

FCC TEST REPORT

(PART 27)

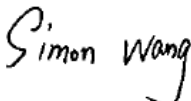
Applicant:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong

Manufacturer or Supplier:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Product:	TCL LINKPORT IK511
Brand Name:	TCL
Model Name:	IK511U
FCC ID:	2ACCSJSCD005
Date of tests:	Jul. 05, 2024 ~ Jul. 24, 2024

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

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

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Jul. 24, 2024	 Date: Jul. 24, 2024

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Test Report No.: W7L-P24070005RF04

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB. 100



Test Report No.: W7L-P24070005RF04

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P24070005RF04	Original release	Jul. 24, 2024

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2		
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT
§2.1046	Conducted Output Power	Compliance
§27.50(d)(4) §27.50(h)(2)	Equivalent Isotropically Radiated Power (Band 4) (Band 38) (Band 66)	Compliance
§2.1055 §27.54	Frequency Stability	Compliance
§2.1049	Occupied Bandwidth	Compliance
§2.1051 §27.53(h) §27.53(m)(4)(6)	Conducted Band Edge Measurements (Band 4) (Band 38) (Band 66)	Compliance
§2.1051 §27.53(h) §27.53(m)(4)(6)	Conducted Spurious Emissions (Band 4) (Band 38) (Band 66)	Compliance
§2.1053 §27.53(h) §27.53(m)(4)(6)	Radiated Spurious Emissions (Band 4) (Band 38) (Band 66)	Compliance
§27.50(d)(5)	Peak to average ratio	Compliance

NOTE:

The worst-case scenario for all measurements is based on an engineering evaluation made on different modulations. Then, QPSK and 16QAM were observed as the worst mode to LTE bands respectively and set for all conducted and radiated. Output power measurements were measured on QPSK, 16QAM, 64QAM modulations, and tests other than output power are performed only in worse-case QPSK and 16QAM modulations.

1.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	UNCERTAINTY
Frequency Stability	$\pm 76.97\text{Hz}$
Radiated emissions (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions & Radiated Power (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (1GHz ~6GHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GHz ~18GHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GHz ~40GHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
Band Edge Measurements	$\pm 4.70\text{dB}$

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	Mar. 28,24	Mar. 27,25
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.10,24	May.09,25
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,23	Sep.02,24
Bilog Antenna	ETS-LINDGRE N	3143B	00161965	Feb. 18,24	Feb. 17,25
Horn Antenna	ETS-LINDGRE N	3117	00168692	Feb. 18,24	Feb. 17,25
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K- SG/QMS-00361	15433	Sep.04, 23	Sep.03, 24
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 14,24	Feb. 13,25
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,24	May. 05,25
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.10,24	May.09,25
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,24	Feb.16,25
3m Semi-anechoic Chamber	ETS-LINDGRE N	9m*6m*6m	Euroshieldpn- CT0001143-121 6	Nov. 14,23	Nov. 13,26
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120	3.1.36	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	50HF-010-SMA	May. 06,24	May. 05,25
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,24	Feb. 13,25
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,24	Feb. 13,25
Temperature Chamber	ESPEC	SH-242	93000855	May. 06,24	May. 05,25
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 14,24	Feb. 13,25
Base station R&S CMW500	Rohde&Schwa rz	CMW500	153085	May.10,24	May.09,25
DC Source	Kikusui/JP	PMX18-5A	N/A	Aug. 11,23	Aug. 10,24

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

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	TCL LINKPORT IK511	
BRAND NAME	TCL	
MODEL NAME	IK511U	
NOMINAL VOLTAGE	DC5V	
MODULATION TECHNOLOGY	LTE	QPSK, 16QAM, 64QAM
REQUENCY RANGE	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 38 Channel Bandwidth: 5MHz	2572.5MHz ~ 2617.5MHz
	LTE Band 38 Channel Bandwidth: 10MHz	2575MHz ~ 2615MHz
	LTE Band 38 Channel Bandwidth: 15MHz	2577.5MHz ~ 2612.5MHz
	LTE Band 38 Channel Bandwidth: 20MHz	2580MHz ~ 2610MHz
	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

MAX. EIRP POWER	LTE Band 4 Channel Bandwidth: 1.4MHz	196.79mW
	LTE Band 4 Channel Bandwidth: 3MHz	196.34mW
	LTE Band 4 Channel Bandwidth: 5MHz	194.09mW
	LTE Band 4 Channel Bandwidth: 10MHz	193.64mW
	LTE Band 4 Channel Bandwidth: 15MHz	195.88mW
	LTE Band 4 Channel Bandwidth: 20MHz	199.07mW
	LTE Band 38 Channel Bandwidth: 5MHz	194.54mW
	LTE Band 38 Channel Bandwidth: 10MHz	190.11mW
	LTE Band 38 Channel Bandwidth: 15MHz	195.88mW
	LTE Band 38 Channel Bandwidth: 20MHz	196.34mW
	LTE Band 66 Channel Bandwidth: 1.4MHz	198.61mW
	LTE Band 66 Channel Bandwidth: 3MHz	198.61mW
	LTE Band 66 Channel Bandwidth: 5MHz	196.34mW
	LTE Band 66 Channel Bandwidth: 10MHz	198.15mW
	LTE Band 66 Channel Bandwidth: 15MHz	200.91mW
	LTE Band 66 Channel Bandwidth: 20MHz	202.3mW
EMISSION DESIGNATOR	LTE Band 38 Channel Bandwidth: 5MHz	QPSK: 4M52G7D 16QAM: 4M53W7D
	LTE Band 38 Channel Bandwidth: 10MHz	QPSK: 9M03G7D 16QAM: 9M02W7D
	LTE Band 38 Channel Bandwidth: 15MHz	QPSK: 13M5G7D 16QAM: 13M5W7D
	LTE Band 38 Channel Bandwidth: 20MHz	QPSK: 18M0G7D 16QAM: 18M0W7D

EMISSION DESIGNATOR	LTE Band 66 Channel Bandwidth: 1.4MHz	QPSK: 1M10G7D
		16QAM: 1M11W7D
	LTE Band 66 Channel Bandwidth: 3MHz	QPSK: 2M71G7D
		16QAM: 2M71W7D
	LTE Band 66 Channel Bandwidth: 5MHz	QPSK: 4M54G7D
		16QAM: 4M53W7D
	LTE Band 66 Channel Bandwidth: 10MHz	QPSK: 9M02G7D
		16QAM: 9M02W7D
	LTE Band 66 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
	LTE Band 66 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 18M0W7D
ANTENNA TYPE	Fixed Internal Antenna with 0.5dBi gain for LTE B4 Fixed Internal Antenna with 0.3dBi gain for LTE B38 Fixed Internal Antenna with 0.5dBi gain for LTE B66	
HW VERSION	V3.0	
SW VERSION	IK511U_ZZ_01.00_01	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB cable: With shielded cable, w/o ferrite core, 0.15 meter	
EXTREME TEMPERATURE	-20-55 °C	
EXTREME VOLTAGE	4.75V - 5.25V	

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.

MODULATION MODE	TX FUNCTION
LTE	1TX

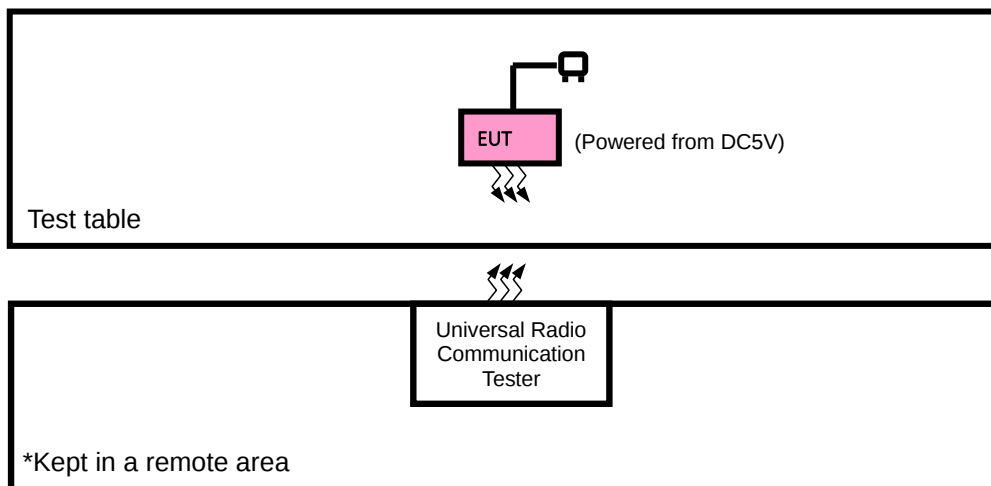
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

5. List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
USB cable	N/A	Huizhou Juwei Electronics Co., Ltd.	N/A	Signal Line, 0.15meter Type C-to-C, USB3.0

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	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB cable: Unshielded, Detachable 0.15m

2.4 TEST ITEM AND TEST CONFIGURATION

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

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + DC Supply with LTE link

LTE BAND 4 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset

Note: 1.This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

2. LTE Band 4 are covered by LTE Band 66, Because it is a subset of LTE Band 66 with the same output power and supported bandwidths, So the conducted test data and RSE test data please refer to LTE Band 66

LTE BAND 38 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
		37825 to 38175	37825, 38000, 38175	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	37800 to 38200	37800, 38000, 38200	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	37775 to 38225	37775	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			38225	5MHz	QPSK, 16QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		37800 to 38200	37800	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
			38200	10MHz	QPSK, 16QAM	1 RB / 49 RB Offset 50 RB / 0 RB Offset
		37825 to 38175	37825	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
			38175	15MHz	QPSK, 16QAM	1 RB / 74 RB Offset 75 RB / 0 RB Offset
		37850 to 38150	37850	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
			38150	20MHz	QPSK, 16QAM	1 RB / 99 RB Offset 100 RB / 0 RB Offset
A	CONDUCTED EMISSION	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10MHz	QPSK, 16QAM	1 RB / 0RB Offset



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		37825 to 38175	37825, 38000, 38175	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	37775 to 38225	38000	5MHz	QPSK	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10MHz	QPSK	1 RB / 0 RB Offset
		37825 to 38175	38000	15MHz	QPSK	1 RB / 0 RB Offset
		37850 to 38150	38000	20MHz	QPSK	1 RB / 0 RB Offset

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

LTE BAND 66 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	131979 to 132665	131979,132322,132665	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		131987 to 132657	131987,132322,132657	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		131997 to 132647	131997,132322,132647	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132022 to 132622	132022,132322,132622	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132047 to 132597	132047,132322,132597	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132072 to 132572	132072,132322,132572	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	132022 to 132622	132022,132322,132622	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	131979 to 132665	131979,132322,132665	1.4MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		131987 to 132657	131987,132322,132657	3MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		131997 to 132647	131997,132322,132647	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		132022 to 132622	132022,132322,132622	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		132047 to 132597	132047,132322,132597	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		132072 to 132572	132072,132322,132572	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	132072 to 132572	132072, 132572	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	131979 to 132322	131979	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset 6 RB / 0 RB Offset
			132322	1.4MHz	QPSK, 16QAM	1 RB / 5 RB Offset 6 RB / 0 RB Offset
		131987 to 132657	131987	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset 15 RB / 0 RB Offset
			132657	3MHz	QPSK, 16QAM	1 RB / 14 RB Offset 15 RB / 0 RB Offset
		131997 to 132647	131997	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			132647	5MHz	QPSK, 16QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		132022 to 132622	132022	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
			132622	10MHz	QPSK, 16QAM	1 RB / 49 RB Offset 50 RB / 0 RB Offset
		132047 to 132597	132047	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
			132597	15MHz	QPSK, 16QAM	1 RB / 74 RB Offset 75 RB / 0 RB Offset
		132072 to 132572	132072	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
			132572	20MHz	QPSK, 16QAM	1 RB / 99 RB Offset



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						100 RB / 0 RB Offset
A	CONDUCTED EMISSION	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
A	RADIATED EMISSION	131979 to 132665	131979,132322,132665	1.4MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	132322	3MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	132322	5MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132322	10MHz	QPSK	1 RB / 0 RB Offset
		132047 to 132597	132322	15MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132322	20MHz	QPSK	1 RB / 0 RB Offset

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



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TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP&EIRP	23deg. C, 70%RH	DC 5V	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 4.75V/5V/5.25V	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5V	James Fu
BAND EDGE	23deg. C, 70%RH	DC 5V	James Fu
CONDUCTED EMISSION	23deg. C, 70%RH	DC 5V	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC 5V	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5V	James Fu



Test Report No.: W7L-P24070005RF04

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

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

According to the specific rule Part 27.50(d)(4) 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

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 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.

