

VARIANT FCC TEST REPORT

(PART 27)

Applicant:	Fibocom Wireless Inc.
Address:	1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China.

Manufacturer or Supplier:	Fibocom Wireless Inc.
Address:	1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China.
Product:	LTE module
Brand Name:	Fibocom
Model Name:	L850-GL
FCC ID:	ZMOL850GLD
Date of tests:	Jan. 17, 2022 ~ Jan. 19, 2022

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

☒ **FCC Part 27, Subpart C, M** ☒ **ANSI/TIA/EIA-603-D**
☒ **FCC Part 2** ☒ **ANSI/TIA/EIA-603-E** ☒ **ANSI C63.26-2015**

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Jan. 19, 2022	 Date: Jan. 19, 2022

This report is governed by, and incorporates by reference, CPS Conditions of Service as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1 SUMMARY OF TEST RESULTS	4
1.1 MEASUREMENT UNCERTAINTY	5
2 GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 CONFIGURATION OF SYSTEM UNDER TEST	11
2.3 DESCRIPTION OF SUPPORT UNITS	12
2.4 TEST ITEM AND TEST CONFIGURATION	12
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	15
3 TEST TYPES AND RESULTS	16
3.1 OUTPUT POWER MEASUREMENT	16
3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	16
3.1.2 TEST PROCEDURES	16
3.1.3 TEST SETUP	17
3.1.4 TEST RESULTS	18
3.2 RADIATED EMISSION MEASUREMENT	39
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	39
3.2.2 TEST PROCEDURES	39
3.2.3 DEVIATION FROM TEST STANDARD	39
3.2.4 TEST SETUP	40
3.2.5 TEST RESULTS	41
4 INFORMATION ON THE TESTING LABORATORIES	51
5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	52



Test Report No.: W7L-220113W002RF04

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF180704C01-4	Original release	Jul. 19, 2018
W7L-220113W002RF04	Based on the original report RF180704C01-4 Changing components	Jan. 19, 2022

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2		
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT
§2.1046 §27.50(d)(4)	Equivalent Isotropically Radiated Power (Band 4) (Band 66)	Compliance (See Note 1)
§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 17)	Compliance (See Note 1)
§2.1055 §27.54	Frequency Stability	(See Note 2)
§2.1049	Occupied Bandwidth	(See Note 2)
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h)	Conducted Band Edge Measurements (Band 12) (Band 13) (Band 17) (Band 4) (Band 66)	(See Note 2)
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h)	Conducted Spurious Emissions (Band 12) (Band 13) (Band 17) (Band 4) (Band 66)	(See Note 2)
§2.1053 §27.53(c)(2)(4) §27.53(g) §27.53(h)	Radiated Spurious Emissions (Band 12) (Band 13) (Band 17) (Band 4) (Band 66)	Compliance (See Note 1)

NOTE:

1. Per the change notice provide by manufactory, the difference is changing components, all the change no effect any RF parameter, Therefore only verify the power and radiated emission worse case. The report only show the verify test data.
2. Please refer to original report RF180704C01-4

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
Radiated emissions & Radiated Power (30MHz~1GMHz)	±4.98dB
Radiated emissions & Radiated Power (1GMHz ~6GMHz)	±4.70dB
Radiated emissions (6GMHz ~18GMHz)	±4.60dB
Radiated emissions (18GMHz ~40GMHz)	±4.12dB
Conducted Output power	±2.06dB

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

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	LTE module	
BRAND NAME	Fibocom	
MODEL NAME	L850-GL	
NOMINAL VOLTAGE	3.3Vdc (Form Host Equipment)	
MODULATION TECHNOLOGY	WCDMA	QPSK
	LTE	QPSK, 16QAM
FREQUENCY RANGE	WCDMA	1712.4 MHz ~ 1752.6 MHz
	LTE Band 4 Channel Bandwidth: 1.4MHz	1710.7MHz ~ 1754.3MHz
	LTE Band 4 Channel Bandwidth: 3MHz	1711.5MHz ~ 1753.5MHz
	LTE Band 4 Channel Bandwidth: 5MHz	1712.5MHz ~ 1752.5MHz
	LTE Band 4 Channel Bandwidth: 10MHz	1715MHz ~ 1750MHz
	LTE Band 4 Channel Bandwidth: 15MHz	1717.5MHz ~ 1747.5 MHz
	LTE Band 4 Channel Bandwidth: 20MHz	1720MHz ~ 1745MHz
	LTE Band 12 Channel Bandwidth: 1.4MHz	699.7MHz ~ 715.3MHz
	LTE Band 12 Channel Bandwidth: 3MHz	700.5MHz ~ 714.5MHz
	LTE Band 12 Channel Bandwidth: 5MHz	701.5MHz ~ 713.5MHz
	LTE Band 12 Channel Bandwidth: 10MHz	704MHz ~ 711MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711 MHz

FREQUENCY RANGE	LTE Band 66 Channel Bandwidth: 1.4MHz	1710.7MHz ~ 1779.3MHz
	LTE Band 66 Channel Bandwidth: 3MHz	1711.5MHz ~ 1778.5MHz
	LTE Band 66 Channel Bandwidth: 5MHz	1712.5MHz ~ 1777.5MHz
	LTE Band 66 Channel Bandwidth: 10MHz	1715MHz ~ 1775MHz
	LTE Band 66 Channel Bandwidth: 15MHz	1717.5MHz ~ 1772.5MHz
	LTE Band 66 Channel Bandwidth: 20MHz	1720MHz ~ 1770MHz
EMISSION DESIGNATOR	WCDMA	4M08F9W
	LTE Band 4 Channel Bandwidth: 1.4MHz	1M10W7D
	LTE Band 4 Channel Bandwidth: 3MHz	2M70G7D
	LTE Band 4 Channel Bandwidth: 5MHz	4M50G7D
	LTE Band 4 Channel Bandwidth: 10MHz	8M99G7D
	LTE Band 4 Channel Bandwidth: 15MHz	13M48W7D
	LTE Band 4 Channel Bandwidth: 20MHz	17M99W7D
	LTE Band 12 Channel Bandwidth: 1.4MHz	1M10G7D
	LTE Band 12 Channel Bandwidth: 3MHz	2M71W7D
	LTE Band 12 Channel Bandwidth: 5MHz	4M50G7D

	LTE Band 12 Channel Bandwidth: 10MHz	9M00G7D
	LTE Band 13 Channel Bandwidth: 5MHz	4M50G7D
	LTE Band 13 Channel Bandwidth: 10MHz	8M97G7D
	LTE Band 17 Channel Bandwidth: 5MHz	4M50G7D
	LTE Band 17 Channel Bandwidth: 10MHz	8M99G7D
	LTE Band 66 Channel Bandwidth: 1.4MHz	1M10W7D
	LTE Band 66 Channel Bandwidth: 3MHz	2M71W7D
	LTE Band 66 Channel Bandwidth: 5MHz	4M51W7D
	LTE Band 66 Channel Bandwidth: 10MHz	9M00G7D
	LTE Band 66 Channel Bandwidth: 15MHz	13M48W7D
	LTE Band 66 Channel Bandwidth: 20MHz	17M98G7D
MAX. ERP/EIRP POWER	WCDMA	704.69 mW
	LTE Band 4 Channel Bandwidth: 1.4MHz	613.76mW
	LTE Band 4 Channel Bandwidth: 3MHz	608.14mW
	LTE Band 4 Channel Bandwidth: 5MHz	609.54mW

