

FCC TEST REPORT

(PART 24)

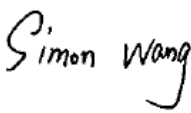
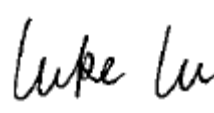
Applicant:	Quest Cameras, LLC
Address:	110 Iroquois Circle Russellville, KY 42276

Manufacturer or Supplier:	SHENZHEN TOVISION TECHNOLOGY CO.,LTD
Address:	136A,Yanguang zhonglv Garden, 2057# Qianhai Road.Nanshan District .SHENZHEN City. CHINA
Product:	Wireless trail camera
Brand Name:	QUEST
Model Name:	Command-X
FCC ID:	2BGCQCOMMANDX
Date of tests:	May. 12, 2024 ~ May. 23, 2024

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

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

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
	
Date: May. 23, 2024	Date: May. 23, 2024

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Test Report No.: W7L-240510W001RF02

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-240510W001RF02	Original release	May. 23, 2024

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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

Note: Please refer to the module report SEWA2212000096RG01(FCC ID: XMR2023EG915QNA)

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	$\pm 4.70\text{dB}$
Peak to average ratio	$\pm 0.76\text{dB}$

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



1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 21,23	Feb. 20,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,23	May.14,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.14,24	May.13,25
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.04,23	Sep.03,24
Bilog Antenna	ETS-LINDGRE N	3143B	00161965	Mar. 06,24	Mar. 05,25
Horn Antenna	ETS-LINDGRE N	3117	00168692	Mar. 06,24	Mar. 05,25
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K- SG/QMS-00361	15433	Aug. 24, 23	Aug. 23, 24
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 15,24	Feb. 14,25
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May.12,24	May.11,25
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,24	May.11,25
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 21,24	Feb.20,25
3m Semi-anechoic Chamber	ETS-LINDGRE N	9m*6m*6m	Euroshieldpn- CT0001143-121 6	May. 19,23	May. 18,26
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	1505	May. 07,24	May. 06,25
Power Meter	Anritsu	ML2495A	1506002	Feb. 22,24	Feb. 21,25
Power Sensor	Anritsu	MA2411B	1339352	May. 07,24	May. 06,25
Temperature Chamber	ESPEC	SH-242	93000855	May. 12,24	May. 11,25
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 18,24	Feb. 17,25
Base station R&S CMW500	Rohde&Schwa rz	CMW500	153085	May.12,24	May.11,25
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,23	Aug. 23,24

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	Wireless trail camera	
BRAND NAME	QUEST	
MODEL NAME	Command-X	
NOMINAL VOLTAGE	Battery(x12AA) 6V DC In 6V tpye C 5V	
MODULATION TYPE	LTE Band 2: QPSK, 16QAM	
FREQUENCY RANGE	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1909.3MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5MHz ~ 1908.5MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~ 1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0MHz ~ 1905.0MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5MHz ~ 1902.5MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0MHz ~ 1900.0MHz
MAX. EIRP POWER	LTE Band 2 Channel Bandwidth: 1.4MHz	246.6mW
	LTE Band 2 Channel Bandwidth: 3MHz	242.1mW
	LTE Band 2 Channel Bandwidth: 5MHz	244.91mW
	LTE Band 2 Channel Bandwidth: 10MHz	242.66mW
	LTE Band 2 Channel Bandwidth: 15MHz	242.66mW
	LTE Band 2 Channel Bandwidth: 20MHz	249.46mW
EMISSION DESIGNATOR	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D
		16QAM: 1M10W7D

EMISSION DESIGNATOR	LTE Band 2 Channel Bandwidth: 3MHz	QPSK: 2M70G7D 16QAM: 2M69W7D
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 4M47G7D 16QAM: 4M47W7D
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 8M94G7D 16QAM: 4M88W7D
	LTE Band 2 Channel Bandwidth: 15MHz	QPSK: 13M5G7D 16QAM: 5M23W7D
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 18M0G7D 16QAM: 5M28W7D
ANTENNA TYPE	Fixed External Antenna with 0.31dBi gain for LTE B2	
HW VERSION	Quest 560 V01	
SW VERSION	Quest_20240413.01	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	
EXTREME TEMPERATURE	-20-70 °C	
EXTREME VOLTAGE	4.1V - 6.8V	

NOTE:

