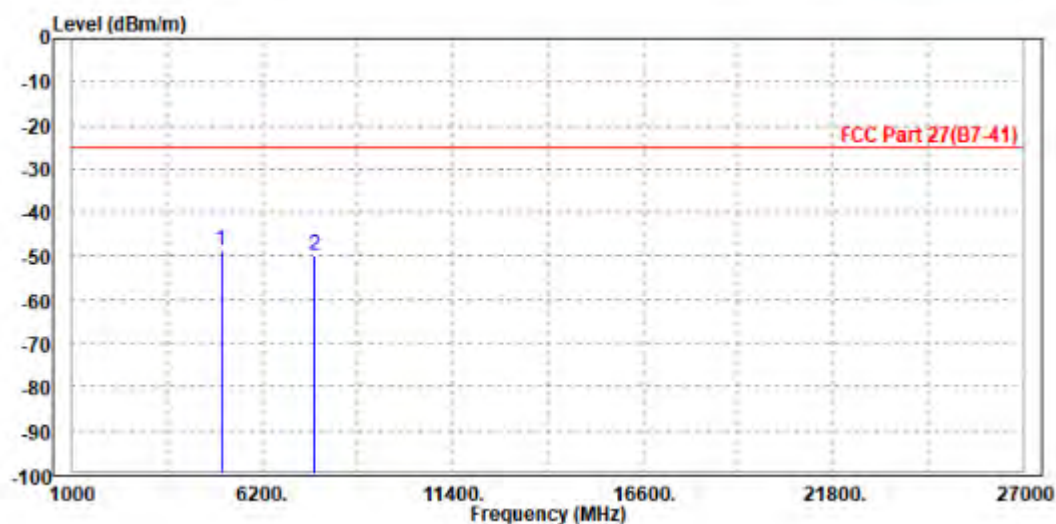
MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	5082.000	-49.24	-58.01	-25.00	-24.24	8.77	Peak	Horizontal
2		7605.000	-49.83	-61.23	-25.00	-24.83	11.40	Peak	Horizontal



MODE	TX channel 21100	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			

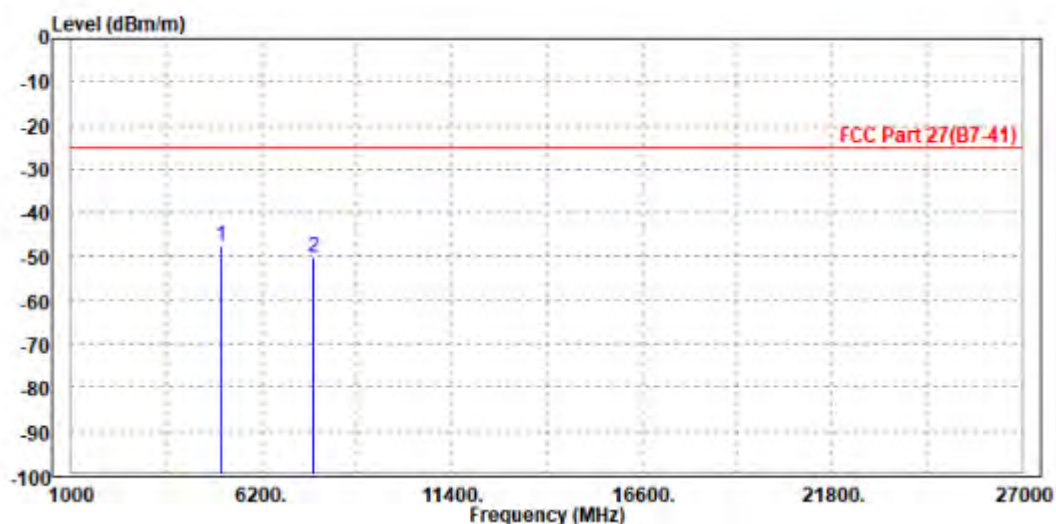
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	5070.000	-48.58	-58.45	-25.00	-23.58	9.87	Peak	Vertical
2	7604.000	-49.90	-62.68	-25.00	-24.90	12.78	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

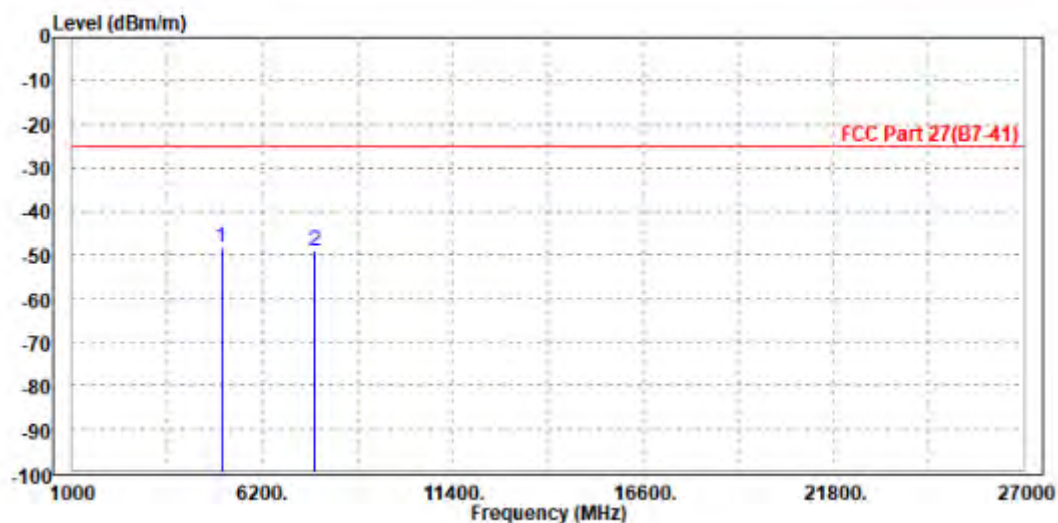
MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5082.000	-47.58	-56.35	-25.00	-22.58	8.77	Peak	Horizontal
2	7605.000	-50.06	-61.46	-25.00	-25.06	11.40	Peak	Horizontal



MODE	TX channel 21100	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 5070.000	-48.42	-58.29	-25.00	-23.42	9.87	Peak	Vertical
2	7604.000	-49.12	-61.90	-25.00	-24.12	12.78	Peak	Vertical





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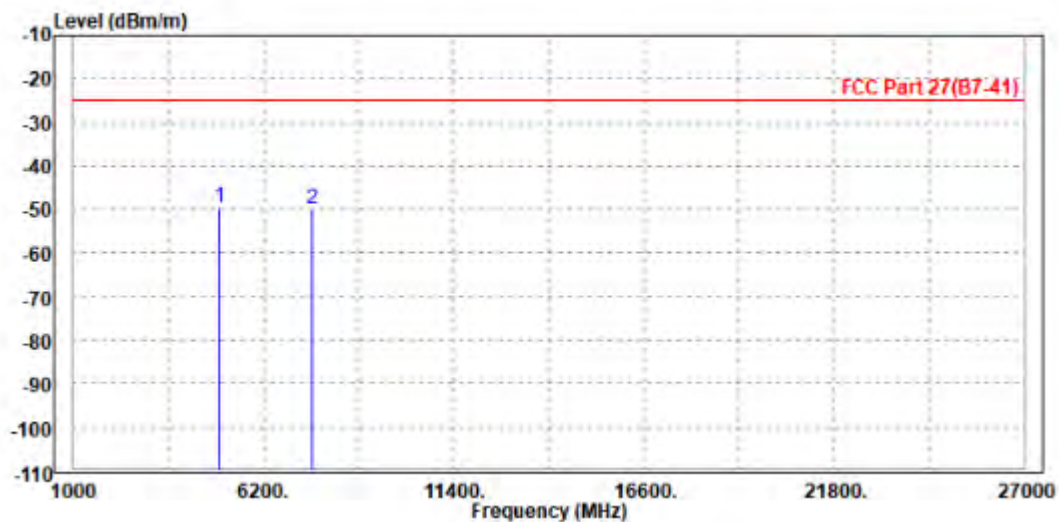
Test Report No.: W7L-P22030013RF03