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

CONDUCTED OUTPUT POWER (dBm)

LTE Band 4						
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	22.28	22.40	22.33
		1	50	22.36	22.42	22.45
		1	99	22.41	22.47	22.49
		50	0	21.24	21.28	21.34
		50	25	21.37	21.40	21.42
		50	50	21.40	21.42	21.45
		100	0	21.32	21.39	21.41
	16QAM	1	0	21.44	21.54	21.49
		1	50	21.60	21.56	21.38
		1	99	21.62	21.55	21.53
		50	0	20.25	20.41	20.36
		50	25	20.37	20.46	20.31
		50	50	20.38	20.38	20.43
		100	0	20.33	20.42	20.31
	64QAM	1	0	20.31	20.41	20.42
		1	50	20.44	20.44	20.53
		1	99	20.52	20.47	20.54
		50	0	19.21	19.40	19.31
		50	25	19.38	19.39	19.32
		50	50	19.37	19.35	19.37
		100	0	19.39	19.41	19.29

BW	Modulation	Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	22.20	22.34	22.32
		1	37	22.35	22.38	22.34
		1	74	22.22	22.20	22.42
		36	0	21.14	21.15	21.21
		36	19	21.39	21.38	21.33
		36	39	21.22	21.38	21.30
		75	0	21.17	21.28	21.26
	16QAM	1	0	21.35	21.42	21.42
		1	37	21.53	21.51	21.23
		1	74	21.51	21.52	21.42
		36	0	20.17	20.34	20.31
		36	19	20.35	20.45	20.24
		36	39	20.31	20.35	20.39
		75	0	20.18	20.27	20.28
	64QAM	1	0	20.23	20.38	20.39
		1	37	20.29	20.40	20.52
		1	74	20.46	20.33	20.42
		36	0	19.16	19.27	19.16
		36	19	19.37	19.34	19.17
		36	39	19.35	19.26	19.35
		75	0	19.25	19.27	19.16

BW	Modulation	Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	22.17	22.35	22.32
		1	24	22.36	22.34	22.37
		1	49	22.23	22.19	22.29
		25	0	21.19	21.23	21.19
		25	12	21.26	21.35	21.35
		25	25	21.23	21.39	21.31
		50	0	21.25	21.27	21.24
	16QAM	1	0	21.30	21.48	21.40
		1	24	21.56	21.47	21.35
		1	49	21.60	21.52	21.42
		25	0	20.21	20.28	20.34
		25	12	20.25	20.33	20.17
		25	25	20.36	20.30	20.36
		50	0	20.29	20.31	20.16
	64QAM	1	0	20.22	20.27	20.36
		1	24	20.41	20.38	20.51
		1	49	20.46	20.44	20.53
		25	0	19.09	19.39	19.22
		25	12	19.34	19.37	19.27
		25	25	19.27	19.27	19.28
		50	0	19.29	19.27	19.18

BW	Modulation	Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	22.27	22.38	22.29
		1	12	22.36	22.34	22.37
		1	24	22.24	22.07	22.36
		12	0	21.12	21.17	21.20
		12	6	21.34	21.40	21.37
		12	13	21.22	21.39	21.29
		25	0	21.29	21.29	21.21
	16QAM	1	0	21.36	21.46	21.47
		1	12	21.48	21.54	21.36
		1	24	21.56	21.41	21.52
		12	0	20.19	20.37	20.34
		12	6	20.30	20.37	20.27
		12	13	20.33	20.34	20.40
		25	0	20.26	20.36	20.30
	64QAM	1	0	20.26	20.38	20.35
		1	12	20.33	20.29	20.42
		1	24	20.48	20.35	20.51
		12	0	19.15	19.32	19.20
		12	6	19.26	19.32	19.23
		12	13	19.34	19.32	19.22
		25	0	19.29	19.26	19.25

BW	Modulation	Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	22.17	22.39	22.18
		1	7	22.30	22.35	22.43
		1	14	22.24	22.20	22.39
		8	0	21.14	21.26	21.32
		8	3	21.31	21.38	21.28
		8	7	21.35	21.27	21.24
		15	0	21.26	21.27	21.16
	16QAM	1	0	21.33	21.40	21.46
		1	7	21.52	21.45	21.31
		1	14	21.53	21.47	21.38
		8	0	20.20	20.31	20.22
		8	3	20.29	20.41	20.29
		8	7	20.28	20.34	20.30
		15	0	20.27	20.40	20.21
	64QAM	1	0	20.21	20.36	20.33
		1	7	20.34	20.37	20.43
		1	14	20.41	20.41	20.49
		8	0	19.06	19.39	19.29
		8	3	19.37	19.37	19.20
		8	7	19.29	19.22	19.25
		15	0	19.30	19.38	19.22

BW	Modulation	Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	22.24	22.27	22.23
		1	2	22.28	22.44	22.33
		1	5	22.30	22.11	22.33
		3	0	21.96	21.93	22.02
		3	1	22.17	22.21	22.12
		3	3	22.02	22.19	22.07
		6	0	21.17	21.36	21.22
	16QAM	1	0	21.32	21.43	21.37
		1	2	21.46	21.45	21.27
		1	5	21.54	21.42	21.50
		3	0	21.02	21.11	21.07
		3	1	21.05	21.19	21.00
		3	3	21.15	21.14	21.22
		6	0	20.32	20.34	20.21
	64QAM	1	0	20.18	20.35	20.33
		1	2	20.33	20.38	20.38
		1	5	20.50	20.35	20.41
		3	0	19.98	20.19	20.00
		3	1	20.05	20.06	20.04
		3	3	20.15	20.13	20.13
		6	0	19.25	19.26	19.14

LTE Band 38						
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	22.63	22.41	22.36
		1	50	22.55	22.34	22.31
		1	99	22.44	22.24	22.25
		50	0	21.69	21.59	21.31
		50	25	21.68	21.29	21.27
		50	50	21.59	21.45	21.26
		100	0	21.64	21.51	21.21
	16QAM	1	0	21.64	21.58	21.36
		1	50	21.74	21.64	21.28
		1	99	21.35	21.45	21.19
		50	0	20.58	20.54	20.29
		50	25	20.54	20.58	20.27
		50	50	20.46	20.48	20.22
		100	0	20.56	20.49	20.21
	64QAM	1	0	20.49	20.64	20.31
		1	50	20.53	20.77	20.22
		1	99	20.38	20.57	20.18
		50	0	19.63	19.85	19.32
		50	25	19.60	19.77	19.37
		50	50	19.52	19.69	19.30
		100	0	19.51	19.65	19.25

BW	Modulation	Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	QPSK	1	0	22.62	22.31	22.35
		1	37	22.47	22.28	22.29
		1	74	22.31	22.19	22.22
		36	0	21.64	21.50	21.23
		36	19	21.62	21.15	21.12
		36	39	21.46	21.32	21.23
		75	0	21.59	21.47	21.06
	16QAM	1	0	21.63	21.53	21.23
		1	37	21.68	21.59	21.21
		1	74	21.30	21.37	21.09
		36	0	20.56	20.39	20.17
		36	19	20.40	20.54	20.12
		36	39	20.37	20.33	20.20
		75	0	20.45	20.36	20.07
	64QAM	1	0	20.38	20.59	20.20
		1	37	20.49	20.76	20.21
		1	74	20.30	20.49	20.15
		36	0	19.54	19.82	19.31
		36	19	19.56	19.67	19.33
		36	39	19.40	19.54	19.20
		75	0	19.46	19.56	19.18

BW	Modulation	Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	QPSK	1	0	22.49	22.36	22.31
		1	24	22.42	22.20	22.20
		1	49	22.29	22.19	22.20
		25	0	21.59	21.45	21.29
		25	12	21.64	21.28	21.14
		25	25	21.54	21.32	21.15
		50	0	21.58	21.37	21.19
	16QAM	1	0	21.62	21.50	21.23
		1	24	21.66	21.58	21.19
		1	49	21.28	21.33	21.11
		25	0	20.46	20.39	20.25
		25	12	20.42	20.48	20.19
		25	25	20.34	20.40	20.14
		50	0	20.47	20.37	20.10
	64QAM	1	0	20.46	20.53	20.28
		1	24	20.44	20.76	20.11
		1	49	20.36	20.50	20.07
		25	0	19.61	19.71	19.27
		25	12	19.49	19.70	19.23
		25	25	19.48	19.57	19.17
		50	0	19.39	19.55	19.19

BW	Modulation	Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	QPSK	1	0	22.59	22.28	22.21
		1	12	22.47	22.27	22.25
		1	24	22.35	22.16	22.20
		12	0	21.60	21.56	21.23
		12	6	21.57	21.14	21.18
		12	13	21.54	21.40	21.24
		25	0	21.61	21.37	21.10
	16QAM	1	0	21.57	21.55	21.32
		1	12	21.66	21.62	21.27
		1	24	21.20	21.40	21.05
		12	0	20.53	20.42	20.25
		12	6	20.44	20.57	20.23
		12	13	20.42	20.42	20.09
		25	0	20.50	20.40	20.12
	64QAM	1	0	20.41	20.57	20.30
		1	12	20.39	20.64	20.18
		1	24	20.31	20.49	20.06
		12	0	19.48	19.71	19.31
		12	6	19.49	19.74	19.27
		12	13	19.44	19.56	19.29
		25	0	19.47	19.62	19.22

LTE Band 66						
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	22.37	22.29	22.41
		1	50	22.30	22.26	22.32
		1	99	22.37	22.56	22.52
		50	0	21.20	21.22	21.23
		50	25	21.23	21.29	21.28
		50	50	21.20	21.24	21.23
		100	0	21.22	21.27	21.25
	16QAM	1	0	21.25	21.22	21.25
		1	50	21.30	21.34	21.42
		1	99	21.35	21.38	21.50
		50	0	20.23	20.26	20.27
		50	25	20.27	20.20	20.40
		50	50	20.19	20.23	20.37
		100	0	20.21	20.21	20.31
	64QAM	1	0	20.25	20.26	20.38
		1	50	20.34	20.39	20.47
		1	99	20.23	20.33	20.61
		50	0	19.21	19.22	19.25
		50	25	19.24	19.23	19.37
		50	50	19.23	19.20	19.34
		100	0	19.24	19.19	19.29

BW	Modulation	Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	22.29	22.20	22.32
		1	37	22.21	22.12	22.26
		1	74	22.31	22.32	22.53
		36	0	21.09	21.15	21.22
		36	19	21.20	21.04	21.11
		36	39	21.08	21.19	21.23
		75	0	21.14	21.08	21.11
	16QAM	1	0	21.20	21.10	21.13
		1	37	21.16	21.30	21.29
		1	74	21.28	21.31	21.40
		36	0	20.12	20.24	20.25
		36	19	20.21	20.06	20.29
		36	39	20.17	20.20	20.33
		75	0	20.07	20.09	20.17
	64QAM	1	0	20.14	20.25	20.34
		1	37	20.20	20.27	20.46
		1	74	20.11	20.32	20.58
		36	0	19.13	19.10	19.18
		36	19	19.11	19.10	19.27
		36	39	19.20	19.18	19.20
		75	0	19.14	19.14	19.14

BW	Modulation	Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	22.32	22.28	22.40
		1	24	22.25	22.21	22.18
		1	49	22.27	22.28	22.47
		25	0	21.19	21.07	21.13
		25	12	21.17	21.06	21.10
		25	25	21.14	21.12	21.22
		50	0	21.07	21.11	21.16
	16QAM	1	0	21.14	21.16	21.17
		1	24	21.22	21.31	21.39
		1	49	21.30	21.25	21.48
		25	0	20.16	20.12	20.18
		25	12	20.26	20.18	20.39
		25	25	20.17	20.15	20.36
		50	0	20.15	20.20	20.26
	64QAM	1	0	20.17	20.24	20.36
		1	24	20.31	20.37	20.43
		1	49	20.17	20.27	20.52
		25	0	19.19	19.15	19.12
		25	12	19.12	19.19	19.22
		25	25	19.13	19.16	19.21
		50	0	19.18	19.12	19.21

BW	Modulation	Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	22.33	22.17	22.34
		1	12	22.19	22.14	22.17
		1	24	22.35	22.27	22.43
		12	0	21.11	21.13	21.21
		12	6	21.09	21.15	21.17
		12	13	21.17	21.15	21.23
		25	0	21.11	21.16	21.21
	16QAM	1	0	21.11	21.13	21.21
		1	12	21.24	21.22	21.31
		1	24	21.20	21.36	21.44
		12	0	20.10	20.17	20.25
		12	6	20.15	20.06	20.25
		12	13	20.09	20.13	20.26
		25	0	20.13	20.13	20.28
	64QAM	1	0	20.16	20.18	20.36
		1	12	20.19	20.34	20.44
		1	24	20.21	20.21	20.48
		12	0	19.19	19.08	19.20
		12	6	19.22	19.11	19.30
		12	13	19.08	19.07	19.31
		25	0	19.16	19.12	19.26

BW	Modulation	Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	22.32	22.22	22.35
		1	7	22.20	22.19	22.26
		1	14	22.30	22.30	22.48
		8	0	21.13	21.17	21.15
		8	3	21.14	21.10	21.18
		8	7	21.15	21.16	21.15
		15	0	21.14	21.17	21.13
	16QAM	1	0	21.13	21.12	21.22
		1	7	21.23	21.26	21.30
		1	14	21.22	21.34	21.41
		8	0	20.22	20.18	20.13
		8	3	20.25	20.12	20.39
		8	7	20.05	20.21	20.26
		15	0	20.13	20.15	20.30
	64QAM	1	0	20.24	20.11	20.34
		1	7	20.21	20.26	20.41
		1	14	20.16	20.31	20.50
		8	0	19.11	19.11	19.23
		8	3	19.12	19.20	19.30
		8	7	19.18	19.18	19.26
		15	0	19.14	19.15	19.24

BW	Modulation	Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	22.32	22.18	22.37
		1	2	22.22	22.16	22.28
		1	5	22.24	22.37	22.48
		3	0	22.09	22.21	22.09
		3	1	22.20	22.06	22.19
		3	3	22.09	22.23	22.14
		6	0	21.21	21.06	21.10
	16QAM	1	0	21.11	21.07	21.20
		1	2	21.23	21.29	21.28
		1	5	21.28	21.24	21.36
		3	0	21.22	21.20	21.19
		3	1	21.26	21.14	21.33
		3	3	21.16	21.09	21.26
		6	0	20.15	20.10	20.25
	64QAM	1	0	20.10	20.21	20.24
		1	2	20.19	20.26	20.46
		1	5	20.17	20.19	20.58
		3	0	20.07	20.11	20.23
		3	1	20.10	20.12	20.29
		3	3	20.16	20.13	20.30
		6	0	19.11	19.07	19.15

EIRP

LTE B4 1.4M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	22.3	0.5	22.8	190.55	1
20175	1732.5	22.44	0.5	22.94	196.79	1
20393	1754.3	22.33	0.5	22.83	191.87	1