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

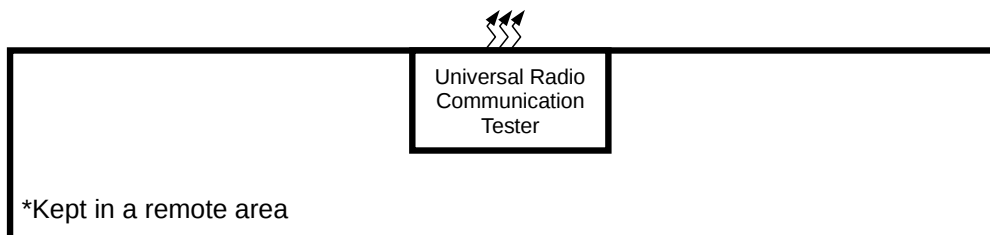
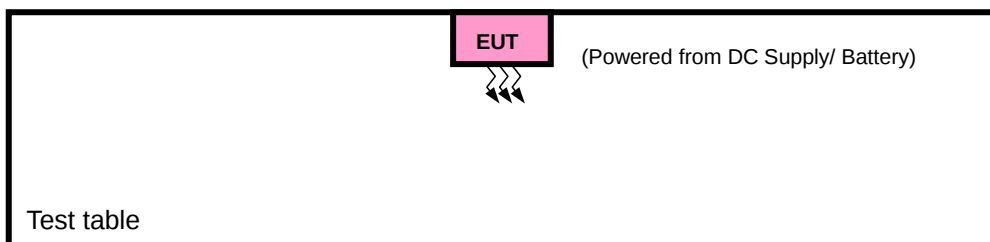
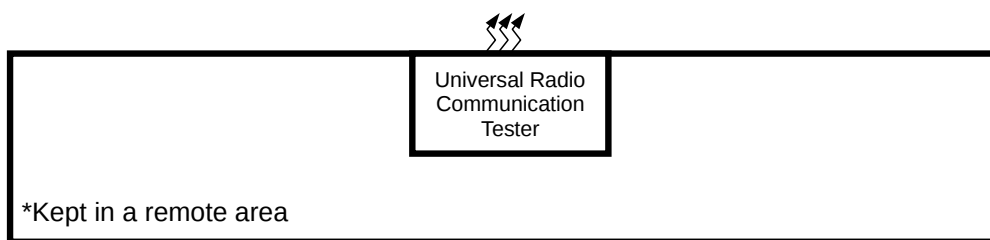
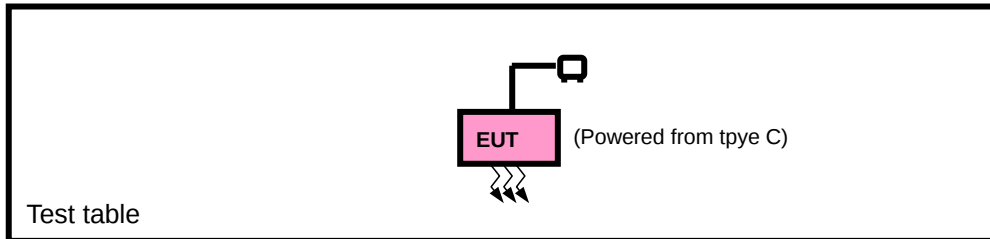
MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

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



2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST





2.3 DESCRIPTION OF SUPPORT UNITS

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

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

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

2.4 TEST ITEM AND TEST CONFIGURATION

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

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + type C with LTE link
B	EUT + DC Supply with LTE link

LTE BAND 2 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
	RADIATED EMISSION	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18900	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18900	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18900	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset

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

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	Battery(x12AA) 6V	Jace Hu
RADIATED EMISSION	23deg. C, 70%RH	Battery(x12AA) 6V	Jace Hu

2.5 EUT OPERATING CONDITIONS

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

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 24

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

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

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

Where:

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

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

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

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

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

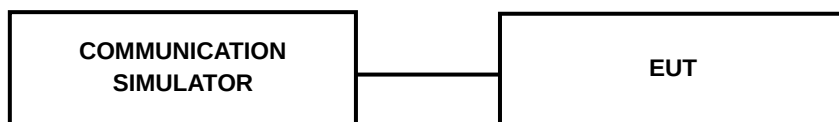
CONDUCTED POWER MEASUREMENT:

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

3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

LTE Band 2						
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	23.47	23.38	23.33
		1	50	23.49	23.48	23.34
		1	99	23.66	23.55	23.55
		50	0	22.43	22.41	22.38
		50	25	22.49	22.60	22.47
		50	50	22.60	22.56	22.49
		100	0	22.54	22.55	22.49
	16QAM	1	0	22.64	22.61	22.62
		1	50	22.88	22.87	22.83
		1	99	23.01	22.90	22.95
		12	0	22.39	22.43	22.37
		12	42	22.46	22.49	22.53
		12	86	22.70	22.61	22.66
		27	0	21.57	21.56	21.45

BW	Modulation	Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	23.44	23.36	23.21
		1	37	23.40	23.46	23.32
		1	74	23.52	23.54	23.51
		36	0	22.30	22.30	22.30
		36	19	22.37	22.45	22.42
		36	39	22.57	22.51	22.40
		75	0	22.44	22.40	22.35
	16QAM	1	0	22.59	22.57	22.51
		1	37	22.87	22.73	22.78
		1	74	22.89	22.85	22.81
		12	0	22.33	22.30	22.33
		12	30	22.42	22.37	22.39
		12	61	22.61	22.59	22.58
		27	0	21.47	21.48	21.44

BW	Modulation	Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	23.42	23.32	23.32
		1	24	23.46	23.38	23.24
		1	49	23.54	23.44	23.51
		25	0	22.36	22.37	22.25
		25	12	22.38	22.59	22.39
		25	25	22.54	22.53	22.47
		50	0	22.47	22.48	22.44
	16QAM	1	0	22.62	22.51	22.61
		1	24	22.80	22.75	22.78
		1	49	22.87	22.88	22.88
		12	0	22.38	22.28	22.27
		12	17	22.45	22.41	22.39
		12	36	22.55	22.60	22.56
		27	0	21.45	21.43	21.30

BW	Modulation	Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	23.40	23.27	23.26
		1	12	23.44	23.40	23.23
		1	24	23.58	23.44	23.50
		12	0	22.31	22.27	22.25
		12	6	22.34	22.57	22.44
		12	13	22.55	22.42	22.40
		25	0	22.40	22.43	22.45
	16QAM	1	0	22.59	22.50	22.60
		1	12	22.81	22.77	22.78
		1	24	22.97	22.86	22.94
		12	0	21.37	21.31	21.27
		12	6	21.44	21.47	21.45
		12	13	21.67	21.60	21.54
		25	0	21.45	21.55	21.40

BW	Modulation	Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	23.44	23.36	23.19
		1	7	23.46	23.43	23.25
		1	14	23.52	23.53	23.53
		8	0	22.41	22.35	22.37
		8	3	22.42	22.55	22.33
		8	7	22.55	22.48	22.41
		15	0	22.44	22.50	22.48
	16QAM	1	0	22.51	22.51	22.53
		1	7	22.86	22.73	22.76
		1	14	22.90	22.85	22.81
		8	0	21.24	21.39	21.27
		8	3	21.34	21.34	21.42
		8	7	21.67	21.46	21.54
		15	0	21.56	21.50	21.33

BW	Modulation	Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	23.39	23.30	23.30
		1	2	23.38	23.42	23.33
		1	5	23.61	23.40	23.47
		3	0	23.30	23.29	23.31
		3	1	23.41	23.51	23.42
		3	3	23.50	23.53	23.44
		6	0	22.51	22.47	22.43
	16QAM	1	0	22.59	22.58	22.53
		1	2	22.82	22.83	22.82
		1	5	22.99	22.84	22.92
		3	0	22.27	22.39	22.34
		3	1	22.42	22.35	22.44
		3	3	22.69	22.60	22.57
		6	0	21.44	21.50	21.31



EIRP POWER (dBm)

LTE BAND 2

LTE B2 1.4M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18607	1850.7	23.61	0.31	23.92	246.6	2
18900	1880	23.53	0.31	23.84	242.1	2
19193	1909.3	23.47	0.31	23.78	238.78	2

LTE B2 1.4M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18607	1850.7	22.99	0.31	23.3	213.8	2
18900	1880	22.84	0.31	23.15	206.54	2
19193	1909.3	22.92	0.31	23.23	210.38	2

LTE B2 3M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18615	1851.5	23.52	0.31	23.83	241.55	2
18900	1880	23.53	0.31	23.84	242.1	2
19185	1908.5	23.53	0.31	23.84	242.1	2