CHANNEL BANDWIDTH: 15MHz / QPSK

CH20825

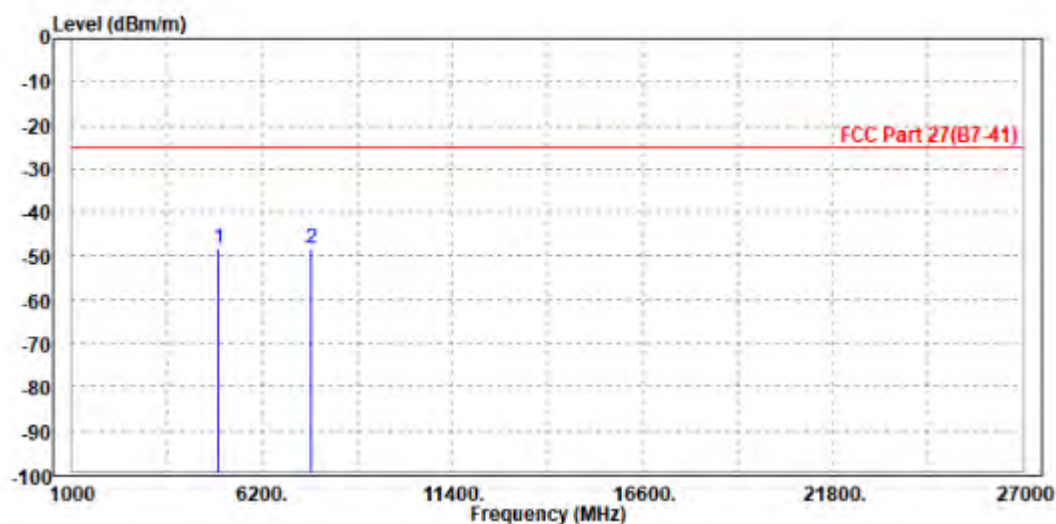
MODE	TX channel 20825	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5004.000	-49.65	-58.19	-25.00	-24.65	8.54	Peak	Horizontal
2	7522.500	-50.01	-61.38	-25.00	-25.01	11.37	Peak	Horizontal



MODE	TX channel 20825	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 5015.000	-48.21	-58.10	-25.00	-23.21	9.89	Peak	Vertical
2	7526.000	-48.25	-61.00	-25.00	-23.25	12.75	Peak	Vertical





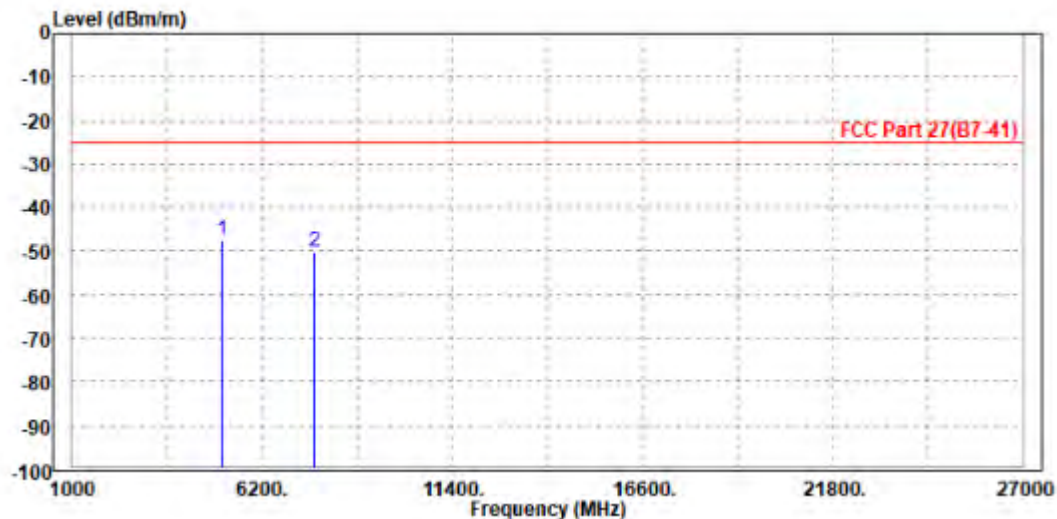
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Test Report No.: W7L-P22030013RF03

CH21100

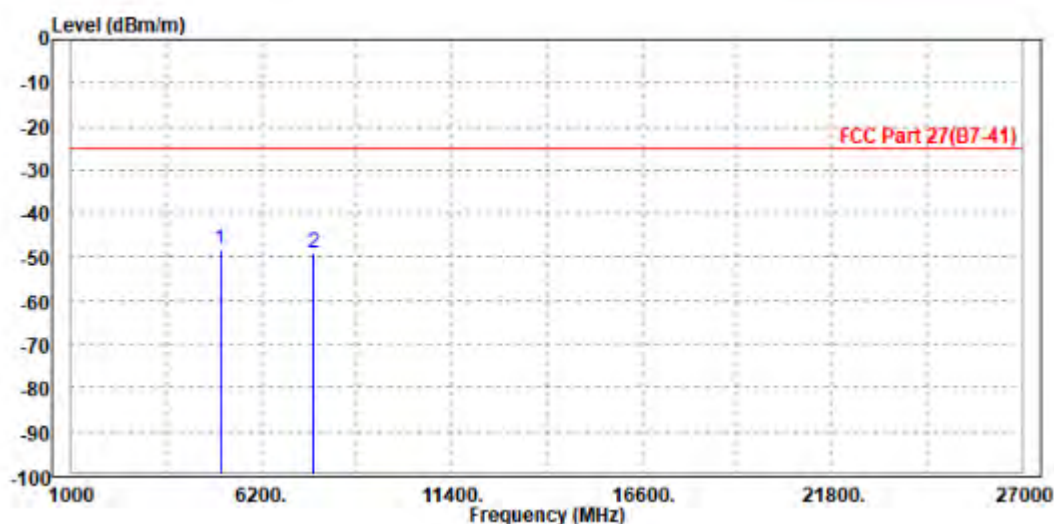
MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5082.000	-47.58	-56.35	-25.00	-22.58	8.77	Peak	Horizontal
2	7605.000	-50.06	-61.46	-25.00	-25.06	11.40	Peak	Horizontal



MODE	TX channel 21100	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	5070.000	-48.42	-58.29	-25.00	-23.42	9.87	Peak	Vertical
2		7604.000	-49.12	-61.90	-25.00	-24.12	12.78	Peak	Vertical





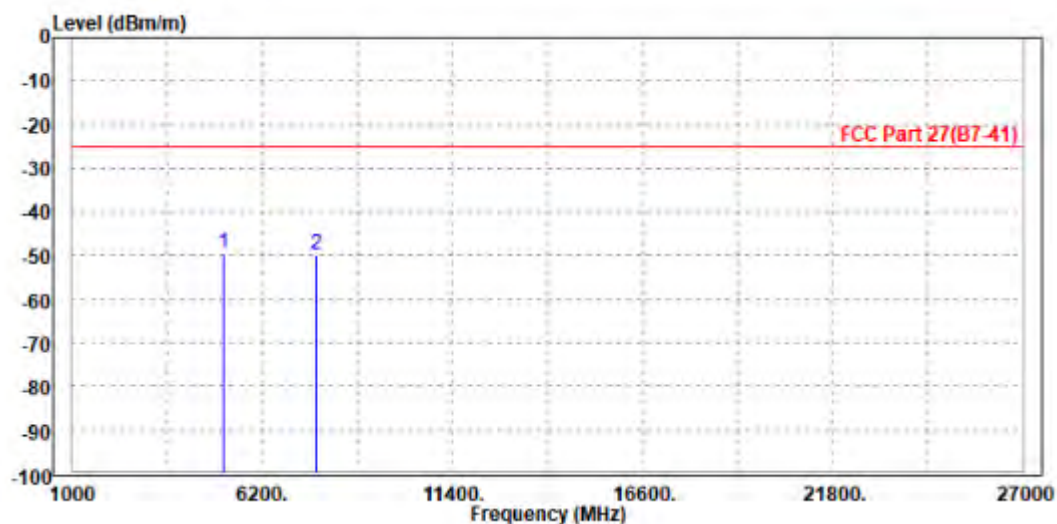
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Test Report No.: W7L-P22030013RF03

CH21375

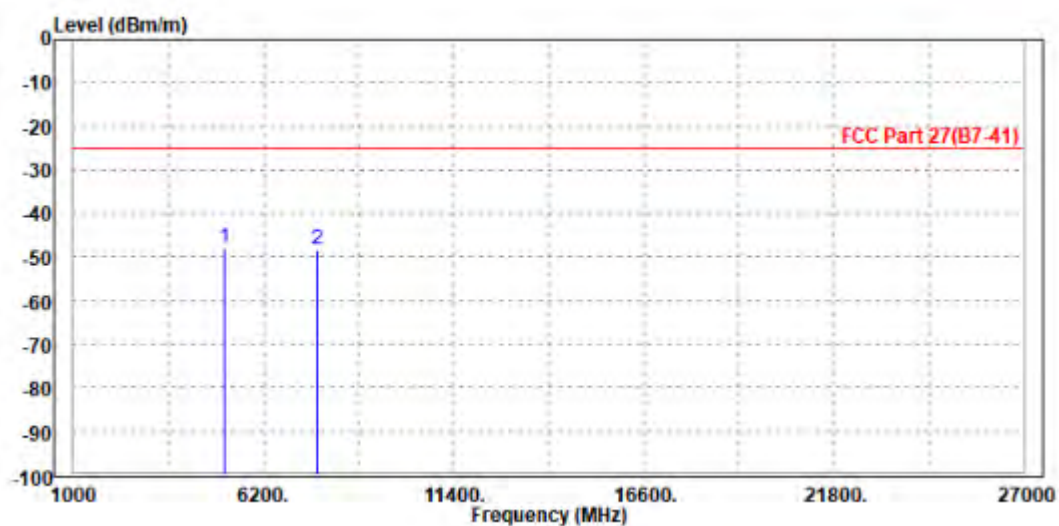
CHRYSLER			
MODE	TX channel 21375	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	5134.000	-49.46	-58.39	-25.00	-24.46	8.93	Peak	Horizontal
2		7687.500	-49.74	-61.18	-25.00	-24.74	11.44	Peak	Horizontal



