

FCC TEST REPORT

(PART 24)

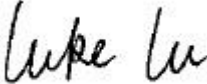
Applicant:	Telit Communications SpA
Address:	Viale Stazione di Prosecco 5/b

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

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

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

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Test Report No.: W7L-P21110027RF02

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21110027RF02	Original release	Dec. 08, 2021

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2		
STANDARD SECTION	1.1.1.1.1 TEST TYPE	RESULT
2.1046 24.232	Equivalent Isotropic Radiated Power	Compliance
2.1055 24.235	Frequency Stability	Compliance
2.1049 24.238(b)	Occupied Bandwidth	Compliance
24.232(d)	Peak to average ratio	Compliance
24.238(b)	Band Edge Measurements	Compliance
2.1051 24.238	Conducted Spurious Emissions	Compliance
2.1053 24.238	Radiated Spurious Emissions	Compliance

1.1 MEASUREMENT UNCERTAINTY

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

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

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



1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	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 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. 20,21	May. 19,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,22	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 24 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	Module	
BRAND NAME	Telit	
MODEL NAME	LE910S1-ELG	
NOMINAL VOLTAGE	12Vdc (adapter) 3.8Vdc (Li-ion, battery)	
MODULATION TYPE	GPRS: GMSK EDGE: 8PSK LTE Band 2: QPSK, 16QAM,	
FREQUENCY RANGE	GPRS, EDGE	1850.2MHz ~ 1909.8MHz
	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1909.3MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5MHz ~ 1908.5MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~ 1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0MHz ~ 1905.0MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5MHz ~ 1902.5MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0MHz ~ 1900.0MHz
MAX. EIRP POWER	GPRS	1757.92mW
	EDGE	662.22mW
	LTE Band 2 Channel Bandwidth: 1.4MHz	337.29mW
	LTE Band 2 Channel Bandwidth: 3MHz	338.84mW
	LTE Band 2 Channel Bandwidth: 5MHz	339.63mW
	LTE Band 2 Channel Bandwidth: 10MHz	337.29mW
	LTE Band 2 Channel Bandwidth: 15MHz	342.77mW
	LTE Band 2 Channel Bandwidth: 20MHz	343.56mW
EMISSION DESIGNATOR	GSM/GPRS	249KGXW
	EDGE	248KG7W



	LTE Band 2	QPSK: 1M10G7D
	Channel Bandwidth: 1.4MHz	16QAM: 1M10W7D
	LTE Band 2	QPSK: 2M70G7D
	Channel Bandwidth: 3MHz	16QAM: 2M69W7D
	LTE Band 2	QPSK: 4M51G7D
	Channel Bandwidth: 5MHz	16QAM: 4M51W7D
	LTE Band 2	QPSK: 8M98G7D
	Channel Bandwidth: 10MHz	16QAM: 4M95W7D
	LTE Band 2	QPSK: 13M5G7D
	Channel Bandwidth: 15MHz	16QAM: 5M03W7D
	LTE Band 2	QPSK: 17M9G7D
	Channel Bandwidth: 20MHz	16QAM: 5M15W7D
ANTENNA TYPE	External Antenna with 2.14dBi gain for GSM1900/ LTE B2	
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.

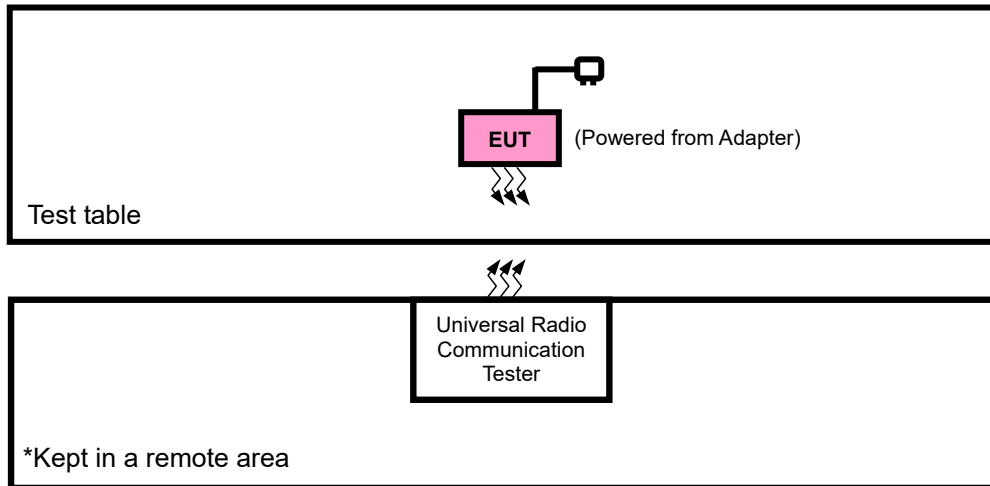
MODULATION MODE	TX FUNCTION
GPRS/EDGE	1TX/1RX
LTE	1TX/1RX

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 TEST





2.3 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC source	Kikusui/JP	PMX18-5A	0000001	N/A

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

2.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case in EIRP and radiated emission was found when positioned on X-plane for GSM/EDGE/ LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	1.1.1.1.2DESCRIPTION
A	EUT + Adapter with GPRS or WCDMA or LTE link

GSM MODE

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

LTE BAND 2 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	FREQUENCY STABILITY	18607 to 19193	18607, 19193	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 19175	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 19150	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18675, 19125	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 19100	20MHz	QPSK	1 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	6 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	15 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	25 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	50 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	75 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset

A	BAND EDGE	18607 to 19193	18607	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
			19193	1.4MHz	QPSK,16QAM	6 RB / 0 RB Offset
		18615 to 19185	18615	3MHz	QPSK,16QAM	1 RB / 5 RB Offset
			19185	3MHz	QPSK,16QAM	6 RB / 0 RB Offset
		18625 to 19175	18625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
			19175	5MHz	QPSK,16QAM	15 RB / 0 RB Offset
		18650 to 19150	18650	10MHz	QPSK,16QAM	1 RB / 14 RB Offset
			19150	10MHz	QPSK,16QAM	15 RB / 0 RB Offset
		18675 to 19125	18675	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
			19125	15MHz	QPSK,16QAM	25 RB / 0 RB Offset
		18700 to 19100	18700	20MHz	QPSK,16QAM	1 RB / 24 RB Offset
			19100	20MHz	QPSK,16QAM	25 RB / 0 RB Offset
A	CONDCUDED EMISSION	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18900	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18900	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18607, 18900, 19193	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18900	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	DC3.8V	Jace Hu
FREQUENCY STABILITY	23deg. C, 61%RH	DC3.8V	James Fu
OCCUPIED BANDWIDTH	23deg. C, 61%RH	DC3.8V	James Fu
PEAK TO AVERAGE RATIO	23deg. C, 61%RH	DC3.8V	James Fu
BAND EDGE	23deg. C, 61%RH	DC3.8V	James Fu
CONDCUDED EMISSION	23deg. C, 61%RH	DC3.8V	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC3.8V	Jace Hu

2.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 24

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

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

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

Where:

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

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

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

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

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

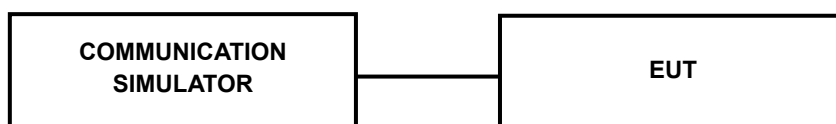
CONDUCTED POWER MEASUREMENT:

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

3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GPRS1900			Max. Tune-up Power
Channel	512	661	810	
Frequency	1850.2	1880	1909.8	
GPRS (GMSK, 1Tx-slot)	30.31	30.22	30.01	31.5
GPRS (GMSK, 2Tx-slot)	30.24	30.13	29.92	31.5
GPRS (GMSK, 3Tx-slot)	28.43	28.26	28.01	29.5
GPRS (GMSK, 4Tx-slot)	26.59	26.41	26.19	28.0
EDGE (8PSK, 1Tx-slot)	26.07	25.86	25.62	27.5
EDGE (8PSK, 2Tx-slot)	25.11	24.83	24.55	26.5
EDGE (8PSK, 3Tx-slot)	22.65	22.24	22.04	24.0
EDGE (8PSK, 4Tx-slot)	20.64	20.31	20.16	22.0



LTE BAND 2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18607	Mid CH 18900	High CH 19193	MPR
				Frequency 1850.7 MHz	Frequency 1880 MHz	Frequency 1909.3 MHz	
2/ 1.4	QPSK	1	0	23.14	22.96	22.75	0
		1	2	22.99	22.78	22.63	0
		1	5	22.87	22.64	22.51	0
		3	0	22.96	22.76	22.70	0
		3	1	22.87	22.66	22.41	0
		3	3	22.73	22.52	22.43	0
		6	0	21.71	21.44	21.33	1
	16QAM	1	0	22.48	22.29	22.10	1
		1	2	22.37	22.11	22.04	1
		1	5	22.17	21.99	21.89	1
		3	0	22.62	22.36	22.27	1
		3	1	22.58	22.50	22.29	1
		3	3	22.61	22.38	22.30	1
		6	0	21.13	20.94	20.72	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18615	Mid CH 18900	High CH 19185	MPR
				Frequency 1851.5 MHz	Frequency 1880 MHz	Frequency 1908.5 MHz	
2/ 3	QPSK	1	0	23.16	22.98	22.74	0
		1	7	22.95	22.79	22.63	0
		1	14	22.83	22.64	22.51	0
		8	0	22.25	22.09	22.00	1
		8	3	22.10	21.96	21.73	1
		8	7	22.00	21.89	21.77	1
		15	0	21.68	21.45	21.27	1
	16QAM	1	0	22.45	22.35	22.13	1
		1	7	22.34	22.14	22.02	1
		1	14	22.20	21.99	21.89	1
		8	0	21.88	21.67	21.57	2
		8	3	21.93	21.75	21.62	2
		8	7	21.93	21.66	21.56	2
		15	0	21.13	20.88	20.75	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18625	Mid CH 18900	High CH 19175	MPR
				Frequency 1852.5 MHz	Frequency 1880 MHz	Frequency 1907.5 MHz	
2/ 5	QPSK	1	0	23.17	22.93	22.75	0
		1	12	23.00	22.76	22.63	0
		1	24	22.84	22.63	22.55	0
		12	0	22.28	22.09	21.97	1
		12	6	22.10	21.97	21.74	1
		12	13	22.04	21.85	21.78	1
		25	0	21.66	21.48	21.30	1
	16QAM	1	0	22.46	22.31	22.13	1
		1	12	22.31	22.17	22.01	1
		1	24	22.20	21.99	21.88	1
		12	0	21.88	21.65	21.54	2
		12	6	21.90	21.79	21.58	2
		12	13	21.88	21.68	21.59	2
		25	0	21.13	20.89	20.72	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18650	Mid CH 18900	High CH 19150	MPR
				Frequency 1855 MHz	Frequency 1880 MHz	Frequency 1905 MHz	
2/ 10	QPSK	1	0	23.14	22.96	22.75	0
		1	24	23.00	22.76	22.64	0
		1	49	22.81	22.67	22.51	0
		25	0	22.29	22.08	22.00	1
		25	12	22.16	21.91	21.74	1
		25	25	22.02	21.82	21.77	1
		50	0	21.71	21.48	21.27	1
	16QAM	1	0	22.46	22.28	22.09	1
		1	24	22.36	22.13	22.04	1
		1	49	22.20	22.00	21.85	1
		12	0	21.90	21.63	21.60	2
		12	18	21.94	21.73	21.63	2
		12	37	21.87	21.69	21.56	2
		27	0	21.17	20.88	20.76	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18675	Mid CH 18900	High CH 19125	MPR
				Frequency 1857.5 MHz	Frequency 1880 MHz	Frequency 1902.5 MHz	
2/ 15	QPSK	1	0	23.21	22.96	22.72	0
		1	37	22.98	22.81	22.59	0
		1	74	22.87	22.70	22.52	0
		36	0	22.26	22.09	22.01	1
		36	19	22.17	21.96	21.74	1
		36	39	22.00	21.83	21.77	1
		75	0	21.71	21.46	21.32	1
	16QAM	1	0	22.50	22.35	22.09	1
		1	37	22.35	22.14	22.04	1
		1	74	22.16	22.05	21.87	1
		12	0	21.94	21.63	21.61	2
		12	31	21.88	21.77	21.59	2
		12	62	21.92	21.67	21.59	2
		27	0	21.18	20.91	20.69	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18700	Mid CH 18900	High CH 19100	MPR
				Frequency 1860 MHz	Frequency 1880 MHz	Frequency 1900 MHz	
2/ 20	QPSK	1	0	23.22	23.00	22.80	0
		1	50	23.02	22.84	22.65	0
		1	99	22.89	22.71	22.56	0
		50	0	22.32	22.14	22.02	1
		50	25	22.18	21.98	21.79	1
		50	50	22.08	21.90	21.79	1
		100	0	21.72	21.50	21.35	1
	16QAM	1	0	22.53	22.36	22.15	1
		1	50	22.39	22.19	22.06	1
		1	99	22.22	22.07	21.90	1
		12	0	21.96	21.71	21.62	2
		12	43	21.96	21.81	21.64	2
		12	87	21.95	21.73	21.61	2
		27	0	21.19	20.96	20.77	2



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VERITAS

Test Report No.: W7L-P21110027RF02

EIRP POWER (dBm)

GPRS 1900

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
512	1850.2	30.31	2.14	32.45	1757.92	2
661	1880.0	30.22	2.14	32.36	1721.87	2
810	1909.8	30.01	2.14	32.15	1640.59	2

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

EDGE

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
512	1850.2	26.07	2.14	28.21	662.22	2
661	1880.0	25.86	2.14	28.00	630.96	2
810	1909.8	25.62	2.14	27.76	597.04	2

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21110027RF02

LTE BAND 2

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	23.14	2.14	25.28	337.29	2
18900	1880.0	22.96	2.14	25.1	323.59	2
19193	1909.3	22.75	2.14	24.89	308.32	2

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	22.62	2.14	24.76	299.23	2
18900	1880.0	22.50	2.14	24.64	291.07	2
19193	1909.3	22.30	2.14	24.44	277.97	2

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	23.16	2.14	25.3	338.84	2
18900	1880.0	22.98	2.14	25.12	325.09	2
19185	1908.5	22.74	2.14	24.88	307.61	2

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	22.45	2.14	24.59	287.74	2
18900	1880.0	22.35	2.14	24.49	281.19	2
19185	1908.5	22.13	2.14	24.27	267.30	2



BUREAU
VERITAS

Test Report No.: W7L-P21110027RF02

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	23.17	2.14	25.31	339.63	2
18900	1880.0	22.93	2.14	25.07	321.37	2
19175	1907.5	22.75	2.14	24.89	308.32	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	22.46	2.14	24.6	288.40	2
18900	1880.0	22.31	2.14	24.45	278.61	2
19175	1907.5	22.13	2.14	24.27	267.30	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	23.14	2.14	25.28	337.29	2
18900	1880.0	22.96	2.14	25.1	323.59	2
19150	1905.0	22.75	2.14	24.89	308.32	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	22.46	2.14	24.6	288.4	2
18900	1880.0	22.28	2.14	24.42	276.69	2
19150	1905.0	22.09	2.14	24.23	264.85	2



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VERITAS**

Test Report No.: W7L-P21110027RF02

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	23.21	2.14	25.35	342.77	2
18900	1880.0	22.96	2.14	25.1	323.59	2
19125	1902.5	22.72	2.14	24.86	306.20	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	22.5	2.14	24.64	291.07	2
18900	1880.0	22.35	2.14	24.49	281.19	2
19125	1902.5	22.09	2.14	24.23	264.85	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	23.22	2.14	25.36	343.56	2
18900	1880	23.00	2.14	25.14	326.59	2
19100	1900	22.80	2.14	24.94	311.89	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	22.53	2.14	24.67	293.09	2
18900	1880	22.36	2.14	24.5	281.84	2
19100	1900	22.15	2.14	24.29	268.53	2

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



3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

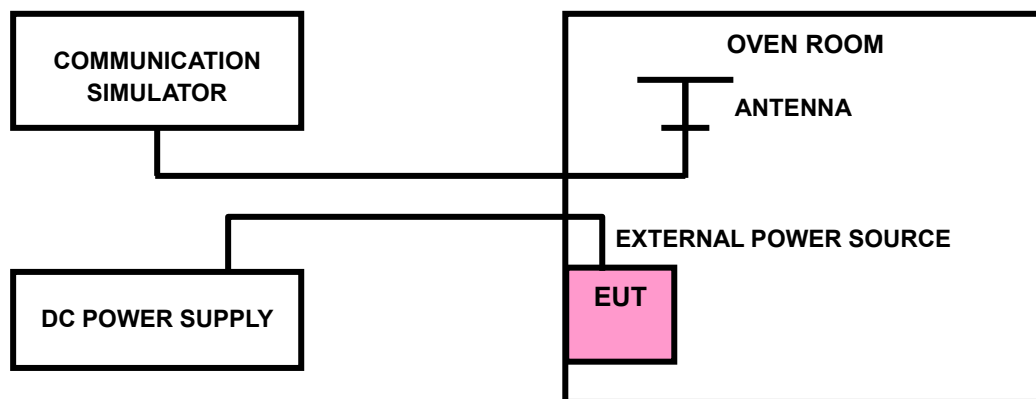
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.2.2 TEST PROCEDURE

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

3.2.3 TEST SETUP





Test Report No.: W7L-P21110027RF02

3.2.4 TEST RESULTS

Please Refer to Appendix C Of this test report.