	LTE Band 4 Channel Bandwidth: 10MHz	605.34mW
	LTE Band 4 Channel Bandwidth: 15MHz	615.18mW
	LTE Band 4 Channel Bandwidth: 20MHz	616.6mW
	LTE Band 12 Channel Bandwidth: 1.4MHz	220.8mW
	LTE Band 12 Channel Bandwidth: 3MHz	215.77mW
	LTE Band 12 Channel Bandwidth: 5MHz	217.77mW
	LTE Band 12 Channel Bandwidth: 10MHz	218.27mW
	LTE Band 13 Channel Bandwidth: 5MHz	209.89mW
	LTE Band 13 Channel Bandwidth: 10MHz	212.32mW
	LTE Band 17 Channel Bandwidth: 5MHz	216.27mW
	LTE Band 17 Channel Bandwidth: 10MHz	217.27mW
	LTE Band 66 Channel Bandwidth: 1.4MHz	616.6mW
	LTE Band 66 Channel Bandwidth: 3MHz	590.2mW
	LTE Band 66 Channel Bandwidth: 5MHz	595.66mW
	LTE Band 66 Channel Bandwidth: 10MHz	590.2mW
	LTE Band 66 Channel Bandwidth: 15MHz	597.04mW
	LTE Band 66 Channel Bandwidth: 20MHz	598.41mW
ANTENNA TYPE	External Antenna with 5dBi gain for WCDMA Band 4/LTE B4/LTE B66 External Antenna with 3dBi gain for LTE B12/B13/B17	
HW VERSION	V1.0.4	
SW VERSION	18500.5001.00.05.27.12	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	
EXTREME TEMPERATURE	-10-55 °C	
EXTREME VOLTAGE	3.4V- 4.4V	



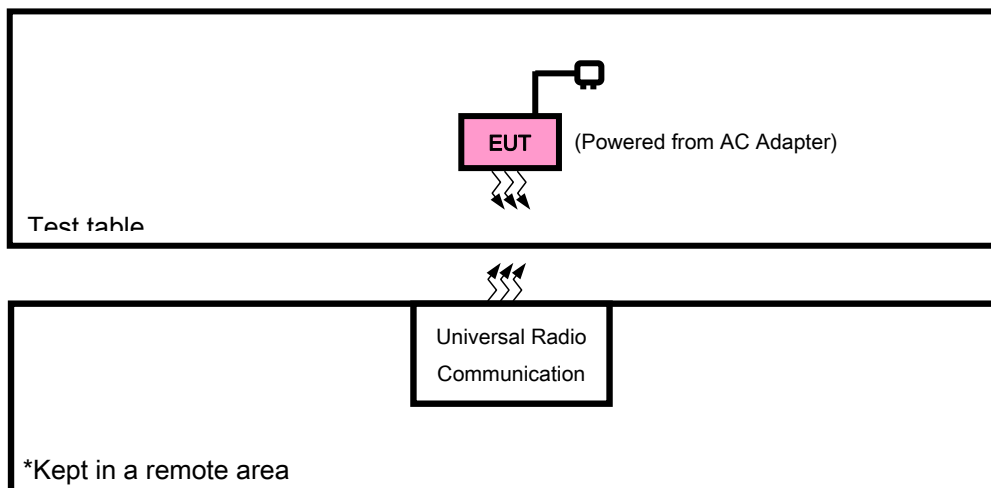
Test Report No.: W7L-220113W002RF04

NOTE:

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

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST



2.3 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC source	LONG WEI	PS-6403D	010934269	N/A

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

DESCRIPTION
EUT + AC Adapter with WCDMA & LTE link

LTE BAND 4

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20050 to 20300	20050, 20175, 20300	20MHz	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.

LTE BAND 12

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23060 to 23130	23060, 23095 ,23130	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.

LTE BAND 13

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23205 to 23255	20025, 20175, 20325	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23230	23230	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
RADIATED EMISSION	23205 to 23255	20025, 20175, 20325	5MHz	QPSK	1 RB / 0 RB Offset
	23230	23230	10MHz	QPSK	1 RB / 0 RB Offset

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

LTE BAND 17

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	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.

LTE BAND 66

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	131979 to 132665	131979,132322,132665	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	131987 to 132657	131987,132322,132657	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	131997 to 132647	131997,132322,132647	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	132022 to 132622	132022,132322,132622	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	132047 to 132597	132047,132322,132597	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	132072 to 132572	132072,132322,132572	20MHz	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 Report No.: W7L-220113W002RF04

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP/EIRP	23deg. C, 70%RH	DC 3.3V	Jace Hu
RADIATED EMISSION	23deg. C, 70%RH	DC 3.3V	Jace Hu

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP

According to the specific rule Part 27.50(b)(10) and 27.50(c)(10) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 698-746 MHz, 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

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

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

Where:

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

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

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

G_{T} = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_{C} = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

CONDUCTED POWER MEASUREMENT:

- The EUT was set up for the maximum power with LTE 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.



Test Report No.: W7L-220113W002RF04

3.1.3 TEST SETUP

CONDUCTED POWER MEASUREMENT:



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

3.1.4 TEST RESULTS

AVERAGE CONDUCTED OUTPUT POWER (dBm)

Band	WCDMA IV			Max. Tune-up Power
Channel	1312	1413	1513	
Frequency	1712.4	1732.6	1752.6	
RMC 12.2K	23.46	23.33	23.48	24.5
HSDPA Subtest-1	22.53	22.33	22.56	23.5
HSDPA Subtest-2	22.49	22.30	22.52	23.5
HSDPA Subtest-3	21.00	20.86	21.05	23.0
HSDPA Subtest-4	20.99	20.94	20.97	23.0
HSUPA Subtest-1	22.42	22.29	22.48	23.5
HSUPA Subtest-2	20.50	20.40	20.54	21.5
HSUPA Subtest-3	21.51	21.37	21.55	22.5
HSUPA Subtest-4	20.47	20.40	20.56	21.5
HSUPA Subtest-5	22.48	22.25	22.51	23.5

LTE Band 4

Band/BW	Modulation	RB Size	RB Offset	Low CH 19957	Mid CH 20175	High CH 20393	MPR
				Frequency 1710.7 MHz	Frequency 1732.5 MHz	Frequency 1754.3 MHz	
4/ 1.4	QPSK	1	0	22.82	22.75	22.55	0
		1	2	22.79	22.73	22.60	0
		1	5	22.77	22.69	22.54	0
		3	0	22.77	22.72	22.75	0
		3	1	22.88	22.80	22.57	0
		3	3	22.78	22.72	22.73	0
		6	0	21.94	21.78	21.73	1
	16QAM	1	0	21.90	21.87	21.68	1
		1	2	21.88	21.75	21.76	1
		1	5	21.82	21.82	21.76	1
		3	0	21.90	21.72	21.75	1
		3	1	21.71	21.81	21.64	1
		3	3	21.81	21.69	21.70	1
		6	0	20.89	20.80	20.60	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 19965	Mid CH 20175	High CH 20385	MPR
				Frequency 1711.5 MHz	Frequency 1732.5 MHz	Frequency 1753.5 MHz	
4/ 3	QPSK	1	0	22.84	22.77	22.54	0
		1	7	22.75	22.74	22.60	0
		1	14	22.73	22.69	22.54	0
		8	0	21.76	21.75	21.75	1
		8	3	21.81	21.80	21.59	1
		8	7	21.75	21.79	21.77	1
		15	0	21.91	21.79	21.67	1
	16QAM	1	0	21.87	21.93	21.71	1
		1	7	21.85	21.78	21.74	1
		1	14	21.85	21.82	21.76	1
		8	0	20.86	20.73	20.75	2
		8	3	20.76	20.76	20.67	2
		8	7	20.83	20.67	20.66	2
		15	0	20.89	20.74	20.63	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 19975	Mid CH 20175	High CH 20375	MPR
				Frequency 1712.5 MHz	Frequency 1732.5 MHz	Frequency 1752.5 MHz	
4/ 5	QPSK	1	0	22.85	22.72	22.55	0
		1	12	22.80	22.71	22.60	0
		1	24	22.74	22.68	22.58	0
		12	0	21.79	21.75	21.72	1
		12	6	21.81	21.81	21.60	1
		12	13	21.79	21.75	21.78	1
		25	0	21.89	21.82	21.70	1
	16QAM	1	0	21.88	21.89	21.71	1
		1	12	21.82	21.81	21.73	1
		1	24	21.85	21.82	21.75	1
		12	0	20.86	20.71	20.72	2
		12	6	20.73	20.80	20.63	2
		12	13	20.78	20.69	20.69	2
		25	0	20.89	20.75	20.60	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20000	Mid CH 20175	High CH 20350	MPR
				Frequency 1715 MHz	Frequency 1732.5 MHz	Frequency 1750 MHz	
4/ 10	QPSK	1	0	22.82	22.75	22.55	0
		1	24	22.80	22.71	22.61	0
		1	49	22.71	22.72	22.54	0
		25	0	21.80	21.74	21.75	1
		25	12	21.87	21.75	21.60	1
		25	25	21.77	21.72	21.77	1
		50	0	21.94	21.82	21.67	1
	16QAM	1	0	21.88	21.86	21.67	1
		1	24	21.87	21.77	21.76	1
		1	49	21.85	21.83	21.72	1
		25	0	20.88	20.69	20.78	2
		25	12	20.77	20.74	20.68	2
		25	25	20.77	20.70	20.66	2
		50	0	20.93	20.74	20.64	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20025	Mid CH 20175	High CH 20325	MPR
				Frequency 1717.5 MHz	Frequency 1732.5 MHz	Frequency 1747.5 MHz	
4/ 15	QPSK	1	0	22.89	22.75	22.52	0
		1	37	22.78	22.76	22.56	0
		1	74	22.77	22.75	22.55	0
		36	0	21.77	21.75	21.76	1
		36	19	21.88	21.80	21.60	1
		36	39	21.75	21.73	21.77	1
		75	0	21.94	21.80	21.72	1
	16QAM	1	0	21.92	21.93	21.67	1
		1	37	21.86	21.78	21.76	1
		1	74	21.81	21.88	21.74	1
		36	0	20.92	20.69	20.79	2
		36	19	20.71	20.78	20.64	2
		36	39	20.82	20.68	20.69	2
		75	0	20.94	20.77	20.57	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20050	Mid CH 20175	High CH 20300	MPR
				Frequency 1720 MHz	Frequency 1732.5 MHz	Frequency 1745 MHz	
4/ 20	QPSK	1	0	22.90	22.79	22.60	0
		1	50	22.82	22.79	22.62	0
		1	99	22.79	22.76	22.59	0
		50	0	21.83	21.80	21.77	1
		50	25	21.89	21.82	21.65	1
		50	50	21.83	21.80	21.79	1
		100	0	21.95	21.84	21.75	1
	16QAM	1	0	21.95	21.94	21.73	1
		1	50	21.90	21.83	21.78	1
		1	99	21.87	21.90	21.77	1
		50	0	20.94	20.77	20.80	2
		50	25	20.79	20.82	20.69	2
		50	50	20.85	20.74	20.71	2
		100	0	20.95	20.82	20.65	2