MODE	TX channel 21375	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 PP	5134.000	-47.97	-57.82	-25.00	-22.97	9.85	Peak	Vertical
2	7687.500	-48.43	-61.24	-25.00	-23.43	12.81	Peak	Vertical





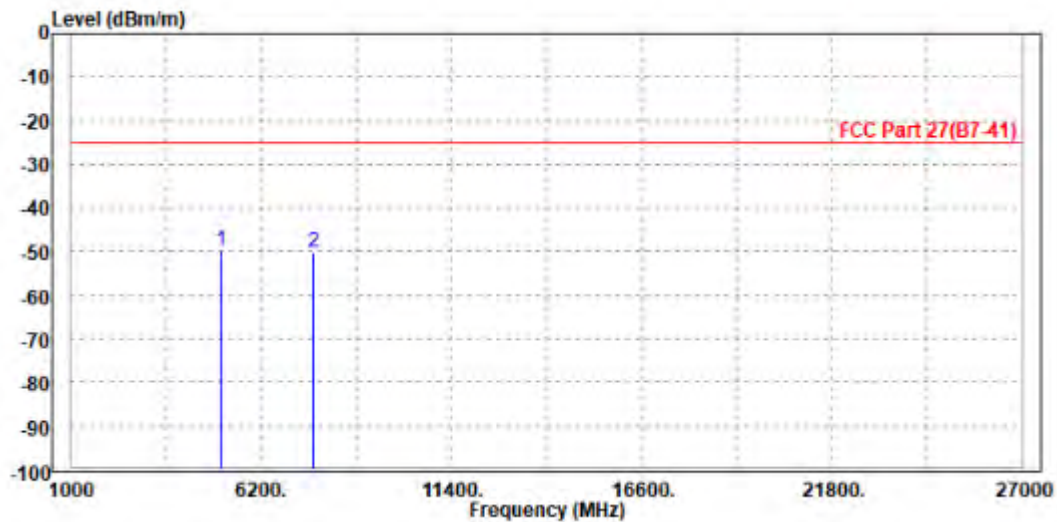
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Test Report No.: W7L-P22030013RF03

CHANNEL BANDWIDTH: 20MHz / QPSK

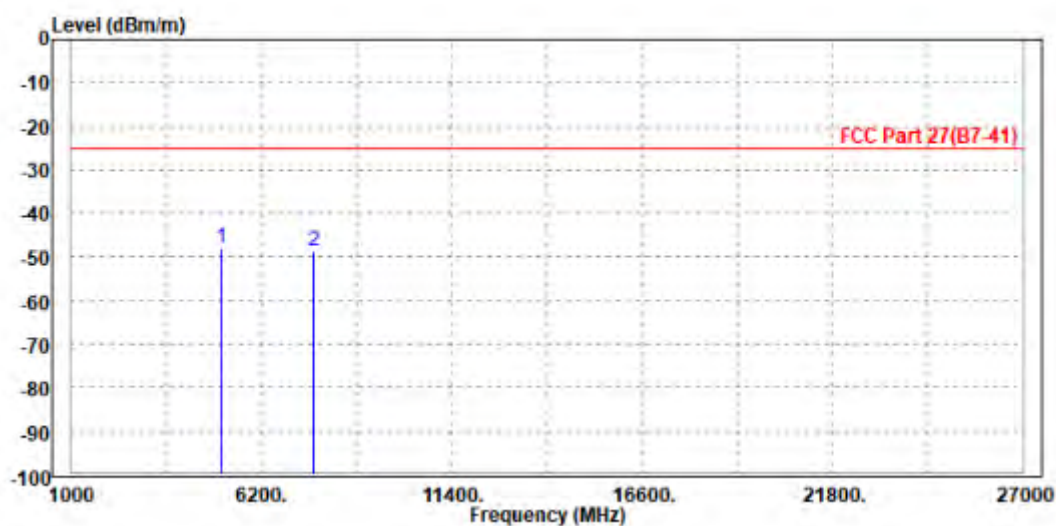
MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	5082.000	-49.70	-58.47	-25.00	-24.70	8.77	Peak	Horizontal
2		7605.000	-50.29	-61.69	-25.00	-25.29	11.40	Peak	Horizontal



MODE	TX channel 21100	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 5082.000	-47.77	-57.64	-25.00	-22.77	9.87	Peak	Vertical
2	7605.000	-48.66	-61.44	-25.00	-23.66	12.78	Peak	Vertical

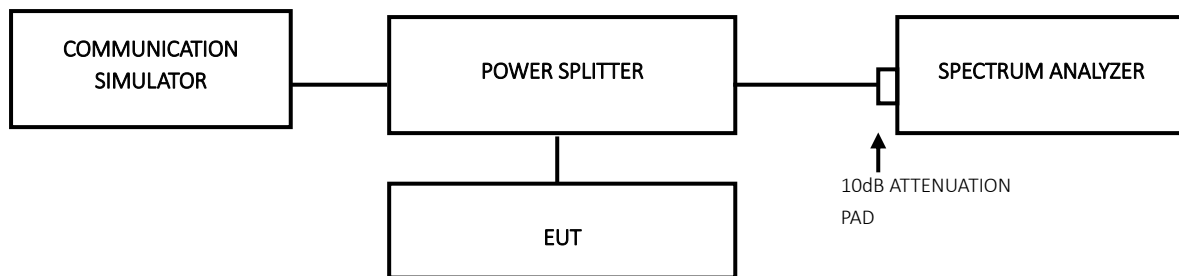


3.7 PEAK TO AVERAGE RATIO

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-P22030013RF03

3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.



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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-P22030013RF03

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.

Appendix

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band7	5MHz	QPSK	20775	1RB#0	5.00	13	PASS
Band7	5MHz	QPSK	20775	25RB#0	5.59	13	PASS
Band7	5MHz	QPSK	21100	1RB#0	5.22	13	PASS
Band7	5MHz	QPSK	21100	25RB#0	5.67	13	PASS
Band7	5MHz	QPSK	21425	1RB#0	4.74	13	PASS
Band7	5MHz	QPSK	21425	25RB#0	5.59	13	PASS
Band7	5MHz	16QAM	20775	1RB#0	6.02	13	PASS
Band7	5MHz	16QAM	20775	25RB#0	6.33	13	PASS
Band7	5MHz	16QAM	21100	1RB#0	5.90	13	PASS
Band7	5MHz	16QAM	21100	25RB#0	6.43	13	PASS
Band7	5MHz	16QAM	21425	1RB#0	5.87	13	PASS
Band7	5MHz	16QAM	21425	25RB#0	6.30	13	PASS
Band7	10MHz	QPSK	20800	1RB#0	5.16	13	PASS
Band7	10MHz	QPSK	20800	50RB#0	5.80	13	PASS
Band7	10MHz	QPSK	21100	1RB#0	5.32	13	PASS
Band7	10MHz	QPSK	21100	50RB#0	5.86	13	PASS
Band7	10MHz	QPSK	21400	1RB#0	5.10	13	PASS
Band7	10MHz	QPSK	21400	50RB#0	5.71	13	PASS
Band7	10MHz	16QAM	20800	1RB#0	5.29	13	PASS
Band7	10MHz	16QAM	20800	50RB#0	6.44	13	PASS
Band7	10MHz	16QAM	21100	1RB#0	5.75	13	PASS
Band7	10MHz	16QAM	21100	50RB#0	6.44	13	PASS
Band7	10MHz	16QAM	21400	1RB#0	5.03	13	PASS
Band7	10MHz	16QAM	21400	50RB#0	6.37	13	PASS
Band7	15MHz	QPSK	20825	1RB#0	5.07	13	PASS
Band7	15MHz	QPSK	20825	75RB#0	6.05	13	PASS
Band7	15MHz	QPSK	21100	1RB#0	5.32	13	PASS
Band7	15MHz	QPSK	21100	75RB#0	6.05	13	PASS
Band7	15MHz	QPSK	21375	1RB#0	5.18	13	PASS
Band7	15MHz	QPSK	21375	75RB#0	5.94	13	PASS
Band7	15MHz	16QAM	20825	1RB#0	5.87	13	PASS
Band7	15MHz	16QAM	20825	75RB#0	6.50	13	PASS
Band7	15MHz	16QAM	21100	1RB#0	6.00	13	PASS
Band7	15MHz	16QAM	21100	75RB#0	6.49	13	PASS
Band7	15MHz	16QAM	21375	1RB#0	5.36	13	PASS
Band7	15MHz	16QAM	21375	75RB#0	6.42	13	PASS
Band7	20MHz	QPSK	20850	1RB#0	4.99	13	PASS
Band7	20MHz	QPSK	20850	100RB#0	5.74	13	PASS
Band7	20MHz	QPSK	21100	1RB#0	5.23	13	PASS
Band7	20MHz	QPSK	21100	100RB#0	5.80	13	PASS
Band7	20MHz	QPSK	21350	1RB#0	5.14	13	PASS
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Band7	20MHz	16QAM	20850	1RB#0	5.72	13	PASS