LTE B4 1.4M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	21.54	0.5	22.04	159.96	1
20175	1732.5	21.45	0.5	21.95	156.68	1
20393	1754.3	21.5	0.5	22	158.49	1

LTE B4 1.4M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	20.5	0.5	21	125.89	1
20175	1732.5	20.38	0.5	20.88	122.46	1
20393	1754.3	20.41	0.5	20.91	123.31	1

LTE B4 3M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	22.3	0.5	22.8	190.55	1
20175	1732.5	22.39	0.5	22.89	194.54	1
20385	1753.5	22.43	0.5	22.93	196.34	1

LTE B4 3M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	21.53	0.5	22.03	159.59	1
20175	1732.5	21.53	0.5	22.03	159.59	1
20385	1753.5	21.53	0.5	22.03	159.59	1

LTE B4 3M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	20.41	0.5	20.91	123.31	1
20175	1732.5	20.41	0.5	20.91	123.31	1
20385	1753.5	20.49	0.5	20.99	125.6	1

LTE B4 5M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	22.36	0.5	22.86	193.2	1
20175	1732.5	22.38	0.5	22.88	194.09	1
20375	1752.5	22.37	0.5	22.87	193.64	1

LTE B4 5M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	21.56	0.5	22.06	160.69	1
20175	1732.5	21.54	0.5	22.04	159.96	1
20375	1752.5	21.52	0.5	22.02	159.22	1

LTE B4 5M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	20.48	0.5	20.98	125.31	1
20175	1732.5	20.38	0.5	20.88	122.46	1
20375	1752.5	20.51	0.5	21.01	126.18	1

LTE B4 10M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	22.36	0.5	22.86	193.2	1
20175	1732.5	22.35	0.5	22.85	192.75	1
20350	1750	22.37	0.5	22.87	193.64	1

LTE B4 10M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	21.6	0.5	22.1	162.18	1
20175	1732.5	21.52	0.5	22.02	159.22	1
20350	1750	21.42	0.5	21.92	155.6	1

LTE B4 10M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	20.46	0.5	20.96	124.74	1
20175	1732.5	20.44	0.5	20.94	124.17	1
20350	1750	20.53	0.5	21.03	126.77	1

LTE B4 15M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	22.35	0.5	22.85	192.75	1
20175	1732.5	22.38	0.5	22.88	194.09	1
20325	1747.5	22.42	0.5	22.92	195.88	1

LTE B4 15M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	21.53	0.5	22.03	159.59	1
20175	1732.5	21.52	0.5	22.02	159.22	1
20325	1747.5	21.42	0.5	21.92	155.6	1

LTE B4 15M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	20.46	0.5	20.96	124.74	1
20175	1732.5	20.4	0.5	20.9	123.03	1
20325	1747.5	20.52	0.5	21.02	126.47	1

LTE B4 20M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	22.41	0.5	22.91	195.43	1
20175	1732.5	22.47	0.5	22.97	198.15	1
20300	1745	22.49	0.5	22.99	199.07	1

LTE B4 20M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	21.62	0.5	22.12	162.93	1
20175	1732.5	21.56	0.5	22.06	160.69	1
20300	1745	21.53	0.5	22.03	159.59	1

LTE B4 20M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	20.52	0.5	21.02	126.47	1
20175	1732.5	20.47	0.5	20.97	125.03	1
20300	1745	20.54	0.5	21.04	127.06	1

LTE B38 5M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37775	2572.5	22.59	0.3	22.89	194.54	2
38000	2595	22.28	0.3	22.58	181.13	2
38225	2617.5	22.25	0.3	22.55	179.89	2

LTE B38 5M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37775	2572.5	21.66	0.3	21.96	157.04	2
38000	2595	21.62	0.3	21.92	155.6	2
38225	2617.5	21.32	0.3	21.62	145.21	2

LTE B38 5M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37775	2572.5	20.41	0.3	20.71	117.76	2
38000	2595	20.64	0.3	20.94	124.17	2
38225	2617.5	20.3	0.3	20.6	114.82	2

LTE B38 10M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37800	2575	22.49	0.3	22.79	190.11	2
38000	2595	22.36	0.3	22.66	184.5	2
38200	2615	22.31	0.3	22.61	182.39	2

LTE B38 10M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37800	2575	21.66	0.3	21.96	157.04	2
38000	2595	21.58	0.3	21.88	154.17	2
38200	2615	21.23	0.3	21.53	142.23	2

LTE B38 10M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37800	2575	20.46	0.3	20.76	119.12	2
38000	2595	20.76	0.3	21.06	127.64	2
38200	2615	20.28	0.3	20.58	114.29	2

LTE B38 15M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	22.62	0.3	22.92	195.88	2
38000	2595	22.31	0.3	22.61	182.39	2
38175	2612.5	22.35	0.3	22.65	184.08	2

LTE B38 15M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	21.68	0.3	21.98	157.76	2
38000	2595	21.59	0.3	21.89	154.53	2
38175	2612.5	21.23	0.3	21.53	142.23	2

LTE B38 15M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	20.49	0.3	20.79	119.95	2
38000	2595	20.76	0.3	21.06	127.64	2
38175	2612.5	20.21	0.3	20.51	112.46	2

LTE B38 20M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580	22.63	0.3	22.93	196.34	2
38000	2595	22.41	0.3	22.71	186.64	2
38150	2610	22.36	0.3	22.66	184.5	2

LTE B38 20M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580	21.74	0.3	22.04	159.96	2
38000	2595	21.64	0.3	21.94	156.31	2
38150	2610	21.36	0.3	21.66	146.55	2

LTE B38 20M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580	20.53	0.3	20.83	121.06	2
38000	2595	20.77	0.3	21.07	127.94	2
38150	2610	20.31	0.3	20.61	115.08	2

LTE B66 1.4M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	22.32	0.5	22.82	191.43	1
132322	1745	22.37	0.5	22.87	193.64	1
132665	1779.3	22.48	0.5	22.98	198.61	1

LTE B66 1.4M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	21.28	0.5	21.78	150.66	1
132322	1745	21.29	0.5	21.79	151.01	1
132665	1779.3	21.36	0.5	21.86	153.46	1

LTE B66 1.4M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	20.19	0.5	20.69	117.22	1
132322	1745	20.26	0.5	20.76	119.12	1
132665	1779.3	20.58	0.5	21.08	128.23	1

LTE B66 3M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	22.32	0.5	22.82	191.43	1
132322	1745	22.3	0.5	22.8	190.55	1
132657	1778.5	22.48	0.5	22.98	198.61	1

LTE B66 3M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	21.23	0.5	21.73	148.94	1
132322	1745	21.34	0.5	21.84	152.76	1
132657	1778.5	21.41	0.5	21.91	155.24	1

LTE B66 3M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	20.24	0.5	20.74	118.58	1
132322	1745	20.31	0.5	20.81	120.5	1
132657	1778.5	20.5	0.5	21	125.89	1

LTE B66 5M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	22.35	0.5	22.85	192.75	1
132322	1745	22.27	0.5	22.77	189.23	1
132647	1777.5	22.43	0.5	22.93	196.34	1

LTE B66 5M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	21.24	0.5	21.74	149.28	1
132322	1745	21.36	0.5	21.86	153.46	1
132647	1777.5	21.44	0.5	21.94	156.31	1

LTE B66 5M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	20.21	0.5	20.71	117.76	1
132322	1745	20.34	0.5	20.84	121.34	1
132647	1777.5	20.48	0.5	20.98	125.31	1

LTE B66 10M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	22.32	0.5	22.82	191.43	1
132322	1745	22.28	0.5	22.78	189.67	1
132622	1775	22.47	0.5	22.97	198.15	1

LTE B66 10M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	21.3	0.5	21.8	151.36	1
132322	1745	21.31	0.5	21.81	151.71	1
132622	1775	21.48	0.5	21.98	157.76	1

LTE B66 10M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	20.31	0.5	20.81	120.5	1
132322	1745	20.37	0.5	20.87	122.18	1
132622	1775	20.52	0.5	21.02	126.47	1

LTE B66 15M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	22.31	0.5	22.81	190.99	1
132322	1745	22.32	0.5	22.82	191.43	1
132597	1772.5	22.53	0.5	23.03	200.91	1

LTE B66 15M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	21.28	0.5	21.78	150.66	1
132322	1745	21.31	0.5	21.81	151.71	1
132597	1772.5	21.4	0.5	21.9	154.88	1

LTE B66 15M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	20.2	0.5	20.7	117.49	1
132322	1745	20.32	0.5	20.82	120.78	1
132597	1772.5	20.58	0.5	21.08	128.23	1

LTE B66 20M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	22.37	0.5	22.87	193.64	1
132322	1745	22.56	0.5	23.06	202.3	1
132572	1770	22.52	0.5	23.02	200.45	1

LTE B66 20M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	21.35	0.5	21.85	153.11	1
132322	1745	21.38	0.5	21.88	154.17	1
132572	1770	21.5	0.5	22	158.49	1

LTE B66 20M 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	20.34	0.5	20.84	121.34	1
132322	1745	20.39	0.5	20.89	122.74	1
132572	1770	20.61	0.5	21.11	129.12	1

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

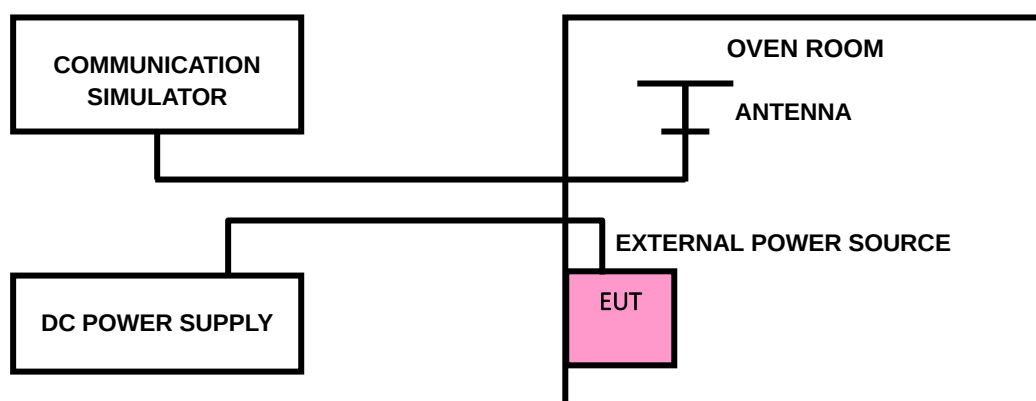
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

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

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

3.2.3 TEST SETUP





Test Report No.: W7L-P24070005RF04

3.2.4 TEST RESULTS

Please Refer to Appendix D.

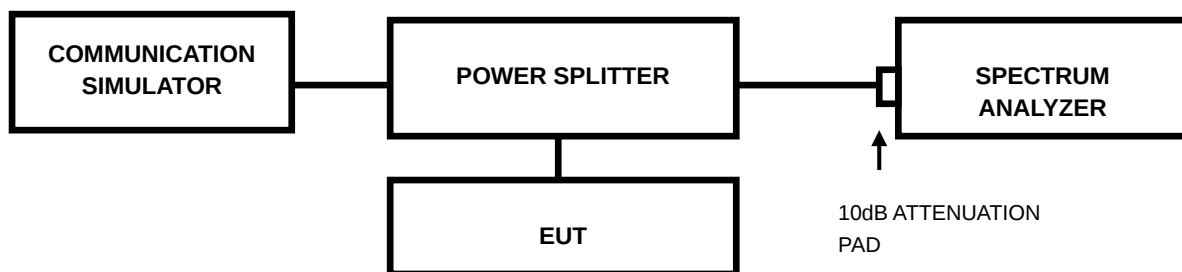
Note: VL = Low voltage(4.75V); VN/NV = Normal voltage(5V); VH = High voltage(5.25V);
NT = Normal temperature (25°C)

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

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



Test Report No.: W7L-P24070005RF04

3.3.4 TEST RESULTS

Please Refer to Appendix D.

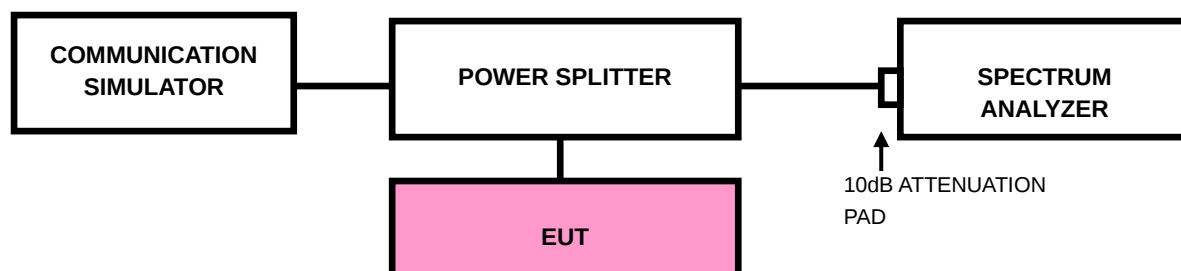
3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC Part 27.53(h) specified that For operations in the 1710-1755 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. However, in the 1-megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

- a) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- b) Tune the analyzer to the nominal center frequency of the emission bandwidth (EBW).
- c) Set the resolution bandwidth (RBW) $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
- d) Beyond the 1MHz band from the band edge, RBW=1MHz was used.
- e) Set the video bandwidth (VBW) to $\geq 3 \times$ RBW.
- f) Select the average power (RMS) display detector.
- g) Set the number of measurement points to ≥ 1001 .
- h) Use auto-coupled sweep time.
- i) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
- j) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.
- k) Record the max trace plot into the test report.