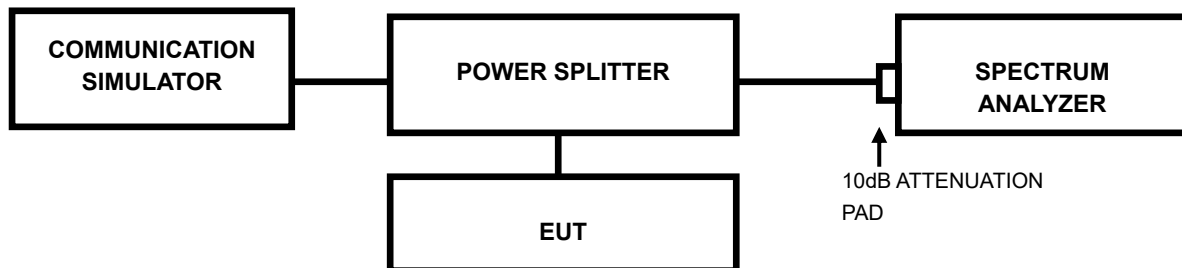


3.3 OCCUPIED BANDWIDTH MEASUREMENT

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-P21110027RF02

3.3.3 TEST RESULTS

Please Refer to Appendix C Of this test report.

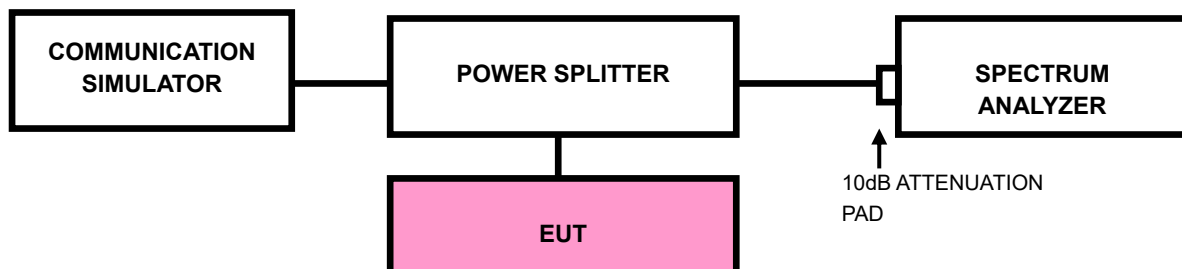


3.4 BAND EDGE MEASUREMENTC

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

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

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (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. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 15MHz)
- i. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 20MHz)
- j. Record the max trace plot into the test report.



Test Report No.: W7L-P21110027RF02

3.4.4 TEST RESULTS

Please Refer to Appendix C Of this test report.



3.5 CONDUCTED SPURIOUS EMISSIONS

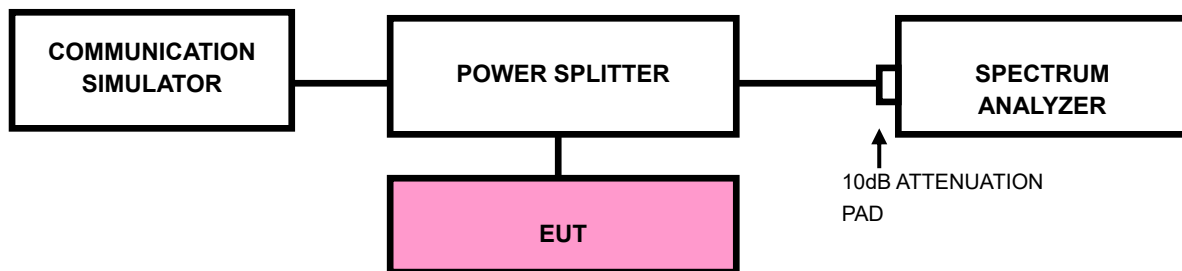
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 30 MHz to 19.1GHz. 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-P21110027RF02

3.5.4 TEST RESULTS

Please Refer to Appendix C Of this test report.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

3.6.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- c. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

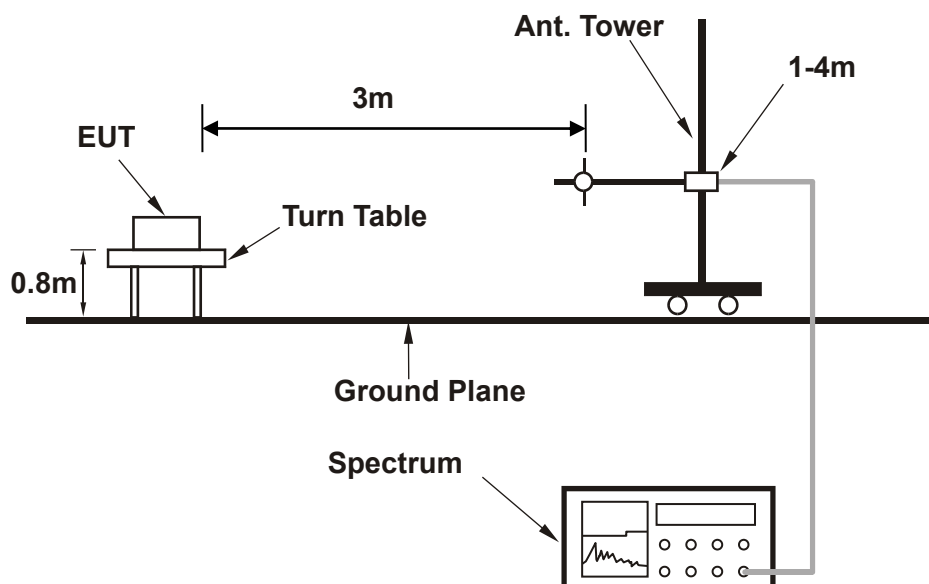
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

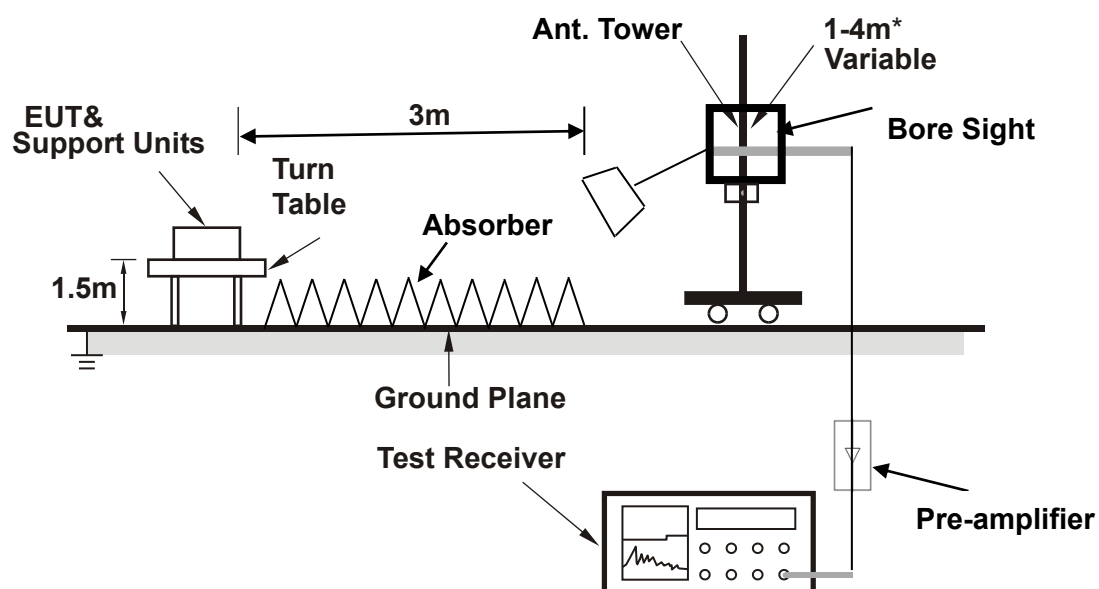
No deviation

3.6.4 TEST SETUP

< Frequency Range 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).



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Test Report No.: W7L-P21110027RF02

3.6.5 TEST RESULTS

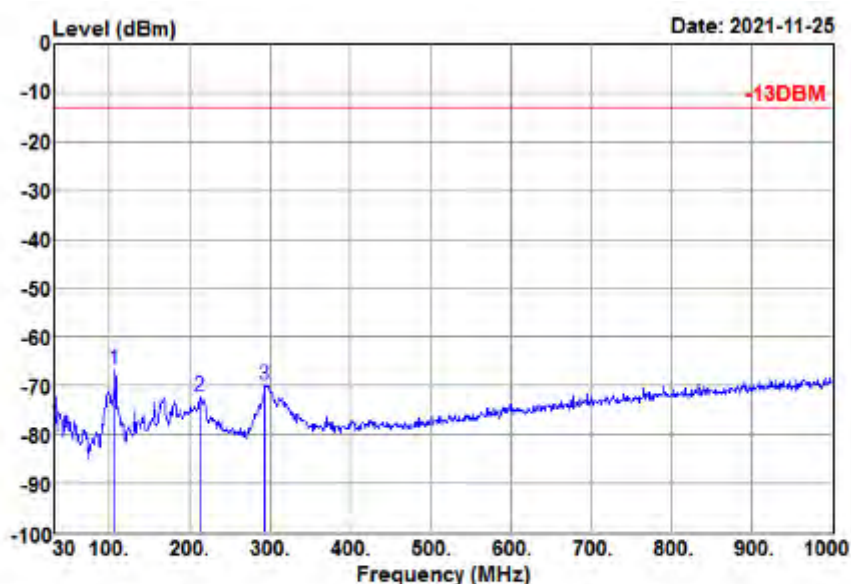
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

LTE Band 2

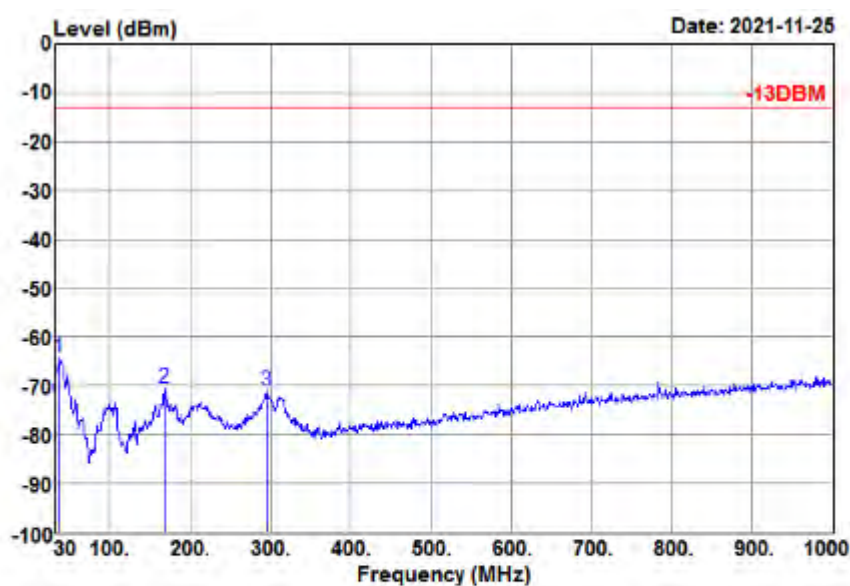
CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 18900	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
107.600	-60.30	-6.33	-66.63	-13.00	-53.63	Peak
213.330	-66.23	-5.95	-72.18	-13.00	-59.18	Peak
293.840	-66.93	-2.91	-69.84	-13.00	-56.84	Peak

MODE	TX channel 18900	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
37.760	-59.47	-4.78	-64.25	-13.00	-51.25	Peak
168.710	-66.44	-4.00	-70.44	-13.00	-57.44	Peak
294.810	-68.28	-2.87	-71.15	-13.00	-58.15	Peak



**BUREAU
VERITAS**

Test Report No.: W7L-P21110027RF02

ABOVE 1GHz DATA

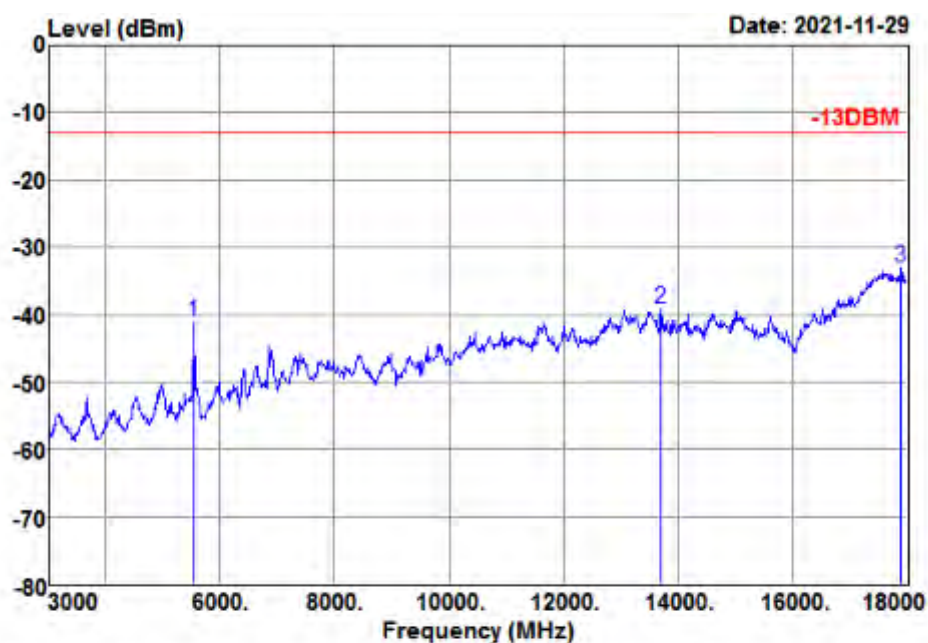
Note: For higher frequency, the emission is too low to be detected.