**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

LTE Band 12

Band/BW	Modulation	RB Size	RB Offset	Low CH 23017	Mid CH 23095	High CH 23173	MPR
				Frequency 699.7 MHz	Frequency 707.5 MHz	Frequency 715.3 MHz	
12/ 1.4	QPSK	1	0	22.30	22.30	22.24	0
		1	2	22.40	22.21	22.32	0
		1	5	22.49	22.37	22.49	0
		3	0	22.42	22.39	22.34	0
		3	1	22.36	22.58	22.29	0
		3	3	22.59	22.55	22.58	0
		6	0	21.52	21.61	21.45	1
	16QAM	1	0	21.45	21.51	21.51	1
		1	2	21.30	21.44	21.30	1
		1	5	21.67	21.48	21.62	1
		3	0	21.43	21.50	21.33	1
		3	1	21.48	21.69	21.42	1
		3	3	21.64	21.71	21.73	1
		6	0	20.54	20.57	20.49	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 23025	Mid CH 23095	High CH 23165	MPR
				Frequency 700.5 MHz	Frequency 707.5 MHz	Frequency 714.5 MHz	
12/ 3	QPSK	1	0	22.32	22.32	22.23	0
		1	7	22.36	22.22	22.32	0
		1	14	22.45	22.37	22.49	0
		8	0	21.41	21.42	21.34	1
		8	3	21.29	21.58	21.31	1
		8	7	21.56	21.62	21.62	1
		15	0	21.49	21.62	21.39	1
	16QAM	1	0	21.42	21.57	21.54	1
		1	7	21.27	21.47	21.28	1
		1	14	21.70	21.48	21.62	1
		8	0	20.39	20.51	20.33	2
		8	3	20.53	20.64	20.45	2
		8	7	20.66	20.69	20.69	2
		15	0	20.54	20.51	20.52	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 23035	Mid CH 23095	High CH 23155	MPR
				Frequency 701.5 MHz	Frequency 707.5 MHz	Frequency 713.5 MHz	
12/ 5	QPSK	1	0	22.33	22.27	22.24	0
		1	12	22.41	22.19	22.32	0
		1	24	22.46	22.36	22.53	0
		12	0	21.44	21.42	21.31	1
		12	6	21.29	21.59	21.32	1
		12	13	21.60	21.58	21.63	1
		25	0	21.47	21.65	21.42	1
	16QAM	1	0	21.43	21.53	21.54	1
		1	12	21.24	21.50	21.27	1
		1	24	21.70	21.48	21.61	1
		12	0	20.39	20.49	20.30	2
		12	6	20.50	20.68	20.41	2
		12	13	20.61	20.71	20.72	2
		25	0	20.54	20.52	20.49	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 23060	Mid CH 23095	High CH 23130	MPR
				Frequency 704 MHz	Frequency 707.5 MHz	Frequency 711 MHz	
12/ 10	QPSK	1	0	22.38	22.34	22.29	0
		1	24	22.43	22.27	22.34	0
		1	49	22.51	22.44	22.54	0
		25	0	21.48	21.47	21.36	1
		25	12	21.37	21.60	21.37	1
		25	25	21.64	21.63	21.64	1
		50	0	21.53	21.67	21.47	1
	16QAM	1	0	21.50	21.58	21.56	1
		1	24	21.32	21.52	21.32	1
		1	49	21.72	21.56	21.63	1
		25	0	20.47	20.55	20.38	2
		25	12	20.56	20.70	20.47	2
		25	25	20.68	20.76	20.74	2
		50	0	20.60	20.59	20.54	2



**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

LTE Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH 23205	Mid CH 23230	High CH 23255	MPR
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5 MHz	
13/ 5	QPSK	1	0	22.37	22.35	22.37	0
		1	12	21.84	21.78	21.84	0
		1	24	21.89	21.86	21.93	0
		12	0	21.45	21.44	21.44	1
		12	6	21.55	21.62	21.58	1
		12	13	21.46	21.45	21.49	1
		25	0	21.57	21.61	21.58	1
	16QAM	1	0	21.85	21.87	21.90	1
		1	12	21.98	22.04	22.01	1
		1	24	21.86	21.80	21.86	1
		12	0	20.46	20.48	20.46	2
		12	6	20.60	20.64	20.60	2
		12	13	20.51	20.53	20.56	2
		25	0	20.54	20.53	20.55	2

Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 23230	/	MPR
				/	Frequency 782.0 MHz	/	
13/ 10	QPSK	1	0	/	22.42	/	0
		1	24	/	21.86	/	0
		1	49	/	21.94	/	0
		25	0	/	21.49	/	1
		25	12	/	21.63	/	1
		25	25	/	21.50	/	1
		50	0	/	21.63	/	1
	16QAM	1	0	/	21.92	/	1
		1	24	/	22.06	/	1
		1	49	/	21.88	/	1
		25	0	/	20.54	/	2
		25	12	/	20.66	/	2
		25	25	/	20.58	/	2
		50	0	/	20.60	/	2