LTE B2 3M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18615	1851.5	22.9	0.31	23.21	209.41	2
18900	1880	22.85	0.31	23.16	207.01	2
19185	1908.5	22.81	0.31	23.12	205.12	2

LTE B2 5M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18625	1852.5	23.58	0.31	23.89	244.91	2
18900	1880	23.44	0.31	23.75	237.14	2
19175	1907.5	23.5	0.31	23.81	240.44	2

LTE B2 5M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18625	1852.5	22.97	0.31	23.28	212.81	2
18900	1880	22.86	0.31	23.17	207.49	2
19175	1907.5	22.94	0.31	23.25	211.35	2

LTE B2 10M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18650	1855	23.54	0.31	23.85	242.66	2
18900	1880	23.44	0.31	23.75	237.14	2
19150	1905	23.51	0.31	23.82	240.99	2

LTE B2 10M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18650	1855	22.87	0.31	23.18	207.97	2
18900	1880	22.88	0.31	23.19	208.45	2
19150	1905	22.88	0.31	23.19	208.45	2

LTE B2 15M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18675	1857.5	23.52	0.31	23.83	241.55	2
18900	1880	23.54	0.31	23.85	242.66	2
19125	1902.5	23.51	0.31	23.82	240.99	2

LTE B2 15M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18675	1857.5	22.89	0.31	23.2	208.93	2
18900	1880	22.85	0.31	23.16	207.01	2
19125	1902.5	22.81	0.31	23.12	205.12	2

LTE B2 20M QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18700	1860	23.66	0.31	23.97	249.46	2
18900	1880	23.55	0.31	23.86	243.22	2
19100	1900	23.55	0.31	23.86	243.22	2

LTE B2 20M 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	Lmit (W)
18700	1860	23.01	0.31	23.32	214.78	2
18900	1880	22.9	0.31	23.21	209.41	2
19100	1900	22.95	0.31	23.26	211.84	2

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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

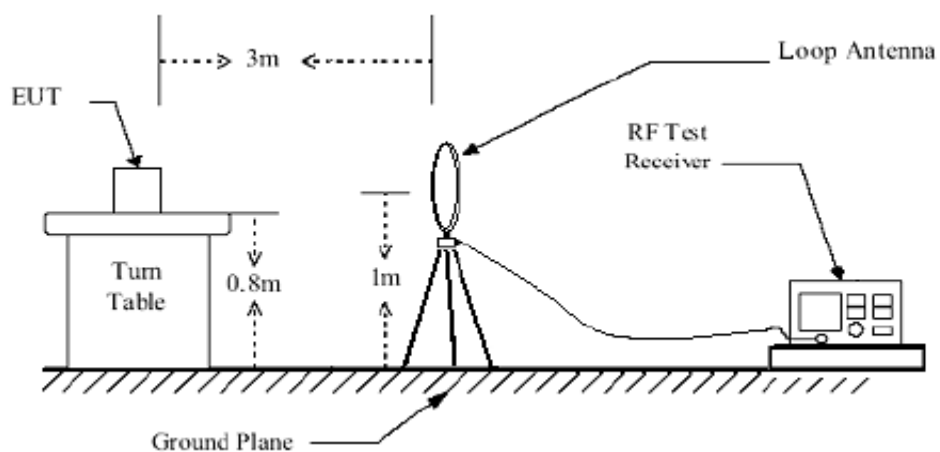
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.2.3 DEVIATION FROM TEST STANDARD