WORST-CASE DATA

EDGE 1900:

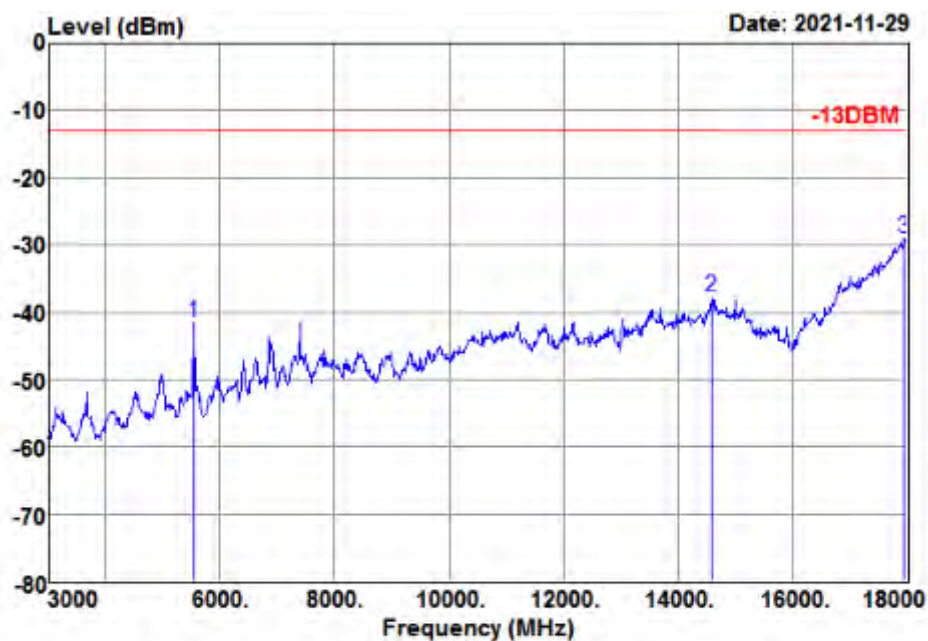
CH 512

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



Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
5550.000	-54.11	13.03	-41.08	-13.00	-28.08	Peak
13710.000	-66.84	27.77	-39.07	-13.00	-26.07	Peak
17895.000	-68.38	35.25	-33.13	-13.00	-20.13	Peak

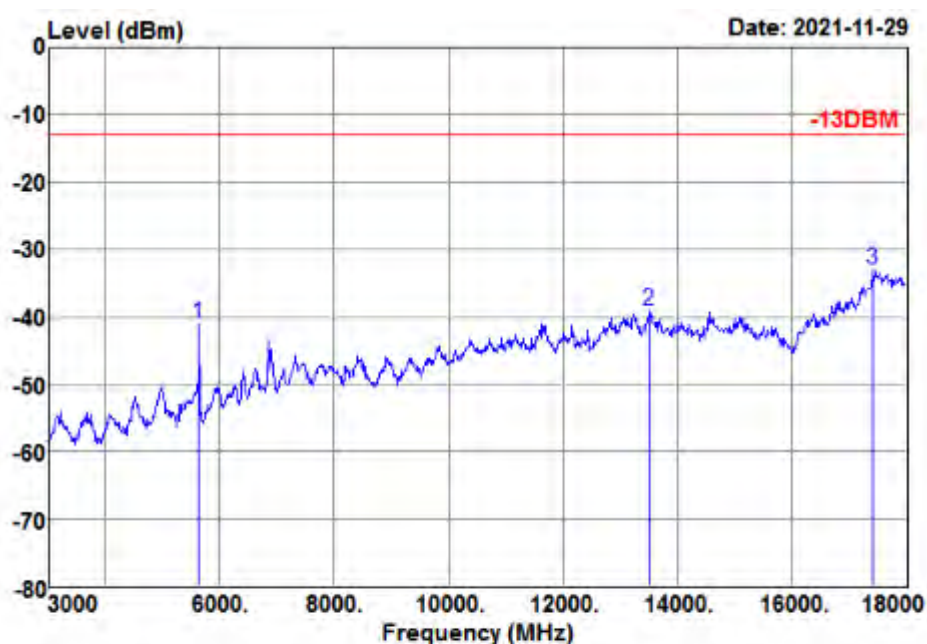
MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
5550.000	-54.74	13.23	-41.51	-13.00	-28.51	Peak
14595.000	-66.14	28.28	-37.86	-13.00	-24.86	Peak
17955.000	-69.05	40.04	-29.01	-13.00	-16.01	Peak

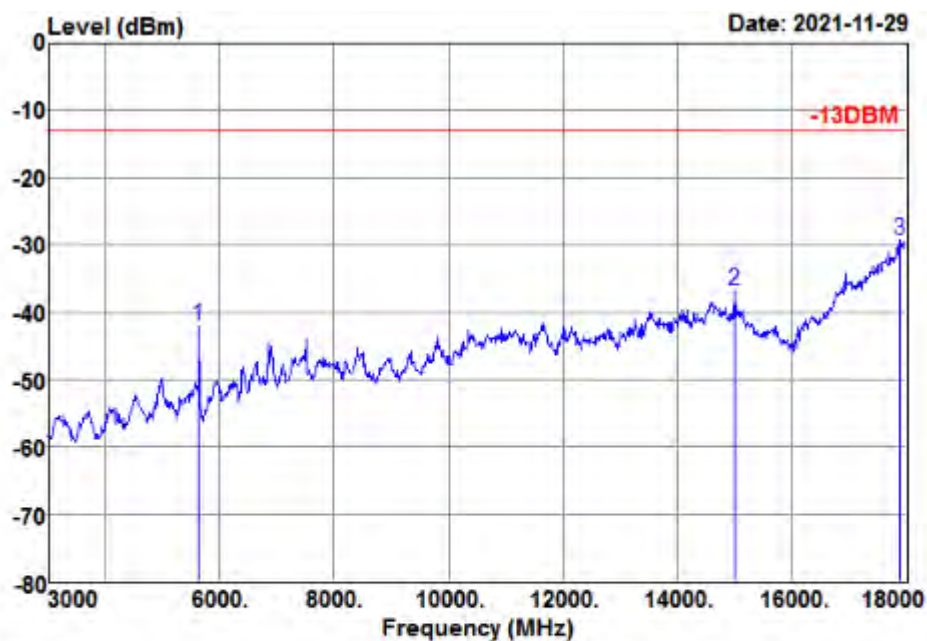
CH 661

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



Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
5640.000	-54.45	13.28	-41.17	-13.00	-28.17	Peak
13515.000	-67.61	28.41	-39.20	-13.00	-26.20	Peak
17430.000	-68.28	35.22	-33.06	-13.00	-20.06	Peak

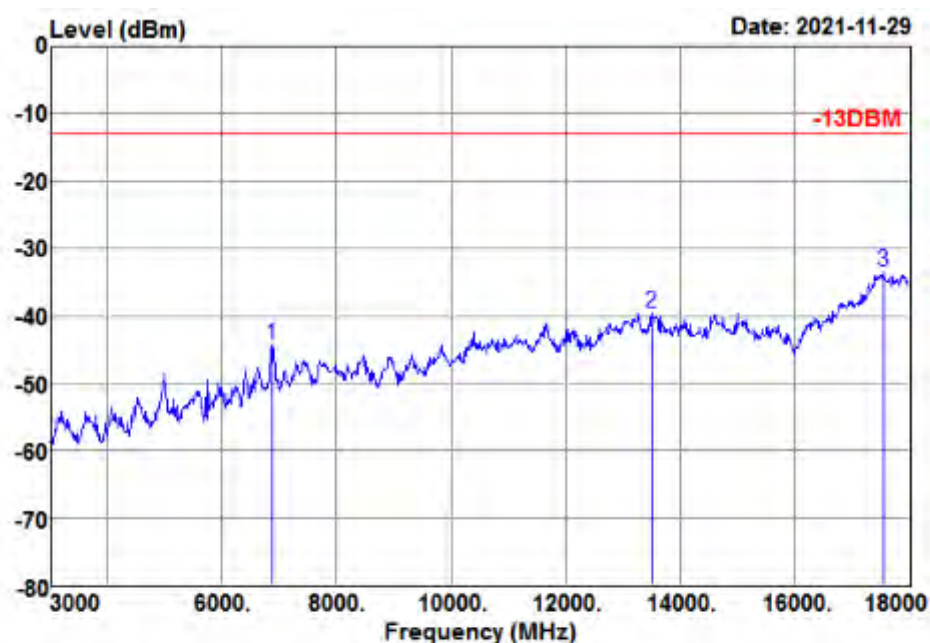
MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
5640.000	-55.62	13.51	-42.11	-13.00	-29.11	Peak
15000.000	-65.53	28.81	-36.72	-13.00	-23.72	Peak
17895.000	-68.80	39.55	-29.25	-13.00	-16.25	Peak

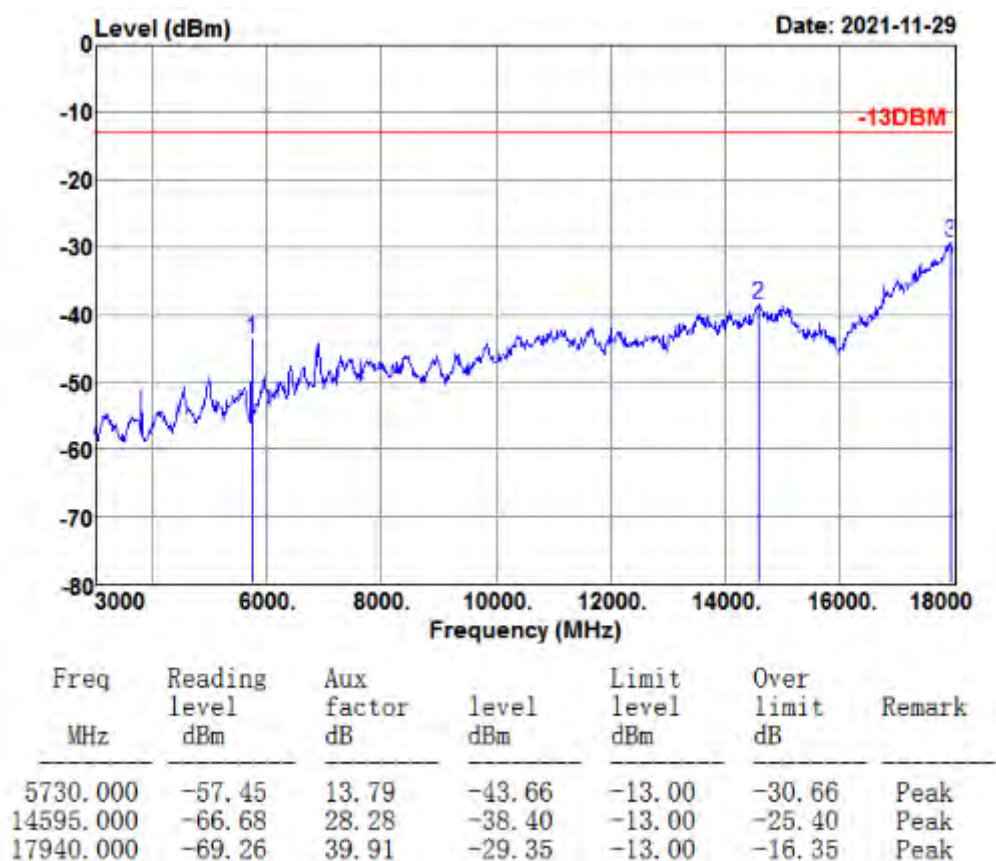
CH 810

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



Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
6885.000	-62.34	18.03	-44.31	-13.00	-31.31	Peak
13515.000	-68.01	28.41	-39.60	-13.00	-26.60	Peak
17550.000	-69.36	35.75	-33.61	-13.00	-20.61	Peak

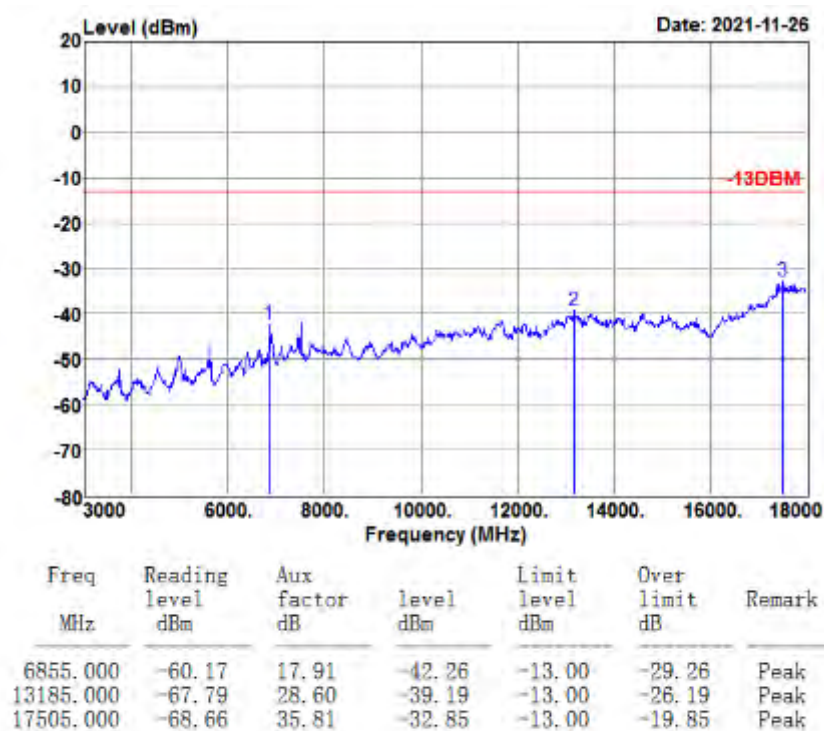
MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

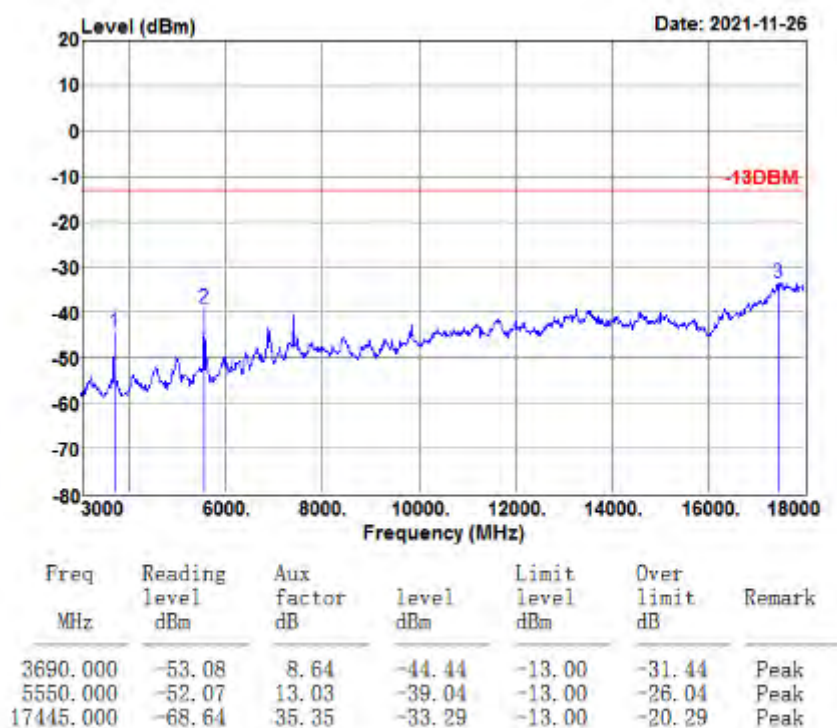
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			



Note:

Corrected Reading: Reading level + Aux factor = Level

MODE	TX channel 18900	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			



Note:

Corrected Reading: Reading level + Aux factor = Level

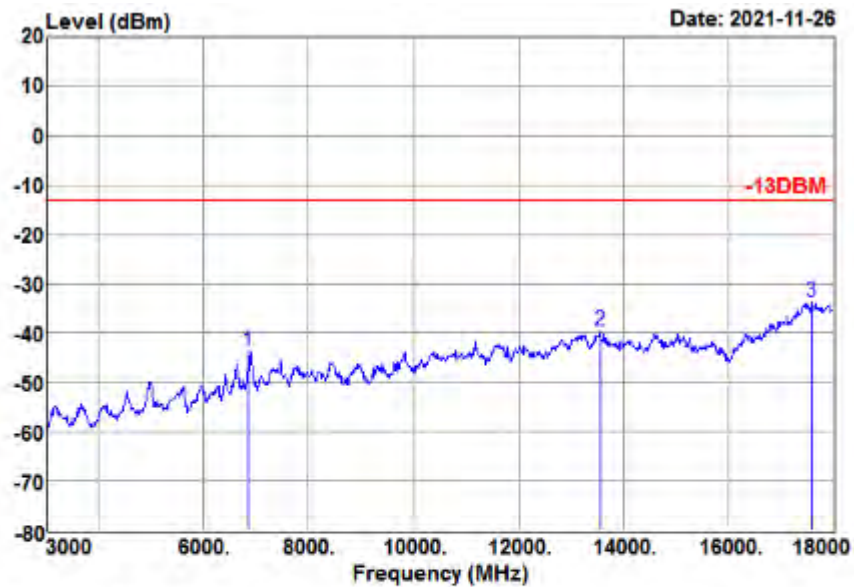


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Test Report No.: W7L-P21110027RF02

CHANNEL BANDWIDTH: 3MHz / QPSK

MODE	TX channel 18900	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			

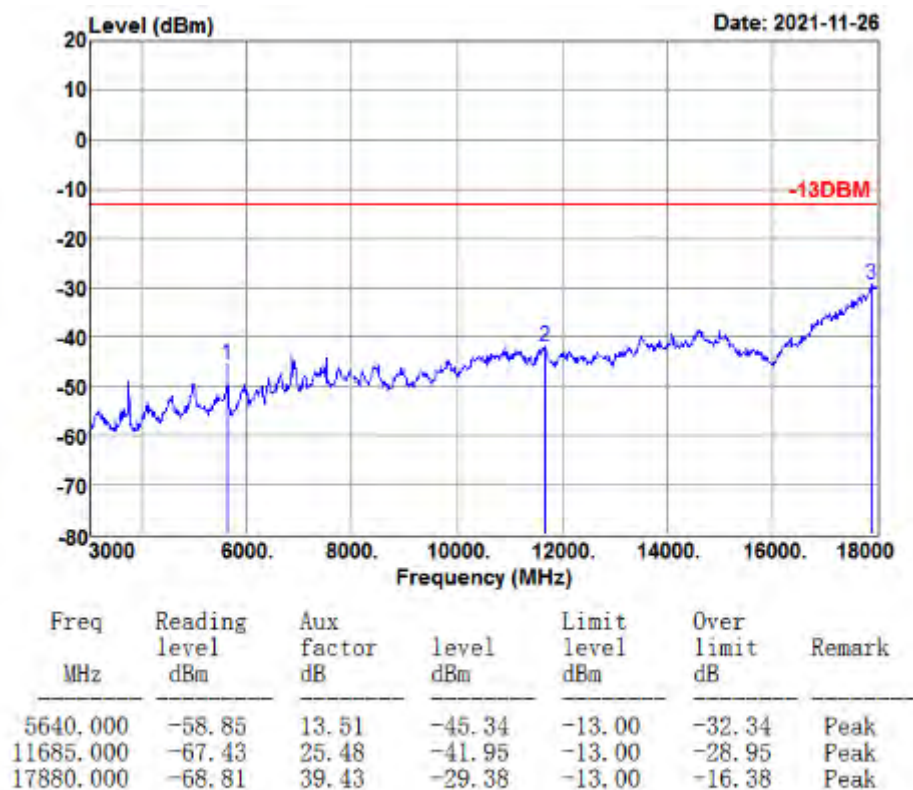


Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
6855.000	-61.75	17.91	-43.84	-13.00	-30.84	Peak
13560.000	-67.90	28.26	-39.64	-13.00	-26.64	Peak
17580.000	-69.25	35.70	-33.55	-13.00	-20.55	Peak

Note:

Corrected Reading: Reading level + Aux factor = Level

MODE	TX channel 18900	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			



Note:

Corrected Reading: Reading level + Aux factor = Level



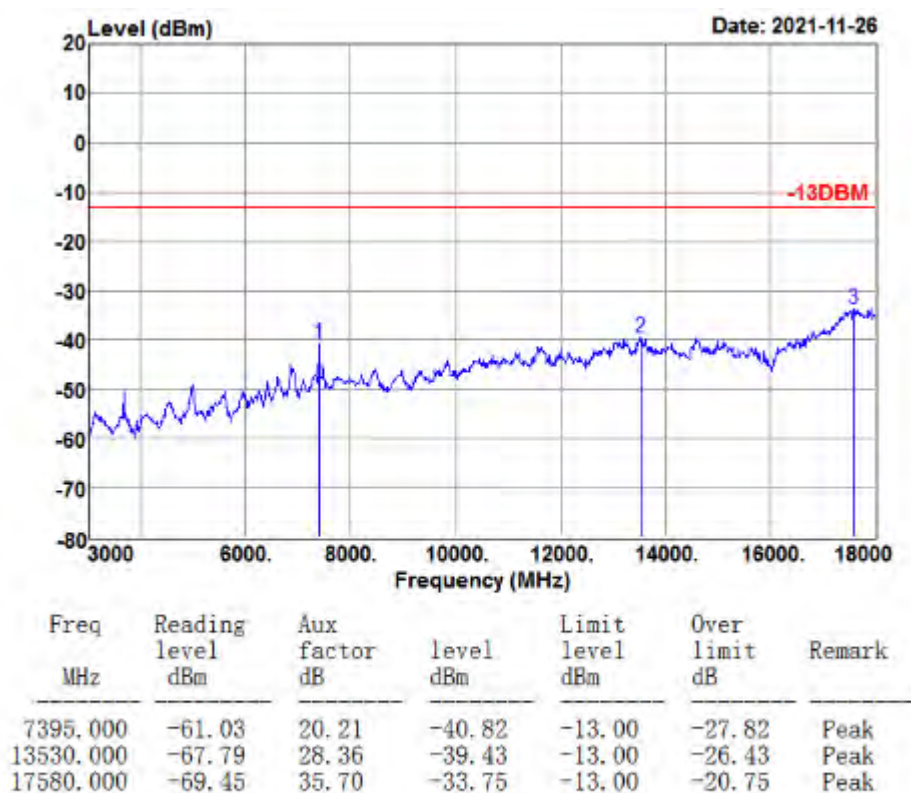
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Test Report No.: W7L-P21110027RF02

CHANNEL BANDWIDTH: 5MHz / QPSK

CH18625

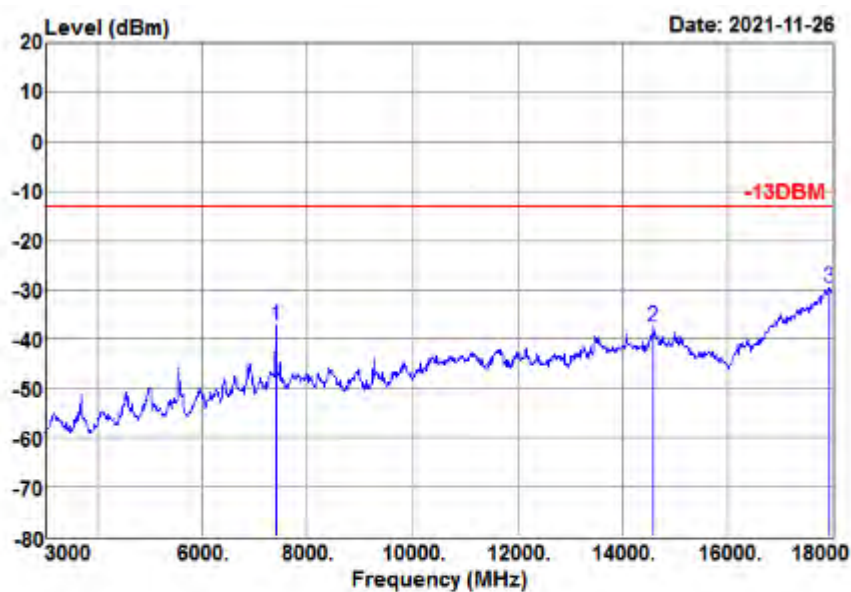
MODE	TX channel 18625	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			



Note:

Corrected Reading: Reading level + Aux factor = Level

MODE	TX channel 18625	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
7395.000	-57.76	20.52	-37.24	-13.00	-24.24	Peak
14595.000	-65.91	28.28	-37.63	-13.00	-24.63	Peak
17955.000	-69.67	40.04	-29.63	-13.00	-16.63	Peak

Note:

Corrected Reading: Reading level + Aux factor = Level

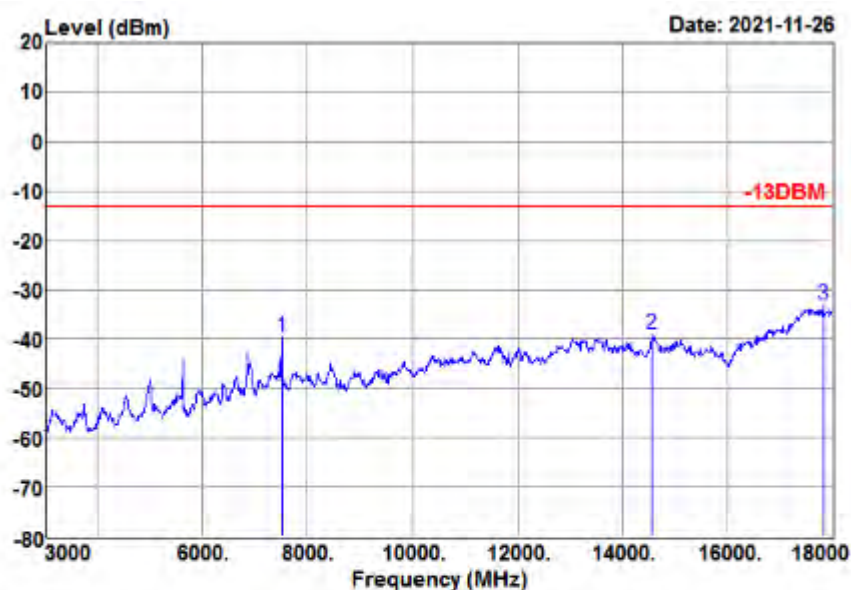


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Test Report No.: W7L-P21110027RF02

CH18900

MODE	TX channel 18900	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			

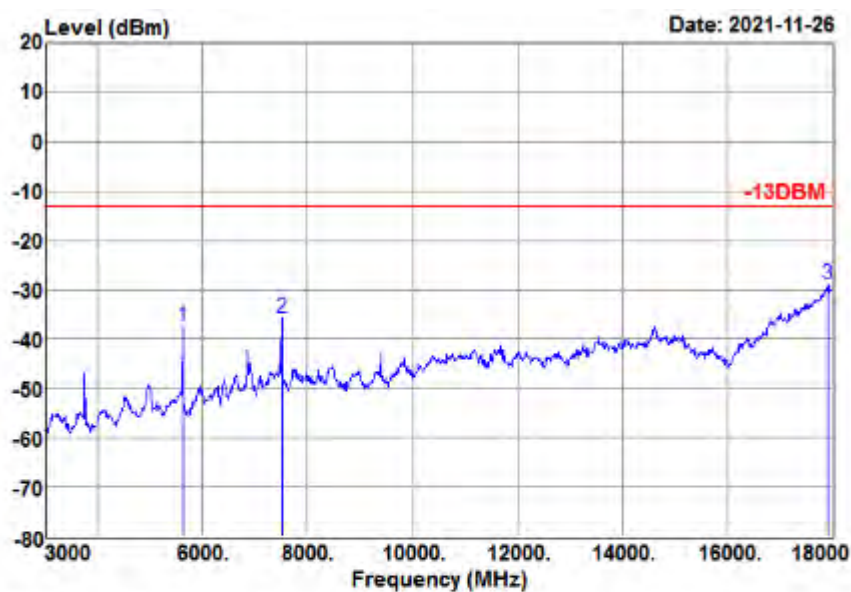


Freq MHz	Reading level dBm	Aux factor dB	level dBm	Limit level dBm	Over limit dB	Remark
7515.000	-60.19	20.63	-39.56	-13.00	-26.56	Peak
14565.000	-65.46	26.46	-39.00	-13.00	-26.00	Peak
17820.000	-68.51	35.36	-33.15	-13.00	-20.15	Peak

Note:

Corrected Reading: Reading level + Aux factor = Level

MODE	TX channel 18900	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
5625.000	-51.02	13.47	-37.55	-13.00	-24.55	Peak
7515.000	-56.77	20.94	-35.83	-13.00	-22.83	Peak
17925.000	-68.79	39.79	-29.00	-13.00	-16.00	Peak

Note:

Corrected Reading: Reading level + Aux factor = level

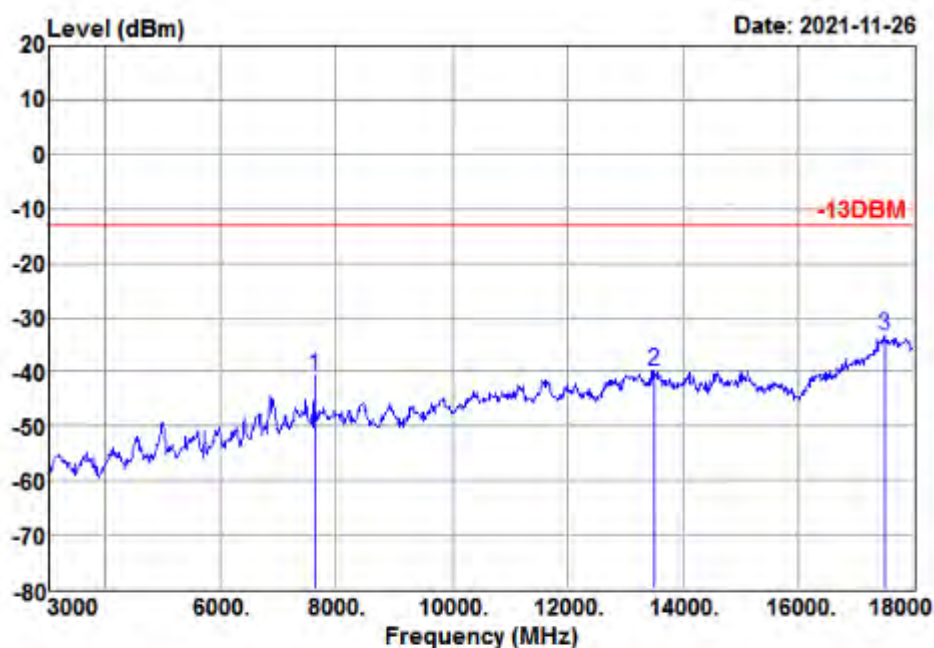


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Test Report No.: W7L-P21110027RF02