LTE Band 17

Band/BW	Modulation	RB Size	RB Offset	Low CH 23755	Mid CH 23790	High CH 23825	MPR
				Frequency 706.5 MHz	Frequency 710 MHz	Frequency 713.5 MHz	
17/ 5	QPSK	1	0	22.20	22.14	22.19	0
		1	12	22.50	22.28	22.49	0
		1	24	22.29	22.19	22.44	0
		12	0	21.42	21.40	21.37	1
		12	6	21.31	21.61	21.42	1
		12	13	21.44	21.42	21.55	1
		25	0	21.46	21.64	21.49	1
	16QAM	1	0	21.75	21.85	21.94	1
		1	12	21.70	21.96	21.81	1
		1	24	21.83	21.61	21.82	1
		12	0	20.35	20.45	20.34	2
		12	6	20.51	20.69	20.50	2
		12	13	20.37	20.47	20.56	2
		25	0	20.59	20.57	20.62	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 23780	Mid CH 23790	High CH 23800	MPR
				Frequency 709 MHz	Frequency 710 MHz	Frequency 711 MHz	
17/ 10	QPSK	1	0	22.25	22.21	22.24	0
		1	24	22.52	22.36	22.51	0
		1	49	22.34	22.27	22.45	0
		25	0	21.46	21.45	21.42	1
		25	12	21.39	21.62	21.47	1
		25	25	21.48	21.47	21.56	1
		50	0	21.52	21.66	21.54	1
	16QAM	1	0	21.82	21.90	21.96	1
		1	24	21.78	21.98	21.86	1
		1	49	21.85	21.69	21.84	1
		25	0	20.43	20.51	20.42	2
		25	12	20.57	20.71	20.56	2
		25	25	20.44	20.52	20.58	2
		50	0	20.65	20.64	20.67	2

LTE Band 66

Band/BW	Modulation	RB Size	RB Offset	Low CH 131979	Mid CH 132322	High CH 132665	MPR
				Frequency 1710.7MHz	Frequency 1745MHz	Frequency 1779.3MHz	
66/ 1.4	QPSK	1	0	22.69	22.61	22.64	0
		1	2	22.62	22.59	22.70	0
		1	5	22.67	22.62	22.71	0
		3	0	22.58	22.56	22.90	0
		3	1	22.74	22.67	22.68	0
		3	3	22.57	22.54	22.87	0
		6	0	21.77	21.60	21.83	1
	16QAM	1	0	21.65	21.66	21.69	1
		1	2	21.61	21.49	21.80	1
		1	5	21.51	21.57	21.77	1
		3	0	21.76	21.54	21.91	1
		3	1	21.50	21.66	21.75	1
		3	3	21.67	21.54	21.86	1
		6	0	20.69	20.58	20.62	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 131987	Mid CH 132322	High CH 132657	MPR
				Frequency 1711.5MHz	Frequency 1745MHz	Frequency 1778.5MHz	
66/ 3	QPSK	1	0	22.71	22.63	22.63	0
		1	7	22.58	22.60	22.70	0
		1	14	22.63	22.62	22.71	0
		8	0	21.57	21.59	21.90	1
		8	3	21.67	21.67	21.70	1
		8	7	21.54	21.61	21.91	1
		15	0	21.74	21.61	21.77	1
	16QAM	1	0	21.62	21.72	21.72	1
		1	7	21.58	21.52	21.78	1
		1	14	21.54	21.57	21.77	1
		8	0	20.72	20.55	20.91	2
		8	3	20.55	20.61	20.78	2
		8	7	20.69	20.52	20.82	2
		15	0	20.69	20.52	20.65	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 131997	Mid CH 132322	High CH 132647	MPR
				Frequency 1712.5MHz	Frequency 1745MHz	Frequency 1777.5MHz	
66/ 5	QPSK	1	0	22.72	22.58	22.64	0
		1	12	22.63	22.57	22.70	0
		1	24	22.64	22.61	22.75	0
		12	0	21.60	21.59	21.87	1
		12	6	21.67	21.68	21.71	1
		12	13	21.58	21.57	21.92	1
		25	0	21.72	21.64	21.80	1
	16QAM	1	0	21.63	21.68	21.72	1
		1	12	21.55	21.55	21.77	1
		1	24	21.54	21.57	21.76	1
		12	0	20.72	20.53	20.88	2
		12	6	20.52	20.65	20.74	2
		12	13	20.64	20.54	20.85	2
		25	0	20.69	20.53	20.62	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 132022	Mid CH 132322	High CH 132622	MPR
				Frequency 1715MHz	Frequency 1745MHz	Frequency 1775MHz	
66/ 10	QPSK	1	0	22.69	22.61	22.64	0
		1	24	22.63	22.57	22.71	0
		1	49	22.61	22.65	22.71	0
		25	0	21.61	21.58	21.90	1
		25	12	21.73	21.62	21.71	1
		25	25	21.56	21.54	21.91	1
		50	0	21.77	21.64	21.77	1
	16QAM	1	0	21.63	21.65	21.68	1
		1	24	21.60	21.51	21.80	1
		1	49	21.54	21.58	21.73	1
		25	0	20.74	20.51	20.94	2
		25	12	20.56	20.59	20.79	2
		25	25	20.63	20.55	20.82	2
		50	0	20.73	20.52	20.66	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 132072	Mid CH 132322	High CH 132572	MPR
				Frequency 1720MHz	Frequency 1745MHz	Frequency 1770MHz	
66/ 15	QPSK	1	0	22.76	22.61	22.61	0
		1	37	22.61	22.62	22.66	0
		1	74	22.67	22.68	22.72	0
		36	0	21.58	21.59	21.91	1
		36	19	21.74	21.67	21.71	1
		36	39	21.54	21.55	21.91	1
		75	0	21.77	21.62	21.82	1
	16QAM	1	0	21.67	21.72	21.68	1
		1	37	21.59	21.52	21.80	1
		1	74	21.50	21.63	21.75	1
		36	0	20.78	20.51	20.95	2
		36	19	20.50	20.63	20.75	2
		36	39	20.68	20.53	20.85	2
		75	0	20.74	20.55	20.59	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 132072	Mid CH 132322	High CH 132572	MPR
				Frequency 1720MHz	Frequency 1745MHz	Frequency 1770MHz	
66/ 20	QPSK	1	0	22.77	22.65	22.69	0
		1	50	22.65	22.65	22.72	0
		1	99	22.69	22.69	22.76	0
		50	0	21.64	21.64	21.92	1
		50	25	21.75	21.69	21.76	1
		50	50	21.62	21.62	21.93	1
		100	0	21.78	21.66	21.85	1
	16QAM	1	0	21.70	21.73	21.74	1
		1	50	21.63	21.57	21.82	1
		1	99	21.56	21.65	21.78	1
		50	0	20.80	20.59	20.96	2
		50	25	20.58	20.67	20.80	2
		50	50	20.71	20.59	20.87	2
		100	0	20.75	20.60	20.67	2

EIRP

WCDMA

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1312	1712.4	23.46	5	28.46	701.46	1
1413	1732.6	23.33	5	28.33	680.77	1
1513	1752.6	23.48	5	28.48	704.69	1

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

LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	22.88	5	27.88	613.76	1
20175	1732.5	22.8	5	27.8	602.56	1
20393	1754.3	22.75	5	27.75	595.66	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	21.9	5	26.9	489.78	1
20175	1732.5	21.87	5	26.87	486.41	1
20393	1754.3	21.76	5	26.76	474.24	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	22.84	5	27.84	608.14	1
20175	1732.5	22.77	5	27.77	598.41	1
20385	1753.5	22.6	5	27.6	575.44	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	21.87	5	26.87	486.41	1
20175	1732.5	21.93	5	26.93	493.17	1
20385	1753.5	20.63	5	25.63	365.59	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	22.85	5	27.85	609.54	1
20175	1732.5	22.72	5	27.72	591.56	1
20375	1752.5	22.6	5	27.6	575.44	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	21.88	5	26.88	487.53	1
20175	1732.5	21.89	5	26.89	488.65	1
20375	1752.5	21.75	5	26.75	473.15	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	22.82	5	27.82	605.34	1
20175	1732.5	22.75	5	27.75	595.66	1
20350	1750	22.61	5	27.61	576.77	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	21.88	5	26.88	487.53	1
20175	1732.5	21.86	5	26.86	485.29	1
20350	1750	21.76	5	26.76	474.24	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	22.89	5	27.89	615.18	1
20175	1732.5	22.76	5	27.76	597.04	1
20325	1747.5	22.56	5	27.56	570.16	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	21.92	5	26.92	492.04	1
20175	1732.5	21.93	5	26.93	493.17	1
20325	1747.5	21.76	5	26.76	474.24	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	22.9	5	27.9	616.6	1
20175	1732.5	22.79	5	27.79	601.17	1
20300	1745	22.62	5	27.62	578.1	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	21.95	5	26.95	495.45	1
20175	1732.5	21.94	5	26.94	494.31	1
20300	1745	21.78	5	26.78	476.43	1



