

FCC TEST REPORT

(PART 22)

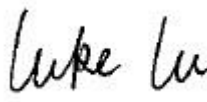
Applicant:	Telit Communications SpA
Address:	Viale Stazione di Prosecco 5/b

Manufacturer or Supplier:	Telit Communications SpA
Address:	Viale Stazione di Prosecco 5/b
Product:	Module
Brand Name:	Telit
Model Name:	LE910S1-ELG
FCC ID:	RI7LE910S1ELG
Date of tests:	Nov. 25, 2021 ~ Dec. 08, 2021

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

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

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
	
Date: Dec. 08, 2021	Date: Dec. 08, 2021

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21110027RF01	Original release	Dec. 08, 2021

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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

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

1.1 MEASUREMENT UNCERTAINTY

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

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

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



1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 22,21	Apr. 21,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Jun. 03,21	Jun. 02,22
Bilog Antenna 2	ETS-LINDGREN	3143B	00161965	Mar. 05,21	Mar. 04,22
Horn Antenna 1	ETS-LINDGREN	3117	00168728	Aug. 19,21	Aug. 18,22
Horn Antenna 2	ETS-LINDGREN	3117	00168692	Apr. 02,21	Apr. 01,22
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. 25,21	Feb. 24,22
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-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	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	ML2495A	1506002	Apr. 07,21	Apr. 06,22
Power Sensor	Anritsu	MA2411B	1339352	May. 07,21	May. 06,22
Temperature Chamber	ESPEC	SH-242	93000855	Jun. 02,21	Jun. 01,22
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 05,21	Mar. 04,22
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 36months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
 3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 525120; The Designation No. is CN1171.



2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Module	
BRAND NAME	Telit	
MODEL NAME	LE910S1-ELG	
NOMINAL VOLTAGE	12Vdc(adapter or host equipment) 3.8Vdc (Li-ion, battery)	
MODULATION TYPE	GPRS/EDGE	GMSK, 8PSK
	LTE	QPSK, 16QAM
FREQUENCY RANGE	GPRS/EDGE	824.2MHz ~ 848.8MHz
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
MAX. ERP POWER	GPRS	1761.98mW
	EDGE	521.19mW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	197.70mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	197.24mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	197.70mW
	LTE Band 5 (Channel Bandwidth: 10MHz)	199.99mW
EMISSION DESIGNATOR GOGN	GPRS	247KGXW
	EDGE	245KGXW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	QPSK: 1M10G7D
		16QAM: 1M10W7D
	LTE Band 5 (Channel Bandwidth: 3MHz)	QPSK: 2M70G7D
		16QAM: 2M70W7D
	LTE Band 5 (Channel Bandwidth: 5MHz)	QPSK: 4M51G7D
		16QAM: 4M51W7D
	LTE Band 5 (Channel Bandwidth: 10MHz)	QPSK: 8M97G7D
		16QAM: 4M94W7D
ANTENNA TYPE	External Antenna with 2.14dBi gain for GPRS850/ LTE B5	
HW VERSION	1.0	



SW VERSION	M0K.000001
IMEI	351626109993580/351626109993591
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A
EXTREME TEMPERATURE	-40-85 °C
EXTREME VOLTAGE	3.4V - 4.2V

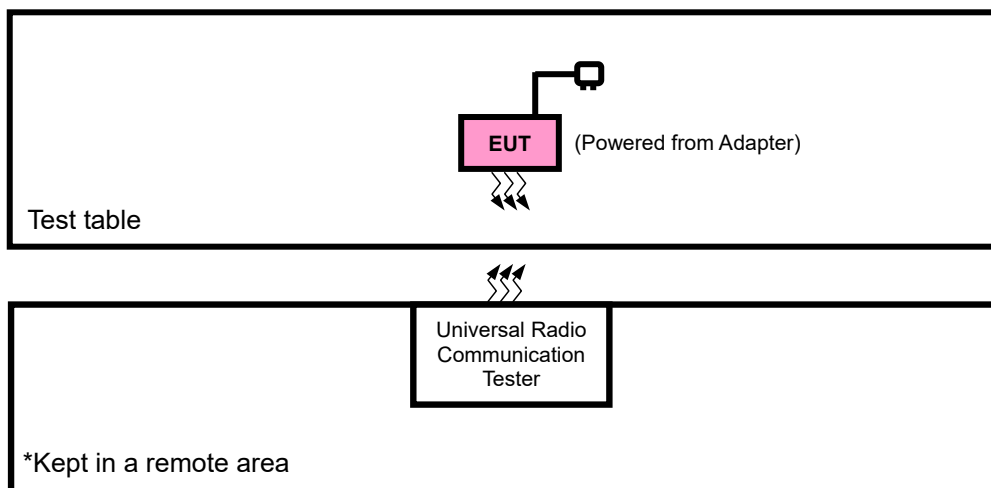
NOTE:

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

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

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

2.2 CONFIGURATION OF SYSTEM UNDER TEST FOR RADIATION EMISSION



2.3 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	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 ERP 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 GPRS or LTE link

GPRS MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	ERP	128 to 251	128, 189, 251	GPRS,EDGE
A	FREQUENCY STABILITY	128 to 251	128, 251	GPRS,EDGE
A	OCCUPIED BANDWIDTH	128 to 251	128, 189, 251	GPRS,EDGE
A	BAND EDGE	128 to 251	128, 251	GPRS,EDGE
A	CONDCUDED EMISSION	128 to 251	128, 189, 251	GPRS,EDGE
A	RADIATED EMISSION	128 to 251	128, 189, 251	GPRS,EDGE
A	PEAK TO AVERAGE RATIO	128 to 251	128, 189, 251	GPRS,EDGE



LTE BAND 5 MODE

TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
FREQUENCY STABILITY	20407 to 20643	20407, 20643	1.4MHz	QPSK	1 RB / 0 RB Offset
	20415 to 20635	20415, 20635	3MHz	QPSK	1 RB / 0 RB Offset
	20425 to 20625	20425, 20625	5MHz	QPSK	1 RB / 0 RB Offset
	20450 to 20600	20450, 20600	10MHz	QPSK	1 RB / 0 RB Offset
OCCUPIED BANDWIDTH	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	6 RB / 0 RB Offset
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	15 RB / 0 RB Offset
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	25 RB / 0 RB Offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	50 RB / 0 RB Offset
BAND EDGE	20407 to 20643	20407	1.4 MHz	QPSK,16QAM	1 RB / 0 RB Offset
					6 RB / 0 RB Offset
	20407 to 20643	20643	1.4 MHz	QPSK,16QAM	1 RB / 5 RB Offset
					6 RB / 0 RB Offset
	20415 to 20635	20415	3 MHz	QPSK,16QAM	1 RB / 0 RB Offset
					15 RB / 0 RB Offset
	20415 to 20635	20635	3 MHz	QPSK,16QAM	1 RB / 14 RB Offset
					15 RB / 0 RB Offset
	20425 to 20625	20425	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
					25 RB / 0 RB Offset
	20425 to 20625	20625	5MHz	QPSK,16QAM	1 RB / 24 RB Offset
					25 RB / 0 RB Offset
	20450 to 20600	20450	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
	20450 to 20600	20600	10MHz	QPSK,16QAM	1 RB / 49 RB Offset
					50 RB / 0 RB Offset

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

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

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	DC3.8V	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC3.8V	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC3.8V	James Fu
BAND EDGE	23deg. C, 70%RH	DC3.8V	James Fu
CONDCUDED EMISSION	23deg. C, 70%RH	DC3.8V	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC3.8V	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC3.8V	James Fu

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



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2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 22

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

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

3.1.2 TEST PROCEDURES

EIRP / ERP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for 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	GPRS850			Max. Tune-up Power
Channel	128	189	251	
Frequency	824.2	836.4	848.8	
GPRS (GMSK, 1Tx-slot)	32.47	32.43	32.31	34.0
GPRS (GMSK, 2Tx-slot)	32.31	32.29	32.19	34.0
GPRS (GMSK, 3Tx-slot)	30.65	30.77	30.80	32.5
GPRS (GMSK, 4Tx-slot)	29.05	29.12	29.06	31.0
EDGE (8PSK, 1Tx-slot)	27.13	27.18	27.05	29.0
EDGE (8PSK, 2Tx-slot)	25.57	25.53	25.53	27.5
EDGE (8PSK, 3Tx-slot)	23.19	23.14	23.08	25.0
EDGE (8PSK, 4Tx-slot)	21.14	21.06	21.11	23.0



LTE Band 5

Band/BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643	MPR
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz	
5/ 1.4	QPSK	1	0	22.85	22.75	22.97	0
		1	2	22.78	22.57	22.88	0
		1	5	22.69	22.49	22.79	0
		3	0	22.73	22.58	22.85	0
		3	1	22.73	22.67	22.78	0
		3	3	22.65	22.49	22.76	0
		6	0	21.58	21.45	21.67	1
	16QAM	1	0	22.11	21.99	22.25	1
		1	2	21.97	21.85	22.09	1
		1	5	21.66	21.45	21.79	1
		3	0	22.67	22.56	22.75	1
		3	1	22.70	22.69	22.82	1
		3	3	22.42	22.31	22.59	1
		6	0	20.84	20.75	20.95	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20415	Mid CH 20525	High CH 20635	MPR
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz	
5/ 3	QPSK	1	0	22.87	22.77	22.96	0
		1	7	22.74	22.58	22.88	0
		1	14	22.65	22.49	22.79	0
		8	0	22.02	21.91	22.15	1
		8	3	21.66	21.67	21.80	1
		8	7	21.62	21.56	21.80	1
		15	0	21.55	21.46	21.61	1
	16QAM	1	0	22.08	22.05	22.28	1
		1	7	21.94	21.88	22.07	1
		1	14	21.69	21.45	21.79	1
		8	0	21.63	21.57	21.75	2
		8	3	21.75	21.64	21.85	2
		8	7	21.44	21.29	21.55	2
		15	0	20.84	20.69	20.98	2



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Band/BW	Modulation	RB Size	RB Offset	Low CH 20425	Mid CH 20525	High CH 20625	MPR
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz	
5/ 5	QPSK	1	0	22.88	22.72	22.97	0
		1	12	22.79	22.55	22.88	0
		1	24	22.66	22.48	22.83	0
		12	0	22.05	21.91	22.12	1
		12	6	21.66	21.68	21.81	1
		12	13	21.66	21.52	21.81	1
		25	0	21.53	21.49	21.64	1
	16QAM	1	0	22.09	22.01	22.28	1
		1	12	21.91	21.91	22.06	1
		1	24	21.69	21.45	21.78	1
		12	0	21.63	21.55	21.72	2
		12	6	21.72	21.68	21.81	2
		12	13	21.39	21.31	21.58	2
		25	0	20.84	20.70	20.95	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20450	Mid CH 20525	High CH 20600	MPR
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz	
5/ 10	QPSK	1	0	22.93	22.79	23.02	0
		1	24	22.81	22.63	22.90	0
		1	49	22.71	22.56	22.84	0
		25	0	22.09	21.96	22.17	1
		25	12	21.74	21.69	21.86	1
		25	25	21.70	21.57	21.82	1
		50	0	21.59	21.51	21.69	1
	16QAM	1	0	22.16	22.06	22.30	1
		1	24	21.99	21.93	22.11	1
		1	49	21.71	21.53	21.80	1
		25	0	21.71	21.61	21.80	2
		25	12	21.78	21.70	21.87	2
		25	25	21.46	21.36	21.60	2
		50	0	20.90	20.77	21.00	2

ERP POWER (dBm)

GPRS

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	32.47	2.14	32.46	1761.98	7
189	836.4	32.43	2.14	32.42	1745.82	7
251	848.8	32.31	2.14	32.3	1698.24	7

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

EDGE

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	27.13	2.14	27.12	515.23	7
189	836.4	27.18	2.14	27.17	521.19	7
251	848.8	27.05	2.14	27.04	505.82	7

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

LTE BAND 5

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.85	2.14	22.84	192.31	7
20525	836.5	22.75	2.14	22.74	187.93	7
20643	848.3	22.97	2.14	22.96	197.70	7

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.7	2.14	22.69	185.78	7
20525	836.5	22.69	2.14	22.68	185.35	7
20643	848.3	22.82	2.14	22.81	190.99	7

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	22.87	2.14	22.86	193.20	7
20525	836.5	22.77	2.14	22.76	188.80	7
20635	847.5	22.96	2.14	22.95	197.24	7

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	22.08	2.14	22.07	161.06	7
20525	836.5	22.05	2.14	22.04	159.96	7
20635	847.5	22.28	2.14	22.27	168.66	7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.88	2.14	22.87	193.64	7
20525	836.5	22.72	2.14	22.71	186.64	7
20625	846.5	22.97	2.14	22.96	197.70	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.09	2.14	22.08	161.44	7
20525	836.5	22.01	2.14	22	158.49	7
20625	846.5	22.28	2.14	22.27	168.66	7

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	22.93	2.14	22.92	195.88	7
20525	836.5	22.79	2.14	22.78	189.67	7
20600	844.0	23.02	2.14	23.01	199.99	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	22.16	2.14	22.15	164.06	7
20525	836.5	22.06	2.14	22.05	160.32	7
20600	844.0	22.3	2.14	22.29	169.43	7

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

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

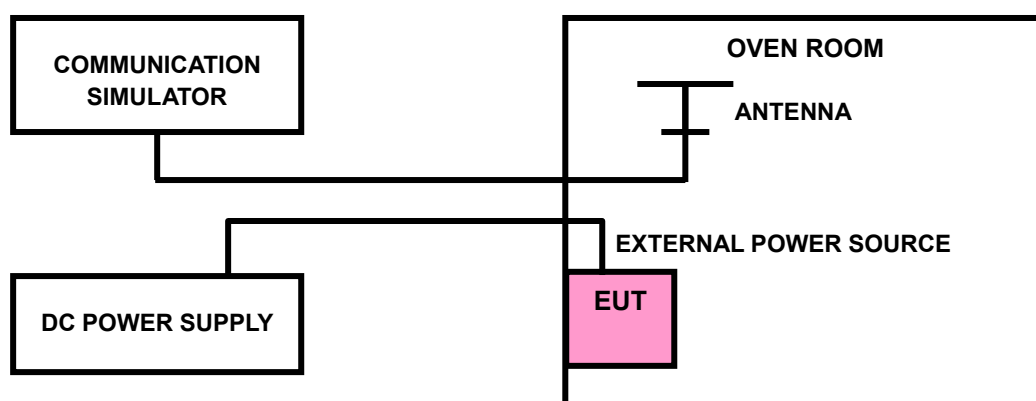
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

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-P21110027RF01

3.2.4 TEST RESULTS

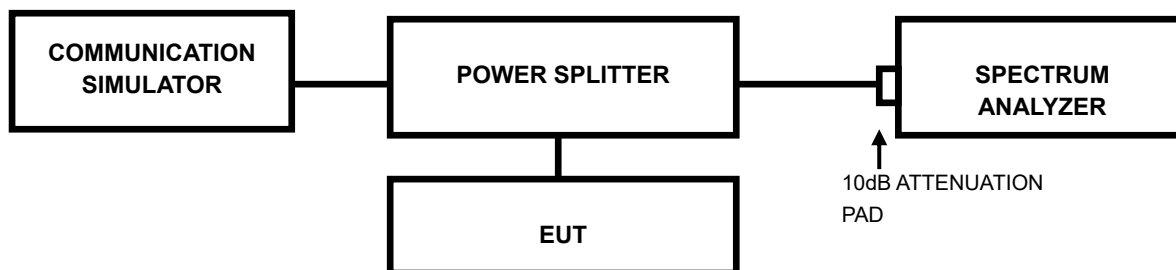
Please Refer to Appendix B Of this test report.