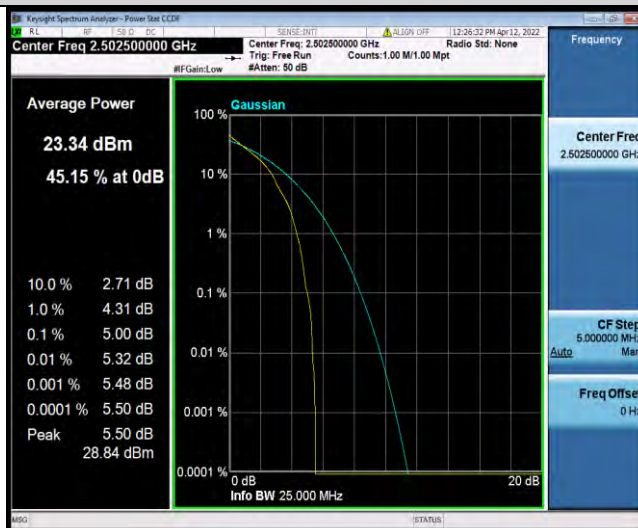
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Test Report No.: W7L-P22030013RF03

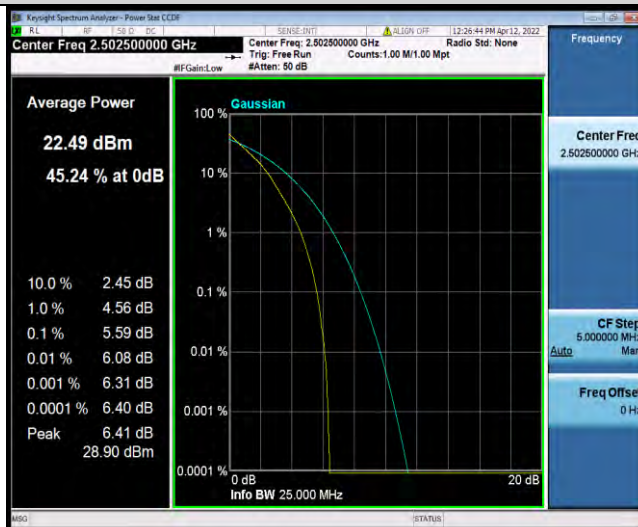
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Band7	20MHz	16QAM	21100	100RB#0	6.46	13	PASS
Band7	20MHz	16QAM	21350	1RB#0	5.80	13	PASS
Band7	20MHz	16QAM	21350	100RB#0	6.42	13	PASS

Test Graphs

Band7-5MHz-QPSK-20775-1RB#0



Band7-5MHz-QPSK-20775-25RB#0

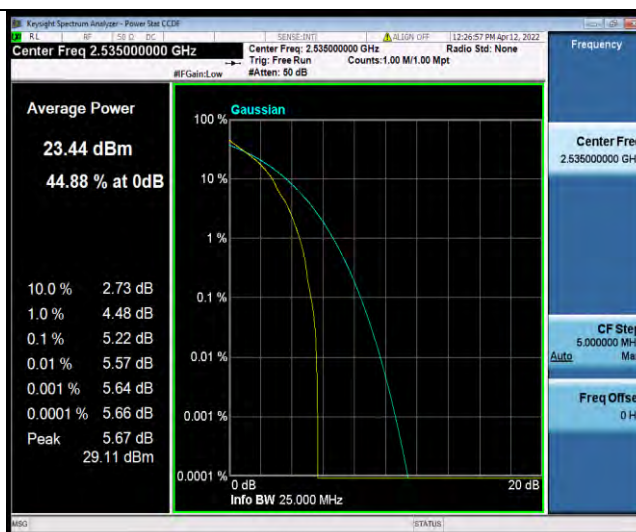


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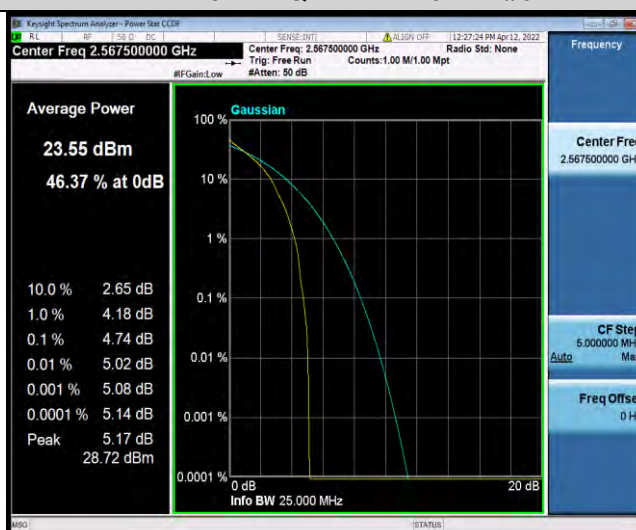
Test Report No.: W7L-P22030013RF03



Band7-5MHz-QPSK-21100-25RB#0



Band7-5MHz-QPSK-21425-1RB#0



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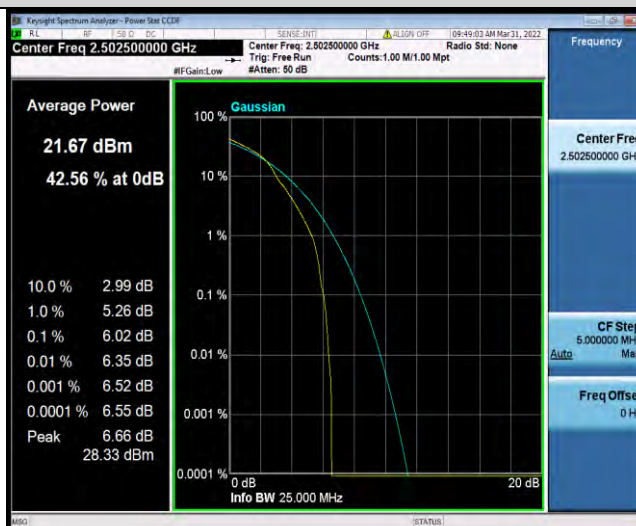


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VERITAS

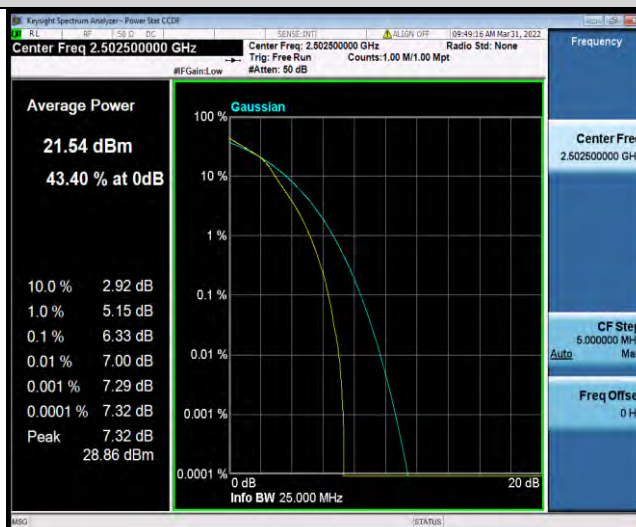
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Band7-5MHz-16QAM-20775-1RB#0



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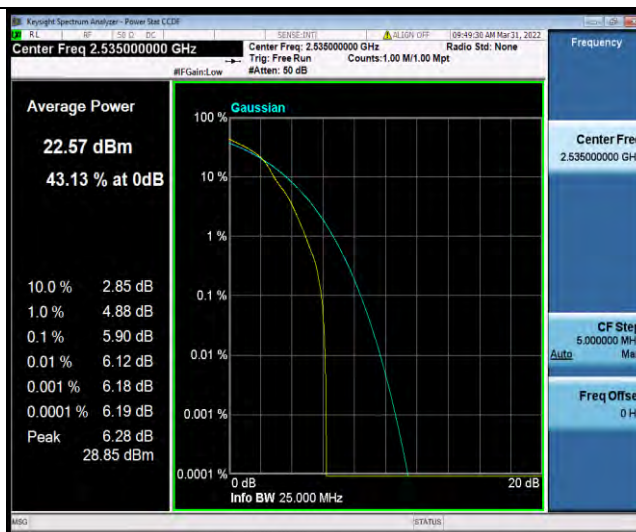