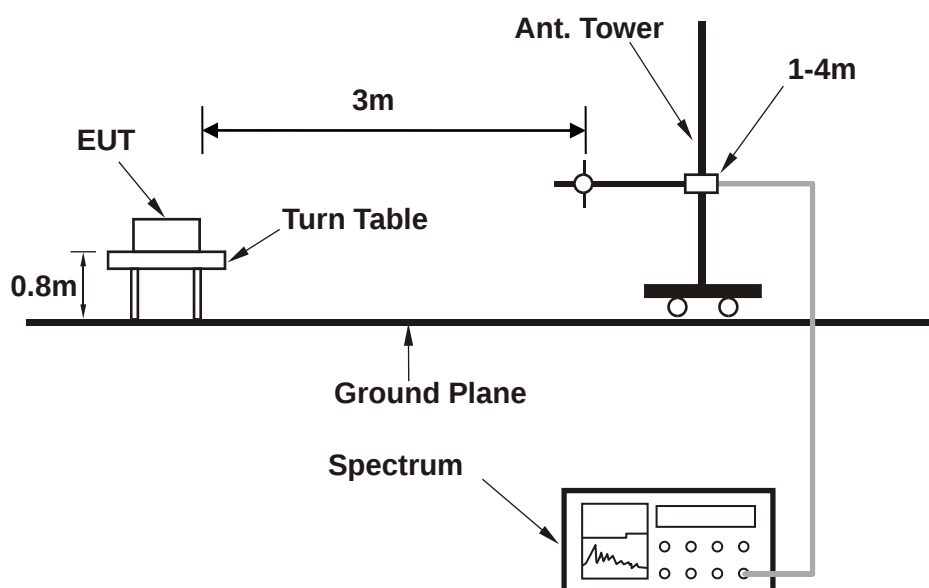
No deviation

3.2.4 TEST SETUP

< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >

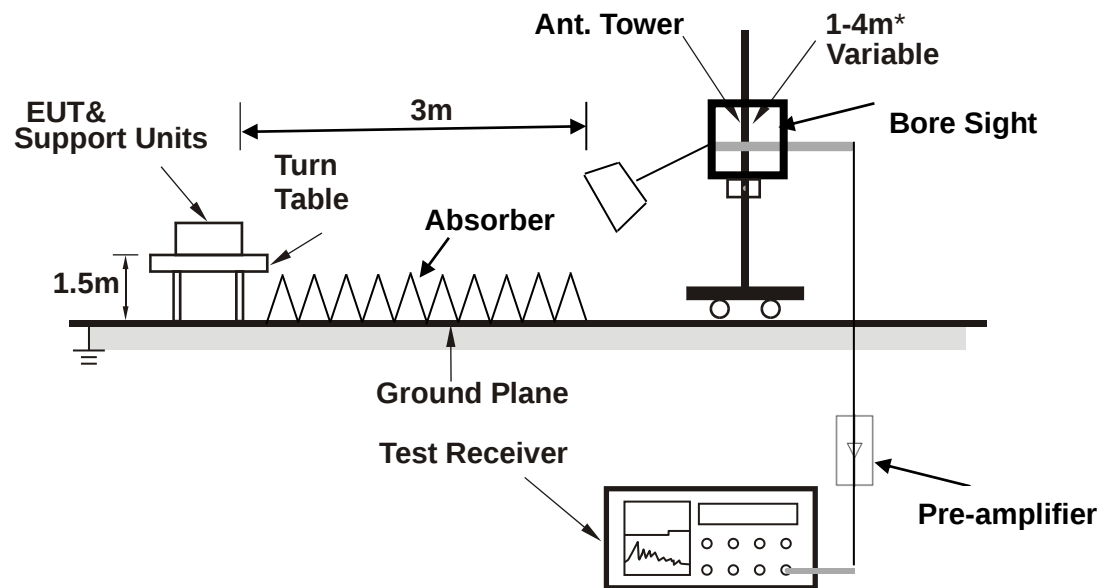




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<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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



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3.2.5 TEST RESULTS

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

BELOW 1GHz WORST-CASE DATA

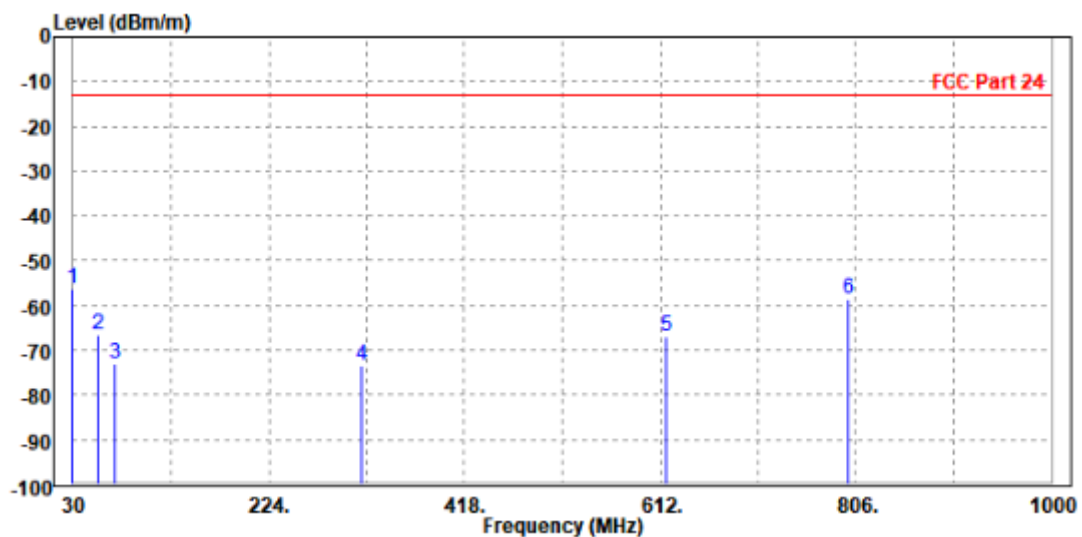
30 MHz – 1GHz data:

LTE Band 2:

CHANNEL BANDWIDTH: 3MHz / QPSK

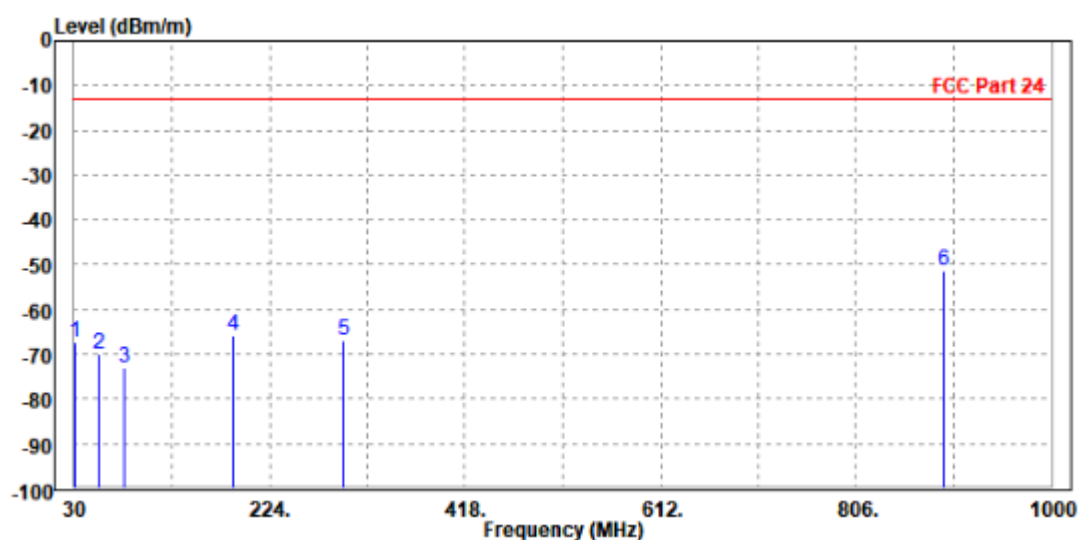
MODE	TX channel 18615	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	30.000	-56.35	-54.37	-13.00	-43.35	-1.98	Peak	Horizontal
2	54.250	-66.70	-54.96	-13.00	-53.70	-11.74	Peak	Horizontal
3	71.710	-72.87	-60.57	-13.00	-59.87	-12.30	Peak	Horizontal
4	316.150	-73.44	-64.94	-13.00	-60.44	-8.50	Peak	Horizontal
5	617.820	-67.10	-64.28	-13.00	-54.10	-2.82	Peak	Horizontal
6	799.210	-58.56	-63.79	-13.00	-45.56	5.23	Peak	Horizontal



MODE	TX channel 18615	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
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	30.970	-67.32	-45.77	-13.00	-54.32	-21.55	Peak	Vertical
2	54.250	-70.03	-50.46	-13.00	-57.03	-19.57	Peak	Vertical
3	80.440	-73.18	-54.28	-13.00	-60.18	-18.90	Peak	Vertical
4	188.110	-65.76	-58.50	-13.00	-52.76	-7.26	Peak	Vertical
5	296.750	-66.87	-63.44	-13.00	-53.87	-3.43	Peak	Vertical
6 PP	893.300	-51.37	-63.02	-13.00	-38.37	11.65	Peak	Vertical