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.2 TEST SETUP





Test Report No.: W7L-P21110027RF01

3.3.3 TEST RESULTS

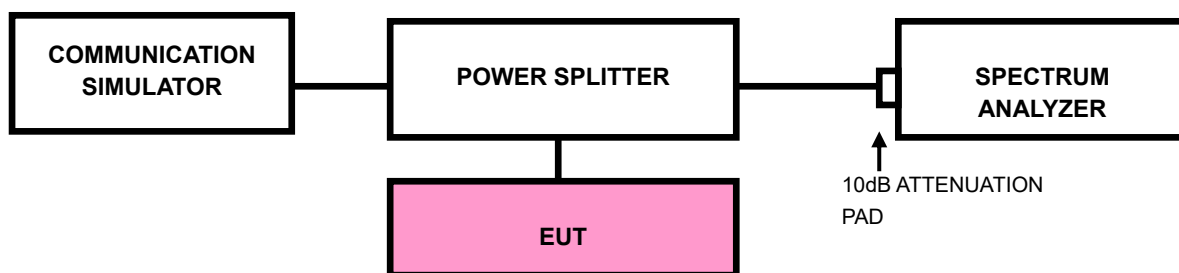
Please Refer to Appendix B Of this test report.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

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

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz.
RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (GSM/GPRS/EDGE).
- c. The center frequency of spectrum is the band edge frequency and span is 10MHz.
RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz).
- e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz)
- f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)
- g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- h. Record the max trace plot into the test report.



Test Report No.: W7L-P21110027RF01

3.4.4 TEST RESULTS

Please Refer to Appendix B Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

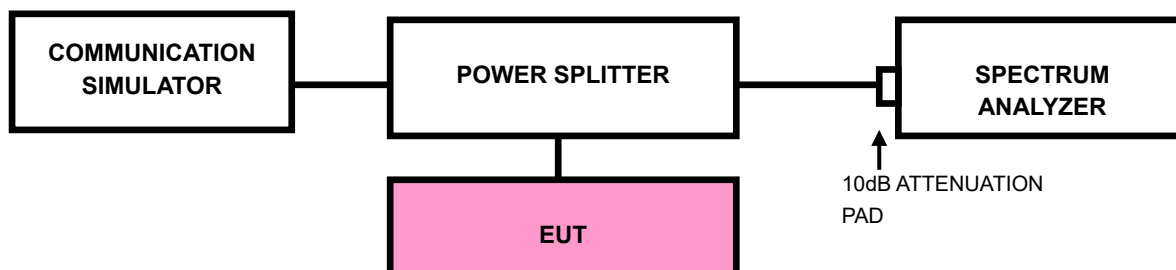
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

3.5.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 9GHz. 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-P21110027RF01

3.5.4 TEST RESULTS

Please Refer to Appendix B Of this test report.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
 $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$

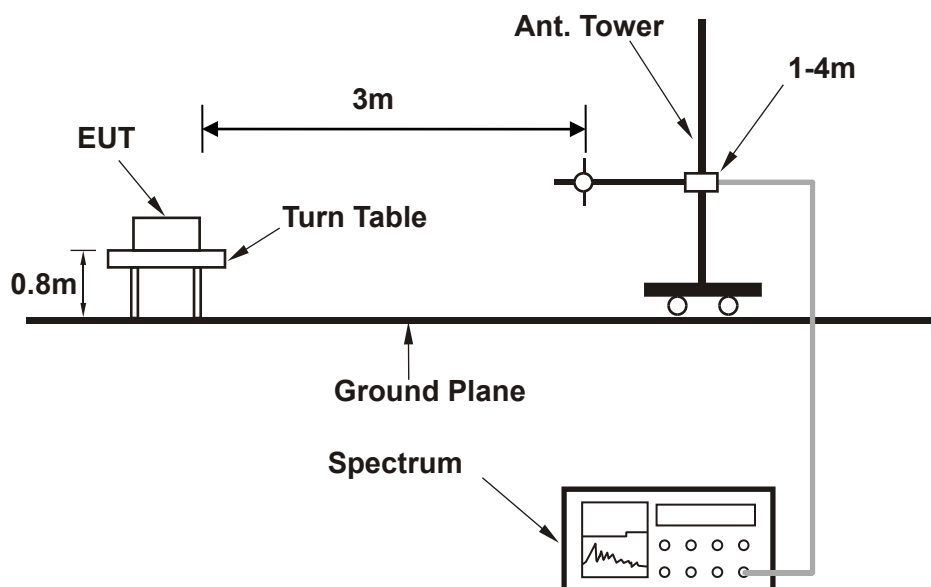
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

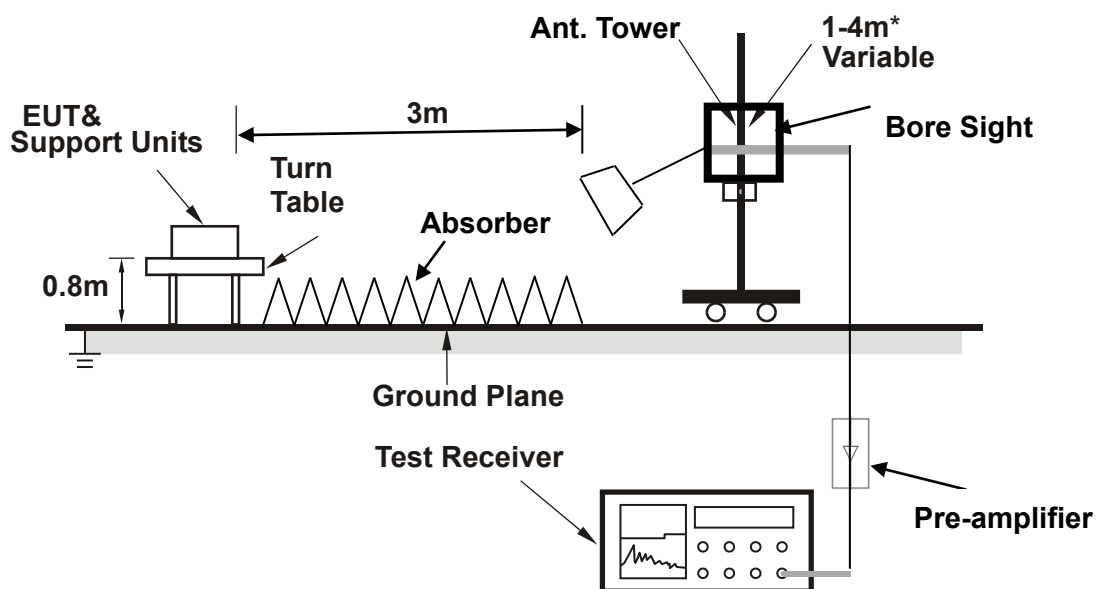
No deviation

3.6.4 TEST SETUP

< Frequency Range 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

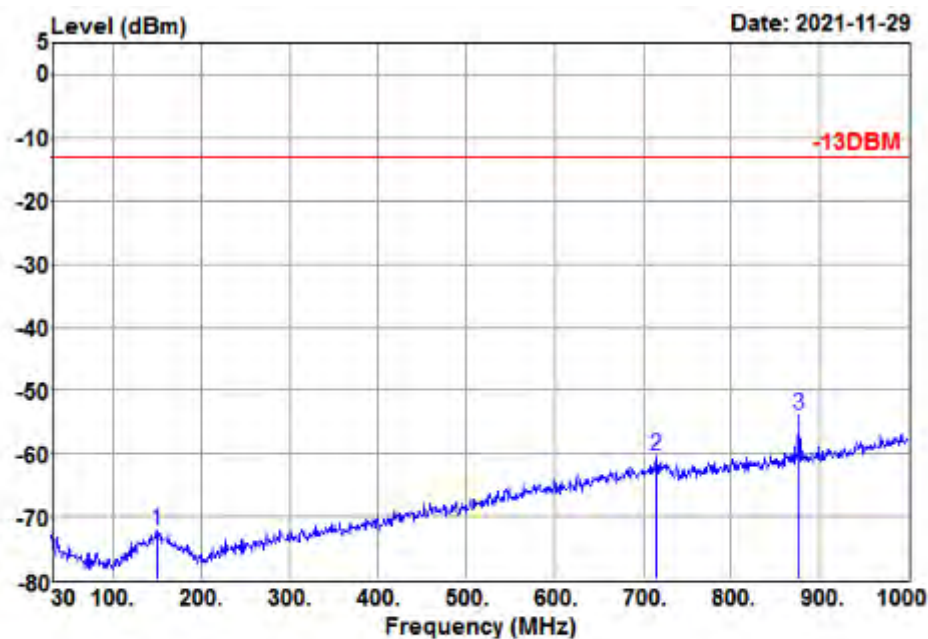
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

EDGE 850:

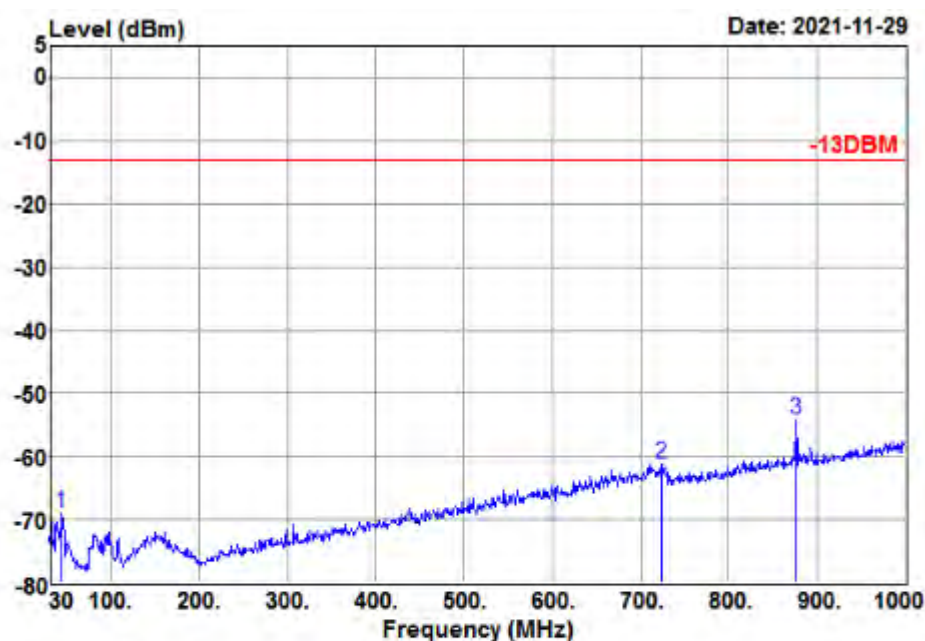
CHANNEL BANDWIDTH: 128 ~ 251

MODE	TX channel 128	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
150.280	-69.93	-2.32	-72.25	-13.00	-59.25	Peak
714.820	-67.00	6.53	-60.47	-13.00	-47.47	Peak
876.810	-63.36	9.47	-53.89	-13.00	-40.89	Peak

MODE	TX channel 128	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
44.550	-64.47	-4.55	-69.02	-13.00	-56.02	Peak
723.550	-67.64	6.44	-61.20	-13.00	-48.20	Peak
876.810	-63.47	9.28	-54.19	-13.00	-41.19	Peak



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Test Report No.: W7L-P21110027RF01

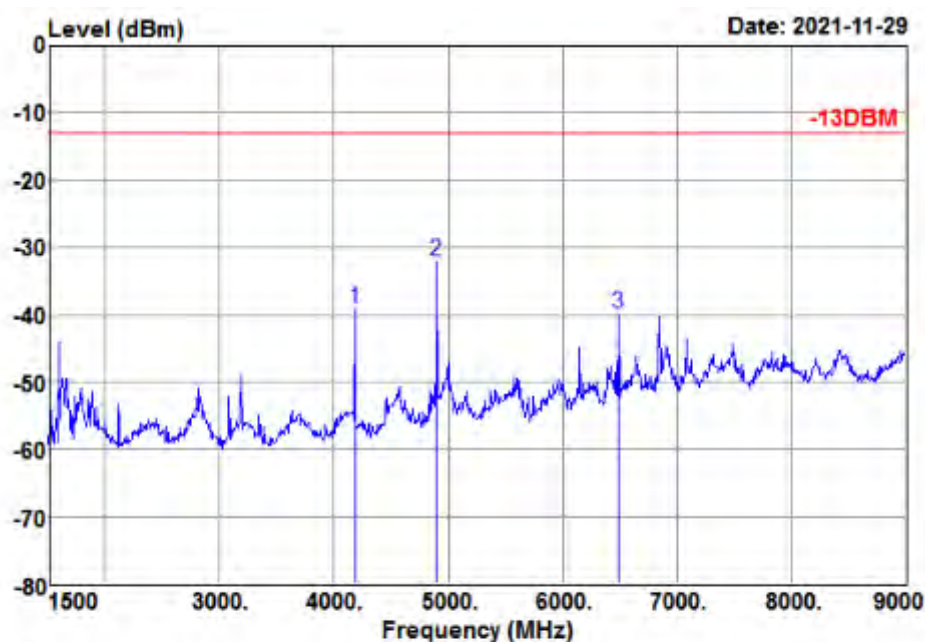
ABOVE 1GHz DATA

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

EDGE 850:

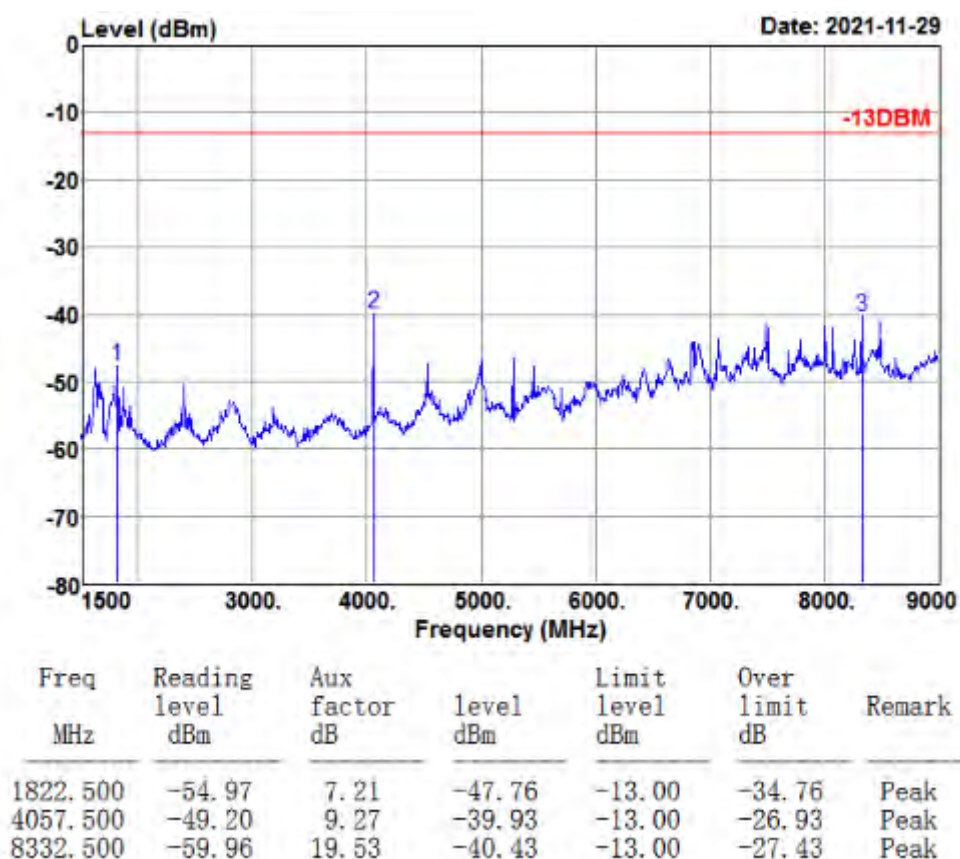
CH 128:

MODE	TX channel 128	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			



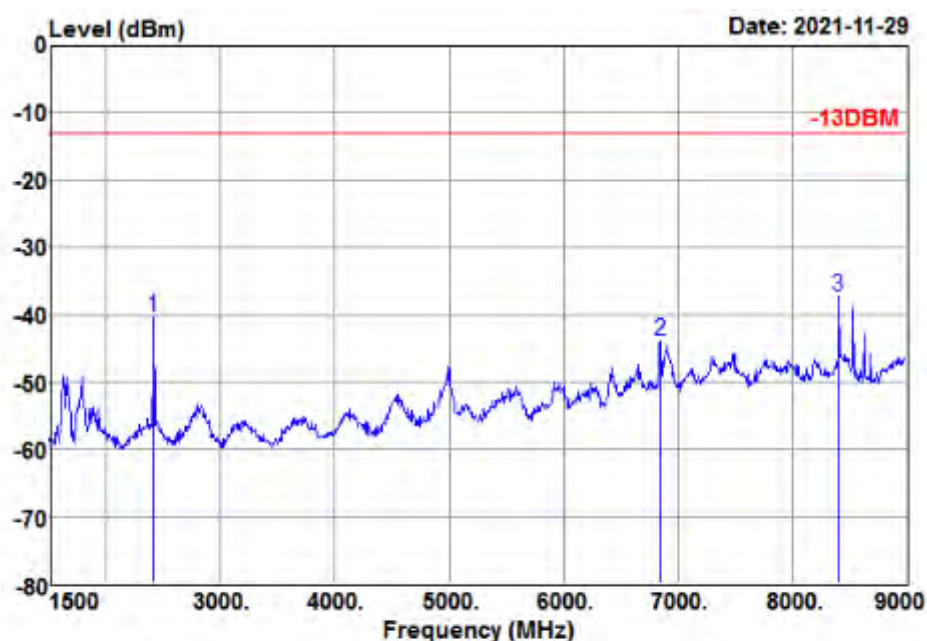
Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
4185.000	-48.75	9.54	-39.21	-13.00	-26.21	Peak
4897.500	-44.31	12.25	-32.06	-13.00	-19.06	Peak
6495.000	-56.27	16.39	-39.88	-13.00	-26.88	Peak

MODE	TX channel 128	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			



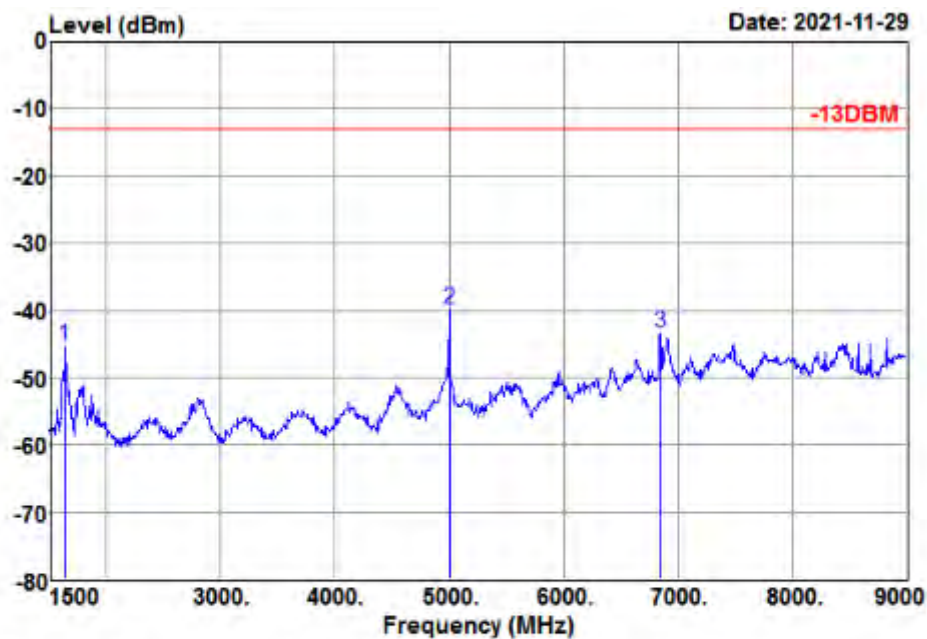
CH 189:

MODE	TX channel 189	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
2415.000	-48.70	8.42	-40.28	-13.00	-27.28	Peak
6847.500	-61.85	17.89	-43.96	-13.00	-30.96	Peak
8407.500	-56.61	19.25	-37.36	-13.00	-24.36	Peak

MODE	TX channel 189	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
1642.500	-51.64	6.38	-45.26	-13.00	-32.26	Peak
5002.500	-52.78	12.89	-39.89	-13.00	-26.89	Peak
6855.000	-61.74	18.35	-43.39	-13.00	-30.39	Peak

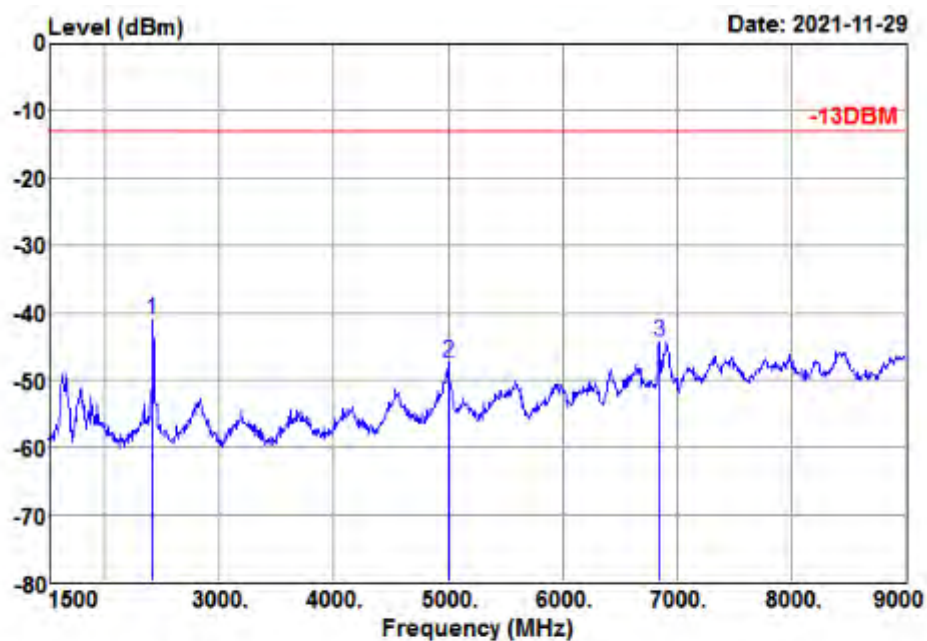


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Test Report No.: W7L-P21110027RF01

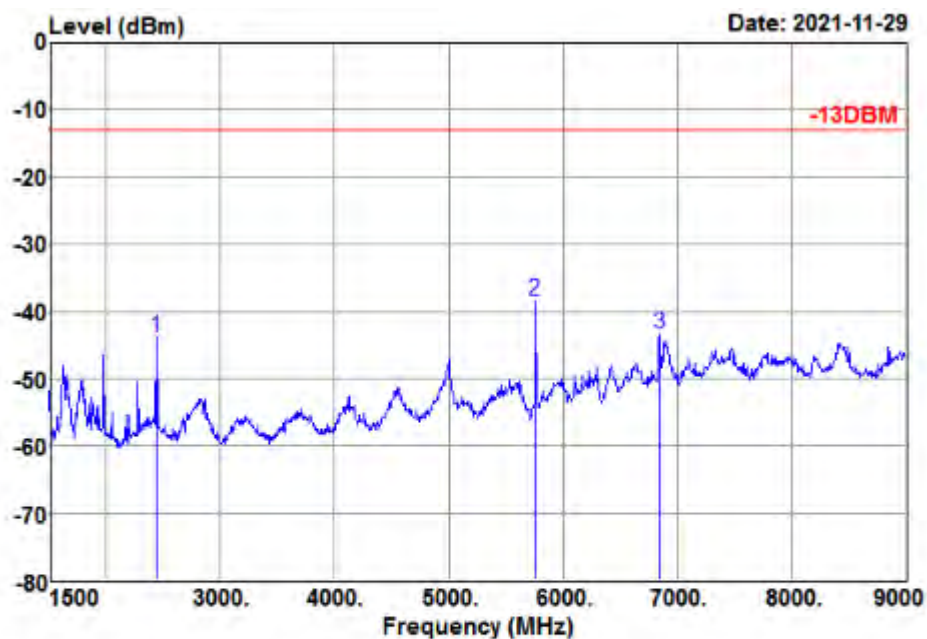
CH 251:

MODE	TX channel 251	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
2415.000	-49.51	8.42	-41.09	-13.00	-28.09	Peak
5002.500	-59.81	12.48	-47.33	-13.00	-34.33	Peak
6847.500	-62.29	17.89	-44.40	-13.00	-31.40	Peak

MODE	TX channel 251	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
2437.500	-52.28	8.30	-43.98	-13.00	-30.98	Peak
5760.000	-52.45	13.99	-38.46	-13.00	-25.46	Peak
6847.500	-61.68	18.32	-43.36	-13.00	-30.36	Peak



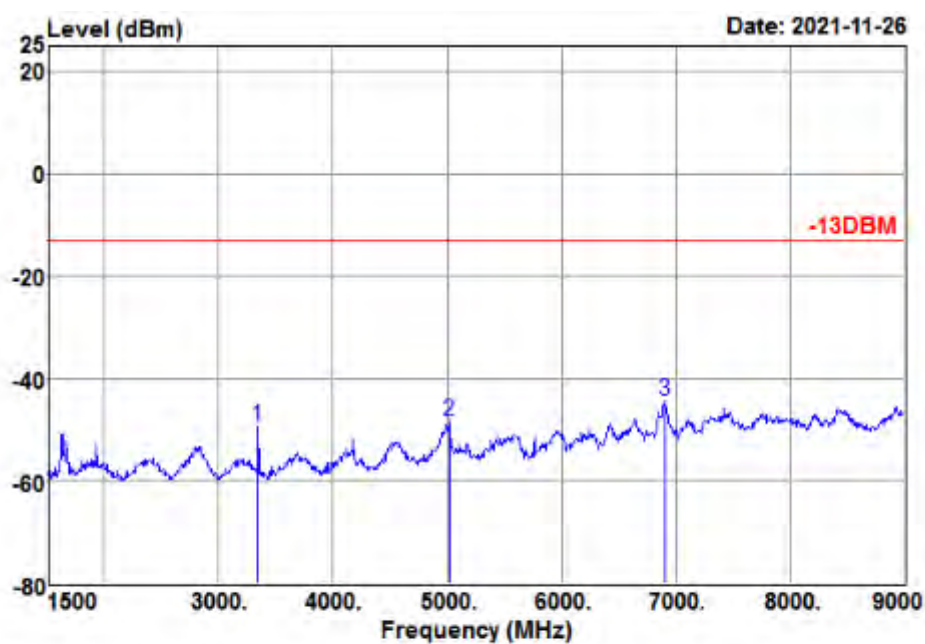
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Test Report No.: W7L-P21110027RF01

LTE Band 5

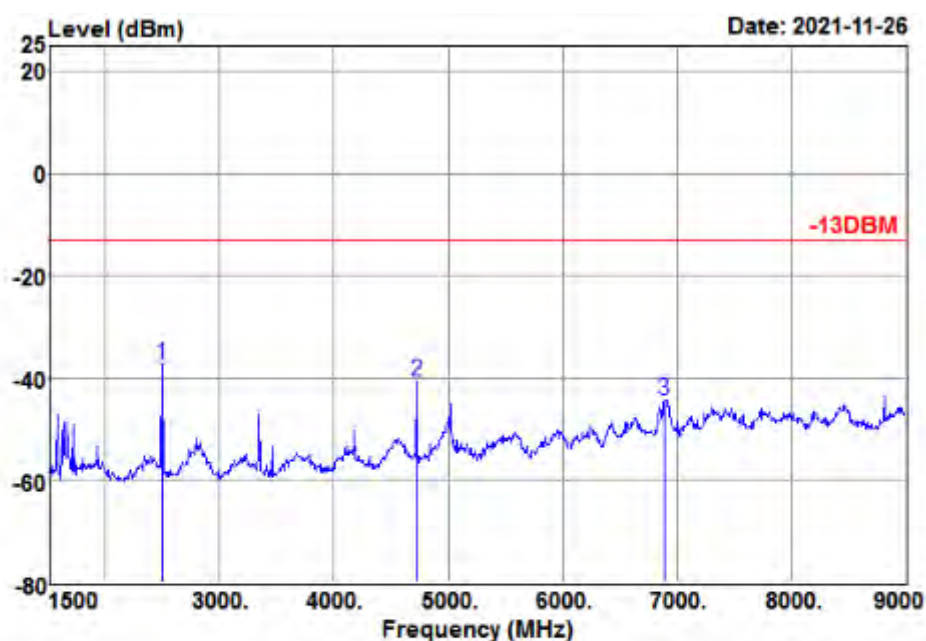
CHANNEL BANDWIDTH: 1.4MHz / QPSK

MODE	TX channel 20525	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
3345.000	-56.61	7.39	-49.22	-13.00	-36.22	Peak
5017.500	-60.90	12.49	-48.41	-13.00	-35.41	Peak
6900.000	-62.38	18.11	-44.27	-13.00	-31.27	Peak

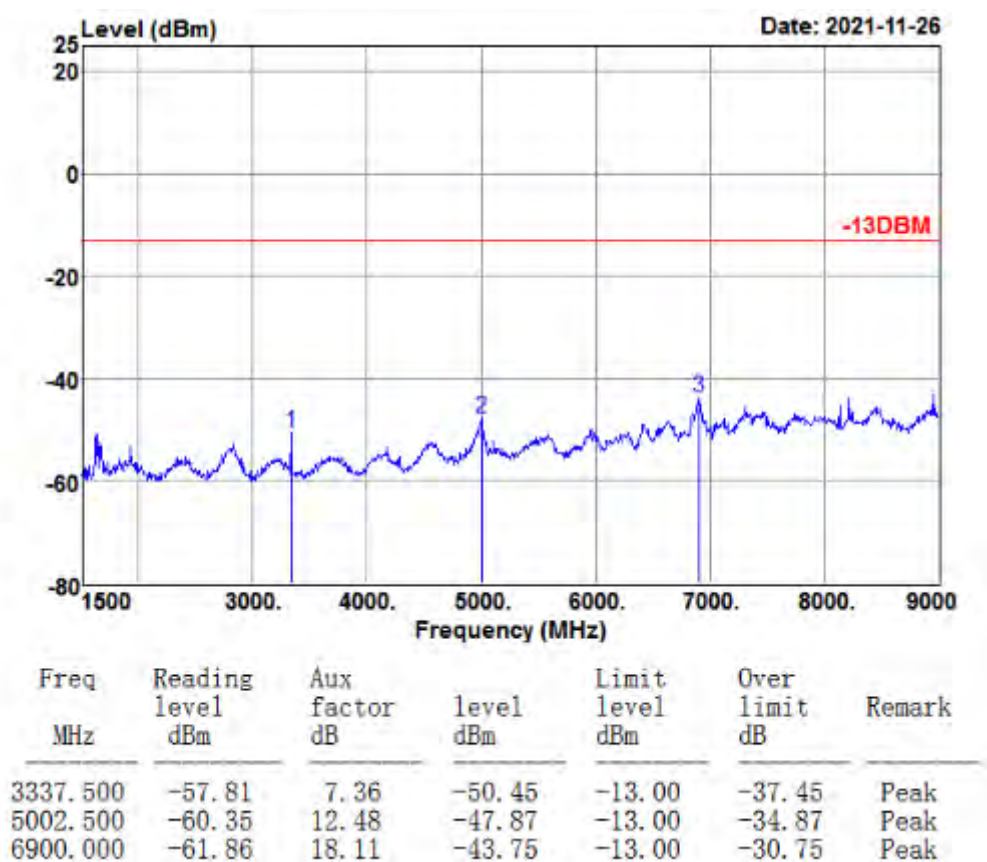
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