Test Report No.: W7L-P24070005RF04

3.4.4 TEST RESULTS

Please Refer to Appendix D.

3.5 CONDUCTED SPURIOUS EMISSIONS

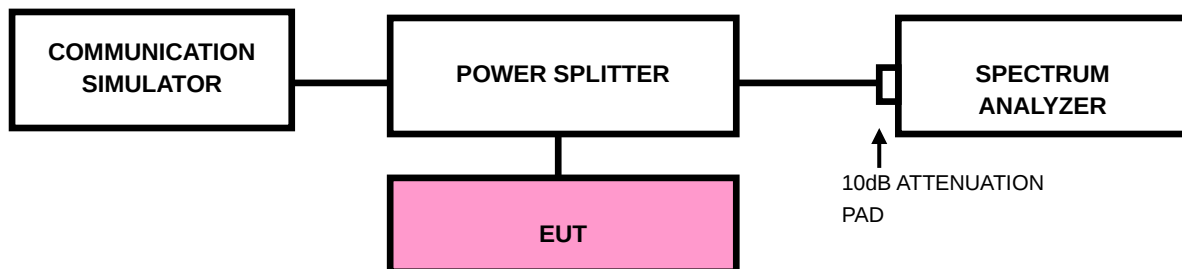
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP





Test Report No.: W7L-P24070005RF04

3.5.4 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Please Refer to Appendix D.

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 is equal to -13dBm .

3.6.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G.
- c. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
 $\text{E.R.P power} = \text{E.I.R.P power} - 2.15\text{dBi}$.

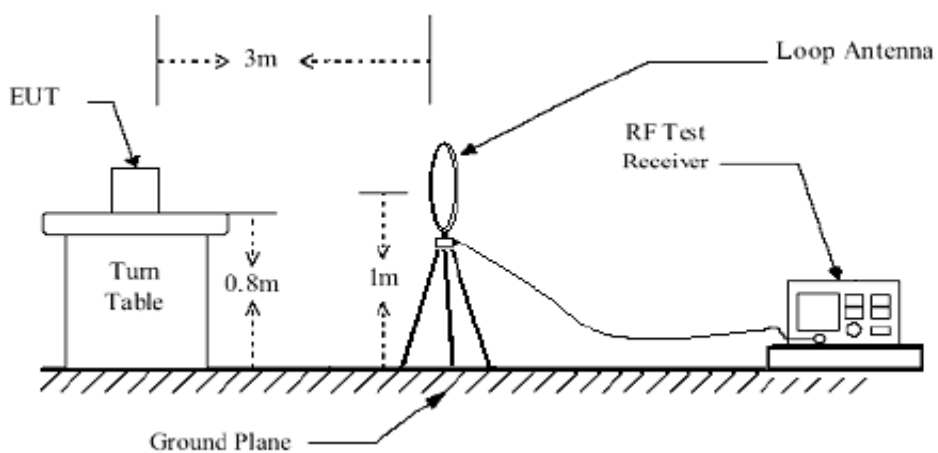
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.6.3 DEVIATION FROM TEST STANDARD

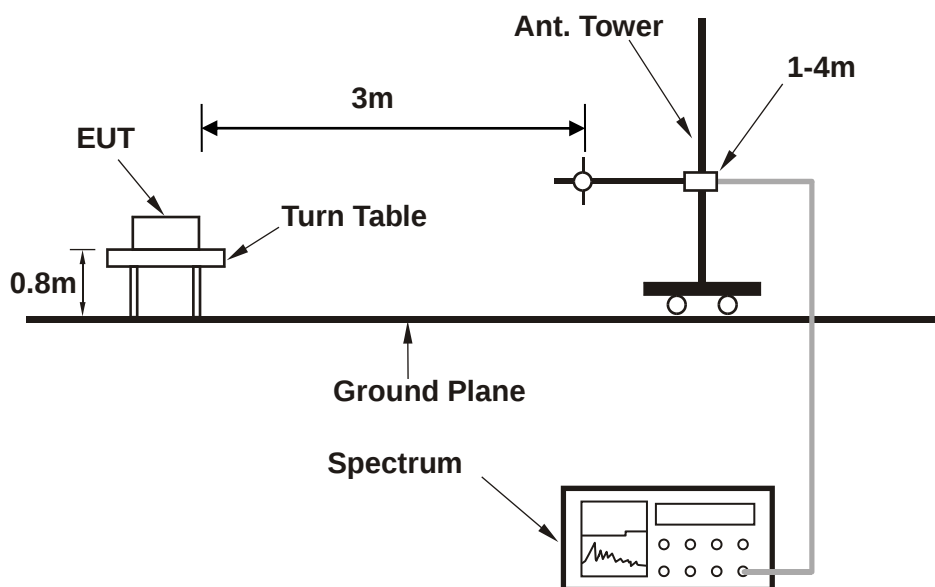
No deviation

3.6.4 TEST SETUP

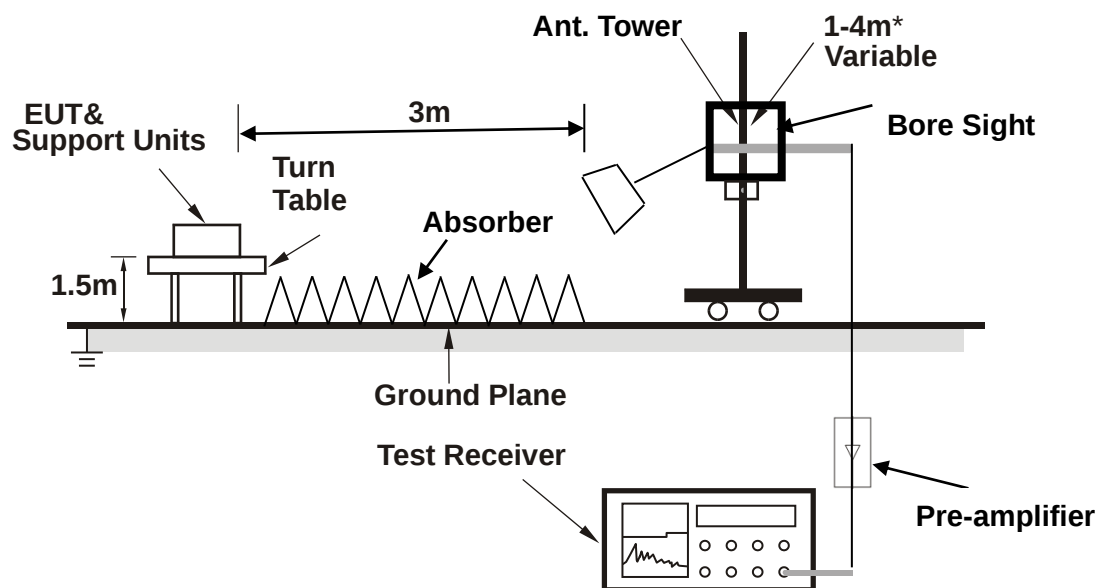
< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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



Test Report No.: W7L-P24070005RF04

3.6.5 TEST RESULTS

Remark: Spurious emissions within Below 1GHz were found more than 20dB below limit line.



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Test Report No.: W7L-P24070005RF04

ABOVE 1GHz

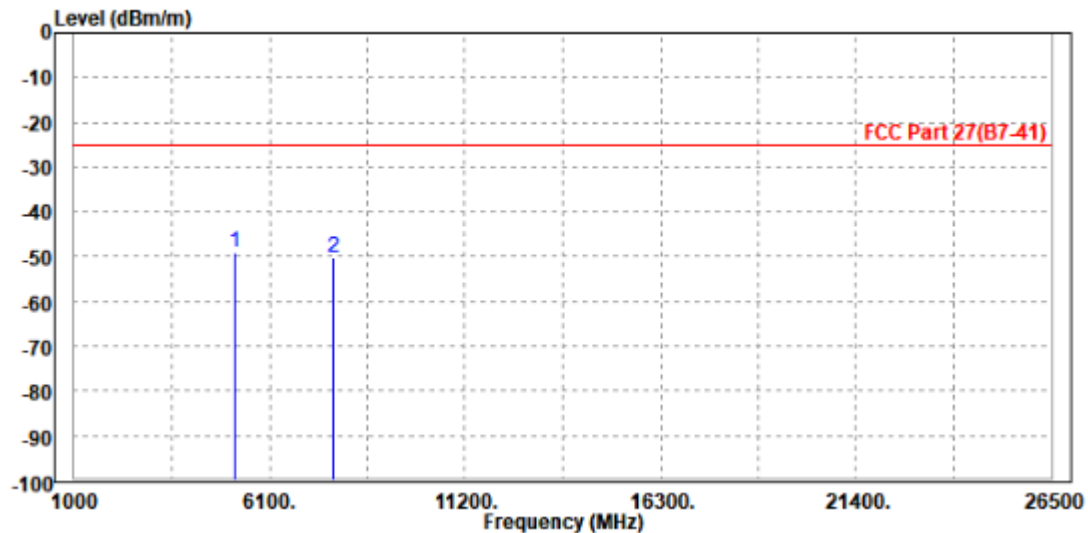
Note: For higher frequency, the emission is too low to be detected.

LTE BAND 38

CHANNEL BANDWIDTH: 5MHz / QPSK

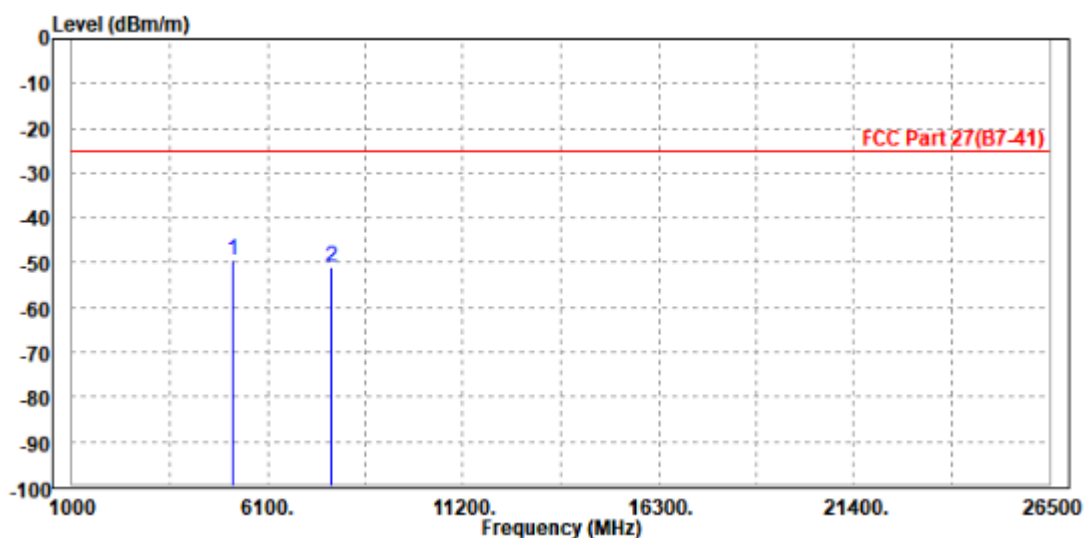
MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	5182.000	-49.15	-60.48	-25.00	-24.15	11.33	Peak	Horizontal
2	7785.000	-50.09	-64.92	-25.00	-25.09	14.83	Peak	Horizontal



MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

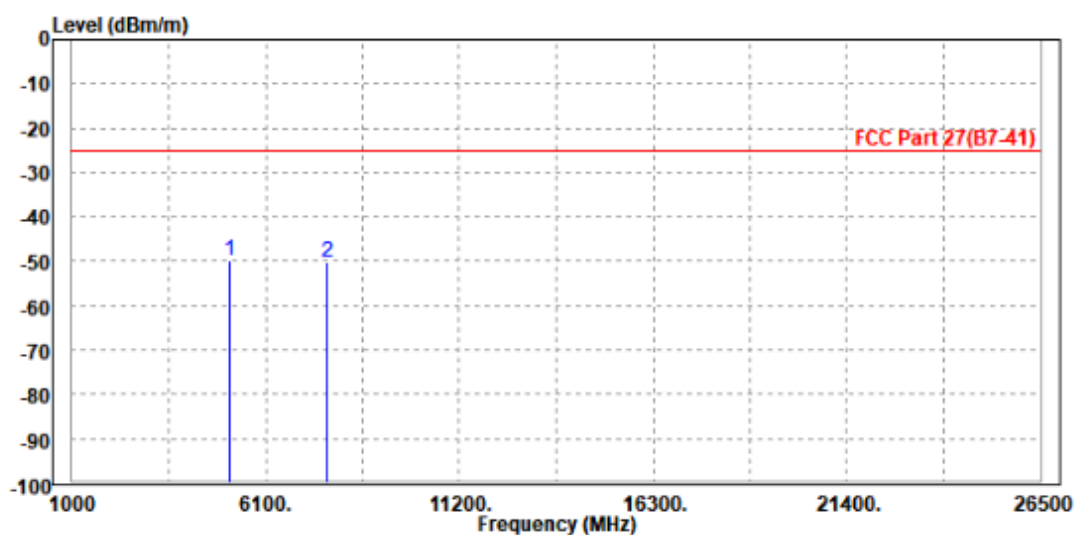
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5190.000	-49.45	-61.19	-25.00	-24.45	11.74	Peak	Vertical
2	7783.000	-50.77	-65.02	-25.00	-25.77	14.25	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK
CH37800