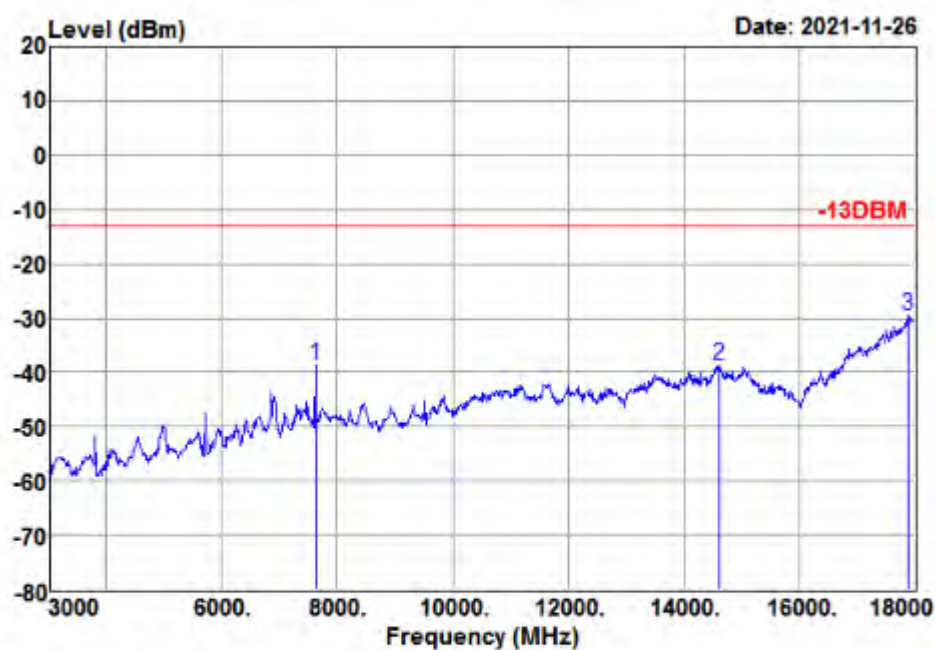
CH19175

MODE	TX channel 19175	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
7620.000	-60.94	20.32	-40.62	-13.00	-27.62	Peak
13515.000	-68.25	28.41	-39.84	-13.00	-26.84	Peak
17505.000	-69.20	35.81	-33.39	-13.00	-20.39	Peak

MODE	TX channel 19175	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
7620.000	-59.18	20.61	-38.57	-13.00	-25.57	Peak
14610.000	-67.13	28.30	-38.83	-13.00	-25.83	Peak
17880.000	-68.99	39.43	-29.56	-13.00	-16.56	Peak

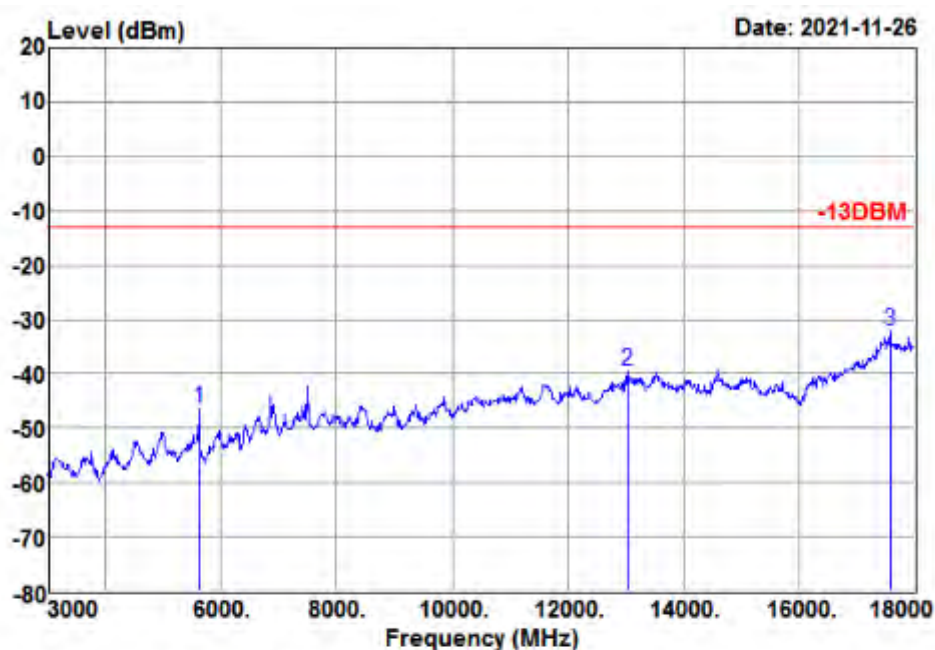


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Test Report No.: W7L-P21110027RF02

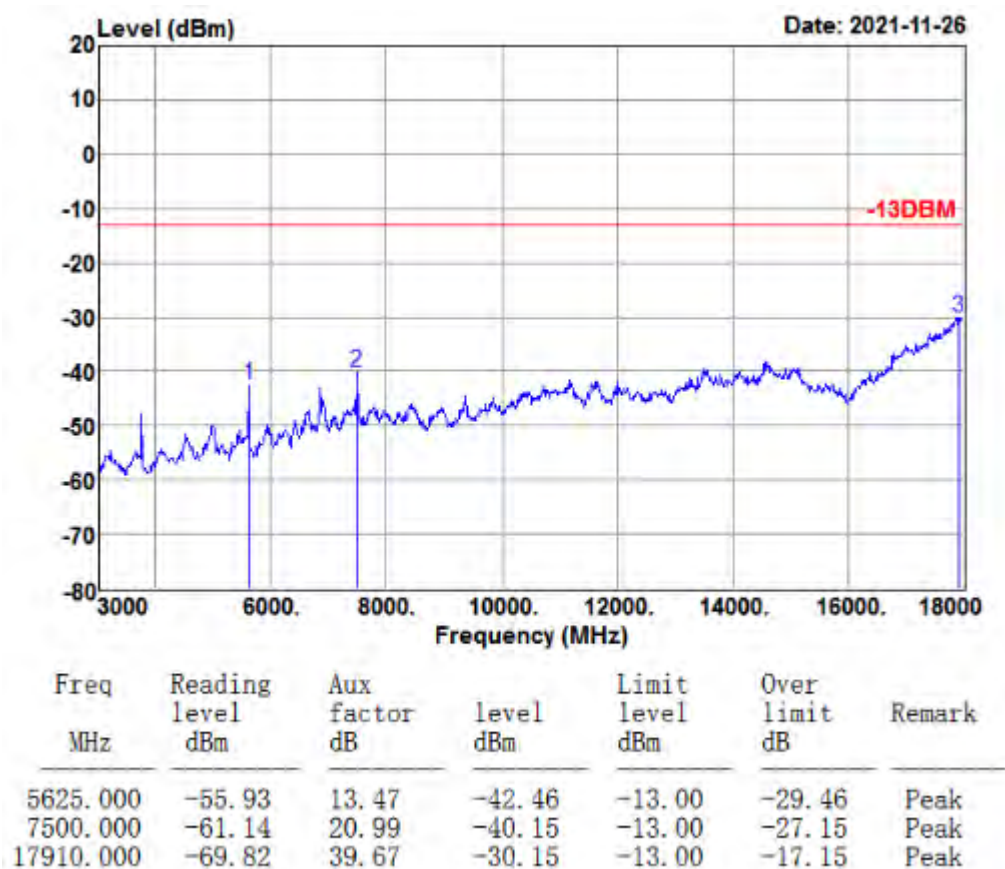
CHANNEL BANDWIDTH: 10MHz / QPSK

MODE	TX channel 18900	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
5625.000	-59.53	13.24	-46.29	-13.00	-33.29	Peak
13035.000	-68.17	28.66	-39.51	-13.00	-26.51	Peak
17580.000	-67.88	35.70	-32.18	-13.00	-19.18	Peak

MODE	TX channel 18900	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			



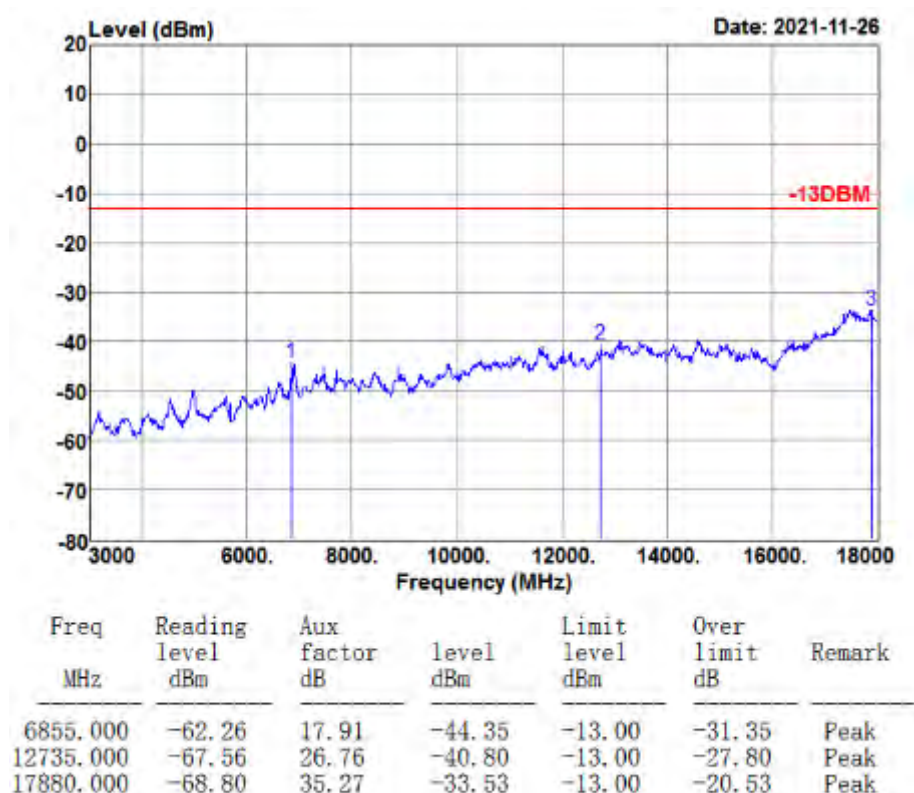


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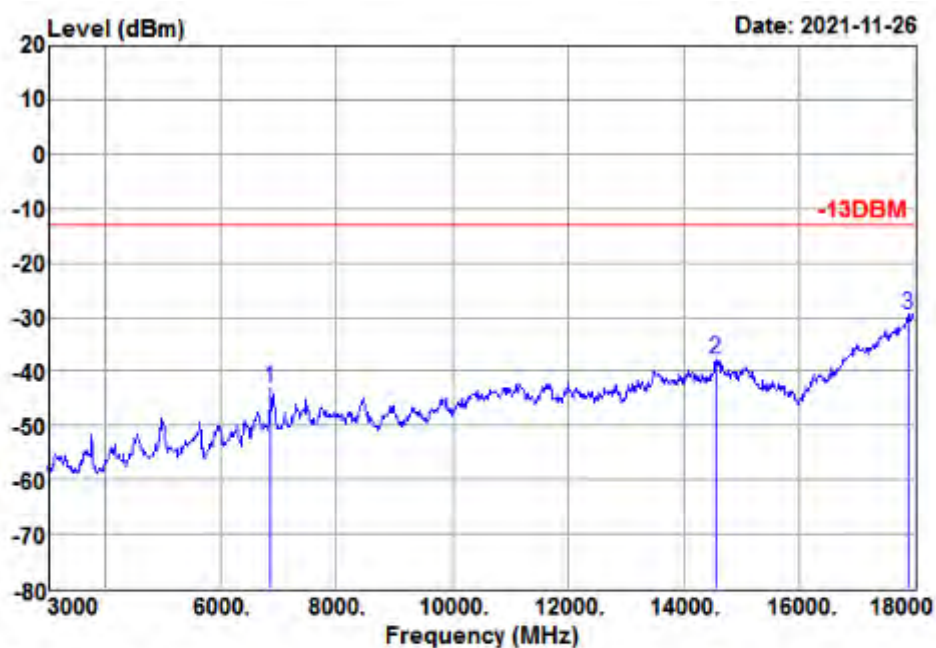
Test Report No.: W7L-P21110027RF02

CHANNEL BANDWIDTH: 15MHz / QPSK

MODE	TX channel 18900	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 18900	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
6855.000	-61.39	18.25	-43.14	-13.00	-30.14	Peak
14550.000	-66.18	28.23	-37.95	-13.00	-24.95	Peak
17880.000	-69.10	39.43	-29.67	-13.00	-16.67	Peak

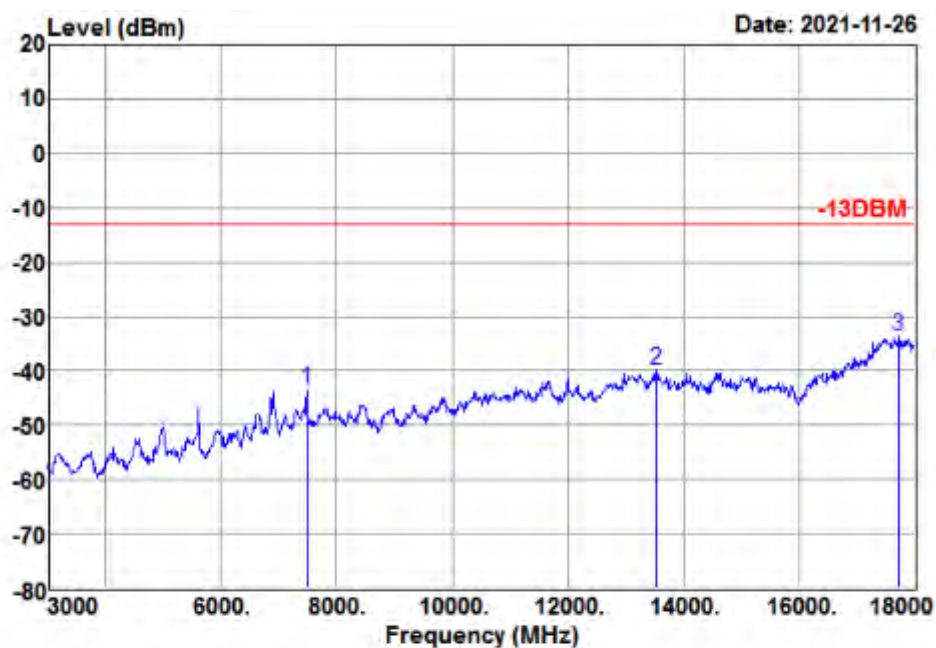


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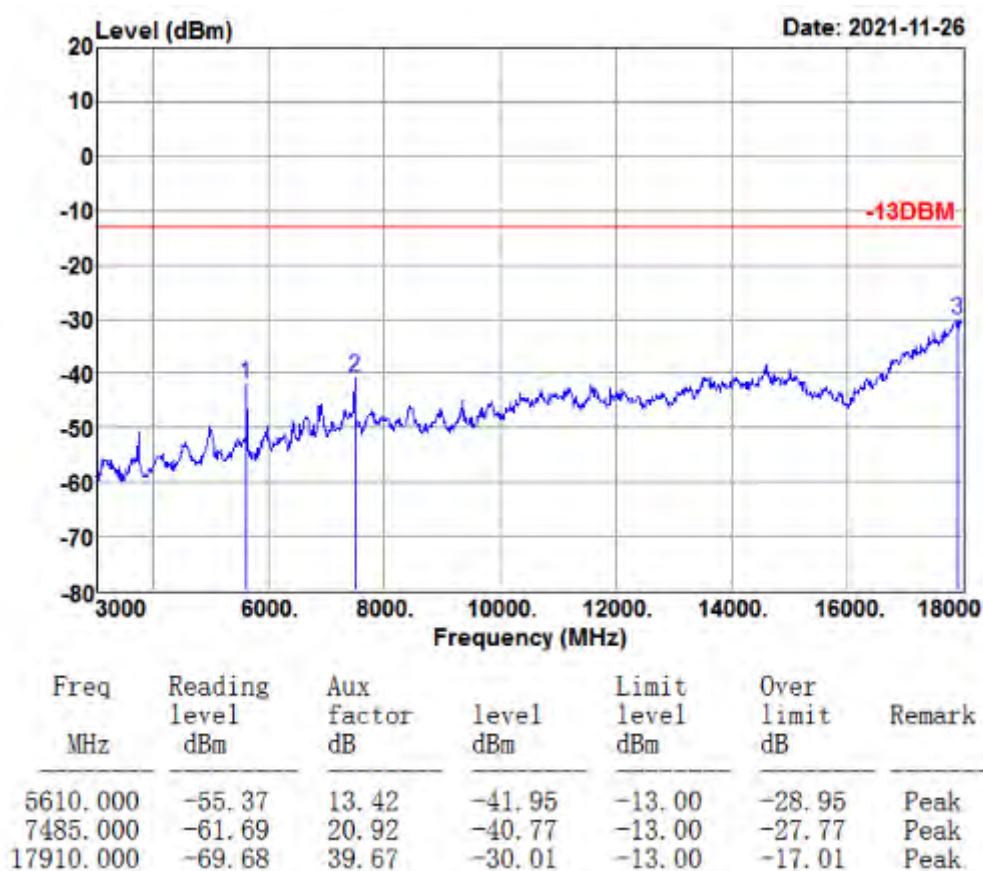
CHANNEL BANDWIDTH: 20MHz / QPSK