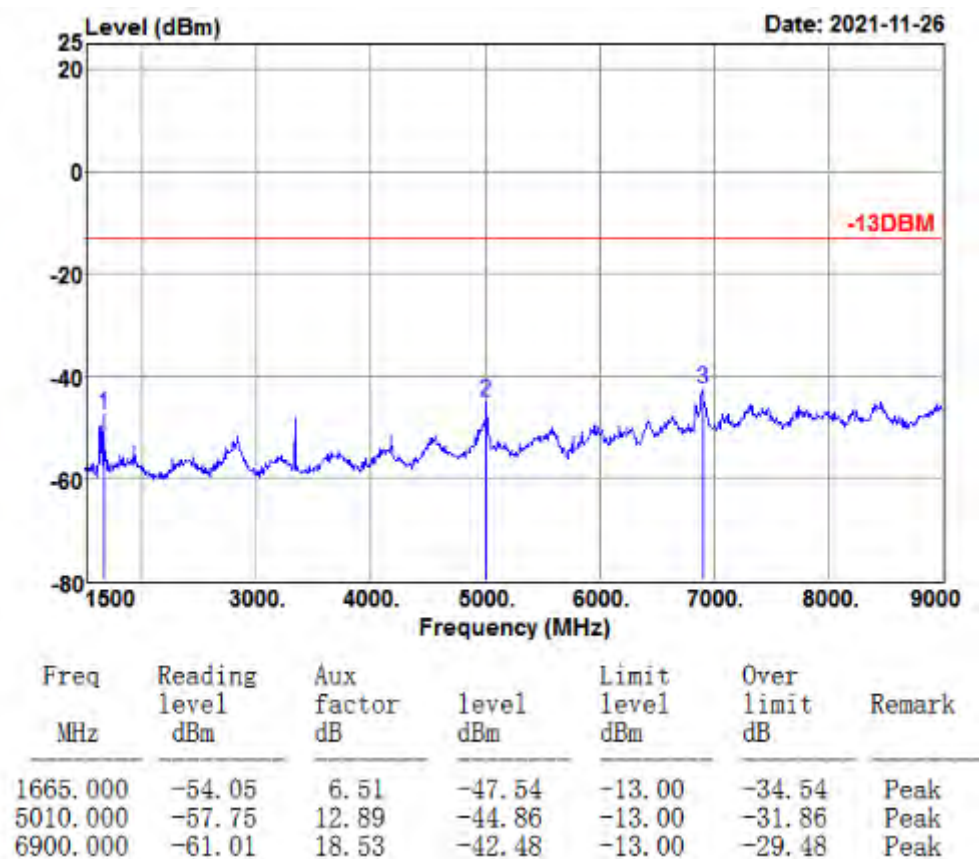
Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
2497.500	-45.72	8.48	-37.24	-13.00	-24.24	Peak
4725.000	-52.82	12.21	-40.61	-13.00	-27.61	Peak
6892.500	-62.78	18.50	-44.28	-13.00	-31.28	Peak

CHANNEL BANDWIDTH: 3MHz / QPSK

MODE	TX channel 20525	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			

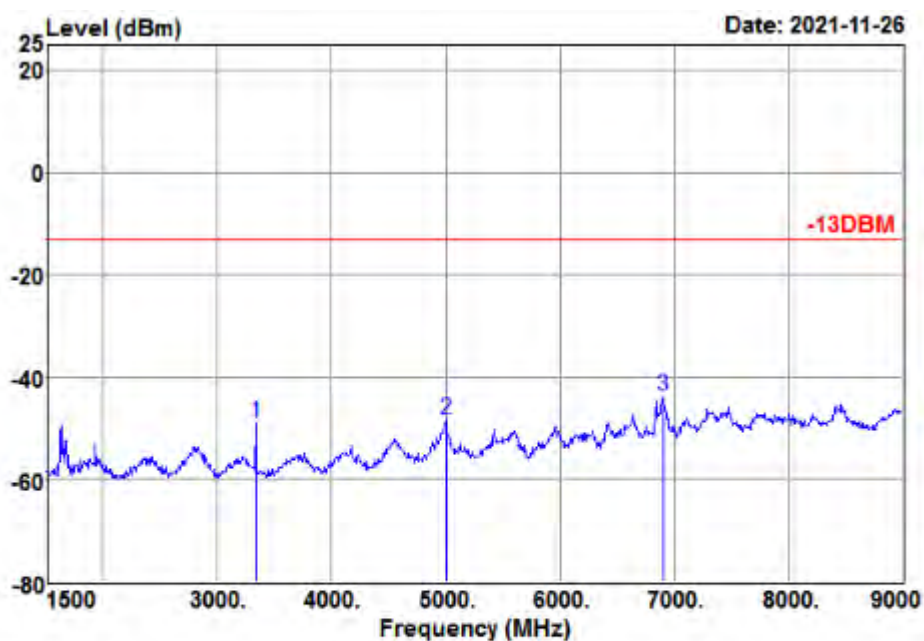


MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



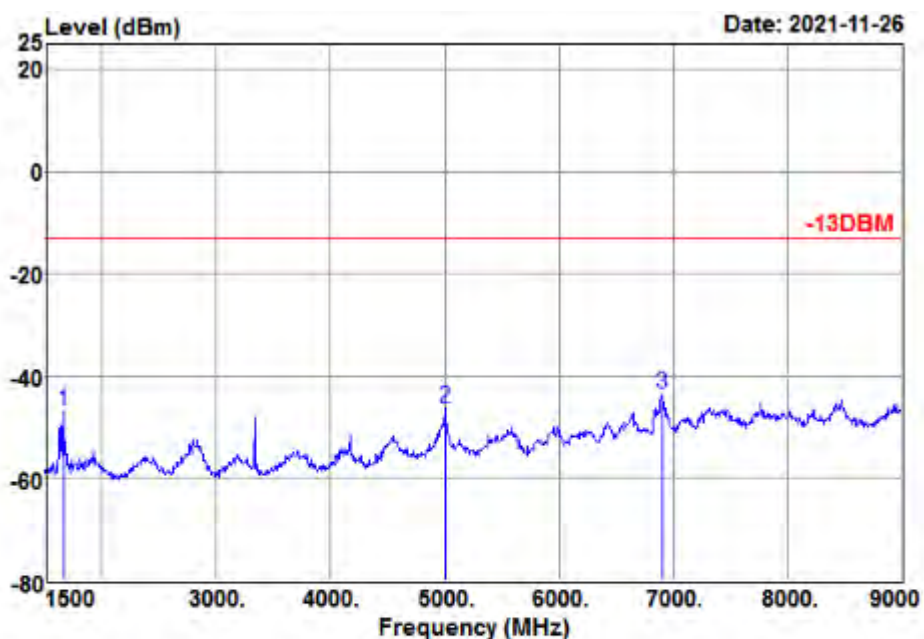
CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 20525	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
3337.500	-56.45	7.36	-49.09	-13.00	-36.09	Peak
5002.500	-60.92	12.48	-48.44	-13.00	-35.44	Peak
6900.000	-61.96	18.11	-43.85	-13.00	-30.85	Peak

MODE	TX channel 20525	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
1665.000	-53.35	6.51	-46.84	-13.00	-33.84	Peak
5002.500	-59.15	12.89	-46.26	-13.00	-33.26	Peak
6900.000	-61.89	18.53	-43.36	-13.00	-30.36	Peak



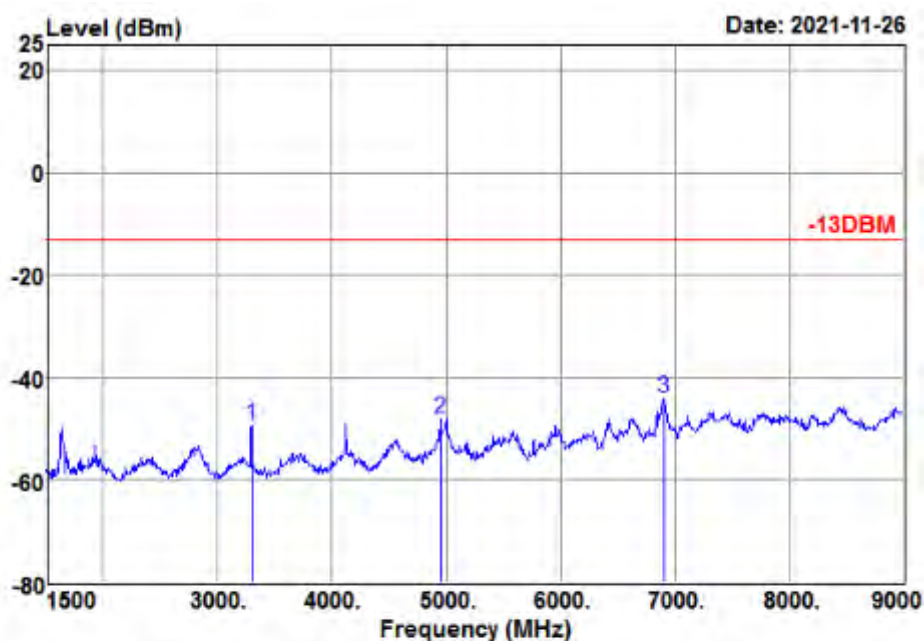
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Test Report No.: W7L-P21110027RF01

CHANNEL BANDWIDTH: 10MHz / QPSK

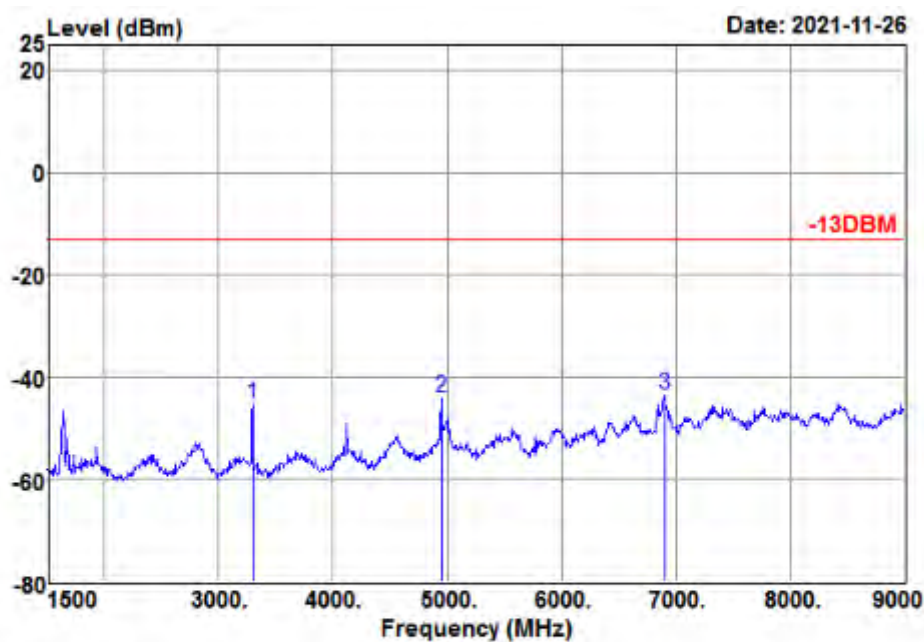
CH20450:

MODE	TX channel 20450	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
3300.000	-56.49	7.21	-49.28	-13.00	-36.28	Peak
4950.000	-60.32	12.37	-47.95	-13.00	-34.95	Peak
6900.000	-62.27	18.11	-44.16	-13.00	-31.16	Peak

MODE	TX channel 20450	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
3300.000	-52.59	7.25	-45.34	-13.00	-32.34	Peak
4950.000	-56.86	12.77	-44.09	-13.00	-31.09	Peak
6900.000	-61.82	18.53	-43.29	-13.00	-30.29	Peak

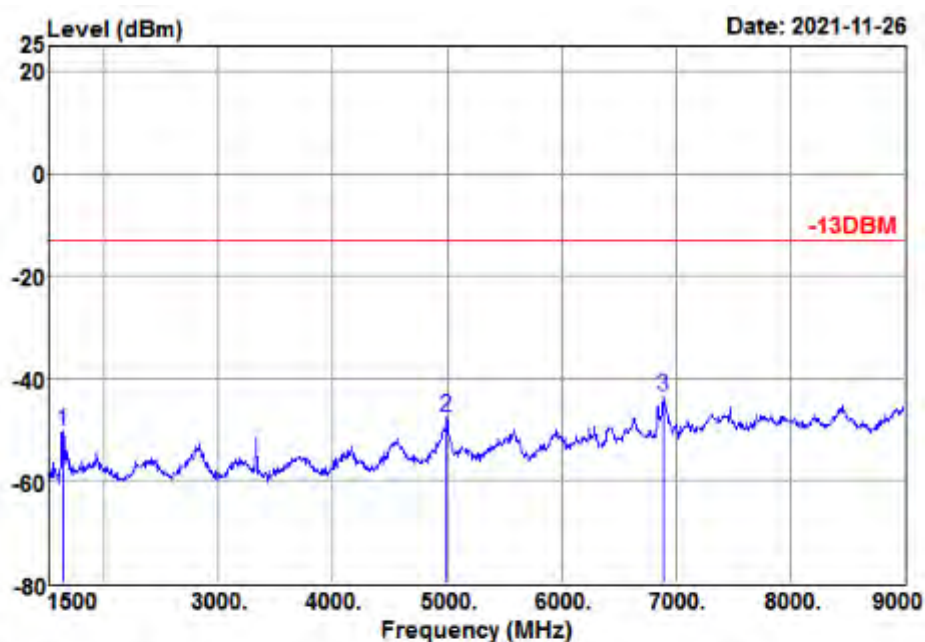


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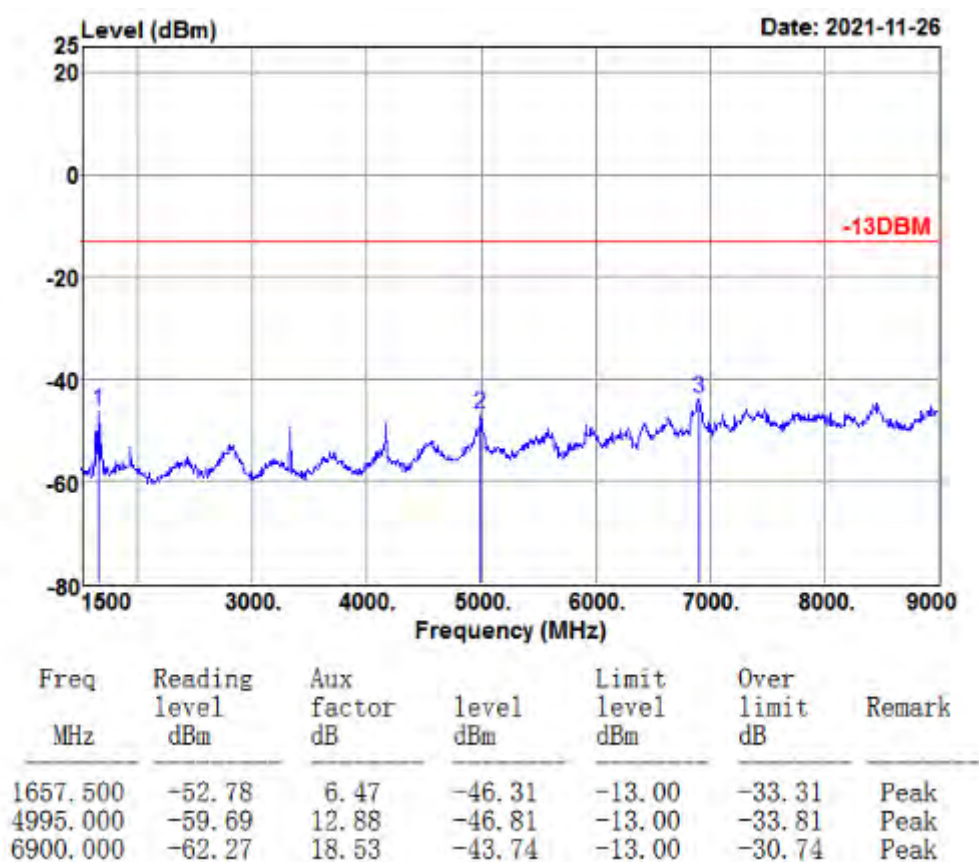
CH20525:

MODE	TX channel 20525	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
1635.000	-56.22	6.00	-50.22	-13.00	-37.22	Peak
4995.000	-59.79	12.47	-47.32	-13.00	-34.32	Peak
6892.500	-61.64	18.08	-43.56	-13.00	-30.56	Peak

MODE	TX channel 20525	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			



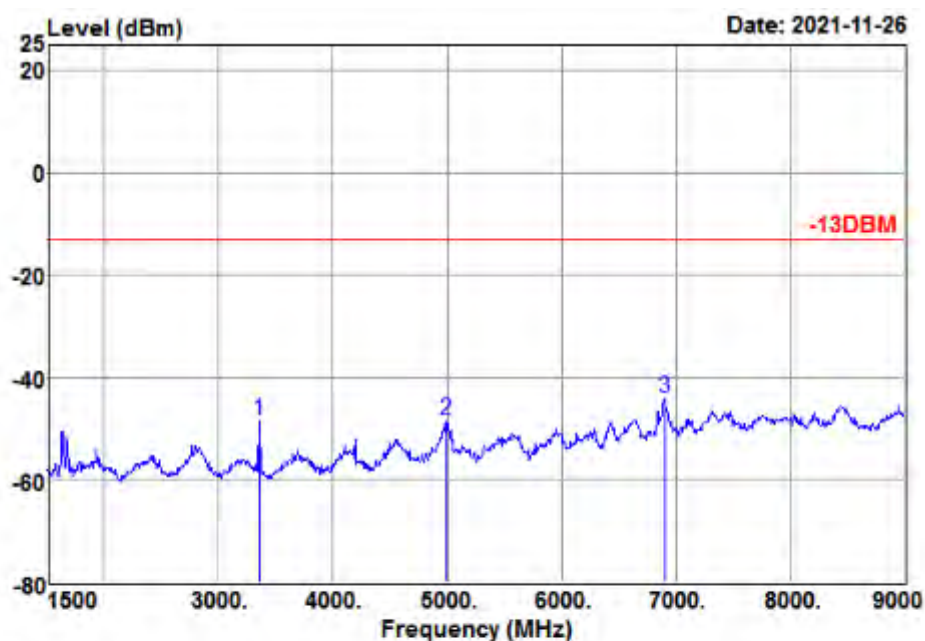


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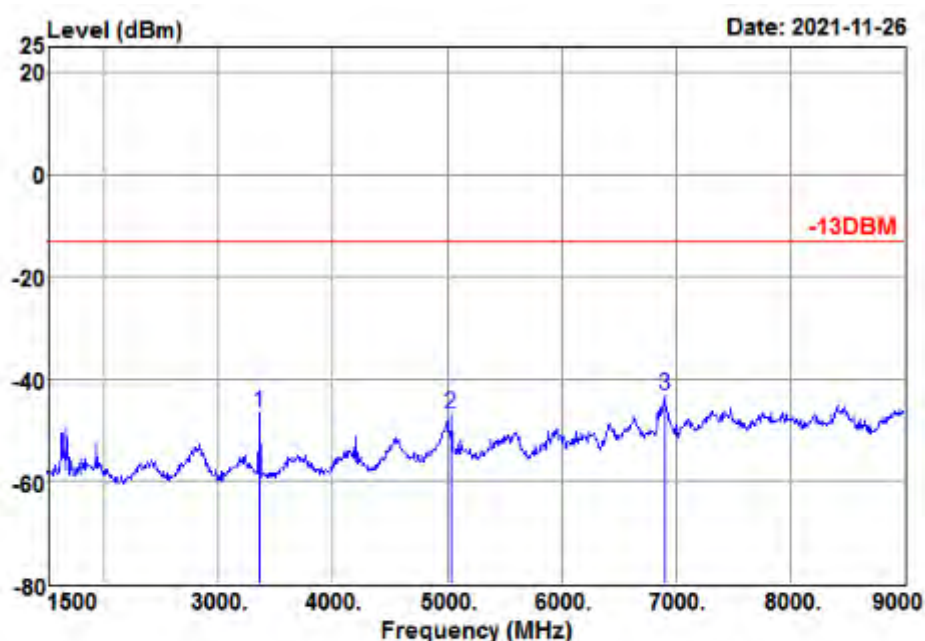
CH20600:

MODE	TX channel 20600	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 MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
3360.000	-55.79	7.45	-48.34	-13.00	-35.34	Peak
4987.500	-60.96	12.45	-48.51	-13.00	-35.51	Peak
6900.000	-62.05	18.11	-43.94	-13.00	-30.94	Peak

MODE	TX channel 20600	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			



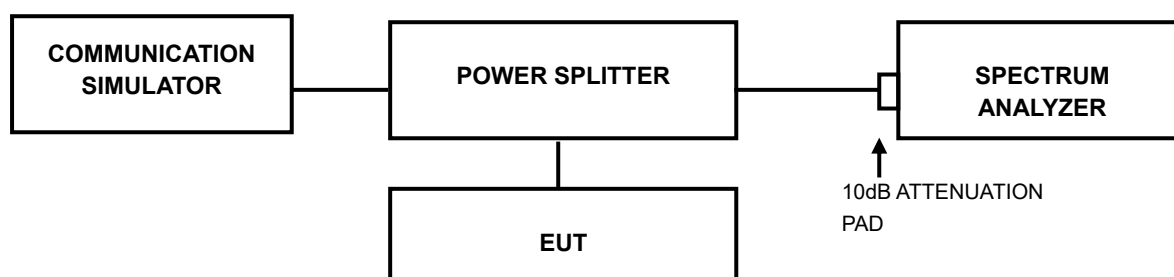
Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
3360.000	-54.07	7.57	-46.50	-13.00	-33.50	Peak
5040.000	-59.83	12.89	-46.94	-13.00	-33.94	Peak
6900.000	-61.76	18.53	-43.23	-13.00	-30.23	Peak

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%.



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3.7.4 TEST RESULTS

Please Refer to Appendix B Of this test report.



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4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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5 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.

6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

Please Refer to Appendix B Of this test report.

APPENDIX B:

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GPRS850	128	2.76	13	PASS
GPRS850	190	2.75	13	PASS
GPRS850	251	2.73	13	PASS
EGPRS850	128	5.82	13	PASS
EGPRS850	190	5.78	13	PASS
EGPRS850	251	5.8	13	PASS

Test Graphs



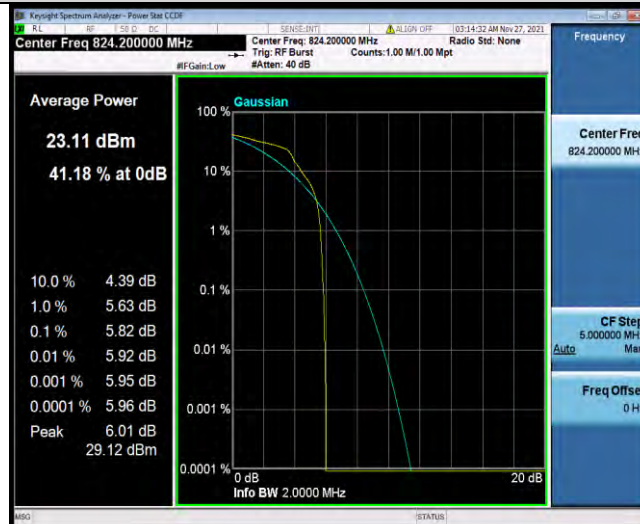


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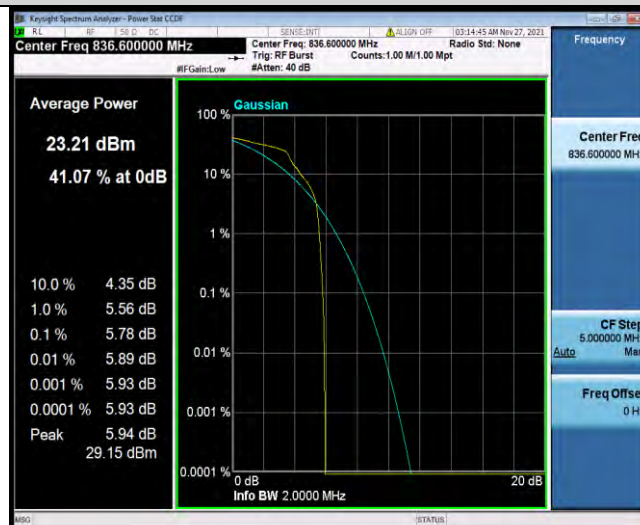
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EGPRS850-128-8



EGPRS850-190-8

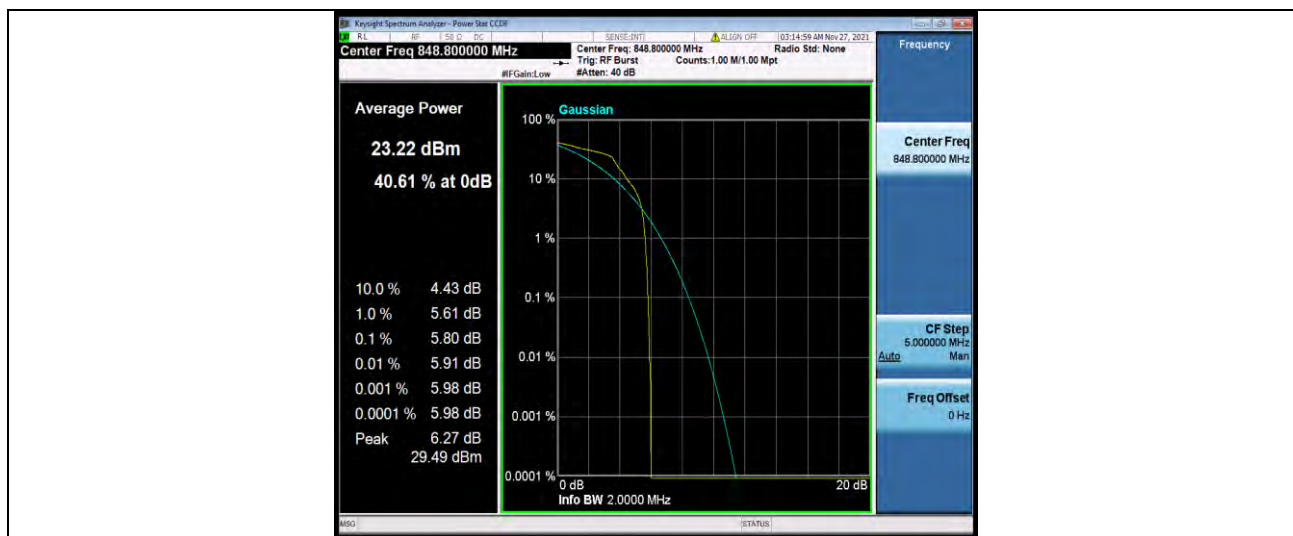


EGPRS850-251-8



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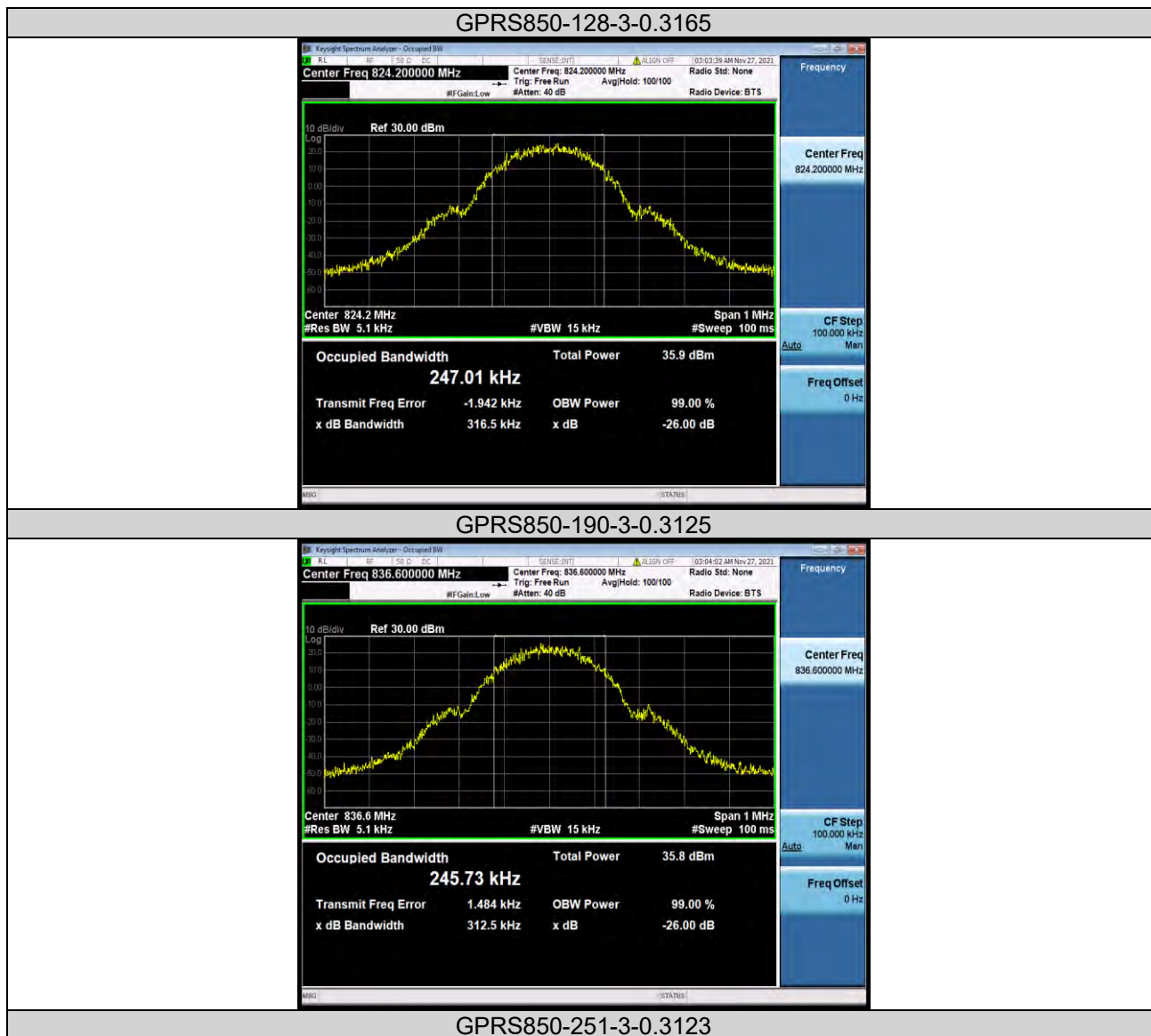


26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GPRS850	128	0.24701	0.3165	---	PASS
GPRS850	190	0.24573	0.3125	---	PASS
GPRS850	251	0.24558	0.3123	---	PASS
EGPRS850	128	0.24112	0.3075	---	PASS
EGPRS850	190	0.24411	0.3100	---	PASS
EGPRS850	251	0.24496	0.3024	---	PASS