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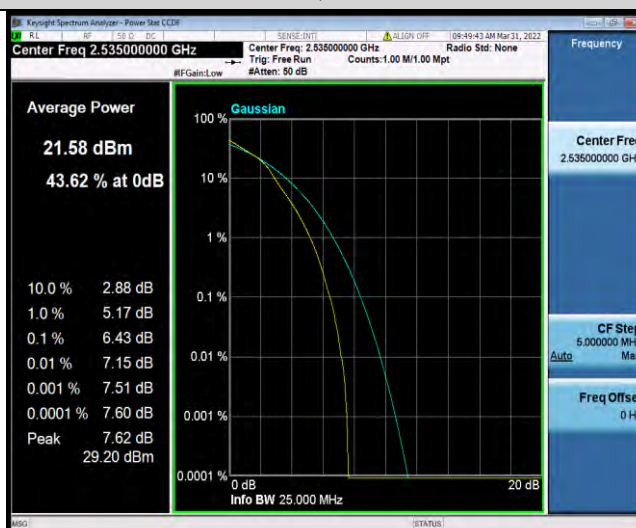


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Test Report No.: W7L-P22030013RF03



Band7-5MHz-16QAM-21100-25RB#0



Band7-5MHz-16QAM-21425-1RB#0



Band7-5MHz-16QAM-21425-25RB#0



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VERITAS

Test Report No.: W7L-P22030013RF03



Band7-10MHz-QPSK-20800-1RB#0



Band7-10MHz-QPSK-20800-50RB#0

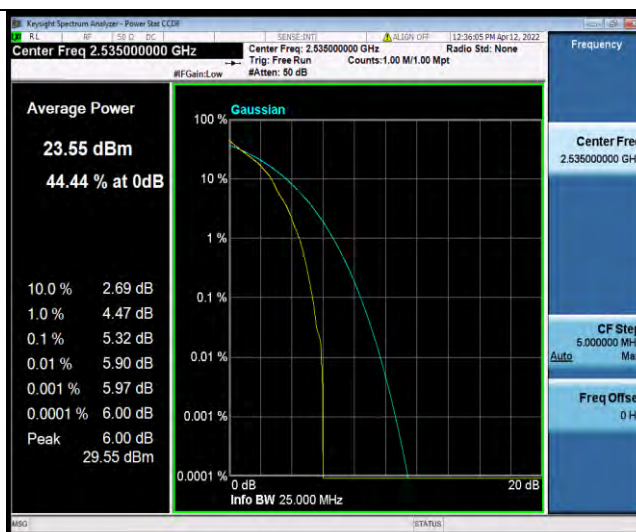


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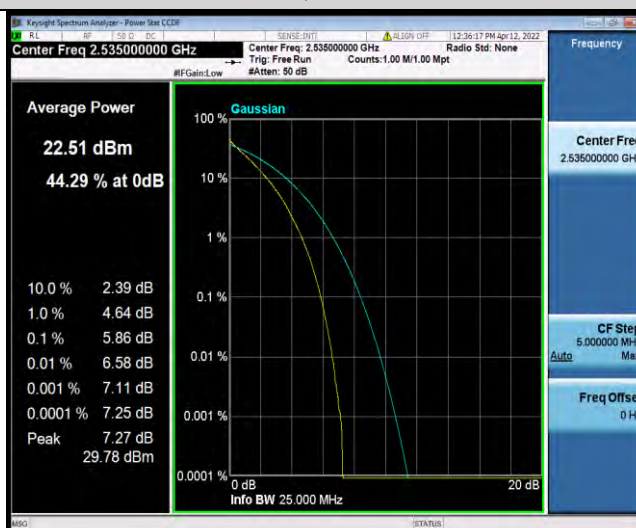


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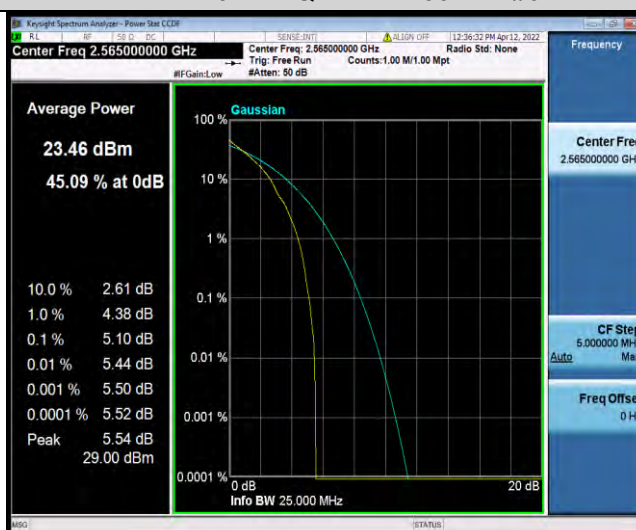
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Band7-10MHz-QPSK-21100-50RB#0



Band7-10MHz-QPSK-21400-1RB#0



Band7-10MHz-QPSK-21400-50RB#0



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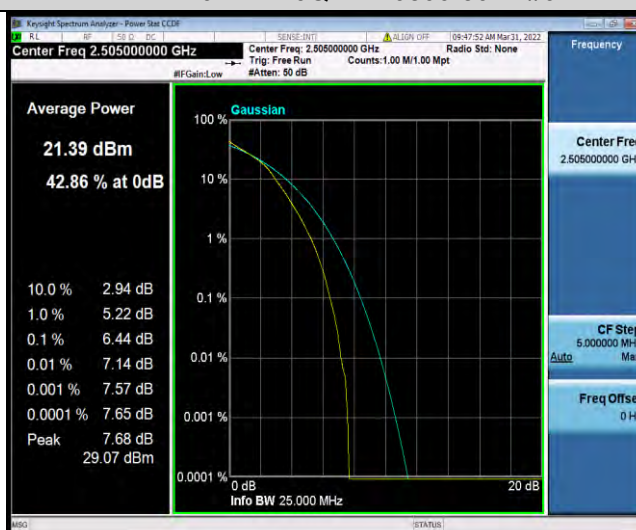
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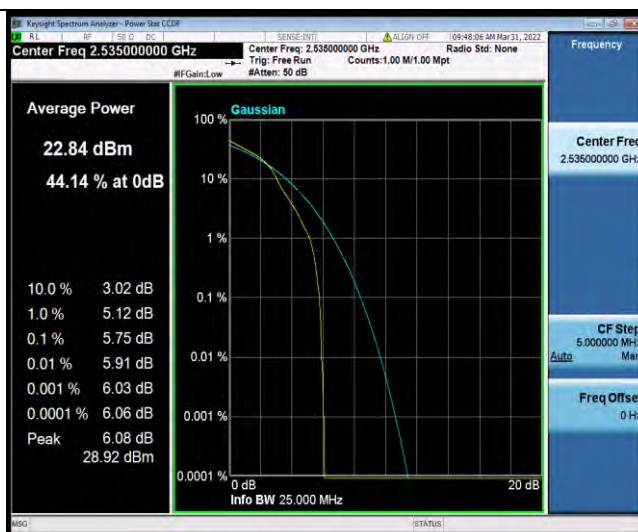


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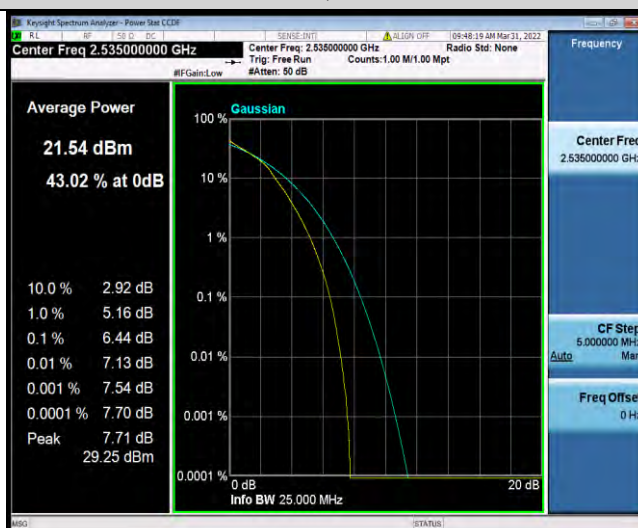


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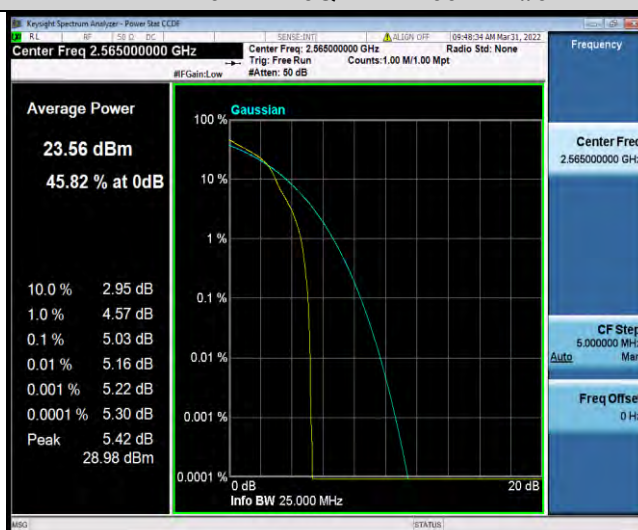
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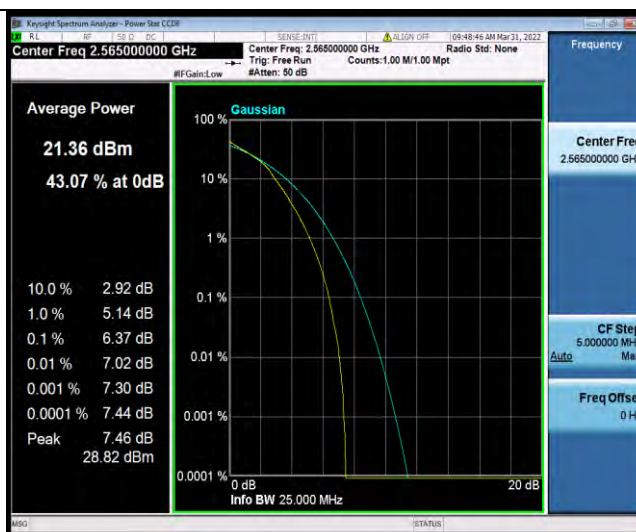