MODE	TX channel 18900	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
7485.000	-64.00	20.60	-43.40	-13.00	-30.40	Peak
13530.000	-68.35	28.36	-39.99	-13.00	-26.99	Peak
17730.000	-69.16	35.49	-33.67	-13.00	-20.67	Peak

MODE	TX channel 18900	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			

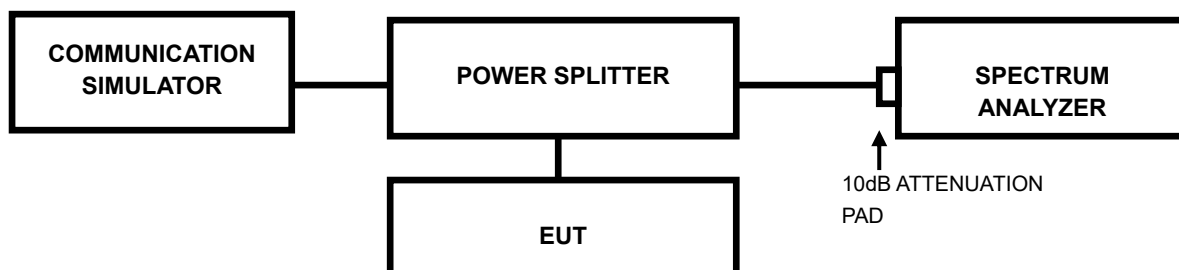


3.7 PEAK TO AVERAGE RATIO

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 C 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.

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

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

APPENDIX C:

EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA

Test Result

Band	Channel	ERP/EIRP(dBm)	Limit(dBm)	Verdict
@FCC_GSM_Effective_Isotropic_radiated_power@				
BandName	Channel	Result	Limit	Verdict

PEAK-TO-AVERAGE RATIO(CCDF)

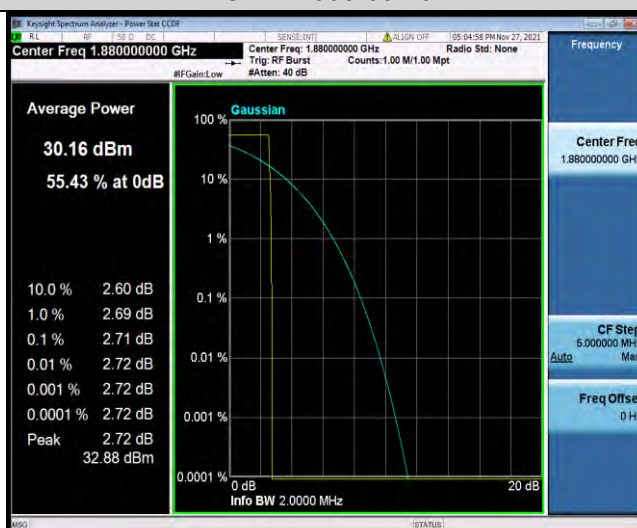
Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GPRS1900	512	2.72	13	PASS
GPRS1900	661	2.71	13	PASS
GPRS1900	810	2.78	13	PASS
EGPRS1900	512	5.72	13	PASS
EGPRS1900	661	5.78	13	PASS
EGPRS1900	810	5.71	13	PASS

Test Graphs GPRS1900-512-0



GPRS1900-661-0



GPRS1900-810-0

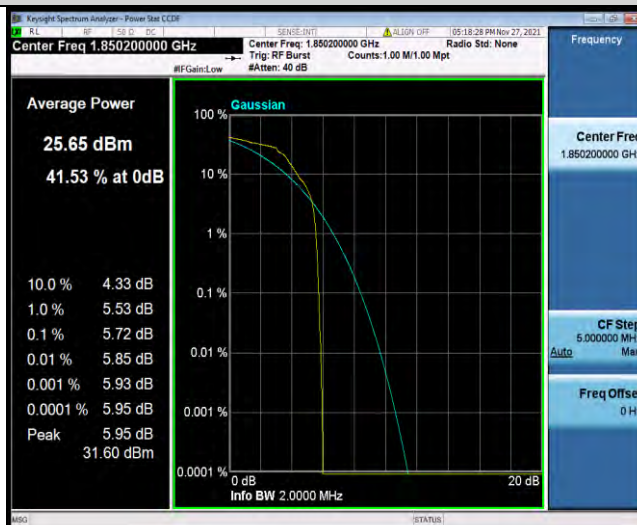




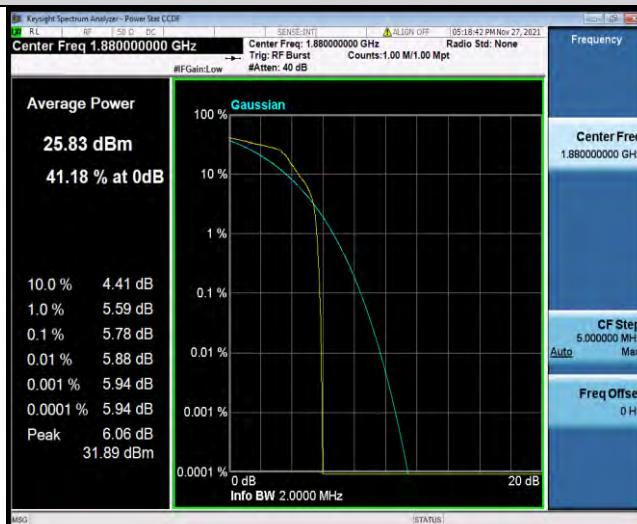
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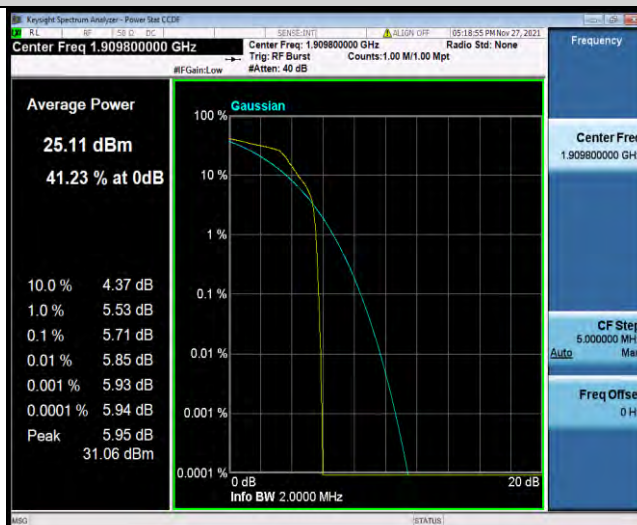
EGPRS1900-512-2



EGPRS1900-661-2



EGPRS1900-810-2

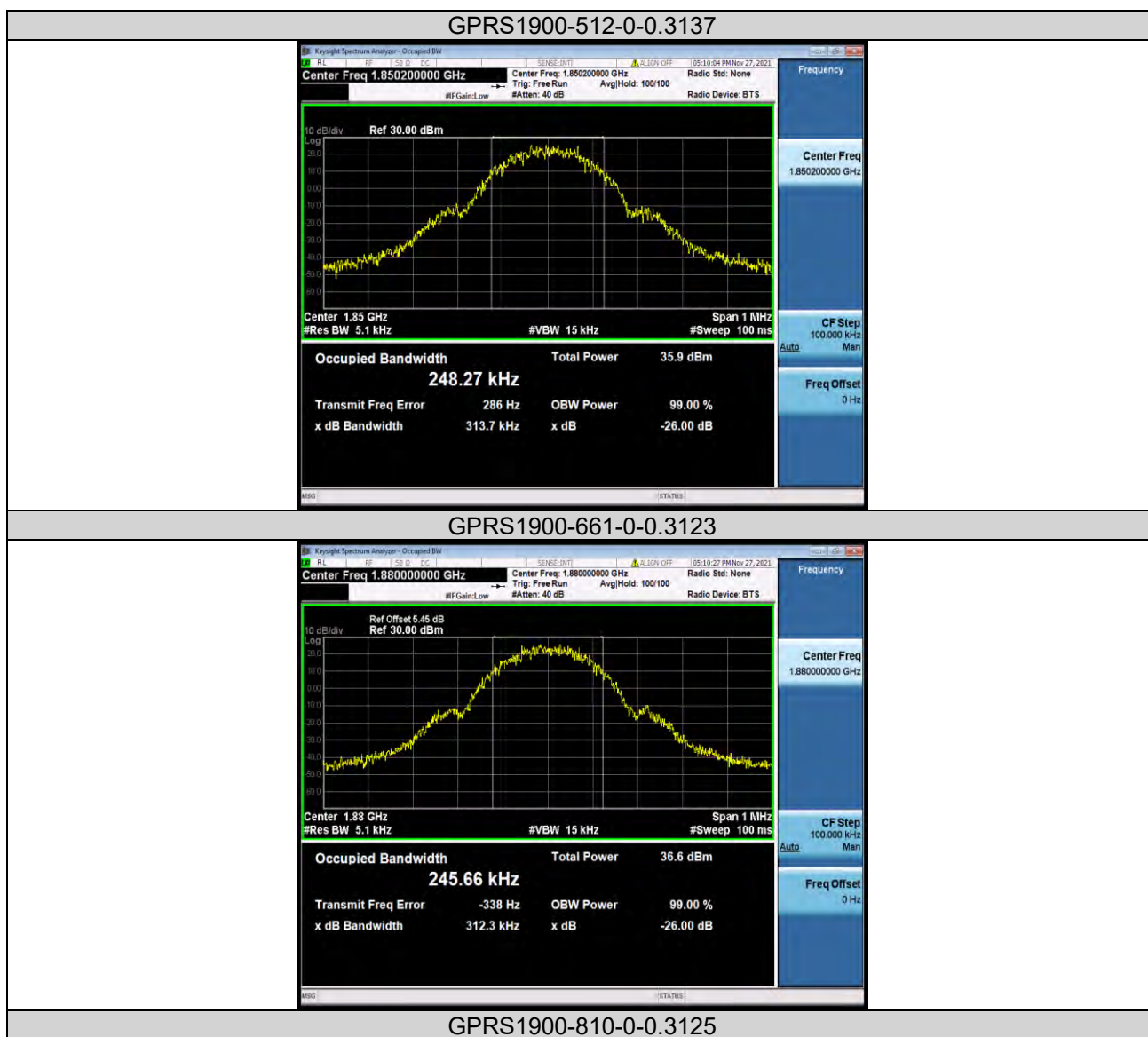


26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GPRS1900	512	0.24827	0.3137	---	PASS
GPRS1900	661	0.24566	0.3123	---	PASS
GPRS1900	810	0.24855	0.3125	---	PASS
EGPRS1900	512	0.24573	0.3068	---	PASS
EGPRS1900	661	0.24836	0.3134	---	PASS
EGPRS1900	810	0.24620	0.3004	---	PASS

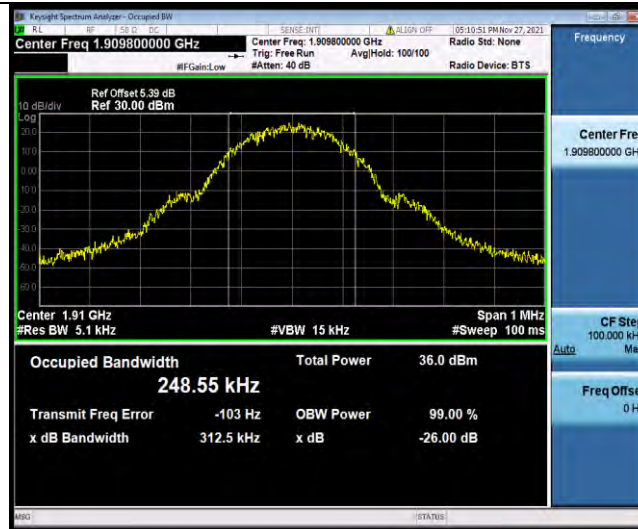
Test Graphs



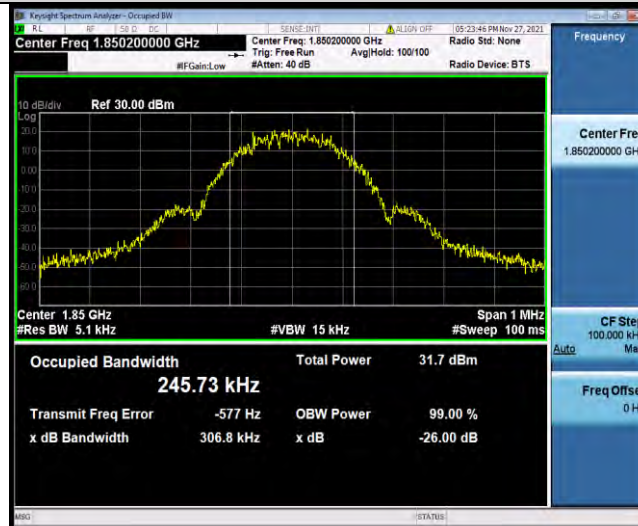


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EGPRS1900-512-2-0.3068



EGPRS1900-661-2-0.3134

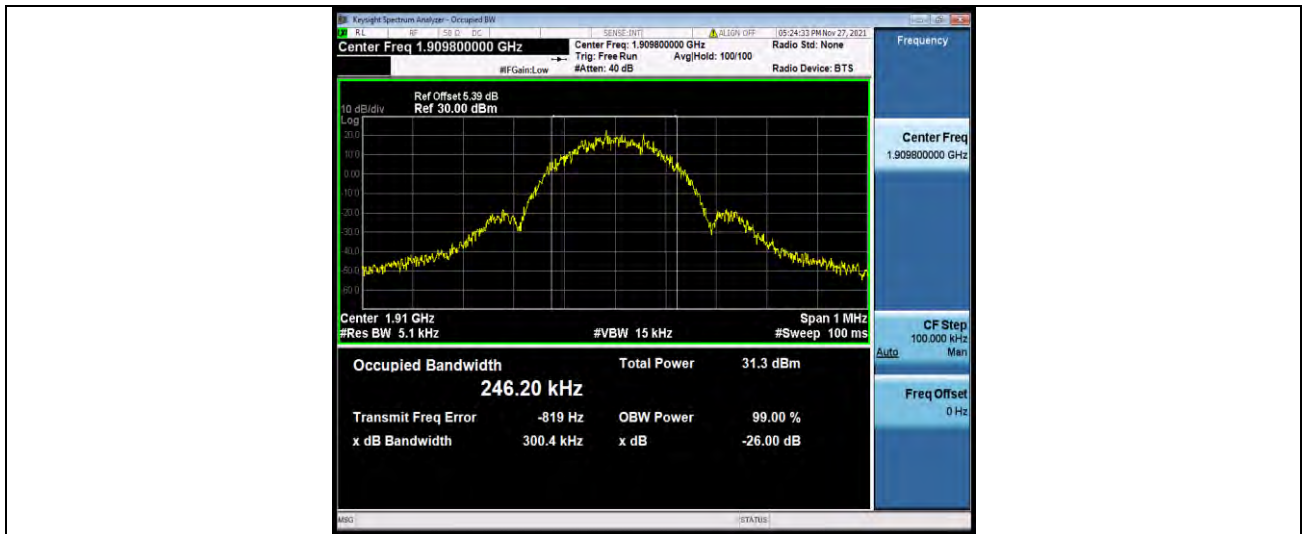


EGPRS1900-810-2-0.3004



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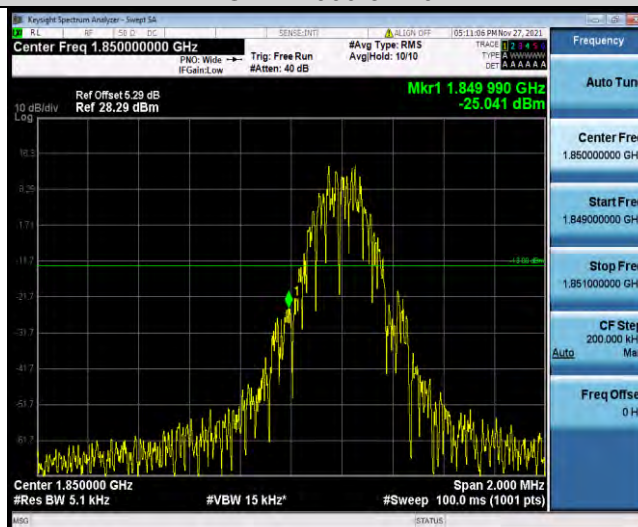
BAND EDGE