Test Graphs



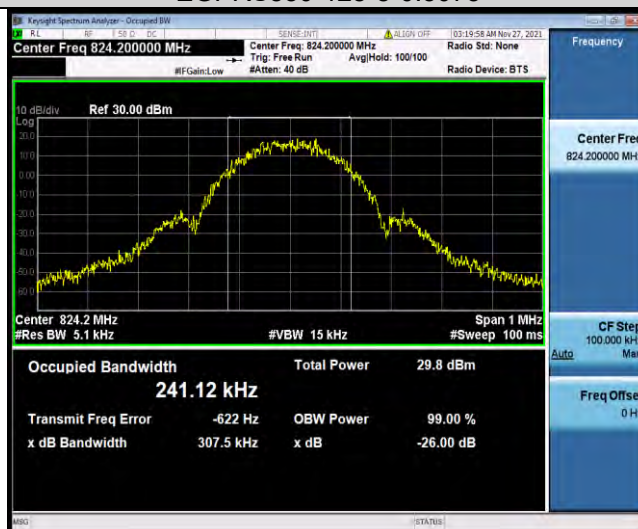


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VERITAS

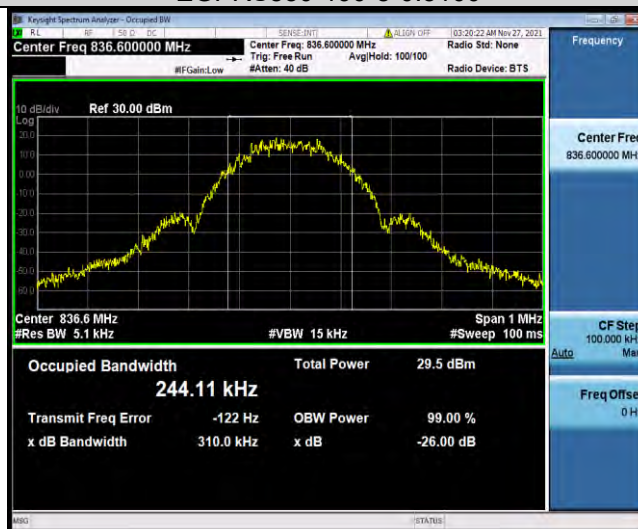
Test Report No.: W7L-P21110027RF01



EGPRS850-128-8-0.3075



EGPRS850-190-8-0.3100

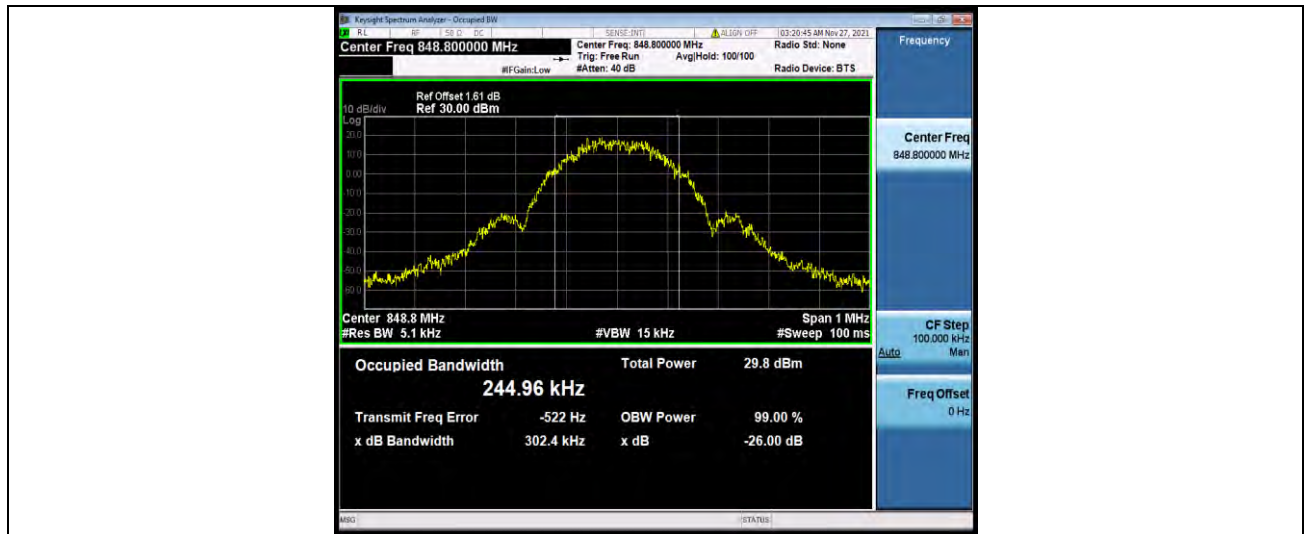


EGPRS850-251-8-0.3024



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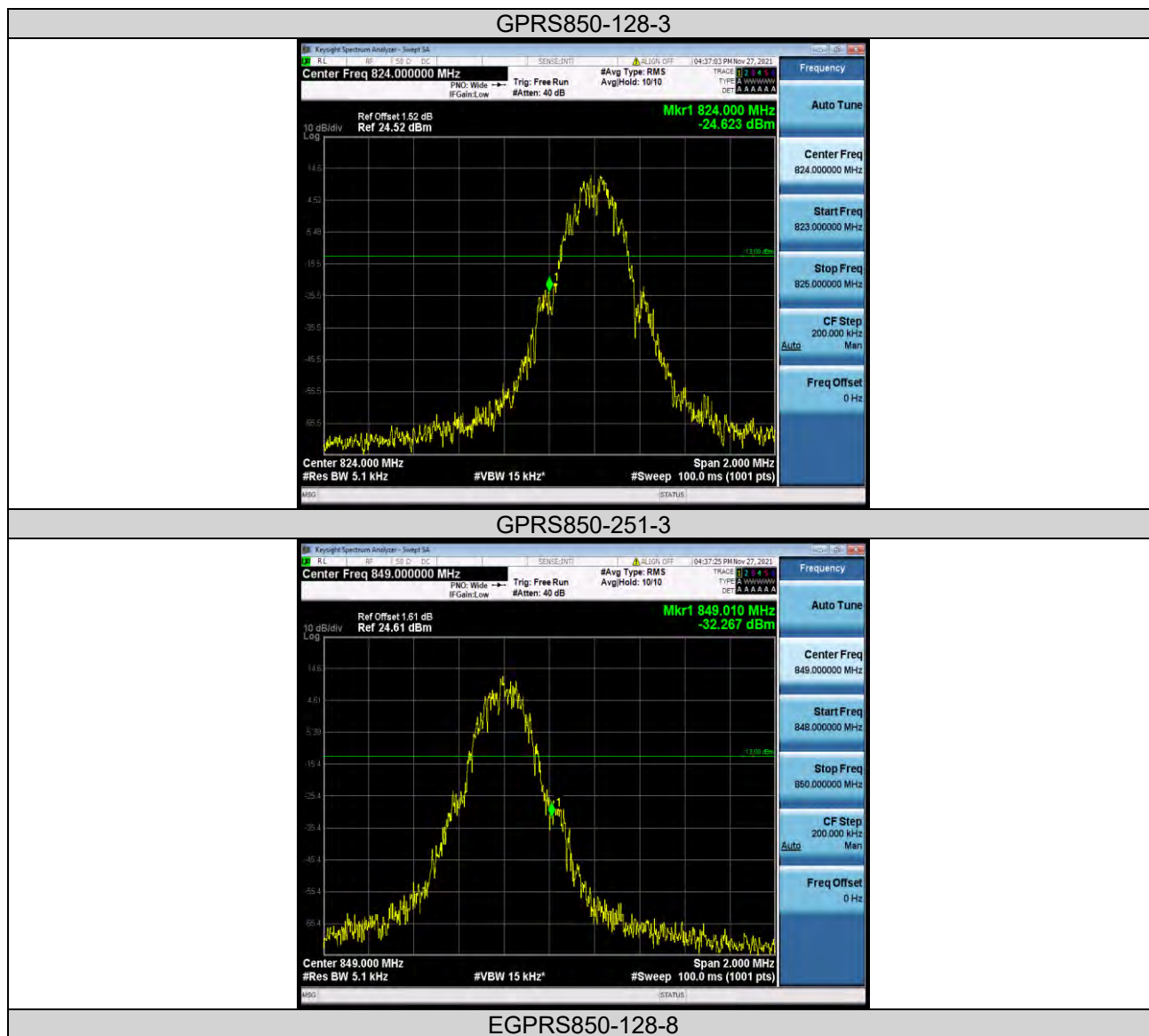
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BAND EDGE

Test Result

Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GPRS850	128	824.00	-22.31	-13	PASS
GPRS850	251	849.01	-26.67	-13	PASS
EGPRS850	128	823.99	-34.81	-13	PASS
EGPRS850	251	849.00	-34.51	-13	PASS

Test Graphs





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EGPRS850-251-8

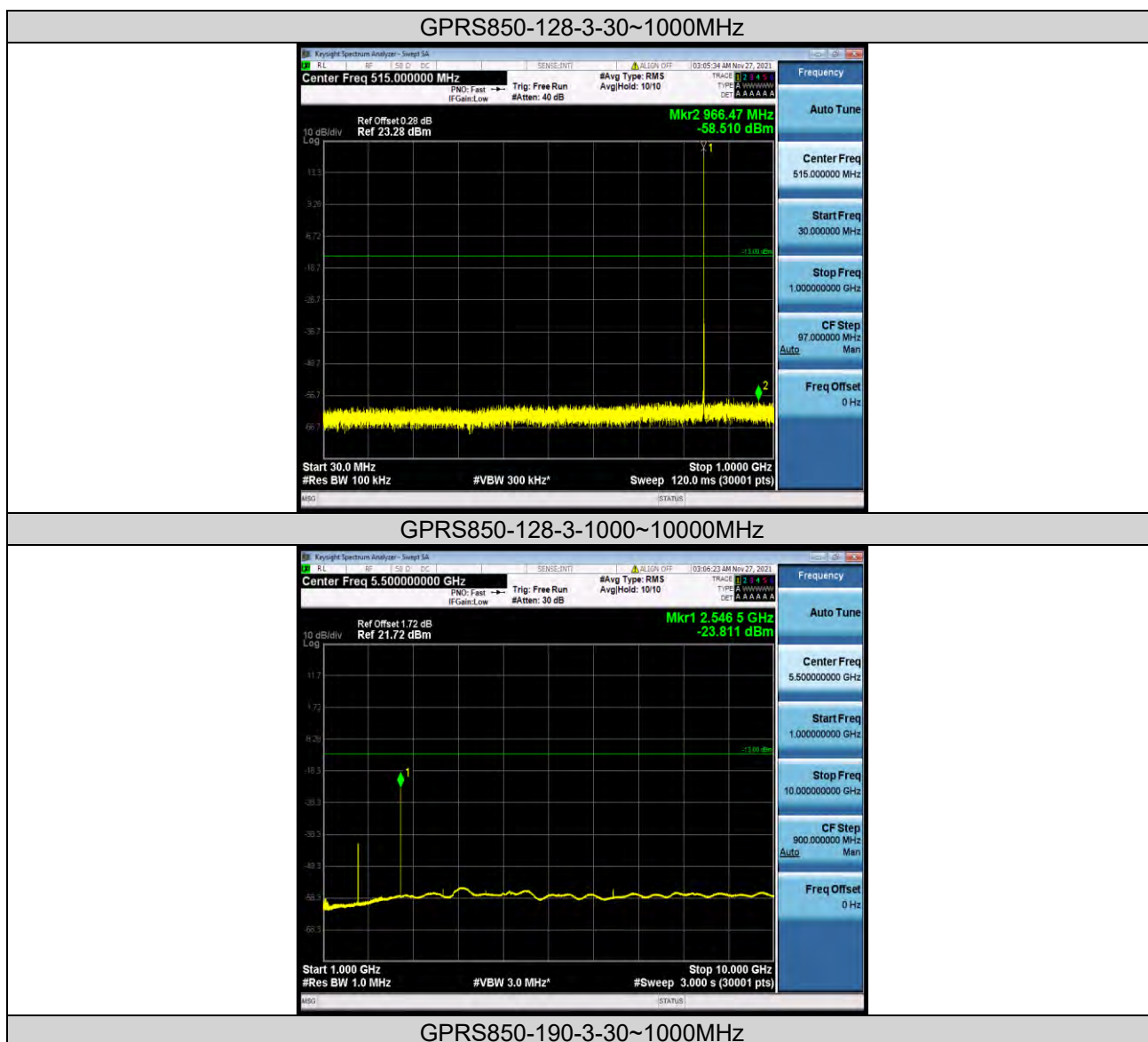


CONDUCTED SPURIOUS EMISSION

Test Result

Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GPRS850	128	30~1000MHz	966.47	-58.51	-13	PASS
GPRS850	128	1000~10000MHz	2546.5	-23.81	-13	PASS
GPRS850	190	30~1000MHz	727.82	-58.71	-13	PASS
GPRS850	190	1000~10000MHz	2545.3	-39.67	-13	PASS
GPRS850	251	30~1000MHz	954.44	-58.59	-13	PASS
GPRS850	251	1000~10000MHz	2546.8	-26.29	-13	PASS
EGPRS850	128	30~1000MHz	623.64	-57.07	-13	PASS
EGPRS850	128	1000~10000MHz	2547.7	-53.76	-13	PASS
EGPRS850	190	30~1000MHz	598.03	-49.99	-13	PASS
EGPRS850	190	1000~10000MHz	1697.2	-53.5	-13	PASS
EGPRS850	251	30~1000MHz	748.48	-58.32	-13	PASS
EGPRS850	251	1000~10000MHz	2545.9	-43.22	-13	PASS

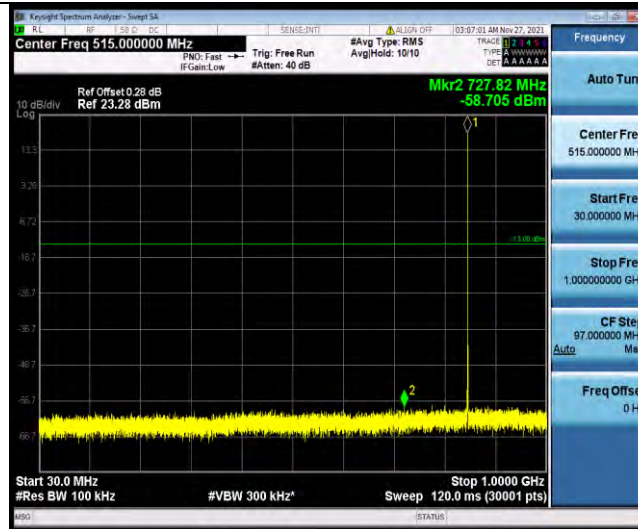
Test Graphs





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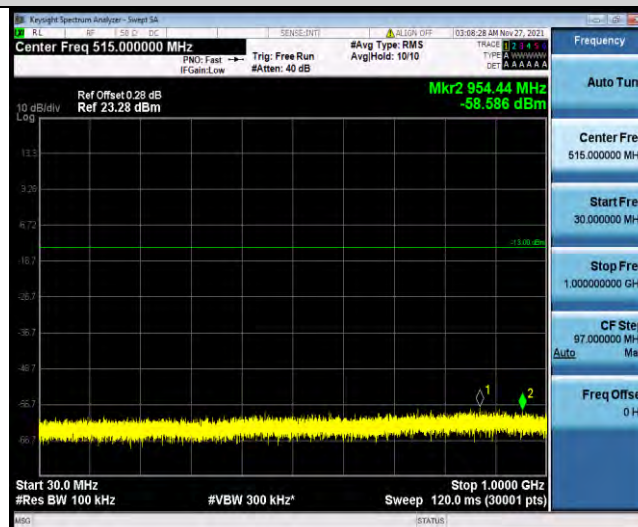
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GPRS850-190-3-1000~10000MHz