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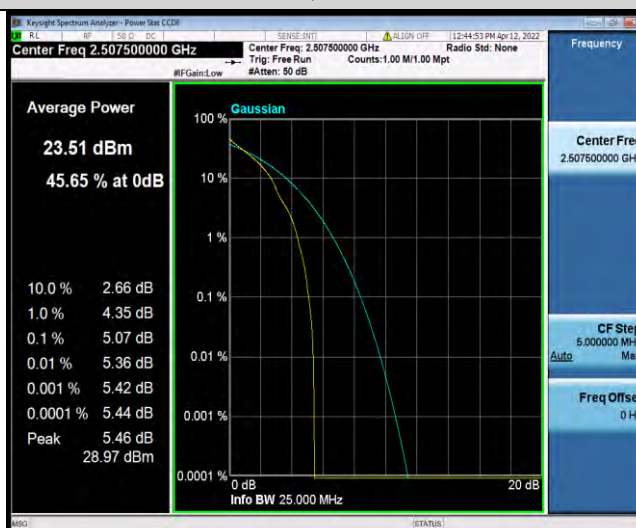


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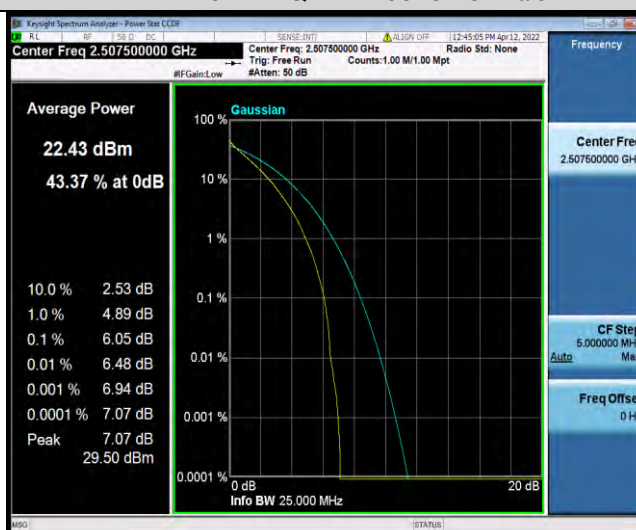
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Band7-15MHz-QPSK-20825-1RB#0



Band7-15MHz-QPSK-20825-75RB#0



Band7-15MHz-QPSK-21100-1RB#0

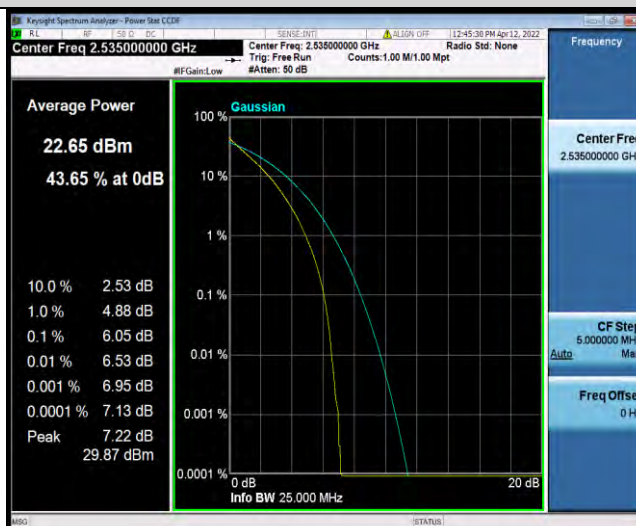


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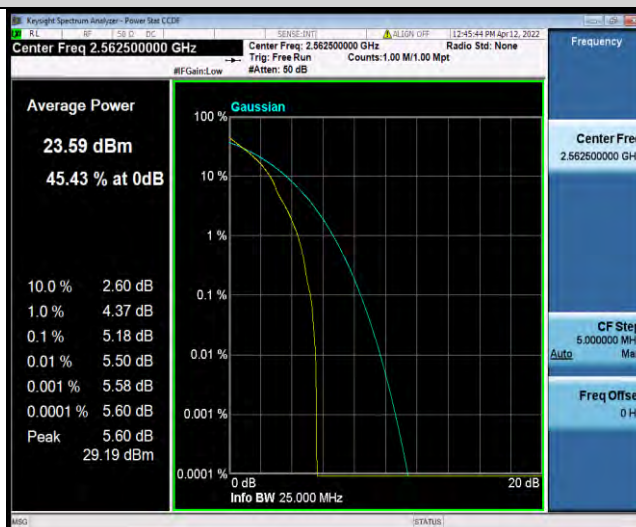
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Band7-15MHz-QPSK-21100-75RB#0



Band7-15MHz-QPSK-21375-1RB#0



Band7-15MHz-QPSK-21375-75RB#0



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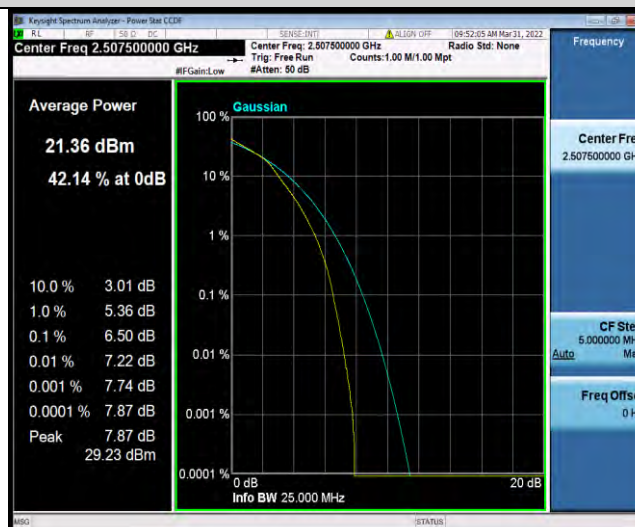
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Band7-15MHz-16QAM-20825-1RB#0



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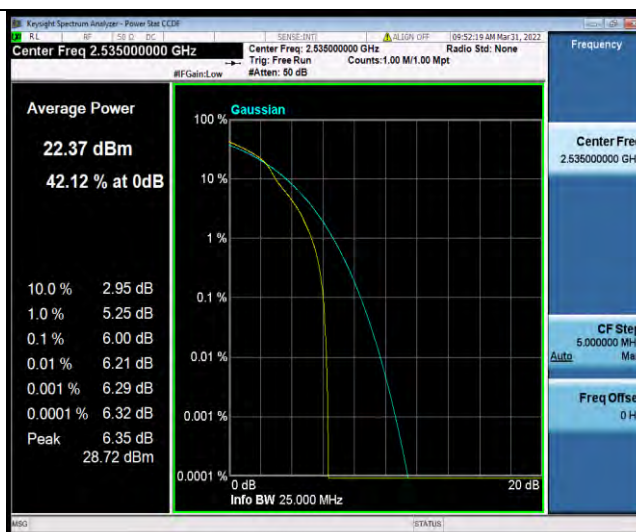


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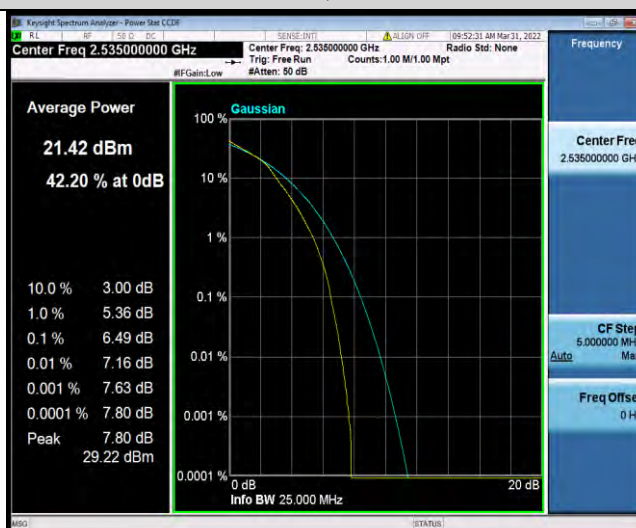