Test Result

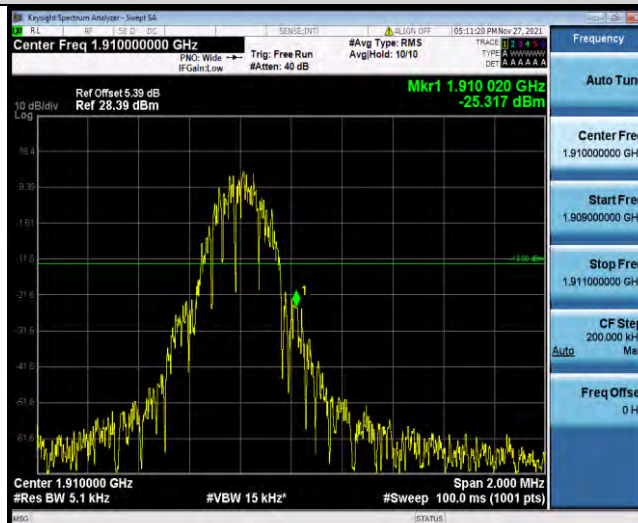
Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GPRS1900	512	1849.99	-25.04	-13	PASS
GPRS1900	810	1910.02	-22.01	-13	PASS
EGPRS1900	512	1849.99	-31.61	-13	PASS
EGPRS1900	810	1910.01	-30.45	-13	PASS

Test Graphs

GPRS1900-512-0



GPRS1900-810-0



EGPRS1900-512-2

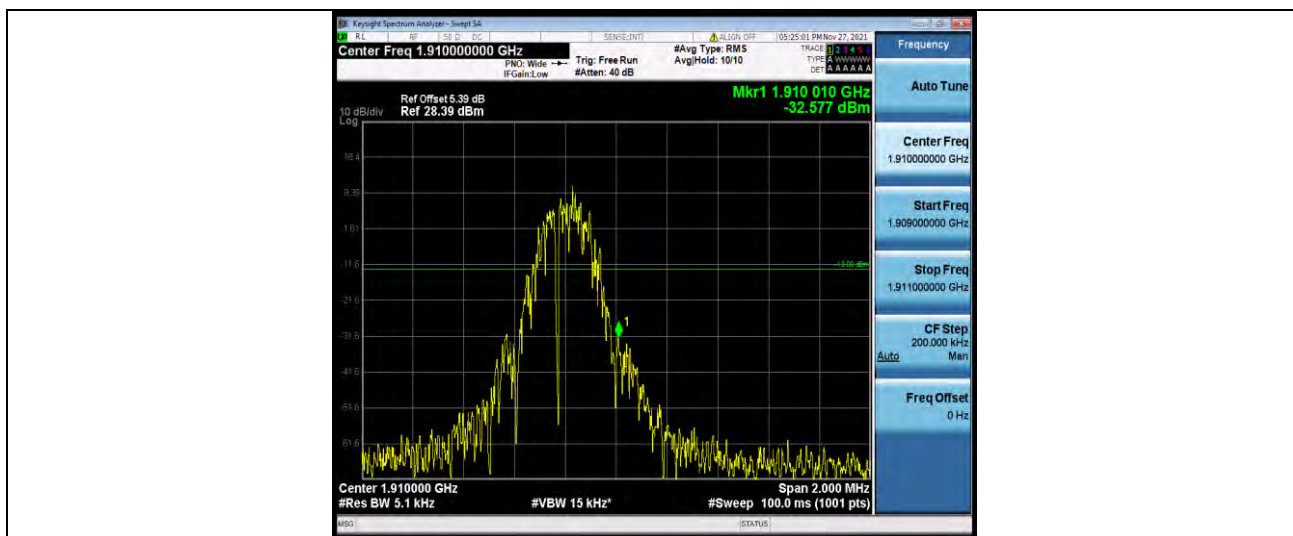


EGPRS1900-810-2



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Test Report No.: W7L-P21110027RF02



CONDUCTED SPURIOUS EMISSION

Test Result

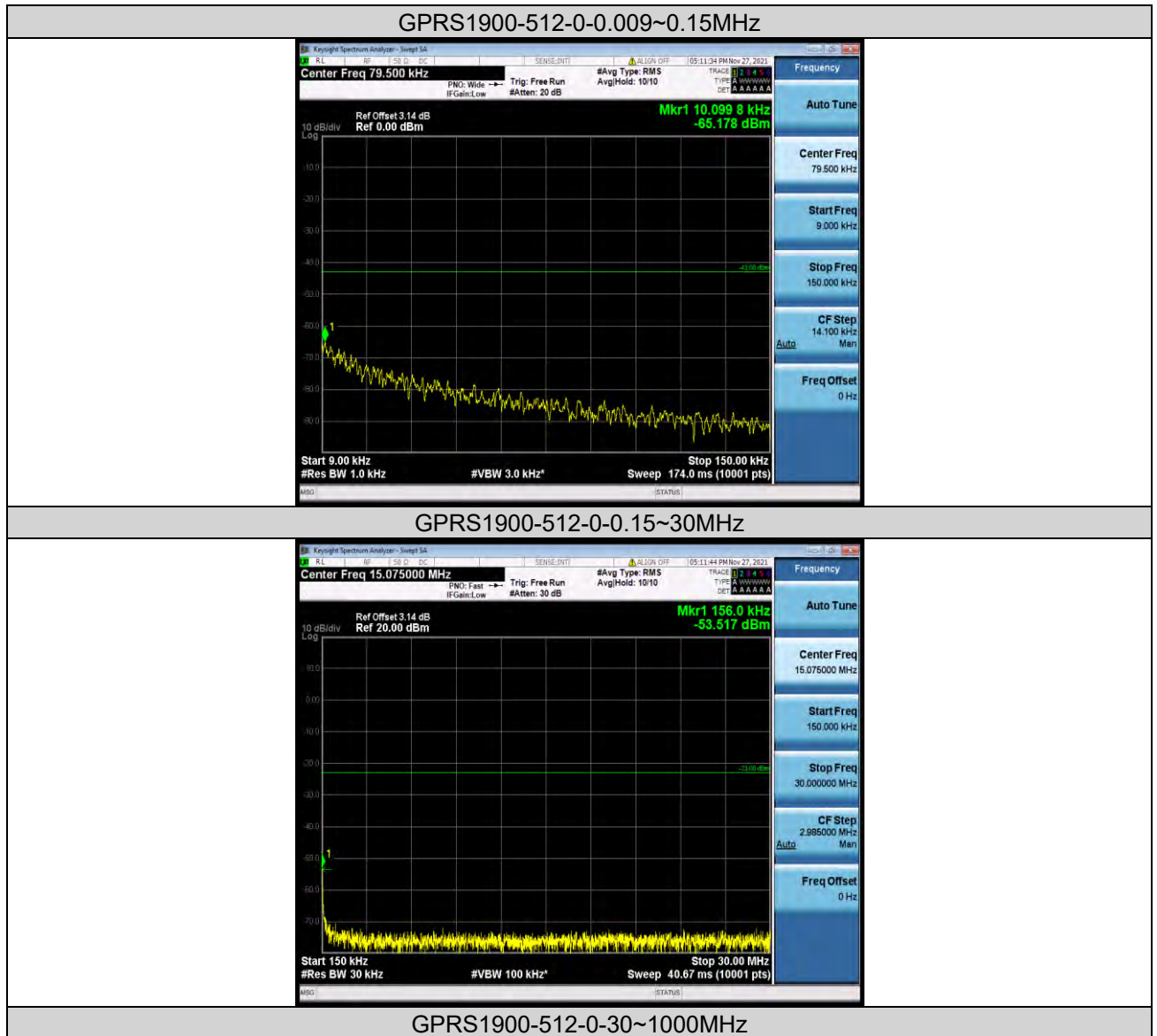
Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GPRS1900	512	0.009~0.15MHz	0.01	-65.18	-43	PASS
GPRS1900	512	0.15~30MHz	0.16	-53.52	-23	PASS
GPRS1900	512	30~1000MHz	931.03	-55.08	-13	PASS
GPRS1900	512	1000~3000MHz	2623.4	-53.87	-13	PASS
GPRS1900	512	3000~20000MHz	3819.4	-47.02	-13	PASS
GPRS1900	661	0.009~0.15MHz	0.01	-64.53	-43	PASS
GPRS1900	661	0.15~30MHz	0.16	-55.56	-23	PASS
GPRS1900	661	30~1000MHz	799.79	-55.11	-13	PASS
GPRS1900	661	1000~3000MHz	2641.2	-53.89	-13	PASS
GPRS1900	661	3000~20000MHz	3819.4	-46.8	-13	PASS
GPRS1900	810	0.009~0.15MHz	0.01	-64.04	-43	PASS
GPRS1900	810	0.15~30MHz	0.16	-55.84	-23	PASS
GPRS1900	810	30~1000MHz	476.72	-55.26	-13	PASS
GPRS1900	810	1000~3000MHz	2645.27	-53.75	-13	PASS
GPRS1900	810	3000~20000MHz	3819.4	-46.77	-13	PASS
EGPRS1900	512	0.009~0.15MHz	0.01	-66.61	-43	PASS
EGPRS1900	512	0.15~30MHz	0.16	-55.54	-23	PASS
EGPRS1900	512	30~1000MHz	910.6	-54.69	-13	PASS
EGPRS1900	512	1000~3000MHz	2623.33	-53.9	-13	PASS
EGPRS1900	512	3000~20000MHz	19081.43	-50.63	-13	PASS
EGPRS1900	661	0.009~0.15MHz	0.01	-66.9	-43	PASS
EGPRS1900	661	0.15~30MHz	0.15	-56.77	-23	PASS
EGPRS1900	661	30~1000MHz	851.78	-54.38	-13	PASS
EGPRS1900	661	1000~3000MHz	2642.67	-53.92	-13	PASS
EGPRS1900	661	3000~20000MHz	19161.33	-50.65	-13	PASS
EGPRS1900	810	0.009~0.15MHz	0.01	-65.94	-43	PASS
EGPRS1900	810	0.15~30MHz	0.15	-55.93	-23	PASS
EGPRS1900	810	30~1000MHz	893.36	-54.76	-13	PASS
EGPRS1900	810	1000~3000MHz	2647.47	-53.93	-13	PASS
EGPRS1900	810	3000~20000MHz	19138.1	-50.76	-13	PASS



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Test Report No.: W7L-P21110027RF02

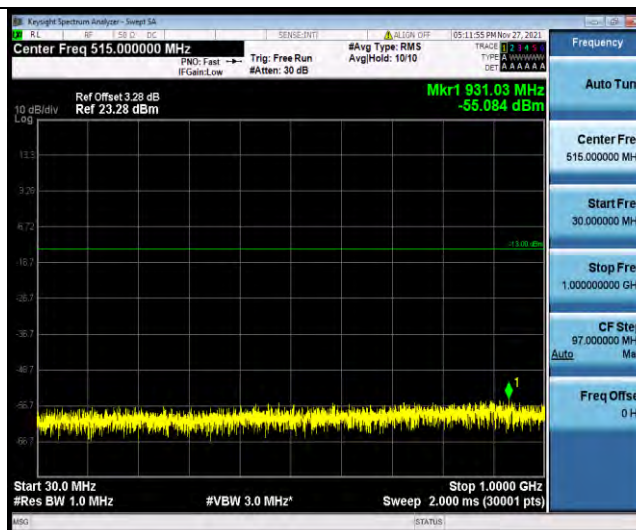
Test Graphs





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Test Report No.: W7L-P21110027RF02



GPRS1900-512-0-1000~3000MHz



GPRS1900-512-0-3000~20000MHz

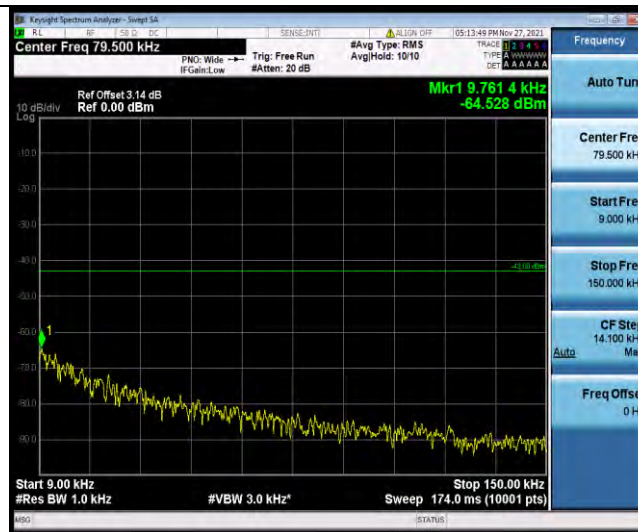


GPRS1900-661-0-0.009~0.15MHz



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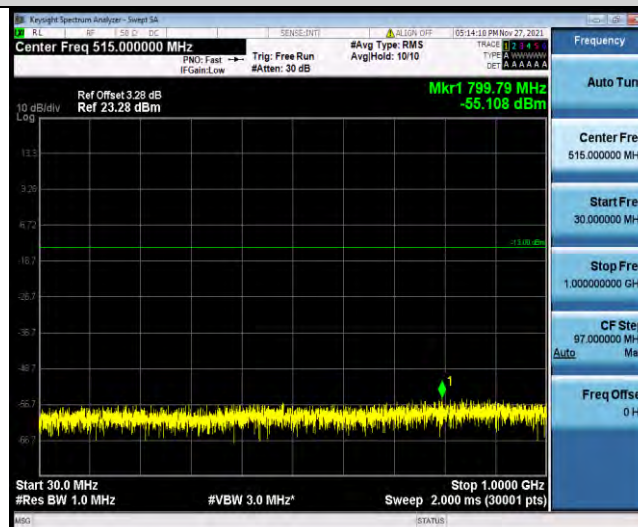
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GPRS1900-661-0-0.15~30MHz



GPRS1900-661-0-30~1000MHz



GPRS1900-661-0-1000~3000MHz

BV 7Layers Communications Technology
(Shenzhen) Co. Ltd

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District, Shenzhen, Guangdong, China