GPRS850-251-3-30~1000MHz

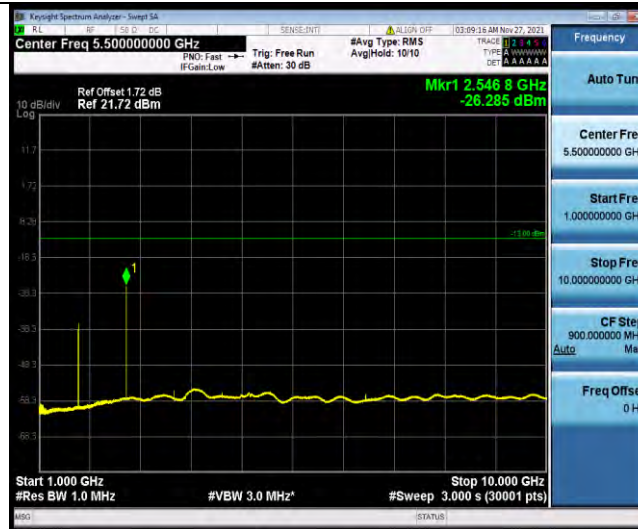


GPRS850-251-3-1000~10000MHz

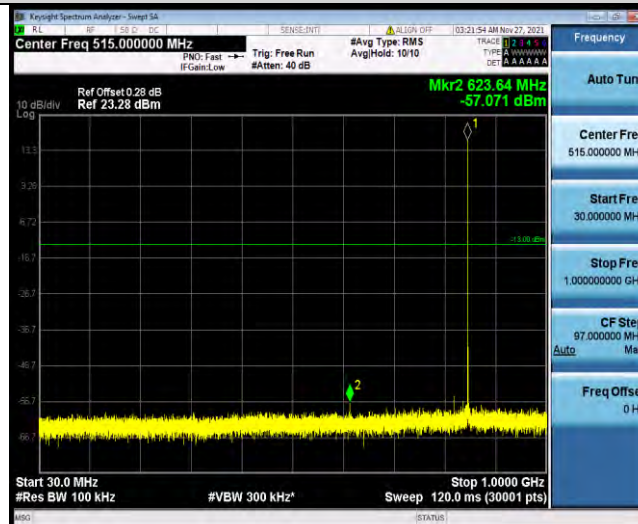


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EGPRS850-128-8-30~1000MHz



EGPRS850-128-8-1000~10000MHz

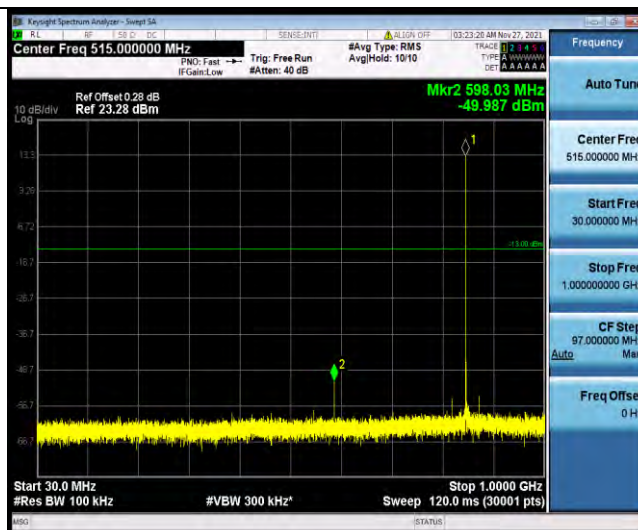


EGPRS850-190-8-30~1000MHz



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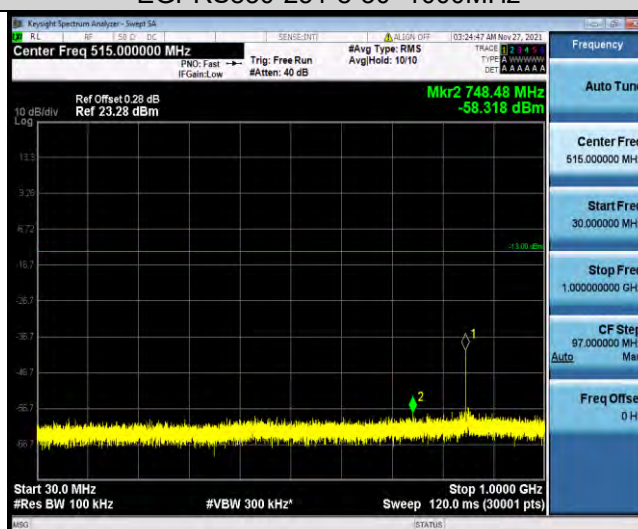
Test Report No.: W7L-P21110027RF01



EGPRS850-190-8-1000~10000MHz



EGPRS850-251-8-30~1000MHz

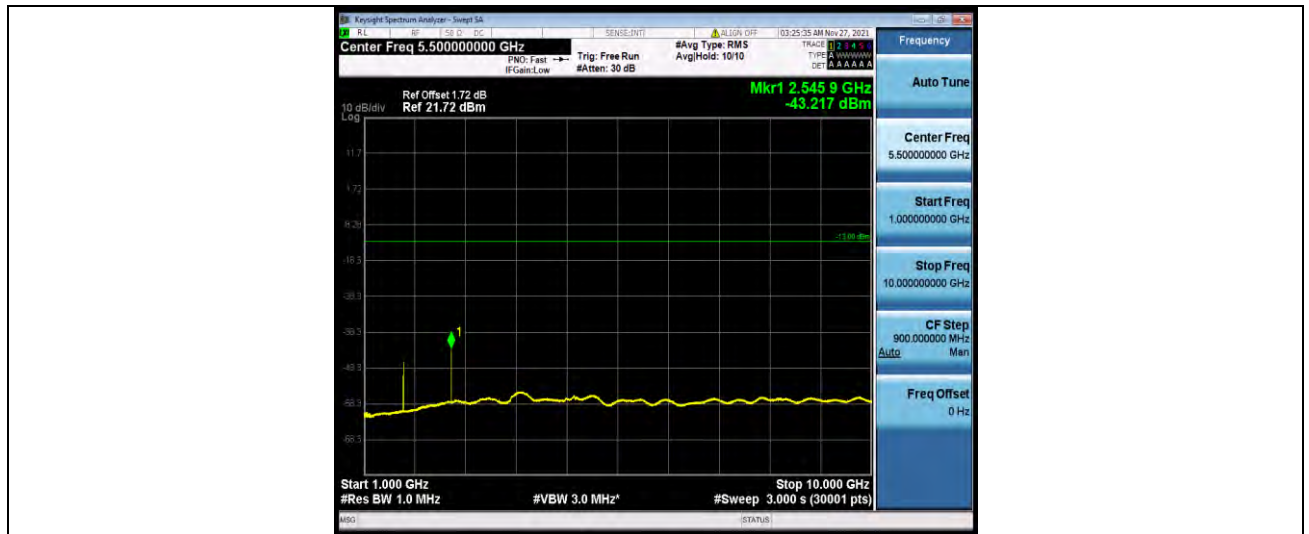


EGPRS850-251-8-1000~10000MHz



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FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS850	128	VL	NT	-3.49	-0.004234	±2.5	PASS
GPRS850	128	VN	NT	-6.42	-0.007789	±2.5	PASS
GPRS850	128	VH	NT	-2.36	-0.002863	±2.5	PASS
GPRS850	190	VL	NT	-9.23	-0.011033	±2.5	PASS
GPRS850	190	VN	NT	-15.53	-0.018563	±2.5	PASS
GPRS850	190	VH	NT	-5.84	-0.006981	±2.5	PASS
GPRS850	251	VL	NT	-6.20	-0.007304	±2.5	PASS
GPRS850	251	VN	NT	-10.20	-0.012017	±2.5	PASS
GPRS850	251	VH	NT	-6.30	-0.007422	±2.5	PASS
EGPRS850	128	VL	NT	-5.52	-0.006697	±2.5	PASS
EGPRS850	128	VN	NT	-4.29	-0.005205	±2.5	PASS
EGPRS850	128	VH	NT	-5.65	-0.006855	±2.5	PASS
EGPRS850	190	VL	NT	-10.27	-0.012276	±2.5	PASS
EGPRS850	190	VN	NT	-10.85	-0.012969	±2.5	PASS
EGPRS850	190	VH	NT	-12.59	-0.015049	±2.5	PASS
EGPRS850	251	VL	NT	-9.56	-0.011263	±2.5	PASS
EGPRS850	251	VN	NT	-15.95	-0.018791	±2.5	PASS



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0							
EGPRS85 0	251	VH	NT	-12.20	-0.014373	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS850	128	NV	-30	-8.75	-0.010616	±2.5	PASS
GPRS850	128	NV	-20	-2.87	-0.003482	±2.5	PASS
GPRS850	128	NV	-10	-6.07	-0.007365	±2.5	PASS
GPRS850	128	NV	0	-3.87	-0.004695	±2.5	PASS
GPRS850	128	NV	10	-2.45	-0.002973	±2.5	PASS
GPRS850	128	NV	20	-5.26	-0.006382	±2.5	PASS
GPRS850	128	NV	30	-6.23	-0.007559	±2.5	PASS
GPRS850	128	NV	40	-13.11	-0.015906	±2.5	PASS
GPRS850	128	NV	50	-3.78	-0.004586	±2.5	PASS
GPRS850	190	NV	-30	-3.55	-0.004243	±2.5	PASS
GPRS850	190	NV	-20	-5.33	-0.006371	±2.5	PASS
GPRS850	190	NV	-10	0.26	0.000311	±2.5	PASS
GPRS850	190	NV	0	-8.59	-0.010268	±2.5	PASS
GPRS850	190	NV	10	0.87	0.001040	±2.5	PASS
GPRS850	190	NV	20	-9.88	-0.011810	±2.5	PASS
GPRS850	190	NV	30	-6.88	-0.008224	±2.5	PASS
GPRS850	190	NV	40	-8.75	-0.010459	±2.5	PASS
GPRS850	190	NV	50	-7.43	-0.008881	±2.5	PASS
GPRS850	251	NV	-30	-9.72	-0.011451	±2.5	PASS
GPRS850	251	NV	-20	-5.78	-0.006810	±2.5	PASS
GPRS850	251	NV	-10	-11.27	-0.013278	±2.5	PASS
GPRS850	251	NV	0	-9.69	-0.011416	±2.5	PASS
GPRS850	251	NV	10	-9.01	-0.010615	±2.5	PASS
GPRS850	251	NV	20	-6.13	-0.007222	±2.5	PASS
GPRS850	251	NV	30	-6.72	-0.007917	±2.5	PASS
GPRS850	251	NV	40	-5.33	-0.006279	±2.5	PASS
GPRS850	251	NV	50	-6.88	-0.008106	±2.5	PASS
EGPRS85 0	128	NV	-30	-6.81	-0.008263	±2.5	PASS
EGPRS85 0	128	NV	-20	-9.33	-0.011320	±2.5	PASS
EGPRS85 0	128	NV	-10	-9.30	-0.011284	±2.5	PASS
EGPRS85 0	128	NV	0	-7.17	-0.008699	±2.5	PASS
EGPRS85 0	128	NV	10	-4.75	-0.005763	±2.5	PASS
EGPRS85 0	128	NV	20	-5.71	-0.006928	±2.5	PASS
EGPRS85 0	128	NV	30	-6.49	-0.007874	±2.5	PASS
EGPRS85 0	128	NV	40	-7.52	-0.009124	±2.5	PASS



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EGPRS85 0	128	NV	50	-7.26	-0.008809	±2.5	PASS
EGPRS85 0	190	NV	-30	-13.50	-0.016137	±2.5	PASS
EGPRS85 0	190	NV	-20	-11.91	-0.014236	±2.5	PASS
EGPRS85 0	190	NV	-10	-9.40	-0.011236	±2.5	PASS
EGPRS85 0	190	NV	0	-15.08	-0.018025	±2.5	PASS
EGPRS85 0	190	NV	10	-11.07	-0.013232	±2.5	PASS
EGPRS85 0	190	NV	20	-7.68	-0.009180	±2.5	PASS
EGPRS85 0	190	NV	30	-9.65	-0.011535	±2.5	PASS
EGPRS85 0	190	NV	40	-11.27	-0.013471	±2.5	PASS
EGPRS85 0	190	NV	50	-14.88	-0.017786	±2.5	PASS
EGPRS85 0	251	NV	-30	-12.30	-0.014491	±2.5	PASS
EGPRS85 0	251	NV	-20	-16.05	-0.018909	±2.5	PASS
EGPRS85 0	251	NV	-10	-16.59	-0.019545	±2.5	PASS
EGPRS85 0	251	NV	0	-10.88	-0.012818	±2.5	PASS
EGPRS85 0	251	NV	10	-13.30	-0.015669	±2.5	PASS
EGPRS85 0	251	NV	20	-10.91	-0.012853	±2.5	PASS
EGPRS85 0	251	NV	30	-17.14	-0.020193	±2.5	PASS
EGPRS85 0	251	NV	40	-6.04	-0.007116	±2.5	PASS
EGPRS85 0	251	NV	50	-10.07	-0.011864	±2.5	PASS

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	4.16	13	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	4.84	13	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	4.69	13	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	5.21	13	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	4.78	13	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	5.41	13	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	4.80	13	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	5.62	13	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	5.74	13	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	5.95	13	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	5.72	13	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	5.95	13	PASS
Band5	3MHz	QPSK	20415	1RB#0	4.26	13	PASS
Band5	3MHz	QPSK	20415	15RB#0	4.98	13	PASS
Band5	3MHz	QPSK	20525	1RB#0	4.78	13	PASS
Band5	3MHz	QPSK	20525	15RB#0	5.15	13	PASS
Band5	3MHz	QPSK	20635	1RB#0	4.71	13	PASS
Band5	3MHz	QPSK	20635	15RB#0	5.33	13	PASS
Band5	3MHz	16QAM	20415	1RB#0	4.95	13	PASS
Band5	3MHz	16QAM	20415	15RB#0	5.73	13	PASS
Band5	3MHz	16QAM	20525	1RB#0	5.76	13	PASS
Band5	3MHz	16QAM	20525	15RB#0	5.92	13	PASS
Band5	3MHz	16QAM	20635	1RB#0	5.40	13	PASS
Band5	3MHz	16QAM	20635	15RB#0	6.02	13	PASS
Band5	5MHz	QPSK	20425	1RB#0	4.43	13	PASS
Band5	5MHz	QPSK	20425	25RB#0	5.07	13	PASS
Band5	5MHz	QPSK	20525	1RB#0	4.74	13	PASS
Band5	5MHz	QPSK	20525	25RB#0	5.20	13	PASS
Band5	5MHz	QPSK	20625	1RB#0	4.58	13	PASS
Band5	5MHz	QPSK	20625	25RB#0	5.26	13	PASS
Band5	5MHz	16QAM	20425	1RB#0	5.01	13	PASS
Band5	5MHz	16QAM	20425	25RB#0	5.78	13	PASS
Band5	5MHz	16QAM	20525	1RB#0	5.41	13	PASS
Band5	5MHz	16QAM	20525	25RB#0	5.96	13	PASS
Band5	5MHz	16QAM	20625	1RB#0	5.17	13	PASS
Band5	5MHz	16QAM	20625	25RB#0	5.95	13	PASS
Band5	10MHz	QPSK	20450	1RB#0	4.56	13	PASS
Band5	10MHz	QPSK	20450	50RB#0	5.33	13	PASS
Band5	10MHz	QPSK	20525	1RB#0	5.20	13	PASS
Band5	10MHz	QPSK	20525	50RB#0	5.24	13	PASS
Band5	10MHz	QPSK	20600	1RB#0	4.19	13	PASS
Band5	10MHz	QPSK	20600	50RB#0	5.15	13	PASS
Band5	10MHz	16QAM	20450	1RB#0	5.29	13	PASS