**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	22.59	3	23.44	220.8	3
23095	707.5	22.58	3	23.43	220.29	3
23173	715.3	22.58	3	23.43	220.29	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	21.67	3	22.52	178.65	3
23095	707.5	21.71	3	22.56	180.3	3
23173	715.3	21.73	3	22.58	181.13	3

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	22.45	3	23.3	213.8	3
23095	707.5	22.37	3	23.22	209.89	3
23165	714.5	22.49	3	23.34	215.77	3

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	21.7	3	22.55	179.89	3
23095	707.5	21.57	3	22.42	174.58	3
23165	714.5	21.62	3	22.47	176.6	3

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	22.46	3	23.31	214.29	3
23095	707.5	22.36	3	23.21	209.41	3
23155	713.5	22.53	3	23.38	217.77	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	21.7	3	22.55	179.89	3
23095	707.5	21.53	3	22.38	172.98	3
23155	713.5	21.61	3	22.46	176.2	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	22.51	3	23.36	216.77	3
23095	707.5	22.44	3	23.29	213.3	3
23130	711	22.54	3	23.39	218.27	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	21.72	3	22.57	180.72	3
23095	707.5	21.58	3	22.43	174.98	3
23130	711	21.63	3	22.48	177.01	3

LTE BAND 13

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	22.37	3	23.22	209.89	3
23230	782	22.35	3	23.2	208.93	3
23255	784.5	22.37	3	23.22	209.89	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	21.98	3	22.83	191.87	3
23230	782	22.04	3	22.89	194.54	3
23255	784.5	22.01	3	22.86	193.2	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	22.42	3	23.27	212.32	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	22.06	3	22.91	195.43	3
-	-	-	-	-	-	-

LTE BAND 17

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	22.5	3	23.35	216.27	3
23790	710	22.28	3	23.13	205.59	3
23825	713.5	22.49	3	23.34	215.77	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	21.83	3	22.68	185.35	3
23790	710	21.96	3	22.81	190.99	3
23825	713.5	21.94	3	22.79	190.11	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	22.52	3	23.37	217.27	3
23790	710	22.36	3	23.21	209.41	3
23800	711	22.51	3	23.36	216.77	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	21.85	3	22.7	186.21	3
23790	710	21.98	3	22.83	191.87	3
23800	711	21.96	3	22.81	190.99	3



**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

LTE BAND 66

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	22.74	5	27.74	594.29	1
132322	1745	22.67	5	27.67	584.79	1
132665	1779.3	22.9	5	27.9	616.6	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	21.76	5	26.76	474.24	1
132322	1745	21.66	5	26.66	463.45	1
132665	1779.3	21.91	5	26.91	490.91	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	22.71	5	27.71	590.2	1
132322	1745	22.63	5	27.63	579.43	1
132657	1778.5	22.71	5	27.71	590.2	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	21.62	5	26.62	459.2	1
132322	1745	21.72	5	26.72	469.89	1
132657	1778.5	21.78	5	26.78	476.43	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	22.72	5	27.72	591.56	1
132322	1745	22.61	5	27.61	576.77	1
132647	1777.5	22.75	5	27.75	595.66	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	21.63	5	26.63	460.26	1
132322	1745	21.68	5	26.68	465.59	1
132647	1777.5	21.77	5	26.77	475.34	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	22.69	5	27.69	587.49	1
132322	1745	22.65	5	27.65	582.1	1
132622	1775	22.71	5	27.71	590.2	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	21.63	5	26.63	460.26	1
132322	1745	21.65	5	26.65	462.38	1
132622	1775	21.8	5	26.8	478.63	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	22.76	5	27.76	597.04	1
132322	1745	22.68	5	27.68	586.14	1
132597	1772.5	22.72	5	27.72	591.56	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	21.67	5	26.67	464.52	1
132322	1745	21.72	5	26.72	469.89	1
132597	1772.5	21.8	5	26.8	478.63	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	22.77	5	27.77	598.41	1
132322	1745	22.69	5	27.69	587.49	1
132572	1770	22.76	5	27.76	597.04	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	21.7	5	26.7	467.74	1
132322	1745	21.73	5	26.73	470.98	1
132572	1770	21.82	5	26.82	480.84	1

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

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 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 .

3.2.2 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, $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$.

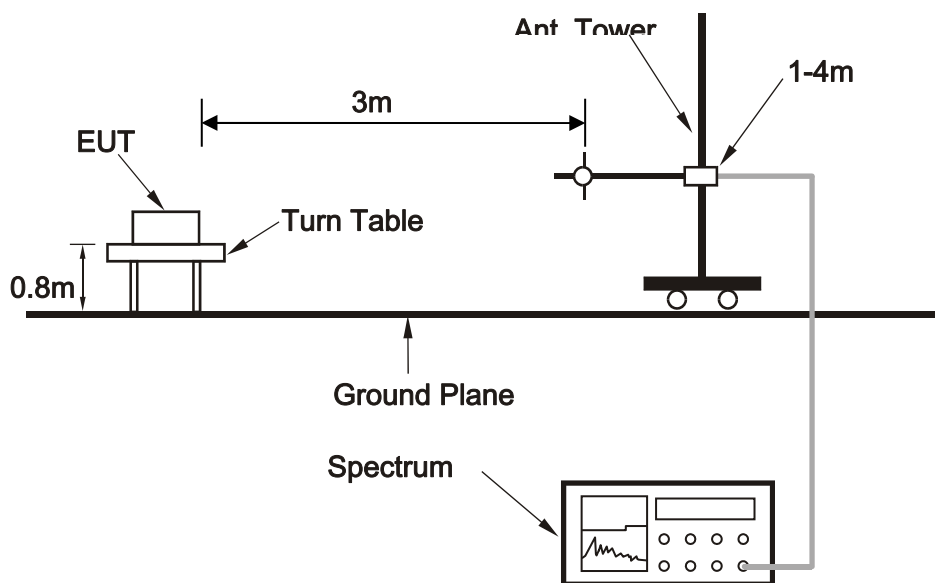
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.2.3 DEVIATION FROM TEST STANDARD

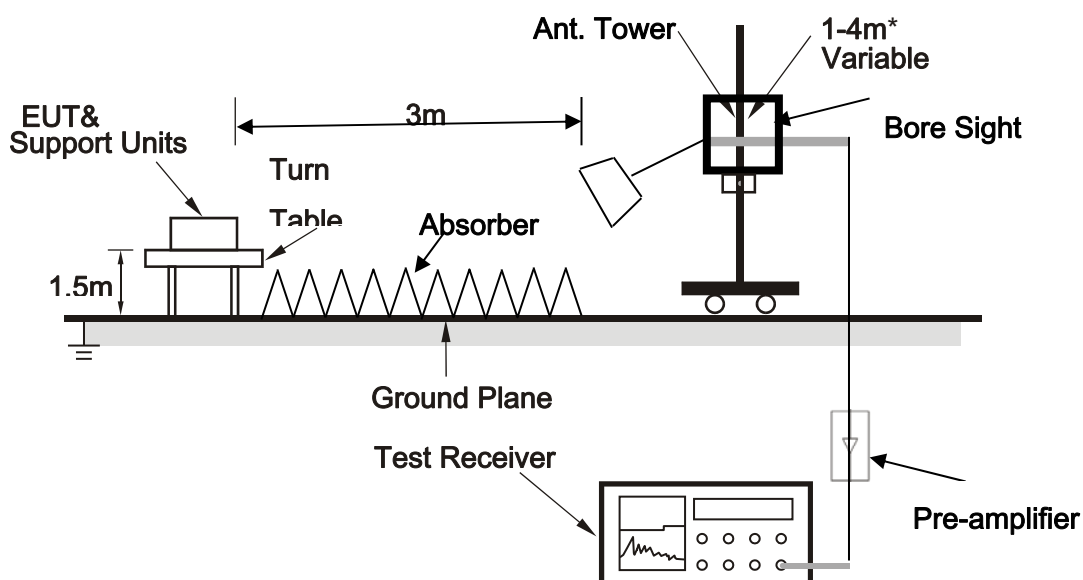
No deviation

3.2.4 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).