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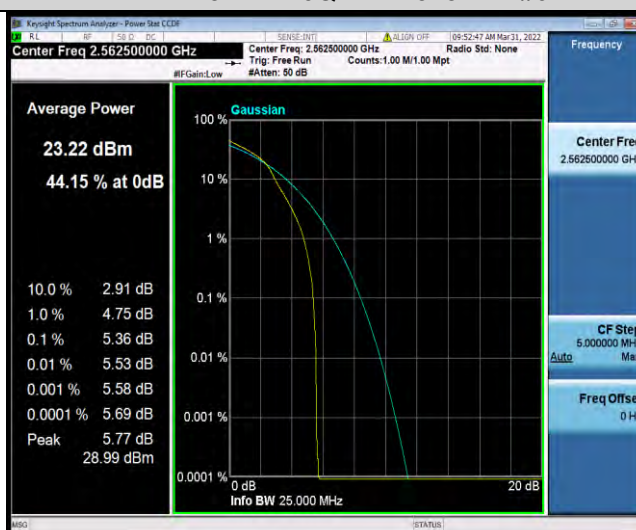
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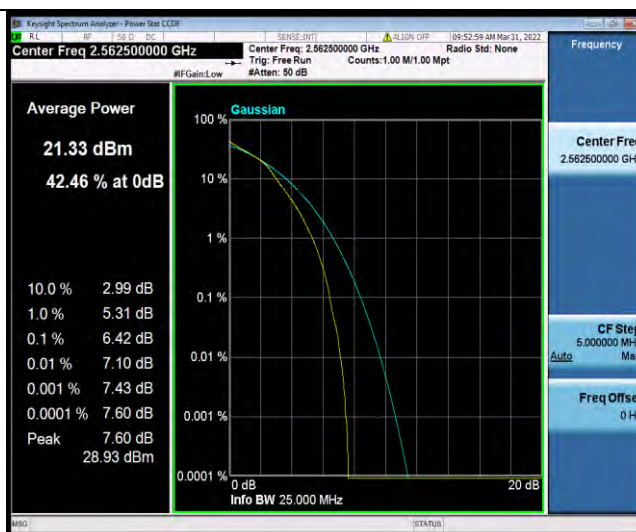


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VERITAS

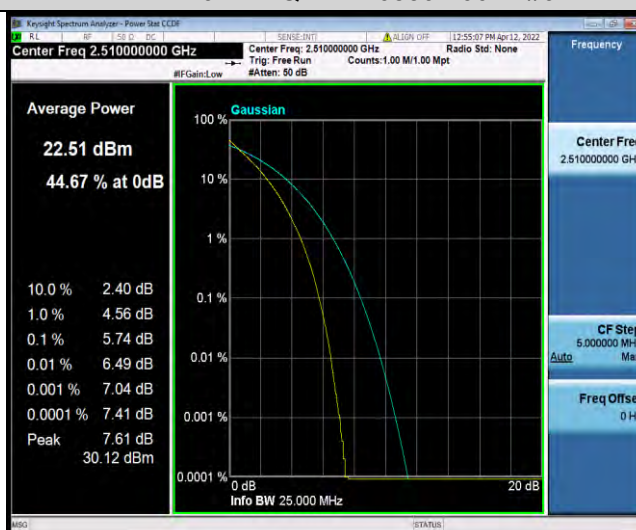
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Band7-20MHz-QPSK-20850-1RB#0



Band7-20MHz-QPSK-20850-100RB#0



Band7-20MHz-QPSK-21100-1RB#0



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Test Report No.: W7L-P22030013RF03



Band7-20MHz-QPSK-21100-100RB#0



Band7-20MHz-QPSK-21350-1RB#0



Band7-20MHz-QPSK-21350-100RB#0

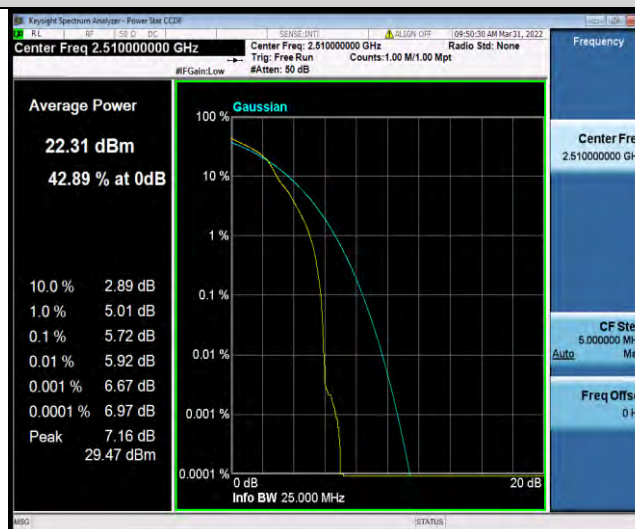


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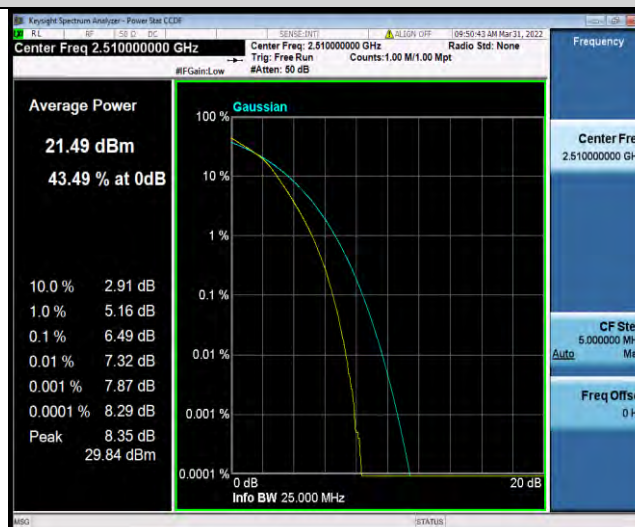
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Band7-20MHz-16QAM-20850-1RB#0



Band7-20MHz-16QAM-20850-100RB#0



Band7-20MHz-16QAM-21100-1RB#0

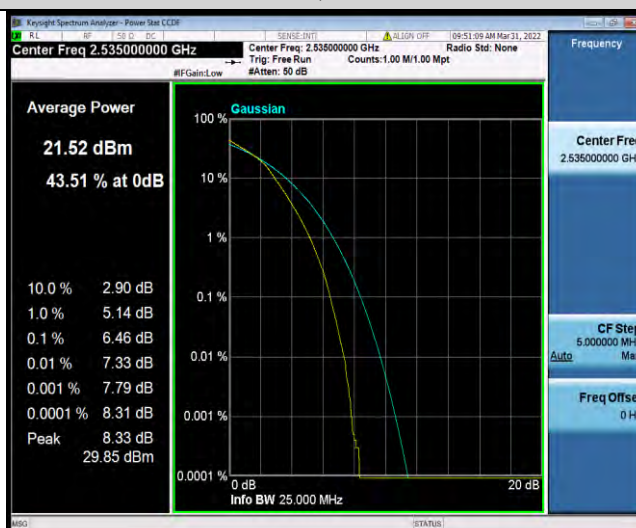


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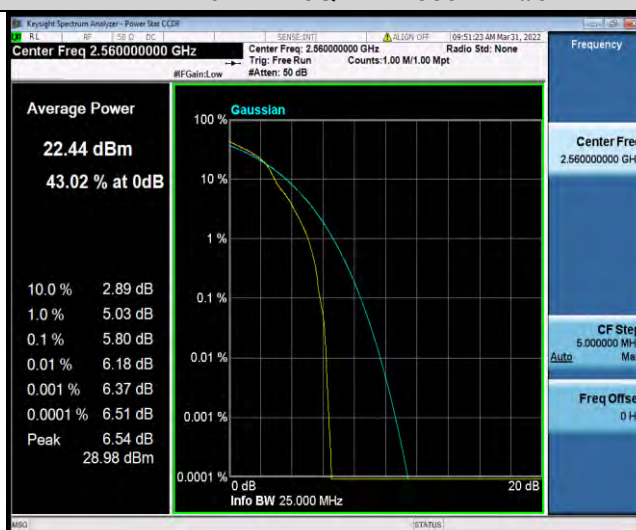
Test Report No.: W7L-P22030013RF03