Tel: +86 755 8869 6566
Fax: +86 755 8869 6577
Email: customerservice.sw@bureauveritas.com

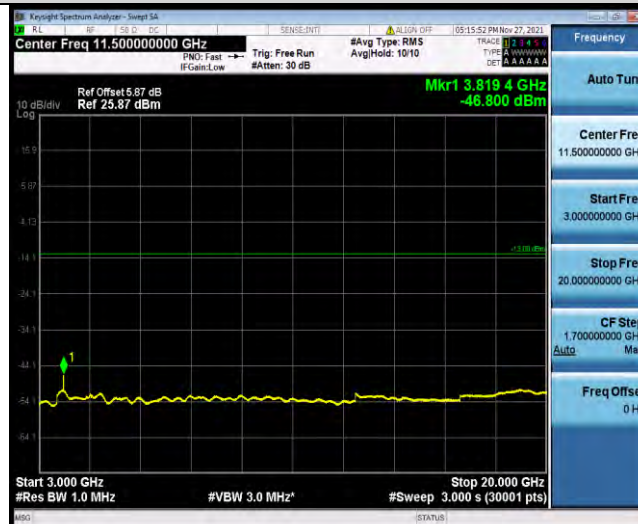


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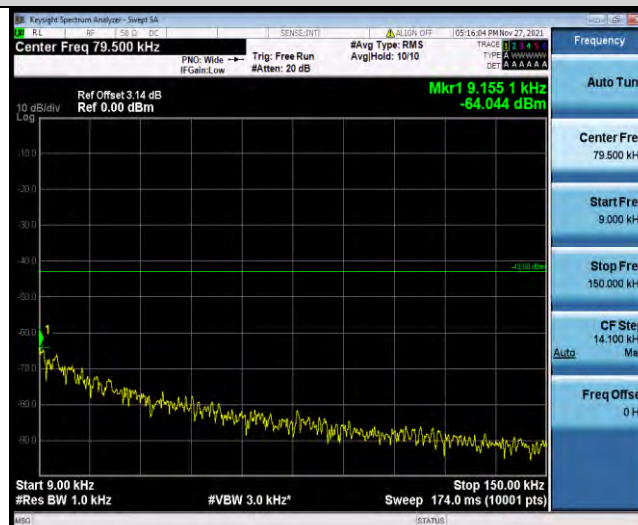
Test Report No.: W7L-P21110027RF02



GPRS1900-661-0-3000~20000MHz



GPRS1900-810-0-0.009~0.15MHz



GPRS1900-810-0-0.15~30MHz

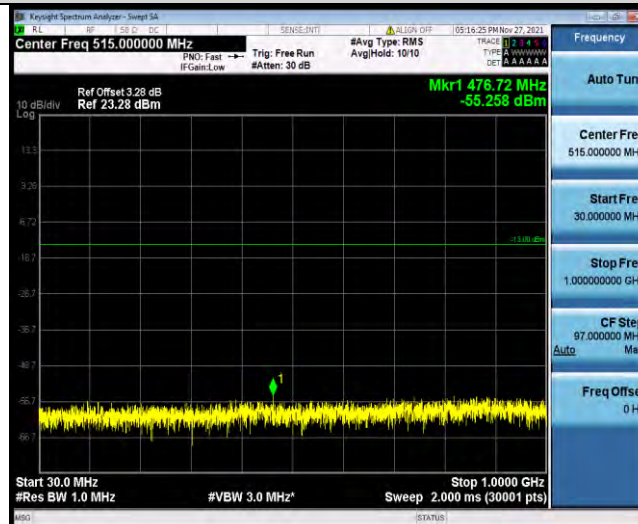


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GPRS1900-810-0-30~1000MHz



GPRS1900-810-0-1000~3000MHz



GPRS1900-810-0-3000~20000MHz

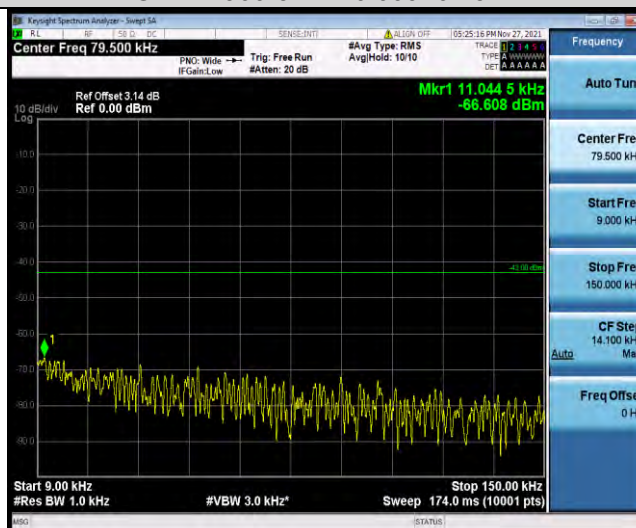


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VERITAS

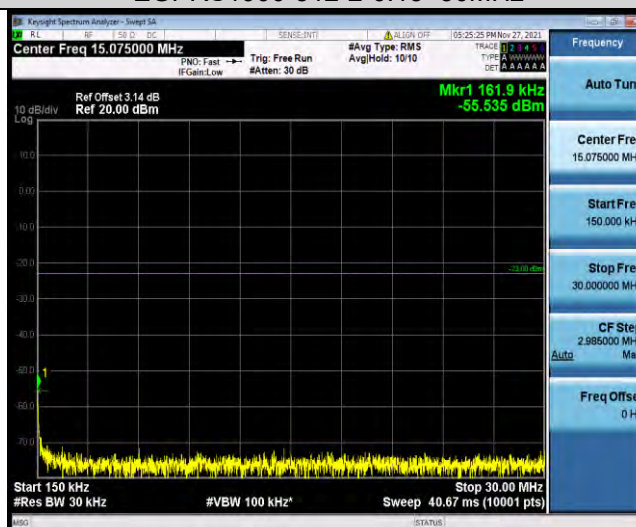
Test Report No.: W7L-P21110027RF02



EGPRS1900-512-2-0.009~0.15MHz



EGPRS1900-512-2-0.15~30MHz

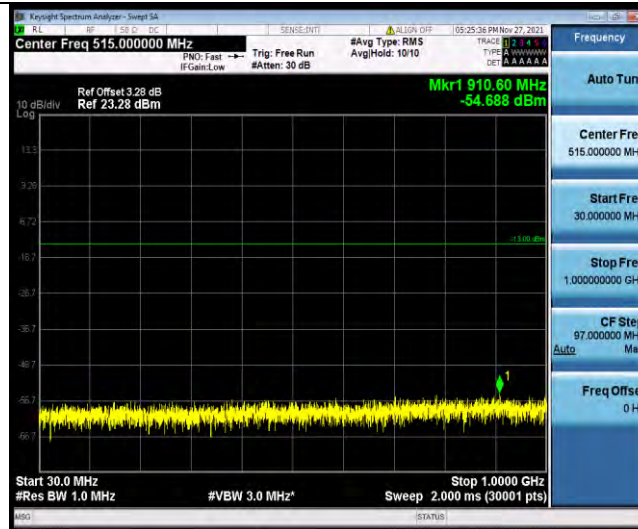


EGPRS1900-512-2-30~1000MHz



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VERITAS

Test Report No.: W7L-P21110027RF02



EGPRS1900-512-2-1000~3000MHz



EGPRS1900-512-2-3000~20000MHz



EGPRS1900-661-2-0.009~0.15MHz

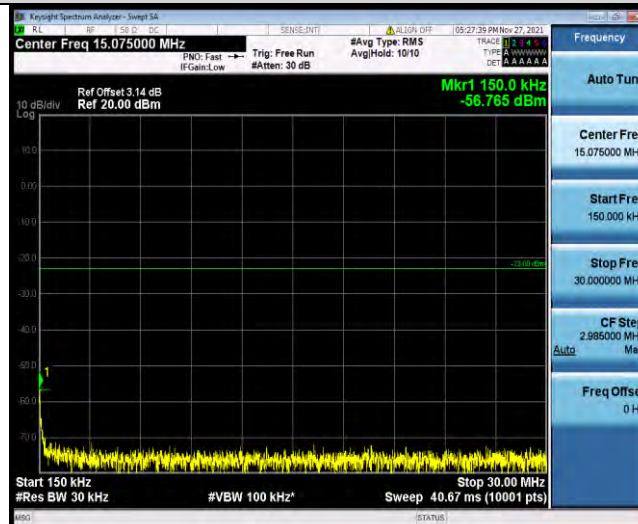


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VERITAS

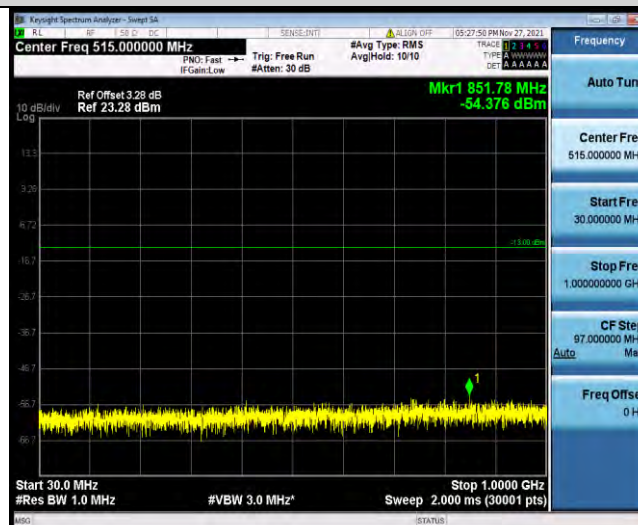
Test Report No.: W7L-P21110027RF02



EGPRS1900-661-2-0.15~30MHz



EGPRS1900-661-2-30~1000MHz



EGPRS1900-661-2-1000~3000MHz

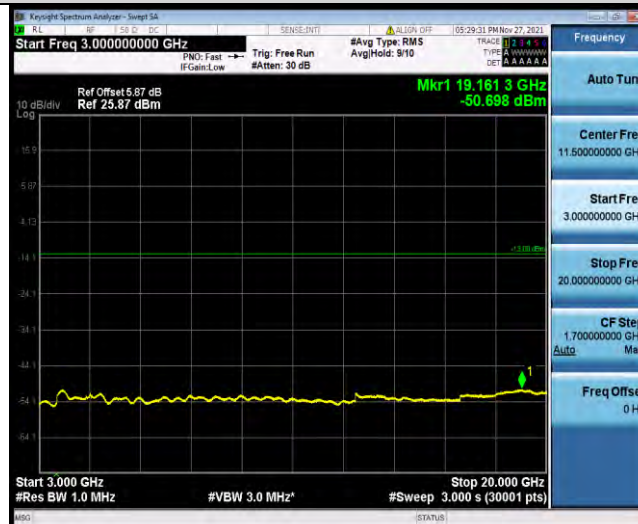


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VERITAS

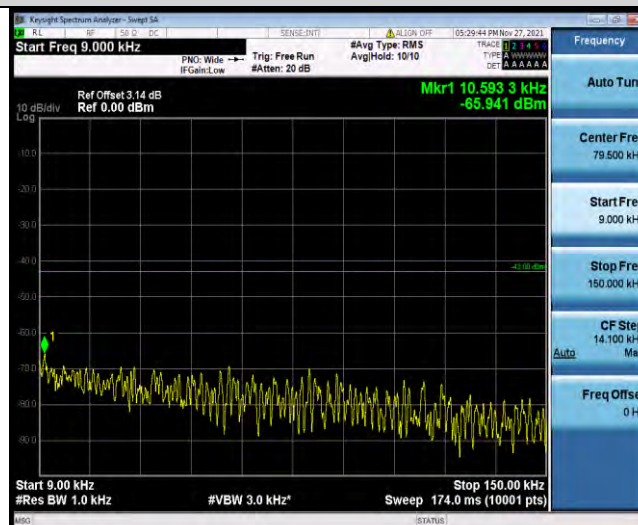
Test Report No.: W7L-P21110027RF02



EGPRS1900-661-2-3000~20000MHz



EGPRS1900-810-2-0.009~0.15MHz



EGPRS1900-810-2-0.15~30MHz

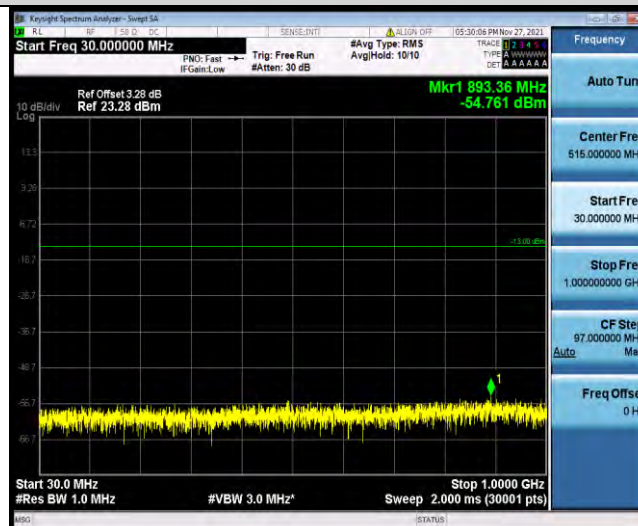


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VERITAS

Test Report No.: W7L-P21110027RF02



EGPRS1900-810-2-30~1000MHz



EGPRS1900-810-2-1000~3000MHz



EGPRS1900-810-2-3000~20000MHz



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VERITAS

Test Report No.: W7L-P21110027RF02



FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS1900	512	VL	NT	3.29	0.001778	±2.5	PASS
GPRS1900	512	VN	NT	-5.97	-0.003227	±2.5	PASS
GPRS1900	512	VH	NT	-4.68	-0.002529	±2.5	PASS
GPRS1900	661	VL	NT	7.33	0.003899	±2.5	PASS
GPRS1900	661	VN	NT	-7.39	-0.003931	±2.5	PASS
GPRS1900	661	VH	NT	-5.71	-0.003037	±2.5	PASS
GPRS1900	810	VL	NT	3.16	0.001655	±2.5	PASS
GPRS1900	810	VN	NT	-11.85	-0.006205	±2.5	PASS
GPRS1900	810	VH	NT	-10.23	-0.005357	±2.5	PASS
EGPRS1900	512	VL	NT	-24.38	-0.013177	±2.5	PASS
EGPRS1900	512	VN	NT	-14.24	-0.007696	±2.5	PASS
EGPRS1900	512	VH	NT	-23.21	-0.012545	±2.5	PASS
EGPRS1900	661	VL	NT	-27.28	-0.014511	±2.5	PASS
EGPRS1900	661	VN	NT	-18.79	-0.009995	±2.5	PASS
EGPRS1900	661	VH	NT	-30.38	-0.016160	±2.5	PASS
EGPRS1900	810	VL	NT	0.42	0.000220	±2.5	PASS
EGPRS1900	810	VN	NT	-1.03	-0.000539	±2.5	PASS
EGPRS1900	810	VH	NT	-6.55	-0.003430	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS1900	512	NV	-30	-2.91	-0.001573	±2.5	PASS
GPRS1900	512	NV	-20	-13.82	-0.007469	±2.5	PASS
GPRS1900	512	NV	-10	-2.29	-0.001238	±2.5	PASS
GPRS1900	512	NV	0	-2.10	-0.001135	±2.5	PASS
GPRS1900	512	NV	10	-5.46	-0.002951	±2.5	PASS
GPRS1900	512	NV	20	-10.07	-0.005443	±2.5	PASS
GPRS1900	512	NV	30	-5.23	-0.002827	±2.5	PASS
GPRS1900	512	NV	40	-5.46	-0.002951	±2.5	PASS
GPRS1900	512	NV	50	-6.01	-0.003248	±2.5	PASS