3.2.5 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

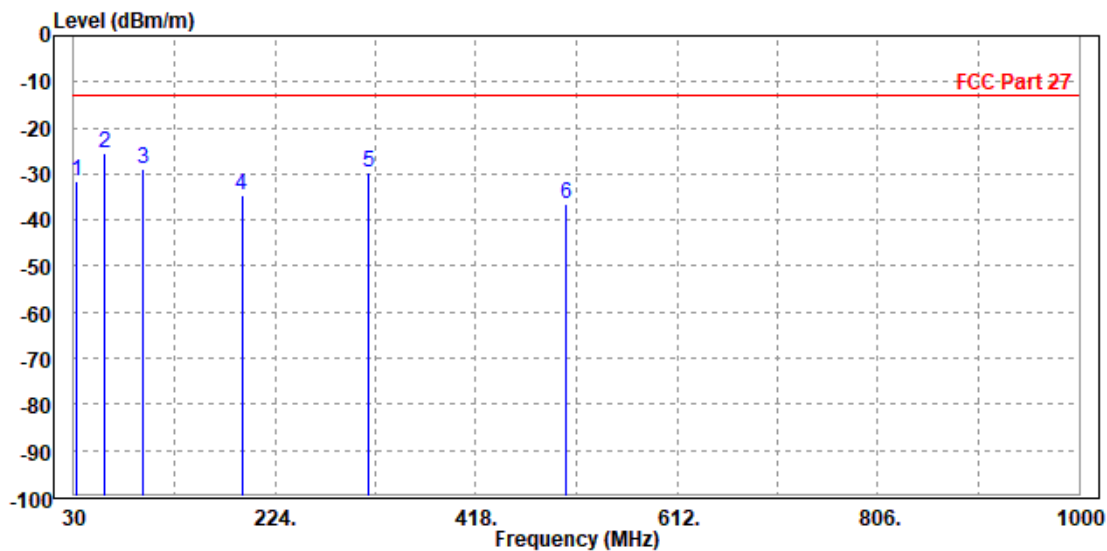
30 MHz – 1GHz data:

LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK

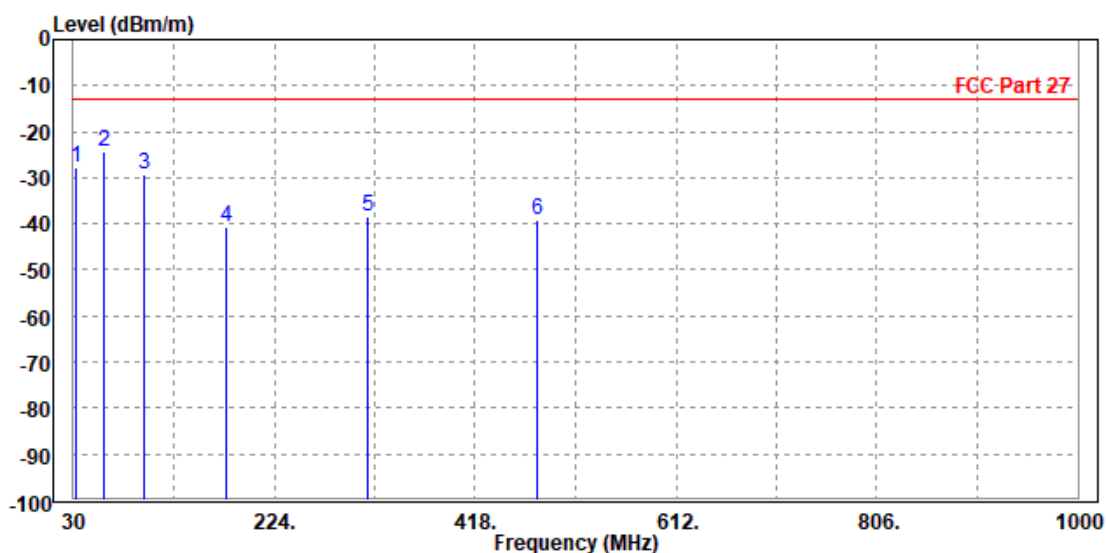
MODE	TX channel 23255	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	31.940	-31.48	-51.20	-13.00	-18.48	19.72	Peak	Horizontal
2 PP	59.100	-25.36	-33.05	-13.00	-12.36	7.69	Peak	Horizontal
3	95.960	-28.72	-36.76	-13.00	-15.72	8.04	Peak	Horizontal
4	191.990	-34.69	-45.37	-13.00	-21.69	10.68	Peak	Horizontal
5	314.210	-29.83	-44.24	-13.00	-16.83	14.41	Peak	Horizontal
6	505.300	-36.60	-55.41	-13.00	-23.60	18.81	Peak	Horizontal



MODE	TX channel 23255	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	31.940	-27.73	-47.08	-13.00	-14.73	19.35	Peak	Vertical
2 PP	60.070	-24.19	-32.09	-13.00	-11.19	7.90	Peak	Vertical
3	98.870	-29.30	-37.71	-13.00	-16.30	8.41	Peak	Vertical
4	177.440	-40.55	-51.00	-13.00	-27.55	10.45	Peak	Vertical
5	314.210	-38.35	-53.66	-13.00	-25.35	15.31	Peak	Vertical
6	478.140	-39.18	-57.86	-13.00	-26.18	18.68	Peak	Vertical