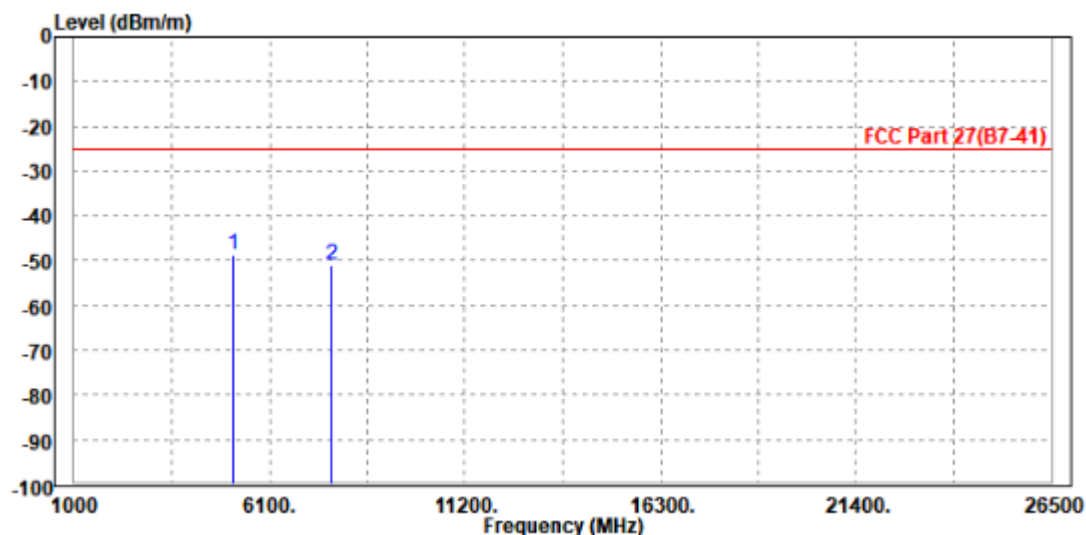
CH37800			
MODE	TX channel 37800	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5150.000	-49.65	-60.93	-25.00	-24.65	11.28	Peak	Horizontal
2	7732.000	-50.16	-64.90	-25.00	-25.16	14.74	Peak	Horizontal



MODE	TX channel 37800	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
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	5156.500	-48.85	-60.52	-25.00	-23.85	11.67	Peak	Vertical
2	7725.000	-50.92	-64.92	-25.00	-25.92	14.00	Peak	Vertical





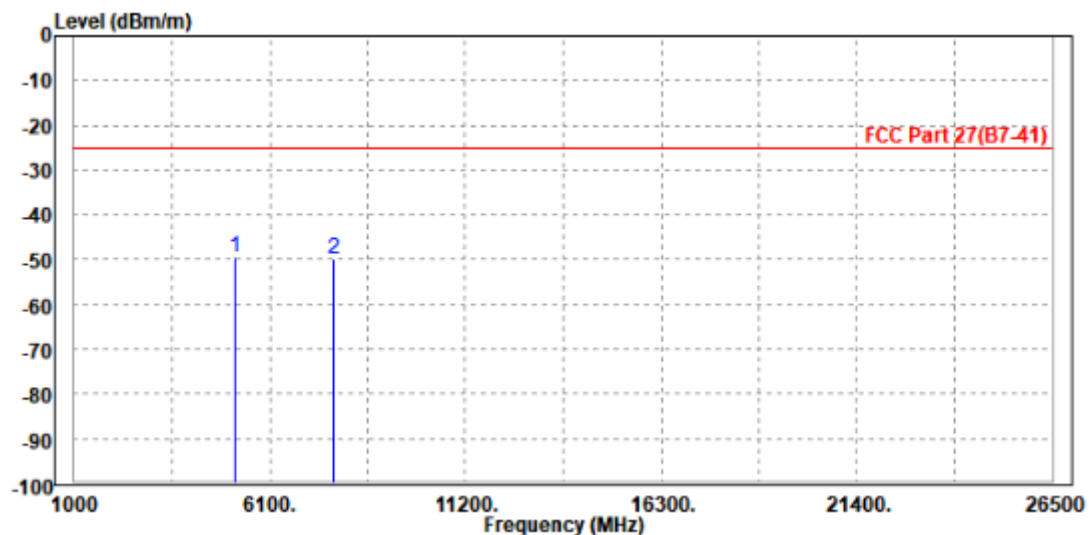
BUREAU
VERITAS

Test Report No.: W7L-P24070005RF04

CH38000

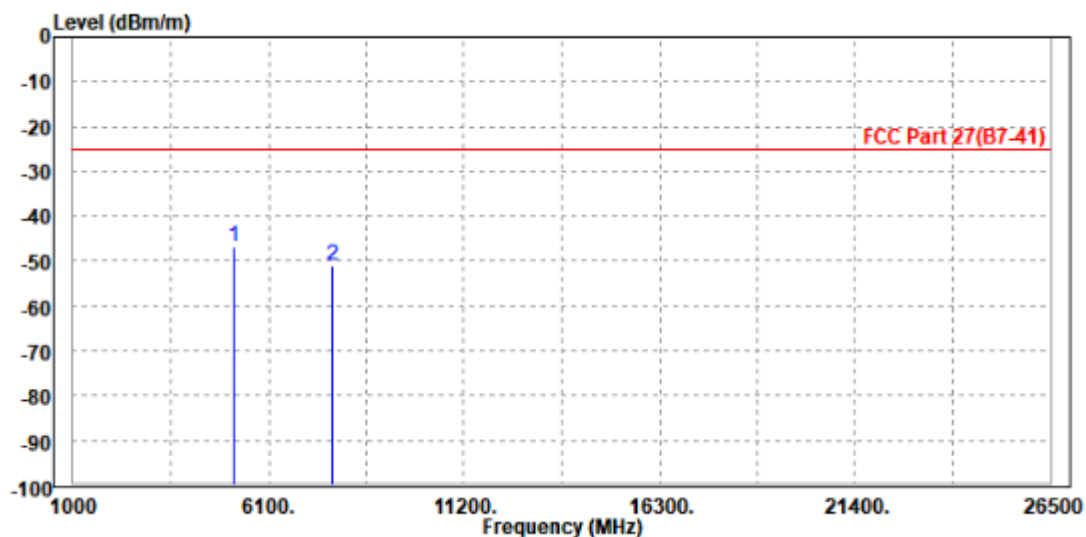
MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	5190.000	-49.55	-60.89	-25.00	-24.55	11.34	Peak	Horizontal
2		7783.000	-49.95	-64.78	-25.00	-24.95	14.83	Peak	Horizontal



MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
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	5182.000	-46.92	-58.64	-25.00	-21.92	11.72	Peak	Vertical
2	7785.000	-50.88	-65.14	-25.00	-25.88	14.26	Peak	Vertical





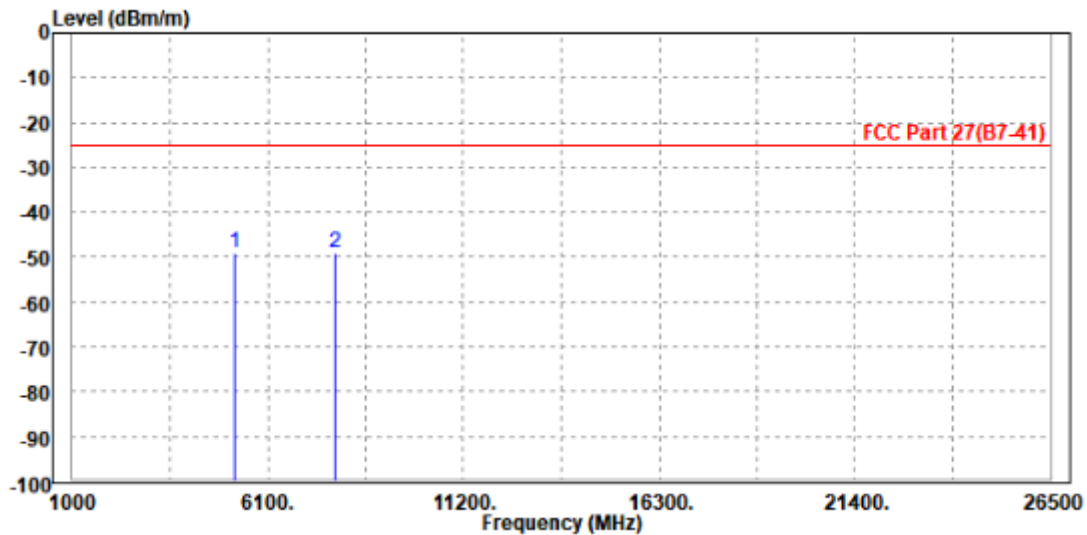
BUREAU
VERITAS

Test Report No.: W7L-P24070005RF04

CH38200

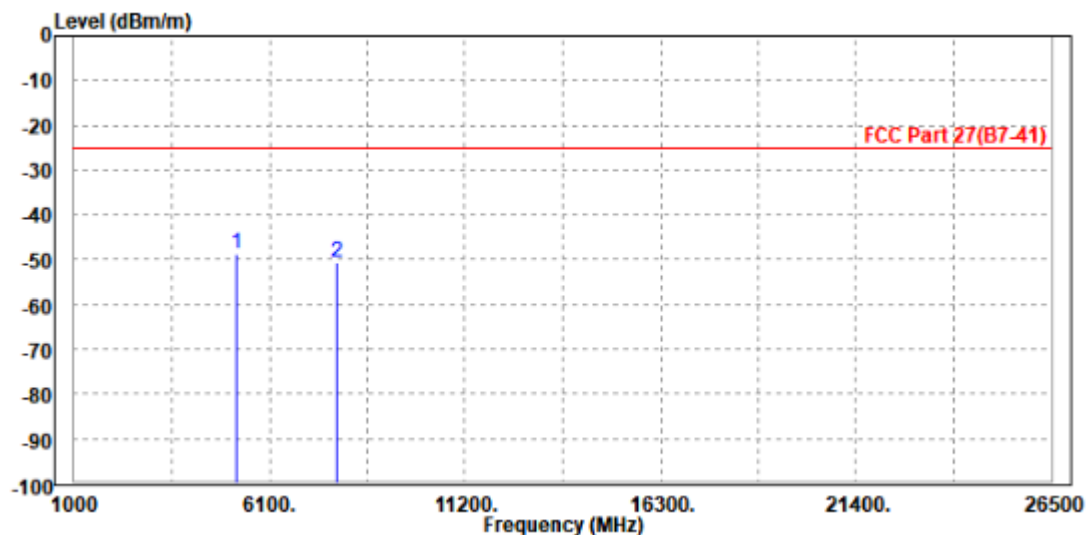
MODE	TX channel 38200	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	5230.000	-49.11	-60.51	-25.00	-24.11	11.40	Peak	Horizontal
2 PP	7834.000	-48.96	-63.87	-25.00	-23.96	14.91	Peak	Horizontal



MODE	TX channel 38200	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

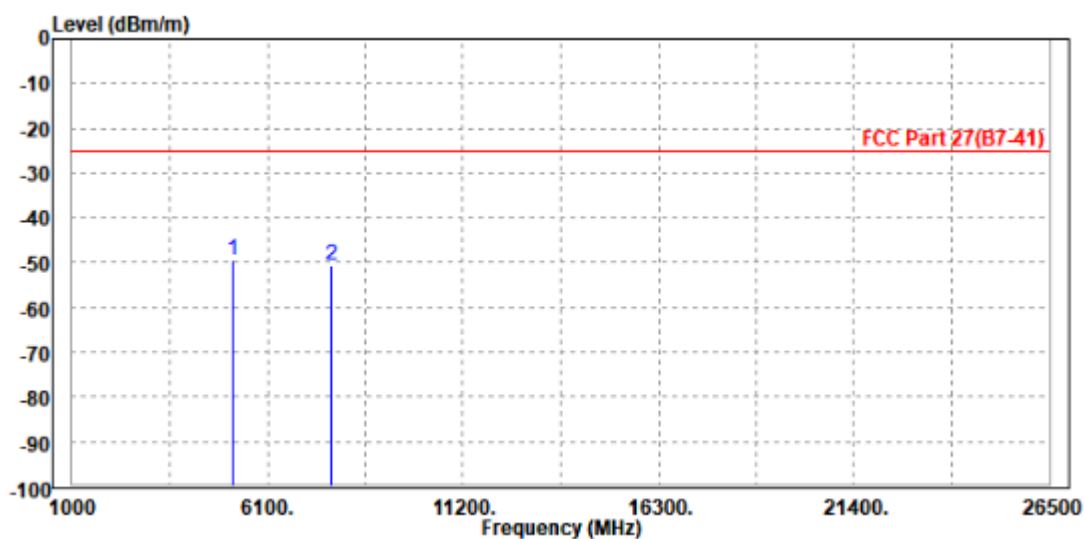
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5233.000	-48.69	-60.51	-25.00	-23.69	11.82	Peak	Vertical
2	7845.000	-50.76	-65.28	-25.00	-25.76	14.52	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

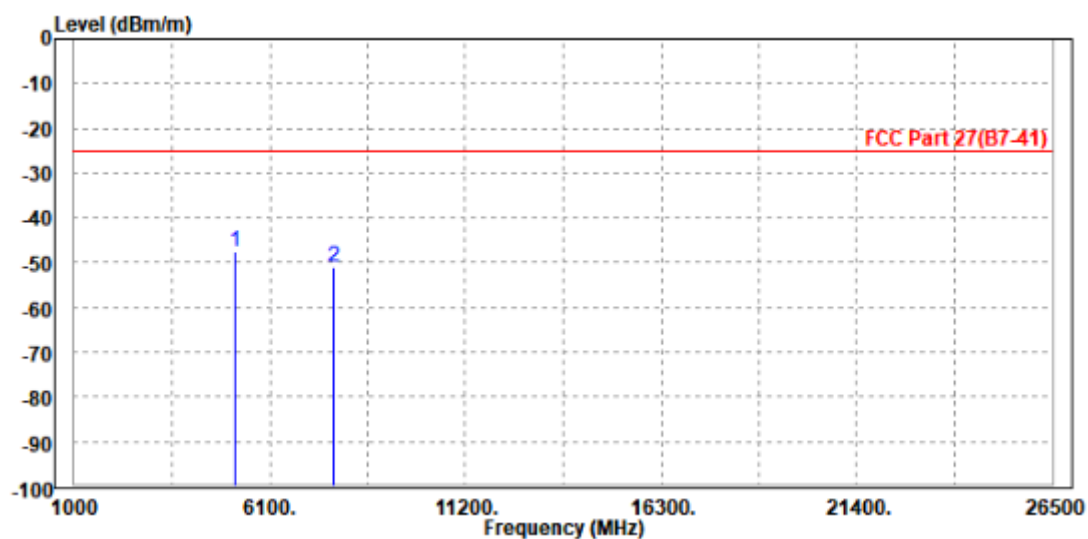
MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	5190.000	-49.28	-60.62	-25.00	-24.28	11.34	Peak	Horizontal
2		7783.000	-50.46	-65.29	-25.00	-25.46	14.83	Peak	Horizontal



MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

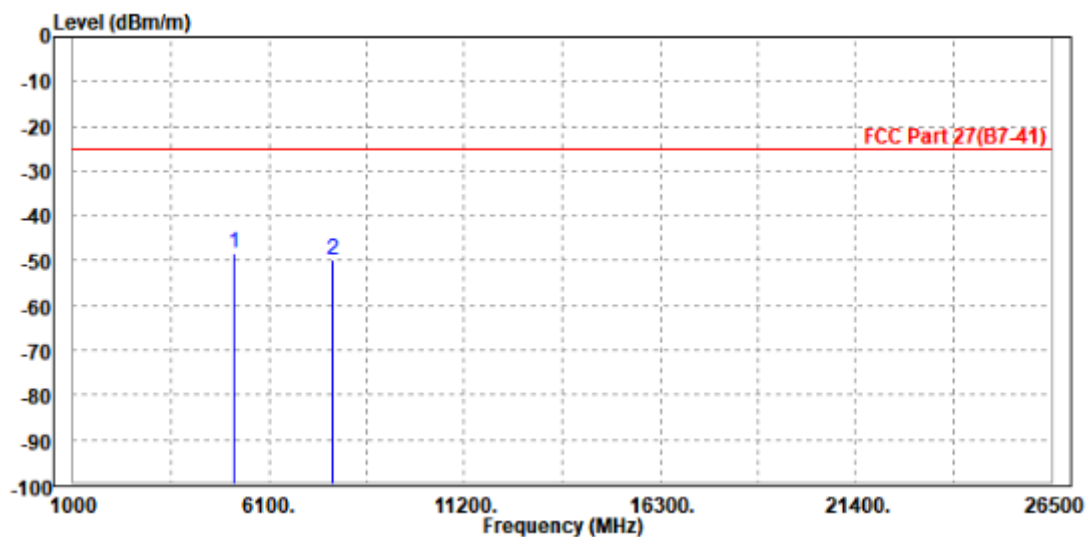
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	5182.000	-47.57	-59.29	-25.00	-22.57	11.72	Peak	Vertical
2	7785.000	-50.83	-65.09	-25.00	-25.83	14.26	Peak	Vertical



CHANNEL BANDWIDTH: 20MHz / QPSK

MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
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 5182.000	-48.33	-59.66	-25.00	-23.33	11.33	Peak	Horizontal
2	7785.000	-49.82	-64.65	-25.00	-24.82	14.83	Peak	Horizontal

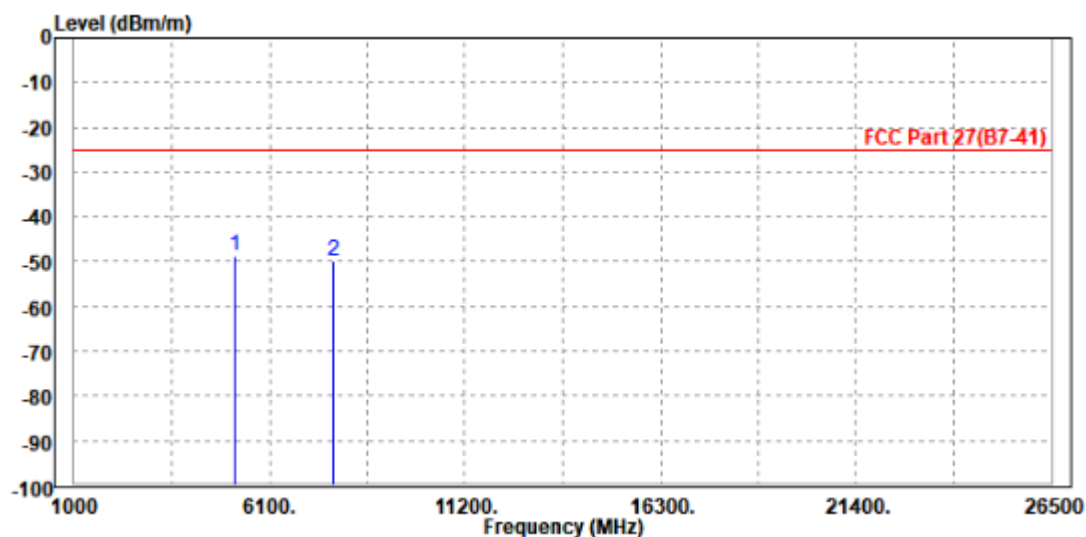




Test Report No.: W7L-P24070005RF04

MODE	TX channel 38000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

			Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark	Pol/Phase	
MHz	dBm/m	dBm	dBm/m	dB	dB/m			
1 PP 5190.000	-48.73	-60.47	-25.00	-23.73	11.74	Peak	Vertical	
2 7783.000	-49.92	-64.17	-25.00	-24.92	14.25	Peak	Vertical	



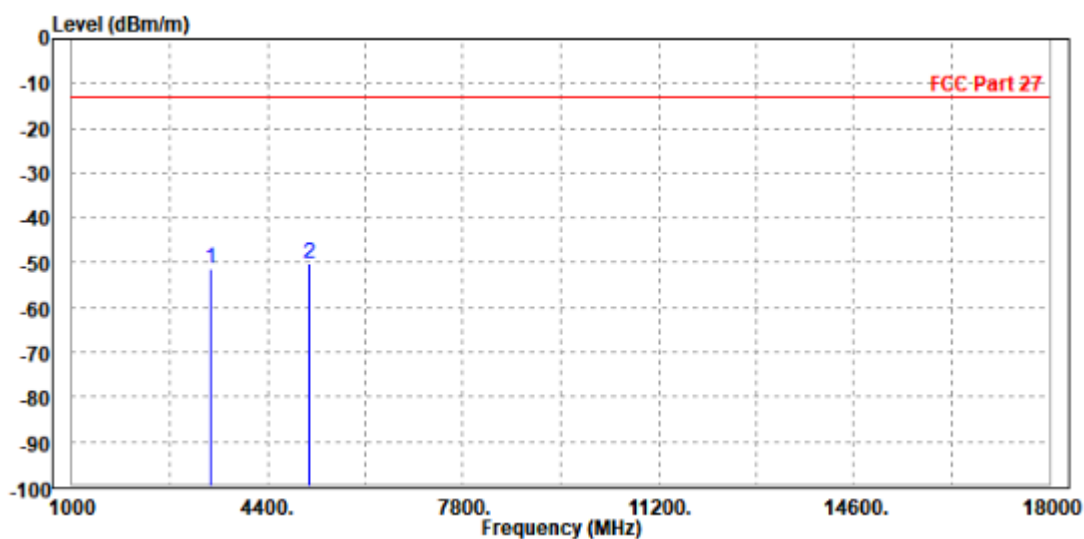
LTE B66

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH131979

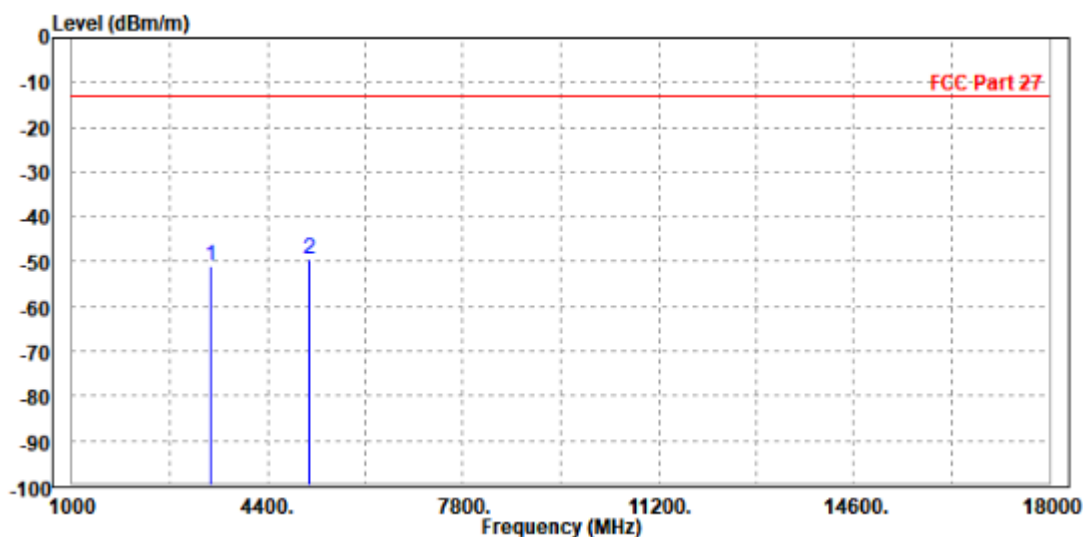
MODE	TX channel 131979	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3421.400	-51.29	-59.80	-13.00	-38.29	8.51	Peak	Horizontal
2 PP	5131.000	-50.36	-61.61	-13.00	-37.36	11.25	Peak	Horizontal



MODE	TX channel 131979	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
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	3414.000	-51.12	-59.79	-13.00	-38.12	8.67	Peak	Vertical
2 PP	5132.100	-49.55	-61.18	-13.00	-36.55	11.63	Peak	Vertical





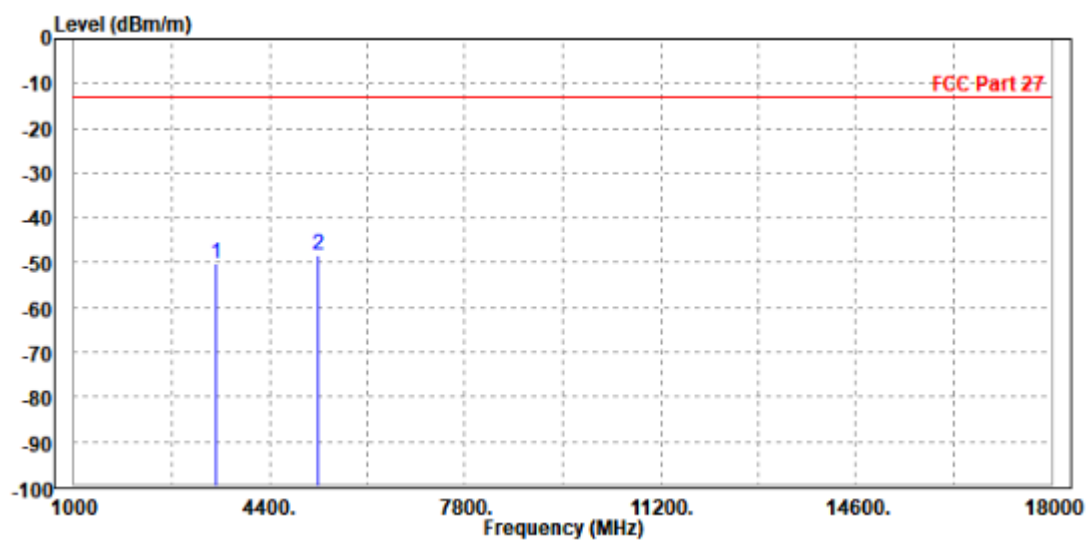
BUREAU
VERITAS

Test Report No.: W7L-P24070005RF04

CH132322

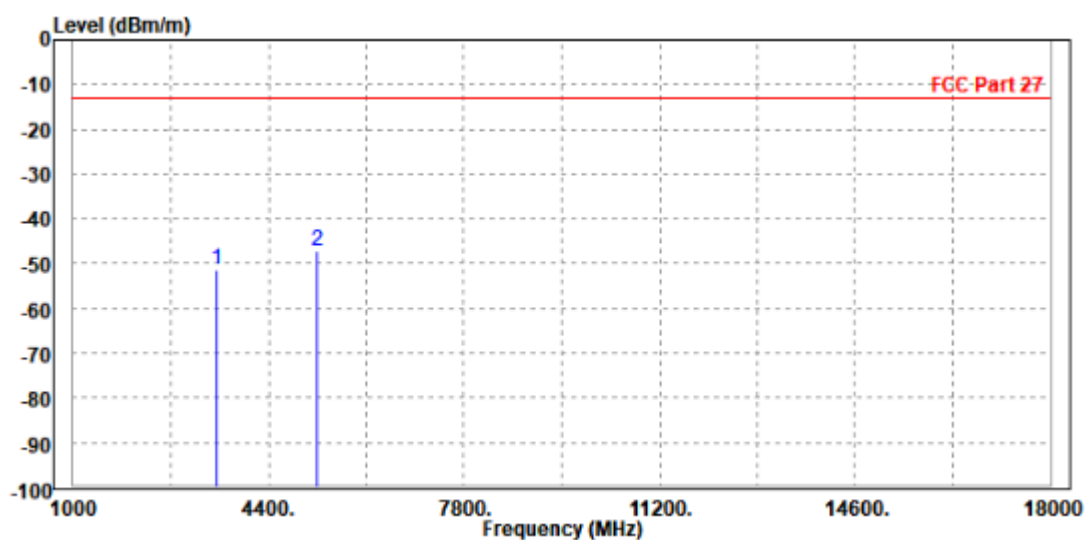
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3482.000	-50.25	-58.80	-13.00	-37.25	8.55	Peak	Horizontal
2 PP	5235.000	-48.20	-59.61	-13.00	-35.20	11.41	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
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	3490.000	-51.16	-59.80	-13.00	-38.16	8.64	Peak	Vertical
2 PP	5233.000	-47.20	-59.02	-13.00	-34.20	11.82	Peak	Vertical