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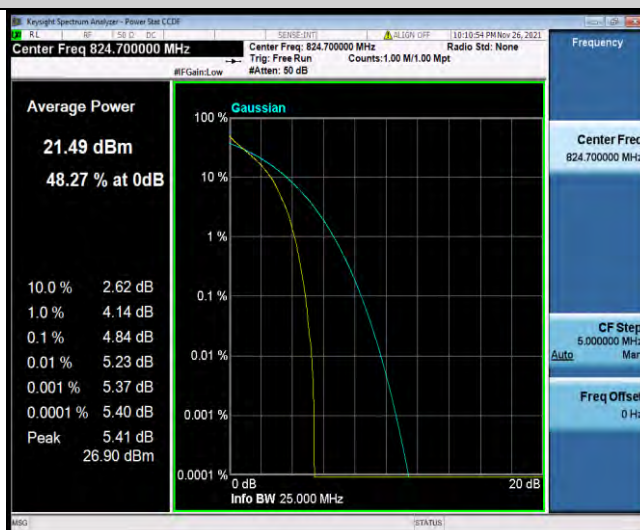
Band5	10MHz	16QAM	20450	27RB#0	5.90	13	PASS
Band5	10MHz	16QAM	20525	1RB#0	6.30	13	PASS
Band5	10MHz	16QAM	20525	27RB#0	6.09	13	PASS
Band5	10MHz	16QAM	20600	1RB#0	5.34	13	PASS
Band5	10MHz	16QAM	20600	27RB#0	5.63	13	PASS

Test Graphs

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



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



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

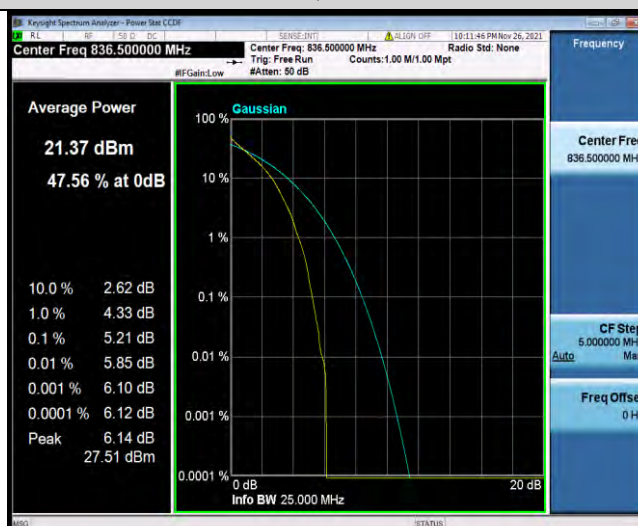


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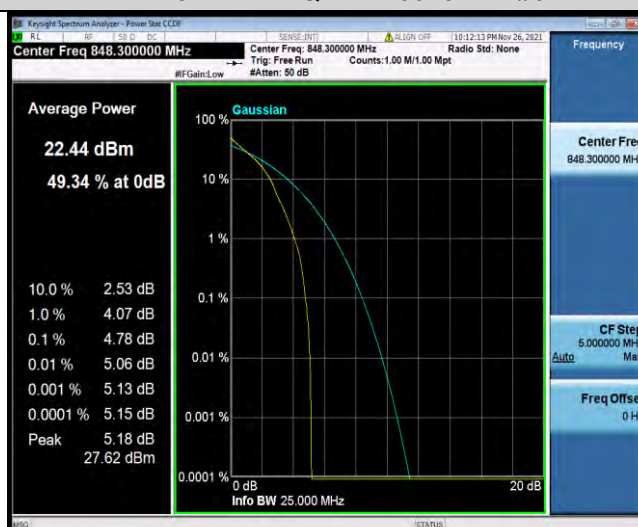
Test Report No.: W7L-P21110027RF01



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



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



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

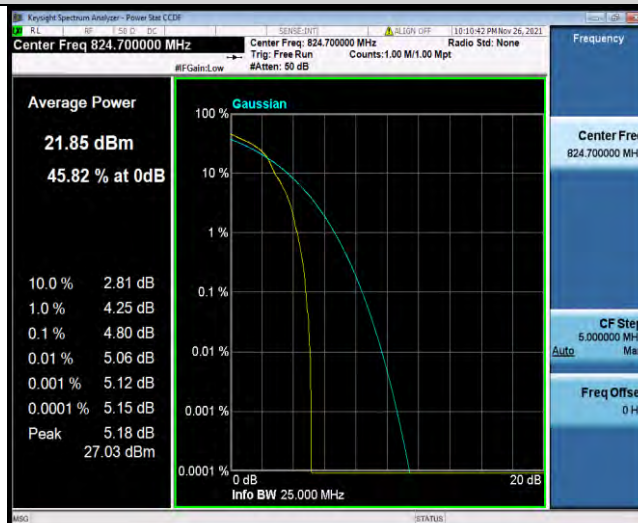


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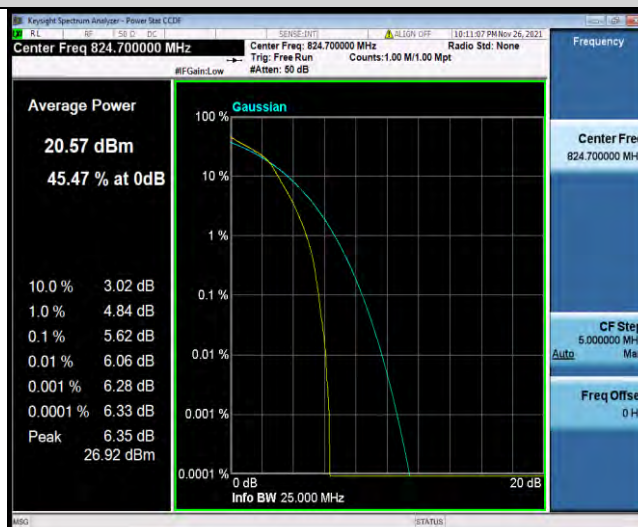
Test Report No.: W7L-P21110027RF01



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



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



Band5-1.4MHz-16QAM-20525-1RB#0



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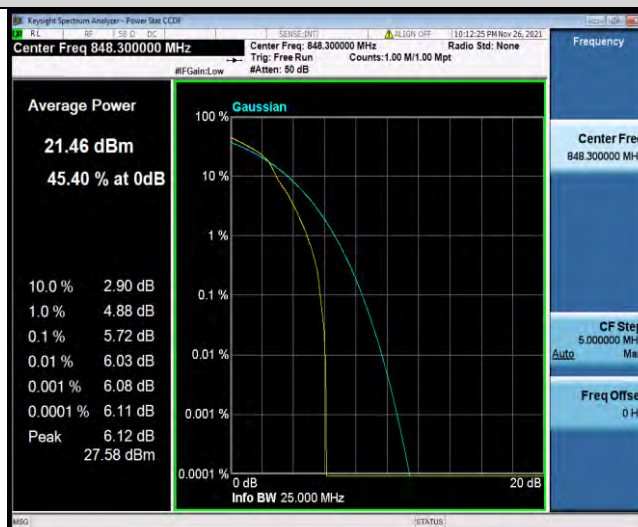
Test Report No.: W7L-P21110027RF01



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



Band5-1.4MHz-16QAM-20643-1RB#0



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



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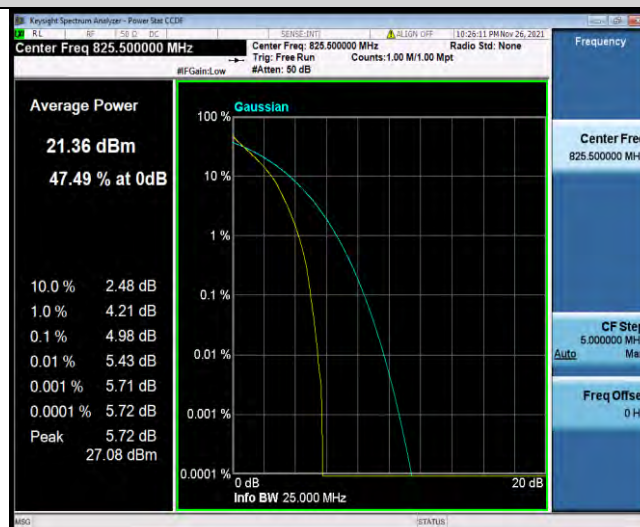
Test Report No.: W7L-P21110027RF01



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



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



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



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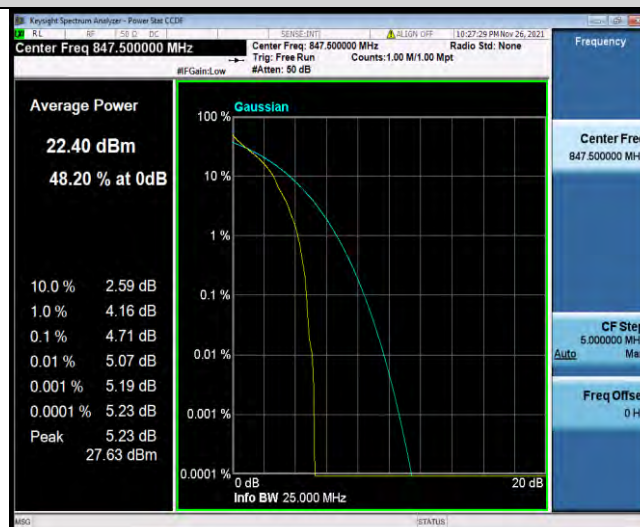
Test Report No.: W7L-P21110027RF01



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



Band5-3MHz-QPSK-20635-1RB#0

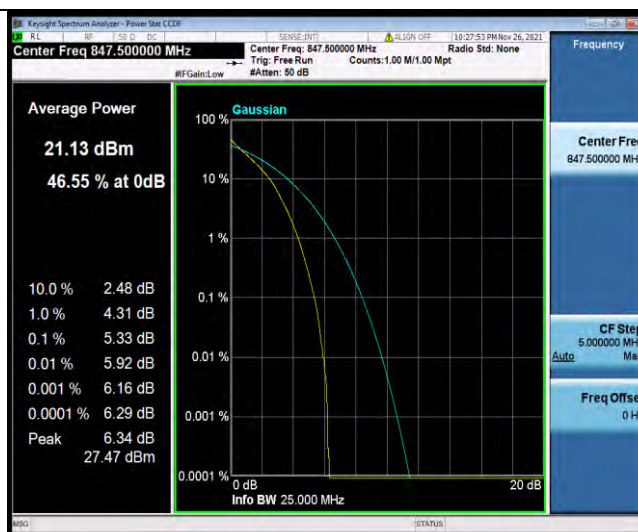


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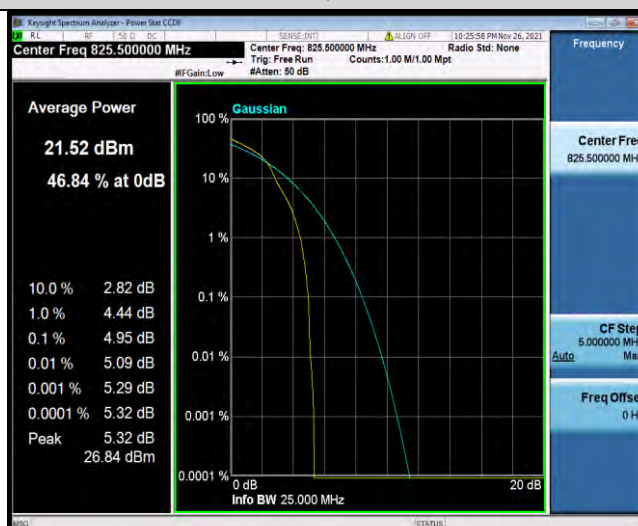


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VERITAS

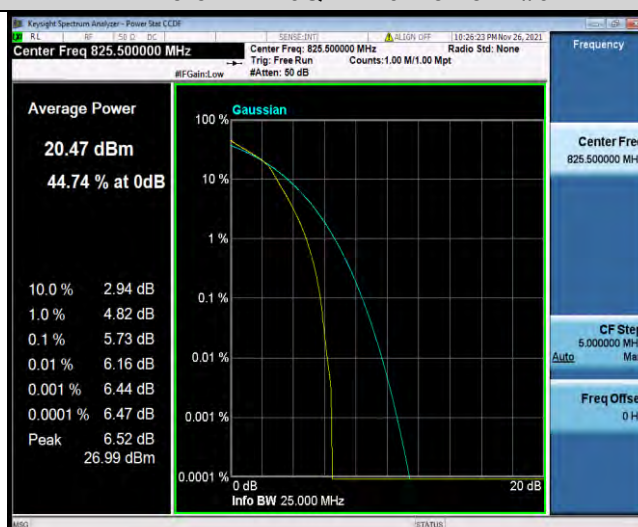
Test Report No.: W7L-P21110027RF01



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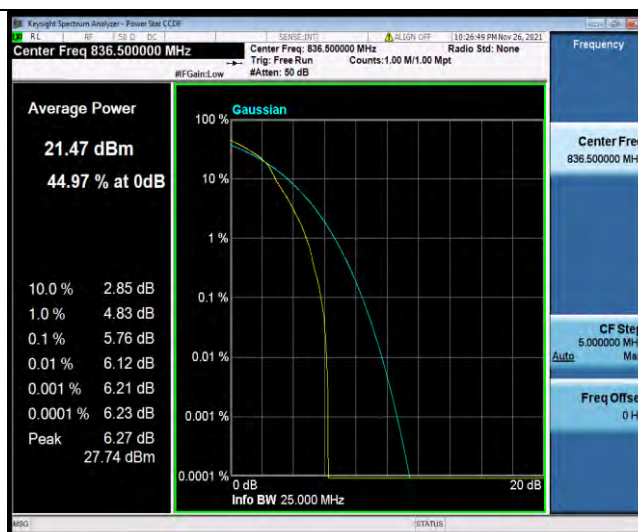


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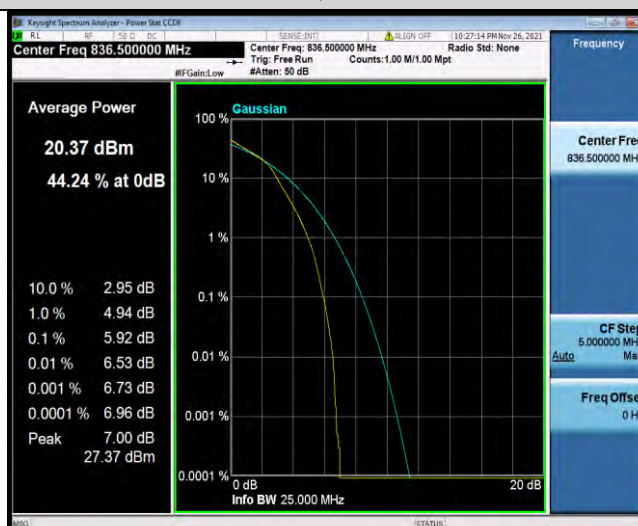


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VERITAS

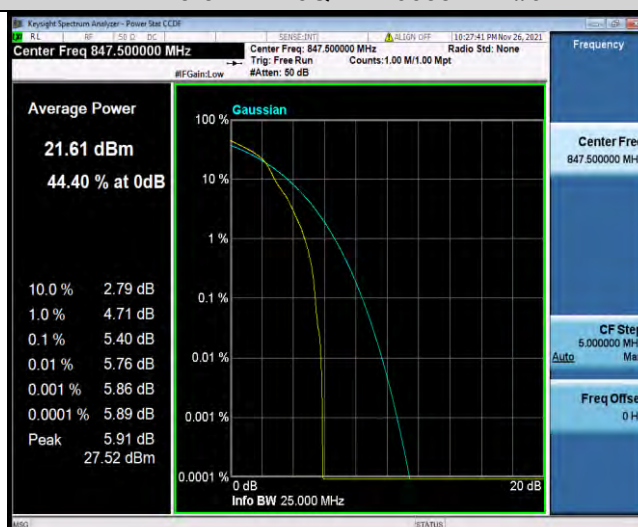
Test Report No.: W7L-P21110027RF01



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



Band5-3MHz-16QAM-20635-1RB#0



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