**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

ABOVE 1GHz

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

WORST-CASE DATA

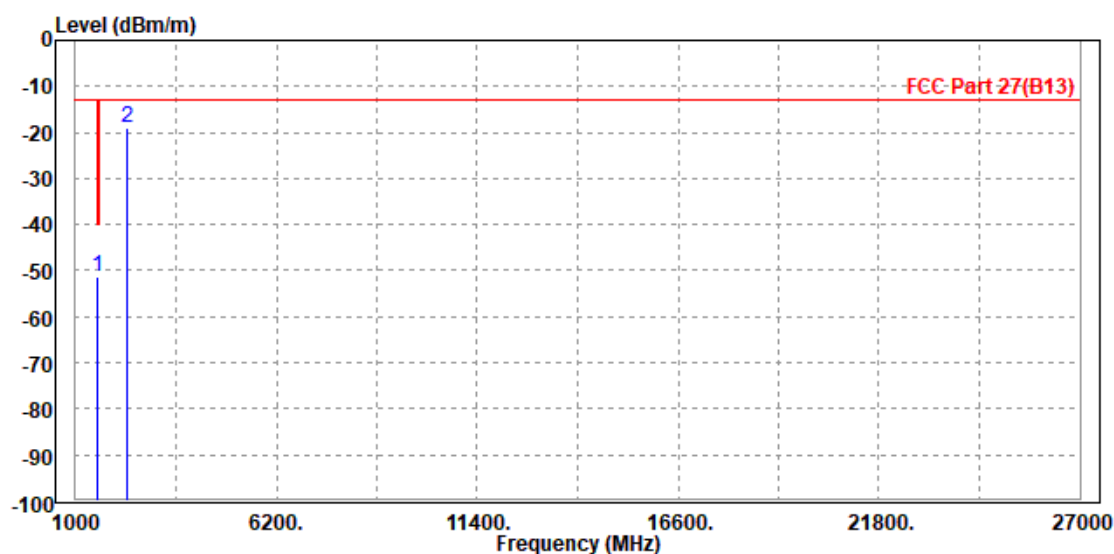
LTE B13

CHANNEL BANDWIDTH: 5MHz / QPSK

CH23205

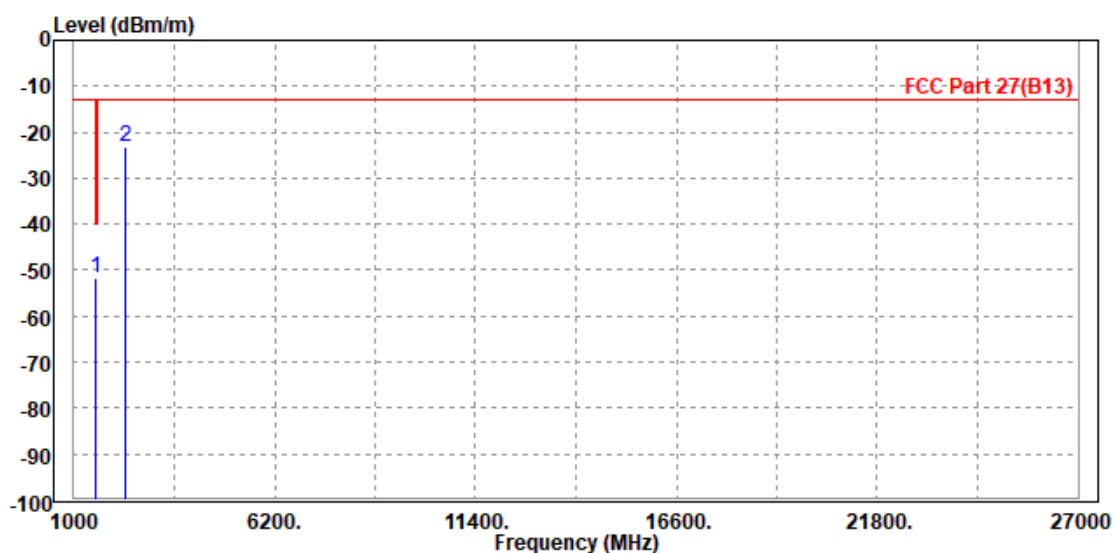
MODE	TX channel 23205	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1559.000	-51.45	-53.62	-40.00	-11.45	2.17	Peak	Horizontal
2 PP	2338.500	-18.97	-26.86	-13.00	-5.97	7.89	Peak	Horizontal



MODE	TX channel 23205	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1572.000	-51.83	-54.53	-40.00	-11.83	2.70	Peak	Vertical
2 PP	2326.000	-23.20	-30.09	-13.00	-10.20	6.89	Peak	Vertical





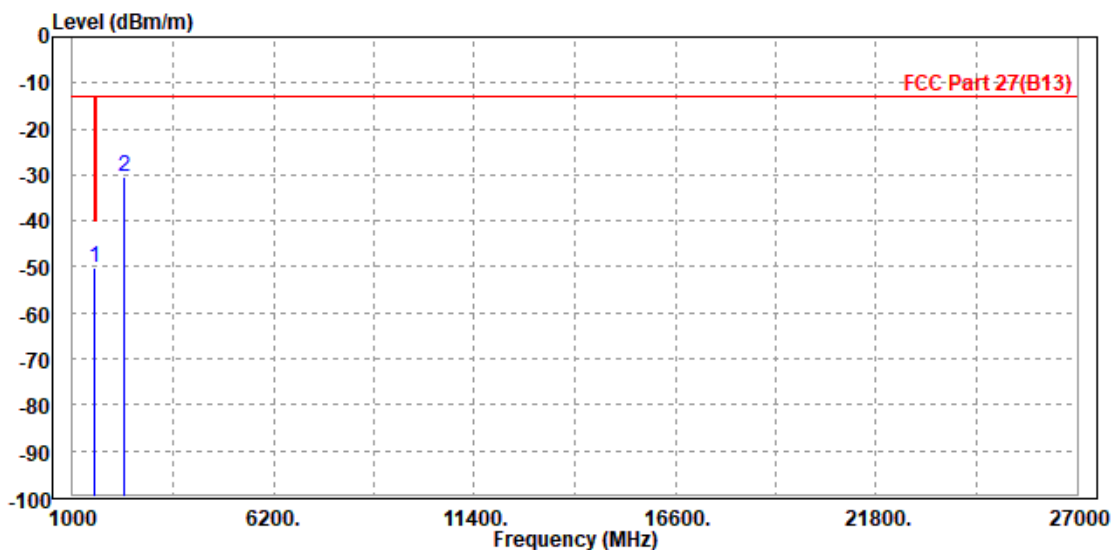
**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

CH23230

MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-50.08	-52.40	-40.00	-10.08	2.32	Peak	Horizontal
2		2346.000	-30.34	-38.24	-13.00	-17.34	7.90	Peak	Horizontal

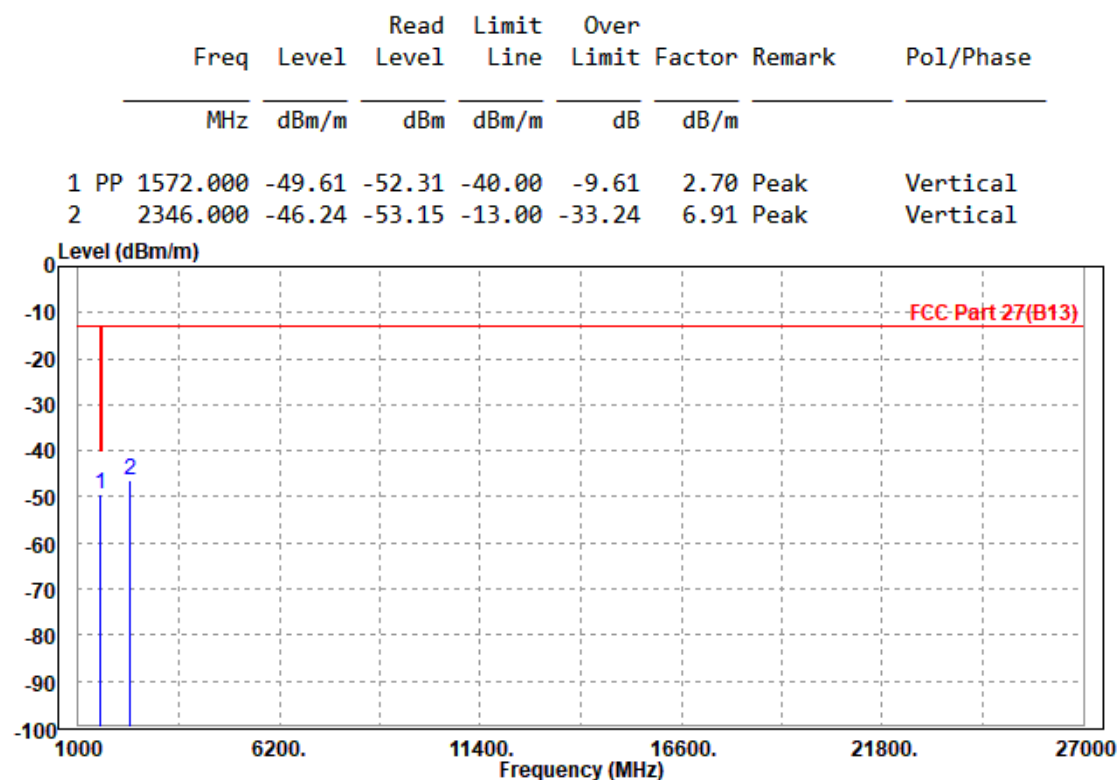




**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

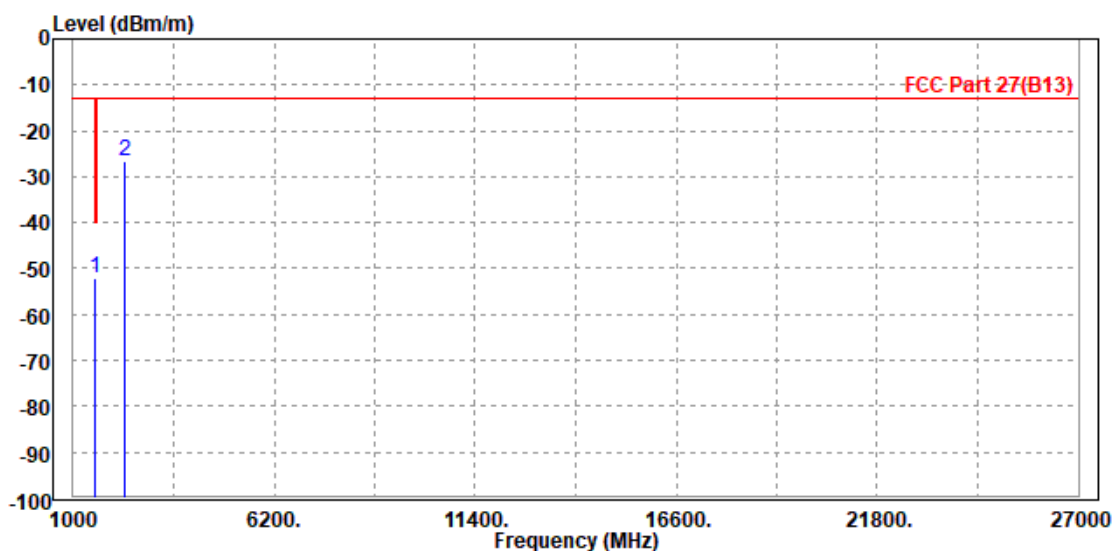
MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