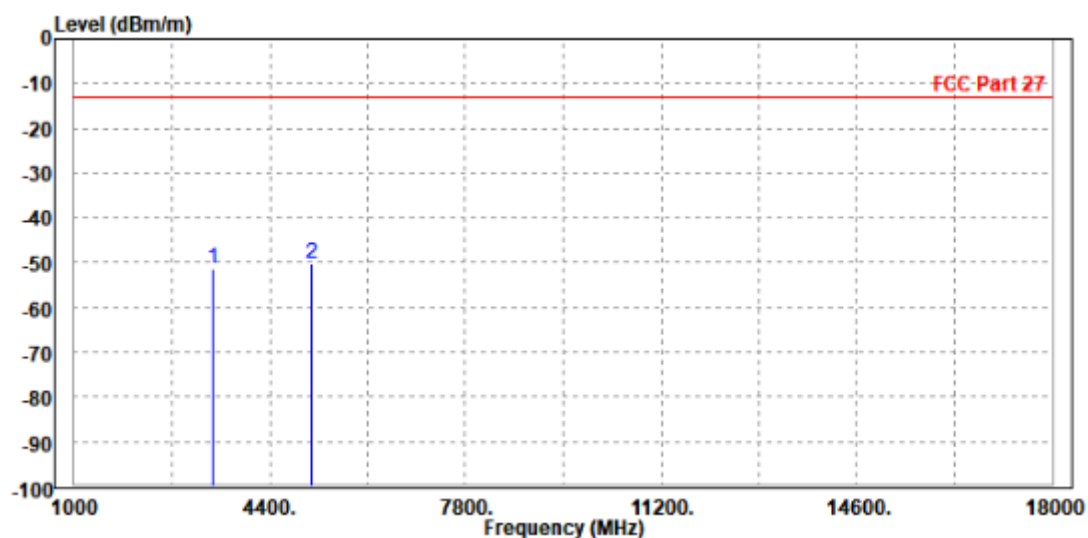
**BUREAU
VERITAS**

Test Report No.: W7L-P24070005RF04

CH132665

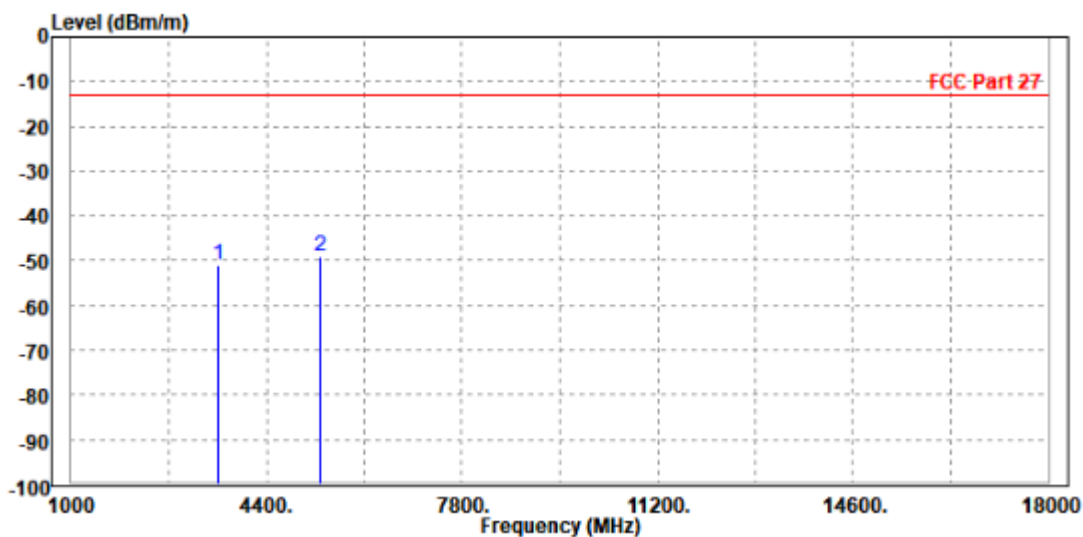
MODE	TX channel 132665	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3421.400	-51.29	-59.80	-13.00	-38.29	8.51	Peak	Horizontal
2 PP	5131.000	-50.36	-61.61	-13.00	-37.36	11.25	Peak	Horizontal



MODE	TX channel 132665	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

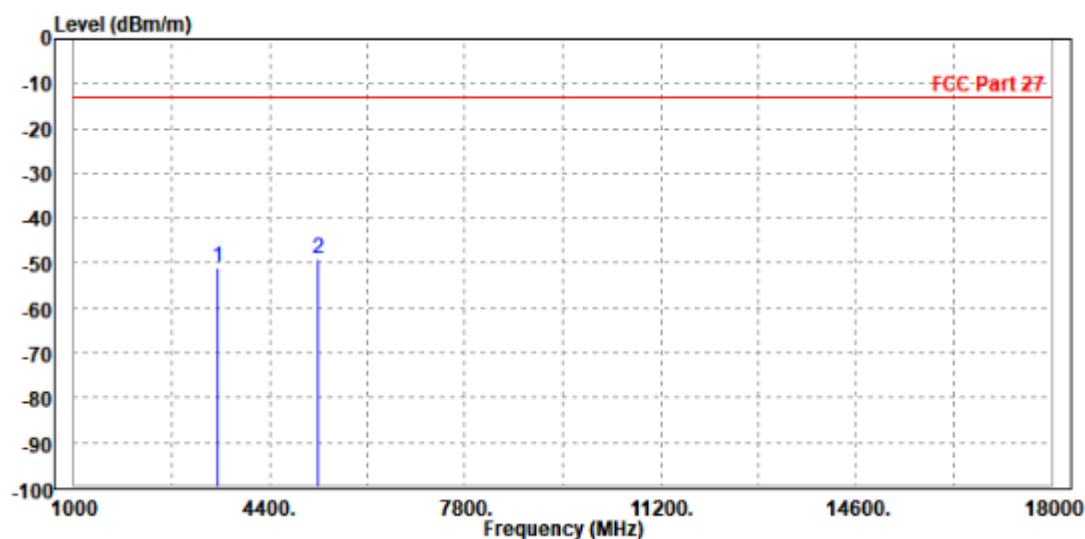
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3550.000	-51.02	-59.54	-13.00	-38.02	8.52	Peak	Horizontal
2 PP	5337.000	-48.88	-60.44	-13.00	-35.88	11.56	Peak	Horizontal



CHANNEL BANDWIDTH: 3MHz / QPSK

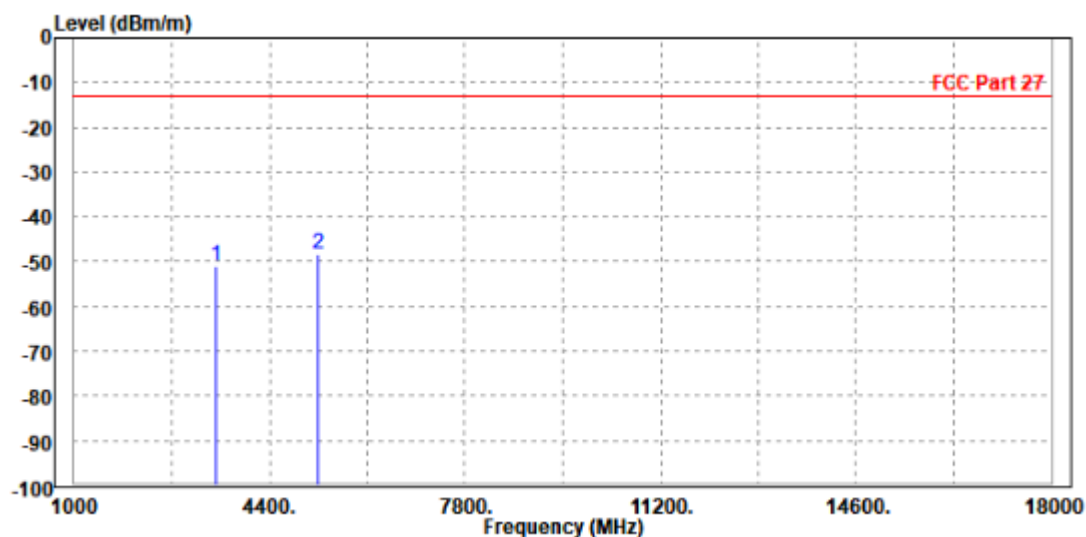
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3490.000	-50.89	-59.44	-13.00	-37.89	8.55	Peak	Horizontal
2 PP	5233.000	-49.02	-60.42	-13.00	-36.02	11.40	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

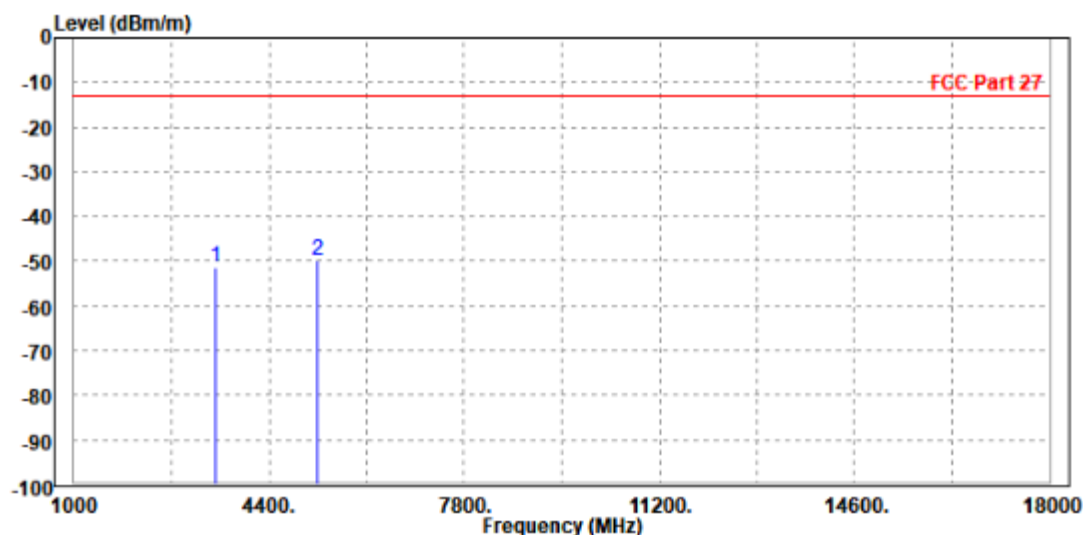
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3482.000	-50.97	-59.62	-13.00	-37.97	8.65	Peak	Vertical
2 PP	5235.000	-48.13	-59.96	-13.00	-35.13	11.83	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

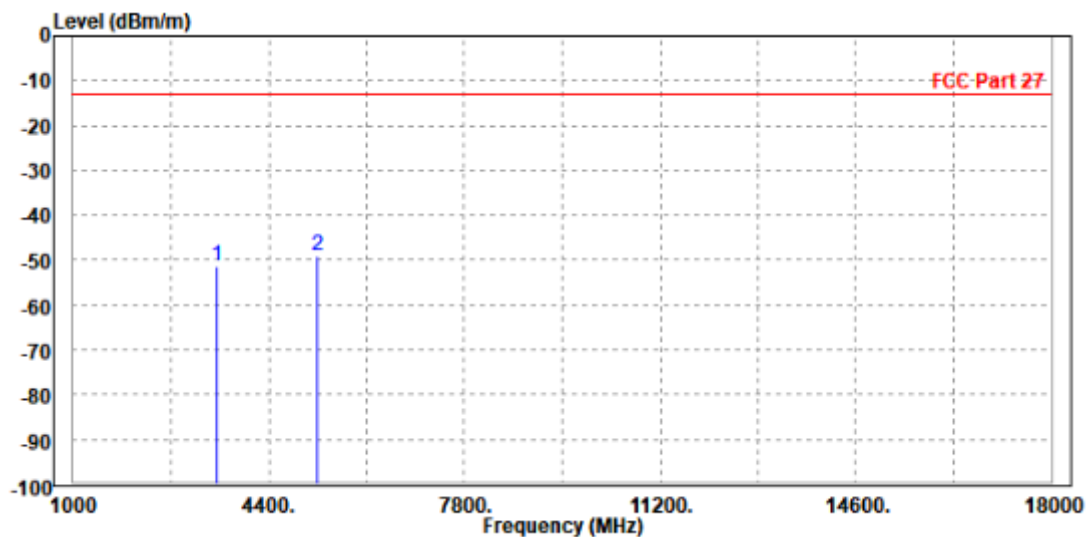
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3482.000	-51.31	-59.86	-13.00	-38.31	8.55	Peak	Horizontal
2 PP	5235.000	-49.75	-61.16	-13.00	-36.75	11.41	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