Band7-20MHz-16QAM-21100-100RB#0



Band7-20MHz-16QAM-21350-1RB#0

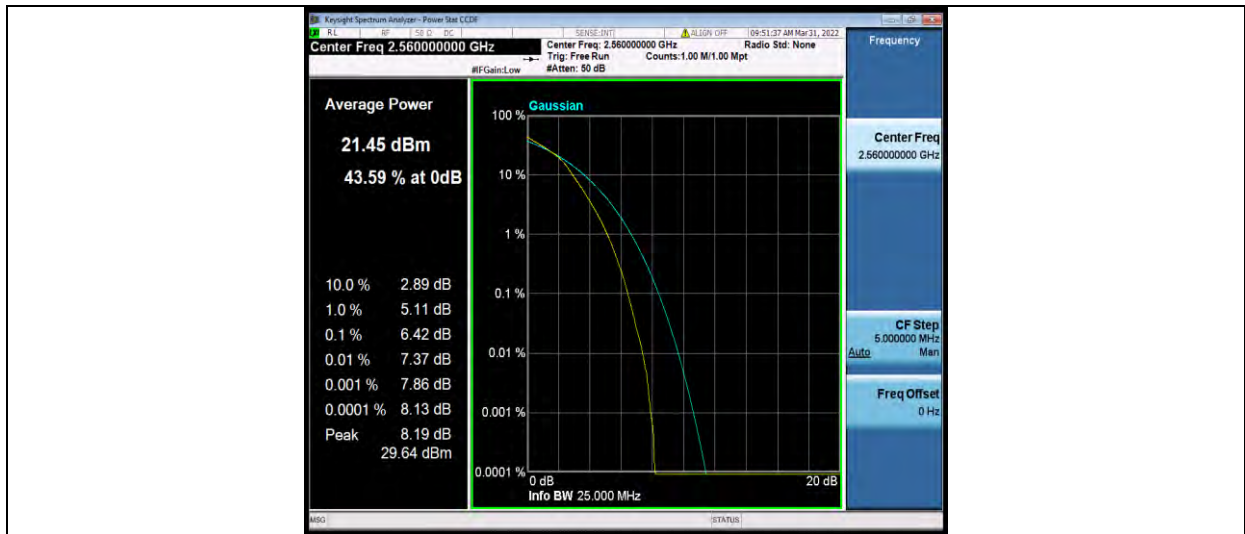


Band7-20MHz-16QAM-21350-100RB#0



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Test Report No.: W7L-P22030013RF03



26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band7	5MHz	QPSK	20775	25RB#0	4.4988	4.864	PASS
Band7	5MHz	QPSK	21100	25RB#0	4.4908	4.876	PASS
Band7	5MHz	QPSK	21425	25RB#0	4.4986	4.879	PASS
Band7	5MHz	16QAM	20775	25RB#0	4.4998	4.876	PASS
Band7	5MHz	16QAM	21100	25RB#0	4.4961	4.898	PASS
Band7	5MHz	16QAM	21425	25RB#0	4.5037	4.872	PASS
Band7	10MHz	QPSK	20800	50RB#0	8.9812	9.565	PASS
Band7	10MHz	QPSK	21100	50RB#0	8.9830	9.579	PASS
Band7	10MHz	QPSK	21400	50RB#0	8.9734	9.572	PASS
Band7	10MHz	16QAM	20800	50RB#0	8.9747	9.602	PASS
Band7	10MHz	16QAM	21100	50RB#0	8.9822	9.597	PASS
Band7	10MHz	16QAM	21400	50RB#0	8.9803	9.599	PASS
Band7	15MHz	QPSK	20825	75RB#0	13.468	14.33	PASS
Band7	15MHz	QPSK	21100	75RB#0	13.454	14.30	PASS
Band7	15MHz	QPSK	21375	75RB#0	13.477	14.29	PASS
Band7	15MHz	16QAM	20825	75RB#0	13.456	14.31	PASS
Band7	15MHz	16QAM	21100	75RB#0	13.460	14.35	PASS
Band7	15MHz	16QAM	21375	75RB#0	13.461	14.31	PASS
Band7	20MHz	QPSK	20850	100RB#0	17.975	18.98	PASS
Band7	20MHz	QPSK	21100	100RB#0	17.964	19.04	PASS
Band7	20MHz	QPSK	21350	100RB#0	17.961	19.03	PASS
Band7	20MHz	16QAM	20850	100RB#0	17.958	19.04	PASS
Band7	20MHz	16QAM	21100	100RB#0	17.978	19.02	PASS
Band7	20MHz	16QAM	21350	100RB#0	17.977	19.02	PASS

Test Graphs





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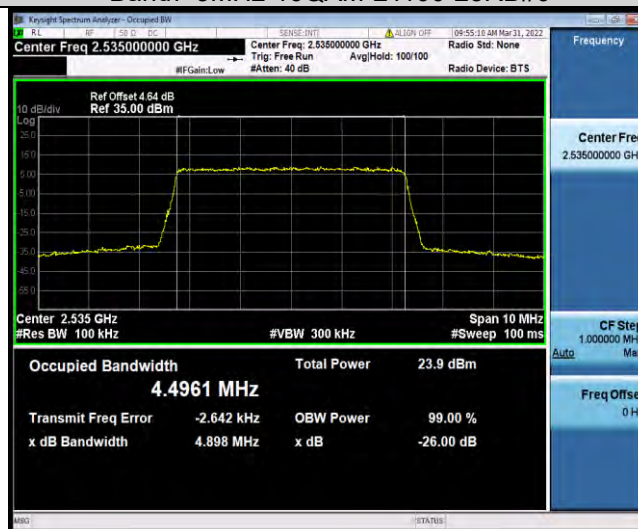
Test Report No.: W7L-P22030013RF03



Band7-5MHz-16QAM-20775-25RB#0



Band7-5MHz-16QAM-21100-25RB#0



Band7-5MHz-16QAM-21425-25RB#0



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Test Report No.: W7L-P22030013RF03



Band7-10MHz-QPSK-20800-50RB#0



Band7-10MHz-QPSK-21100-50RB#0



Band7-10MHz-QPSK-21400-50RB#0

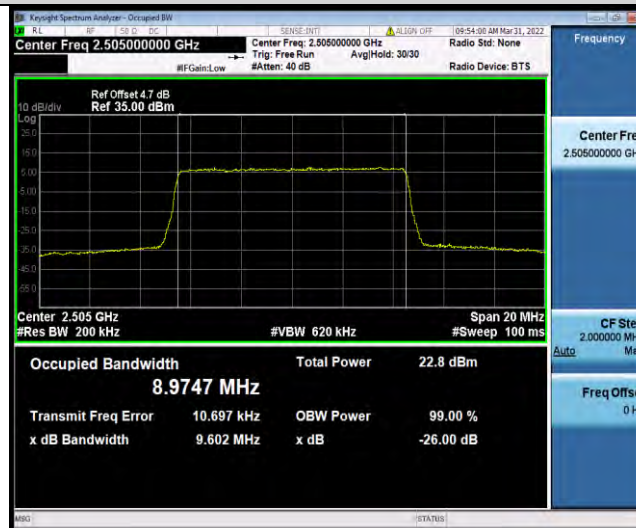


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Test Report No.: W7L-P22030013RF03



Band7-10MHz-16QAM-20800-50RB#0



Band7-10MHz-16QAM-21100-50RB#0



Band7-10MHz-16QAM-21400-50RB#0

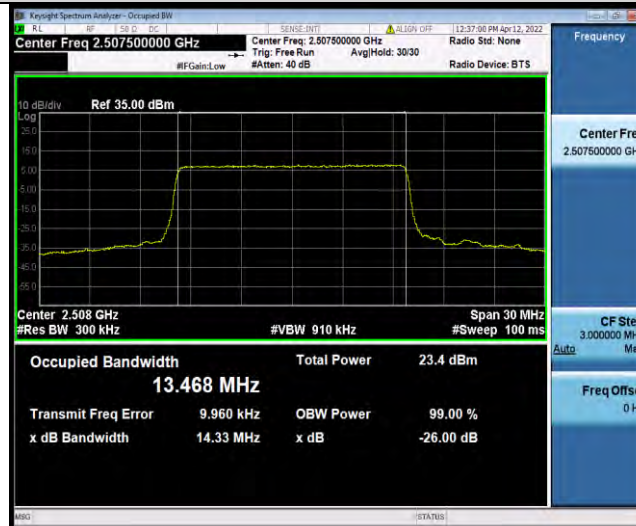


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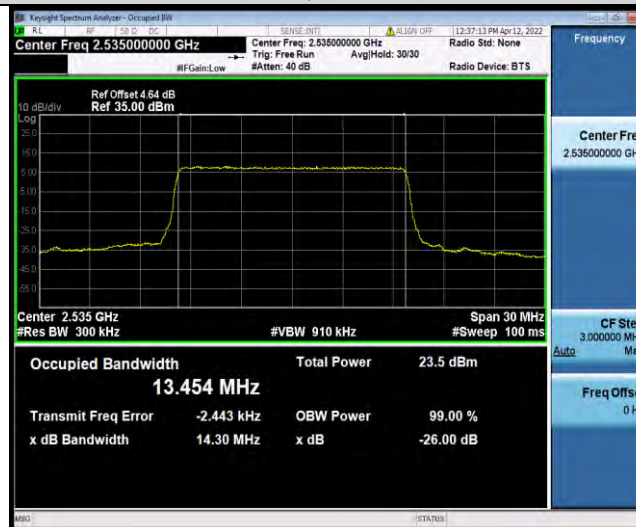
Test Report No.: W7L-P22030013RF03



Band7-15MHz-QPSK-20825-75RB#0



Band7-15MHz-QPSK-21100-75RB#0



Band7-15MHz-QPSK-21375-75RB#0



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Test Report No.: W7L-P22030013RF03



Band7-15MHz-16QAM-20825-75RB#0



Band7-15MHz-16QAM-21100-75RB#0



Band7-15MHz-16QAM-21375-75RB#0