CH23255

MODE	TX channel 23255	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1572.000	-51.96	-54.28	-40.00	-11.96	2.32	Peak	Horizontal
2	2353.500	-26.43	-34.33	-13.00	-13.43	7.90	Peak	Horizontal



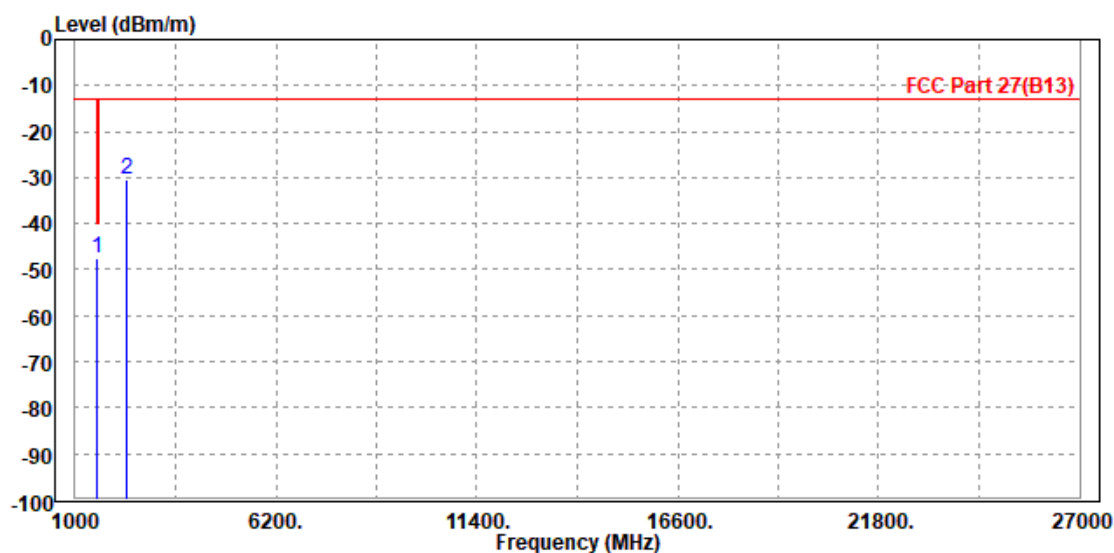


**BUREAU
VERITAS**

Test Report No.: W7L-220113W002RF04

MODE	TX channel 23255	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

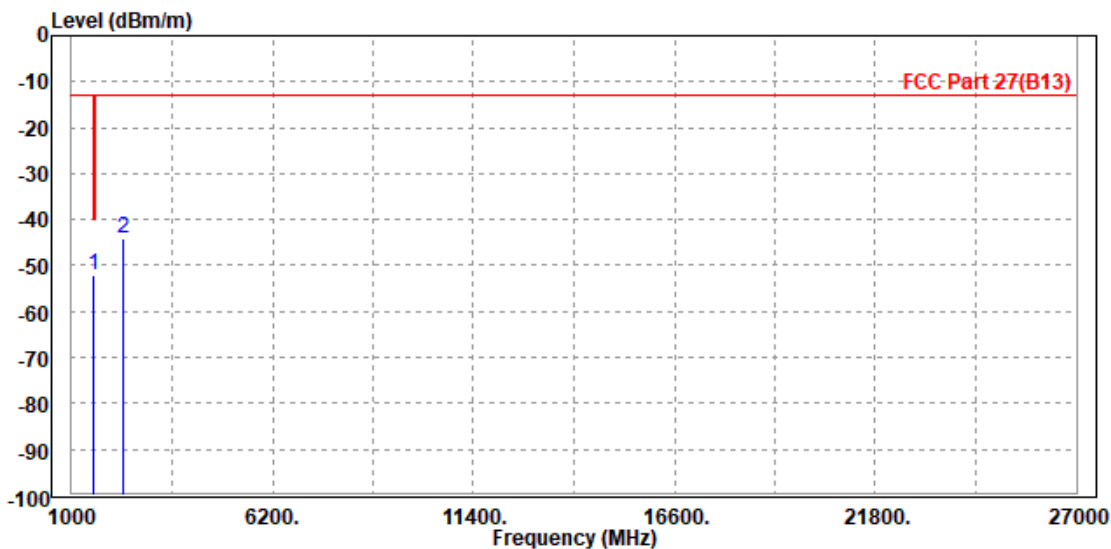
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1572.000	-47.51	-50.21	-40.00	-7.51	2.70	Peak	Vertical
2	2353.500	-30.23	-37.15	-13.00	-17.23	6.92	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz /QPSK

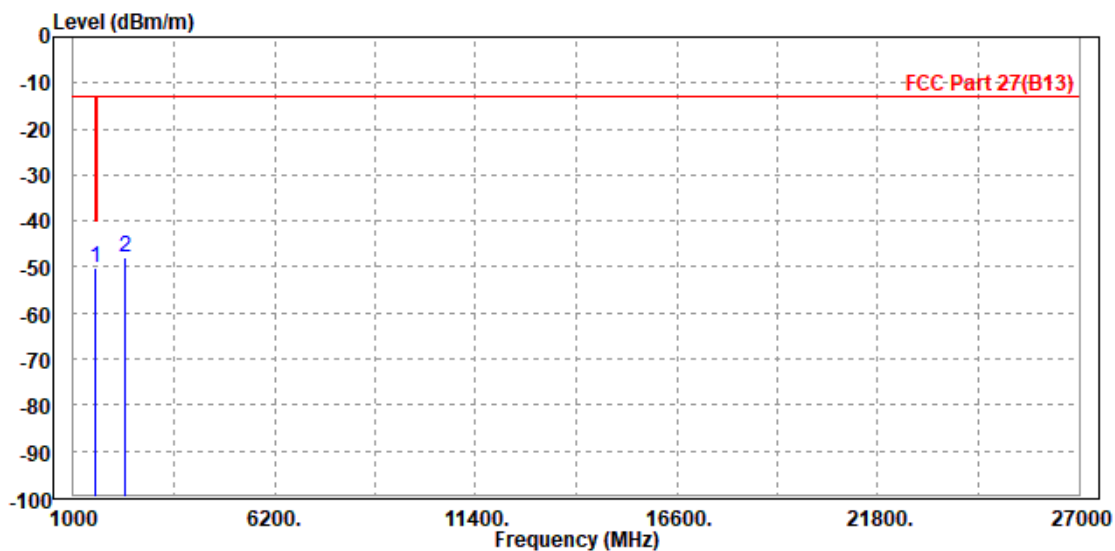
MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-52.13	-54.45	-40.00	-12.13	2.32	Peak	Horizontal
2		2346.000	-43.98	-51.88	-13.00	-30.98	7.90	Peak	Horizontal



MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1572.000	-50.18	-52.88	-40.00	-10.18	2.70	Peak	Vertical
2	2346.000	-47.84	-54.75	-13.00	-34.84	6.91	Peak	Vertical





Test Report No.: W7L-220113W002RF04

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@cn.bureauveritas.com

Web Site: www.adt.com.tw

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



Test Report No.: W7L-220113W002RF04

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.

---END---