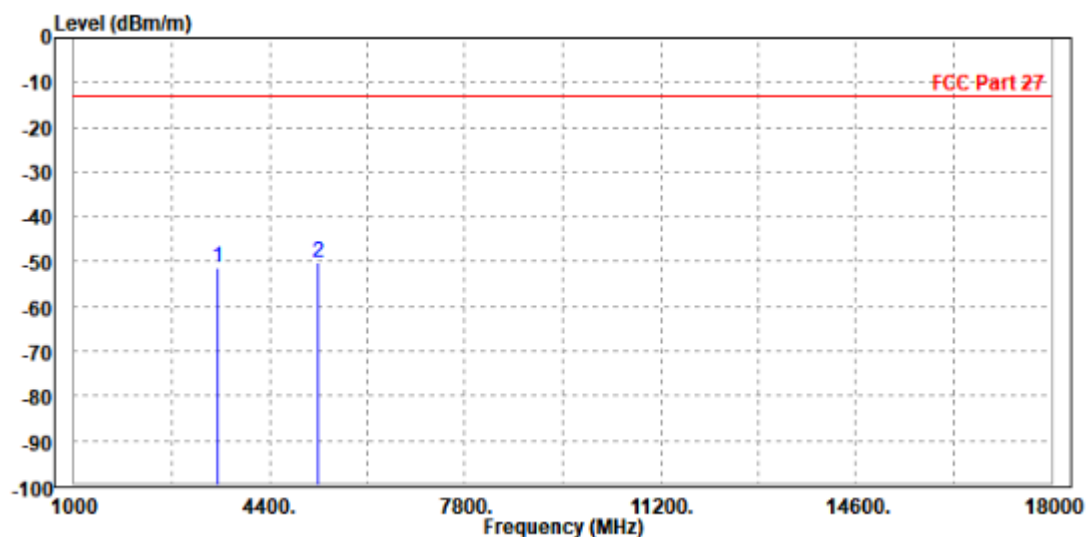
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3490.000	-51.45	-60.09	-13.00	-38.45	8.64	Peak	Vertical
2 PP	5233.000	-49.10	-60.92	-13.00	-36.10	11.82	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

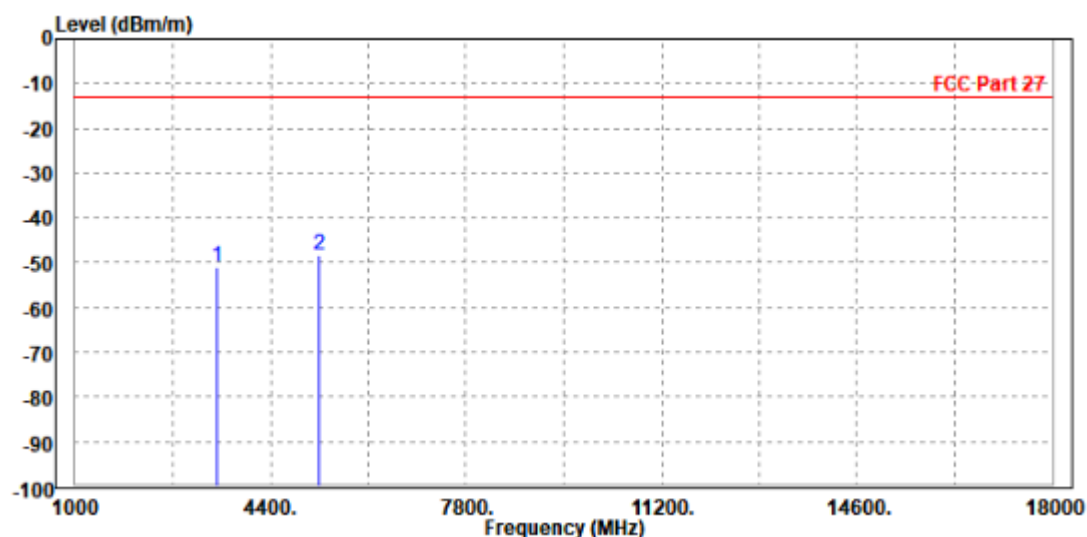
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3490.000	-51.51	-60.06	-13.00	-38.51	8.55	Peak	Horizontal
2 PP	5233.000	-50.12	-61.52	-13.00	-37.12	11.40	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

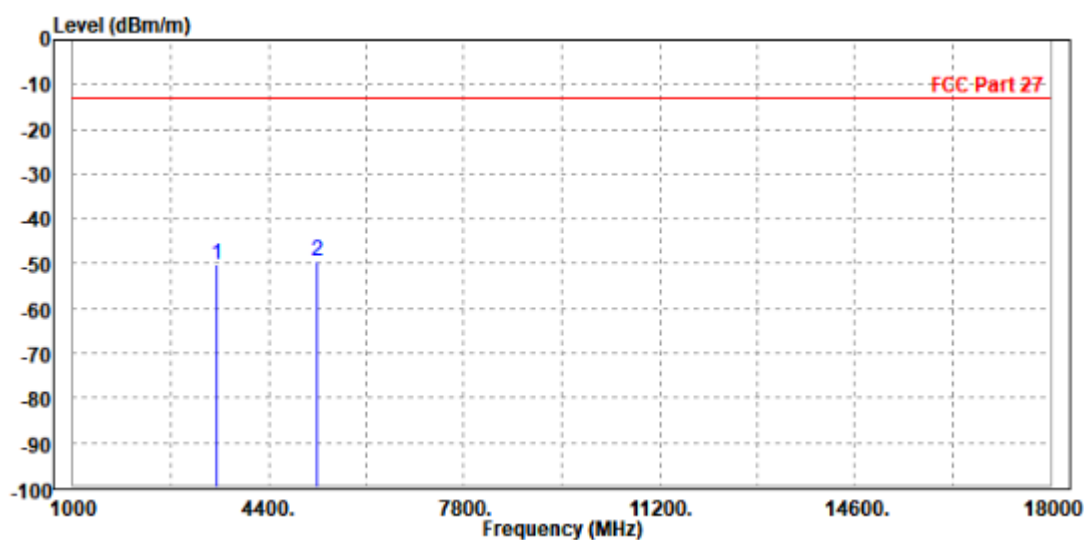
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3482.000	-51.12	-59.77	-13.00	-38.12	8.65	Peak	Vertical
2 PP	5235.000	-48.46	-60.29	-13.00	-35.46	11.83	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

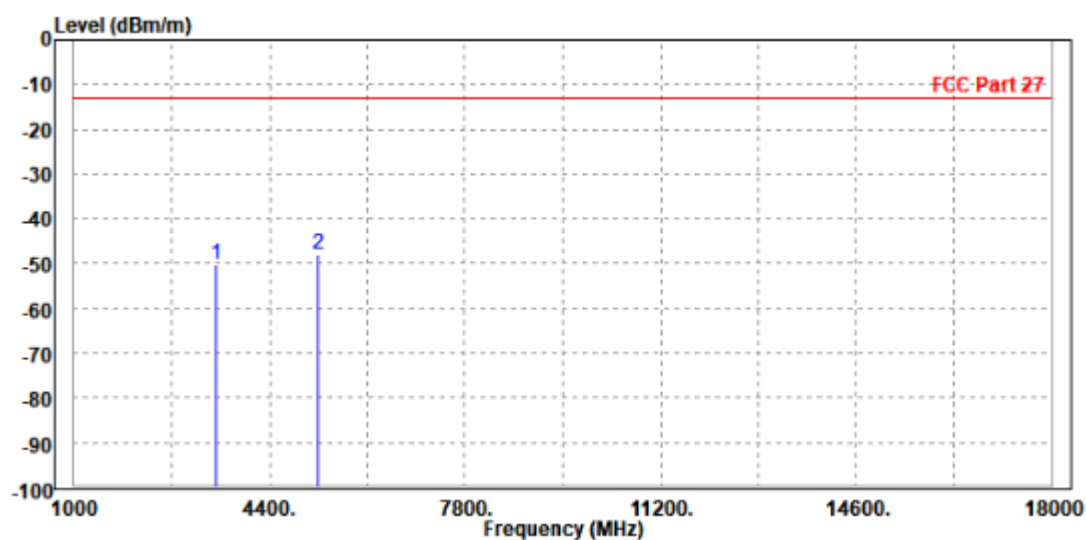
CHANNEL BANDWIDTH: 10MHz			
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3490.000	-50.21	-58.76	-13.00	-37.21	8.55	Peak	Horizontal
2 PP	5233.000	-49.35	-60.75	-13.00	-36.35	11.40	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

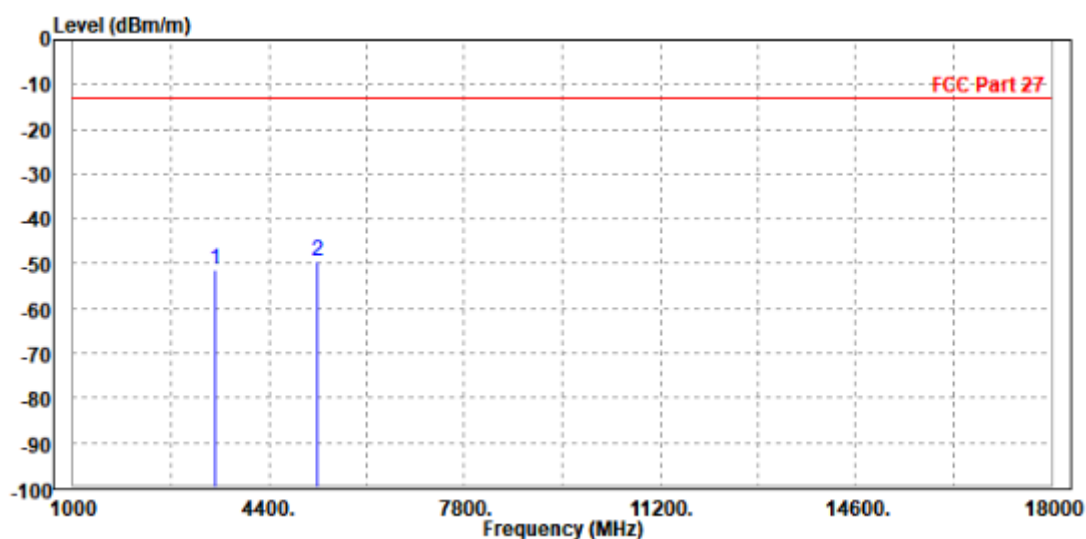
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3482.000	-50.19	-58.84	-13.00	-37.19	8.65	Peak	Vertical
2 PP	5235.000	-48.06	-59.89	-13.00	-35.06	11.83	Peak	Vertical



CHANNEL BANDWIDTH: 20MHz / QPSK

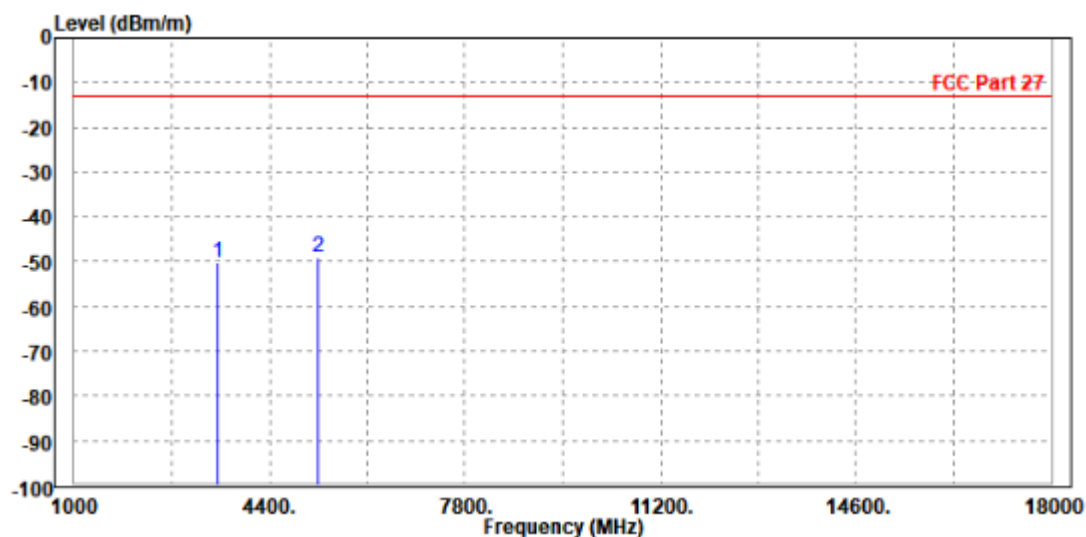
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3482.000	-51.40	-59.95	-13.00	-38.40	8.55	Peak	Horizontal
2 PP	5235.000	-49.46	-60.87	-13.00	-36.46	11.41	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC5V
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	3490.000	-50.21	-58.85	-13.00	-37.21	8.64	Peak	Vertical
2 PP	5233.000	-49.14	-60.96	-13.00	-36.14	11.82	Peak	Vertical

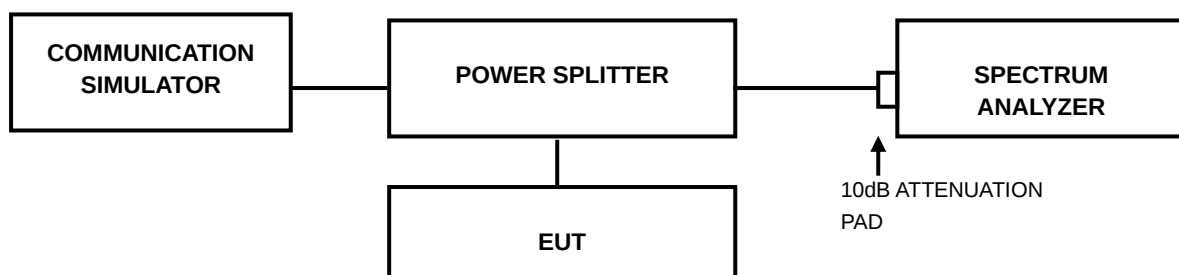


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.



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3.7.4 TEST RESULTS

Please Refer to Appendix D.



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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@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.



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5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

--END--