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ABOVE 1GHz DATA

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

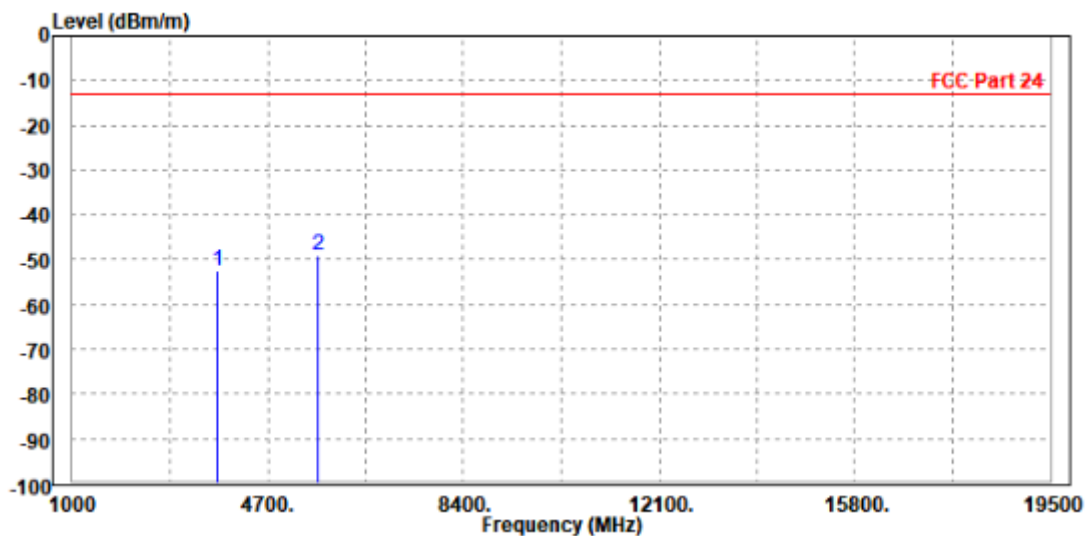
WORST-CASE DATA

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

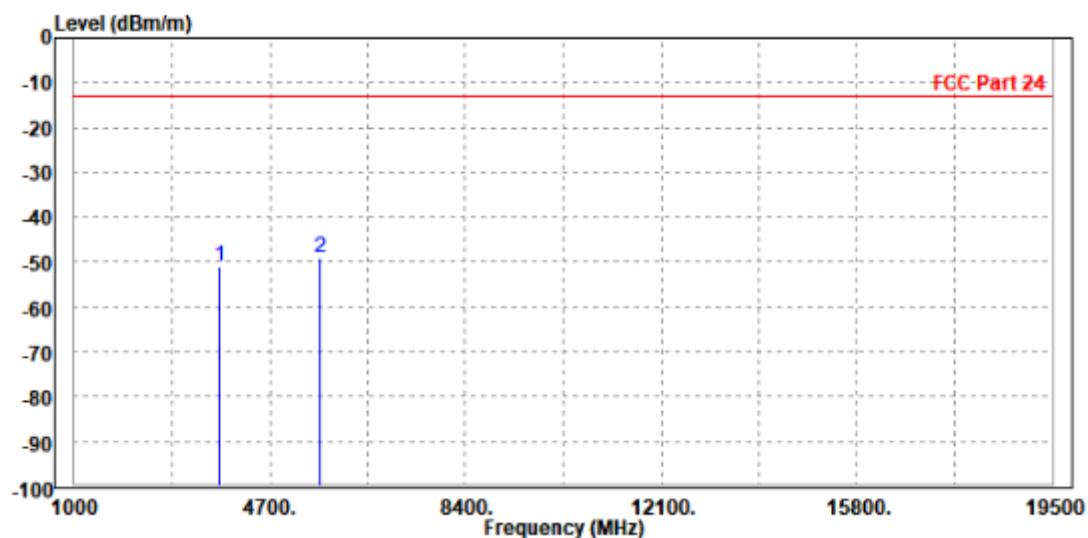
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-52.57	-60.92	-13.00	-39.57	8.35	Peak	Horizontal
2 PP	5643.500	-49.12	-60.93	-13.00	-36.12	11.81	Peak	Horizontal



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
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	3756.500	-50.88	-59.51	-13.00	-37.88	8.63	Peak	Vertical
2 PP	5640.000	-48.91	-61.23	-13.00	-35.91	12.32	Peak	Vertical





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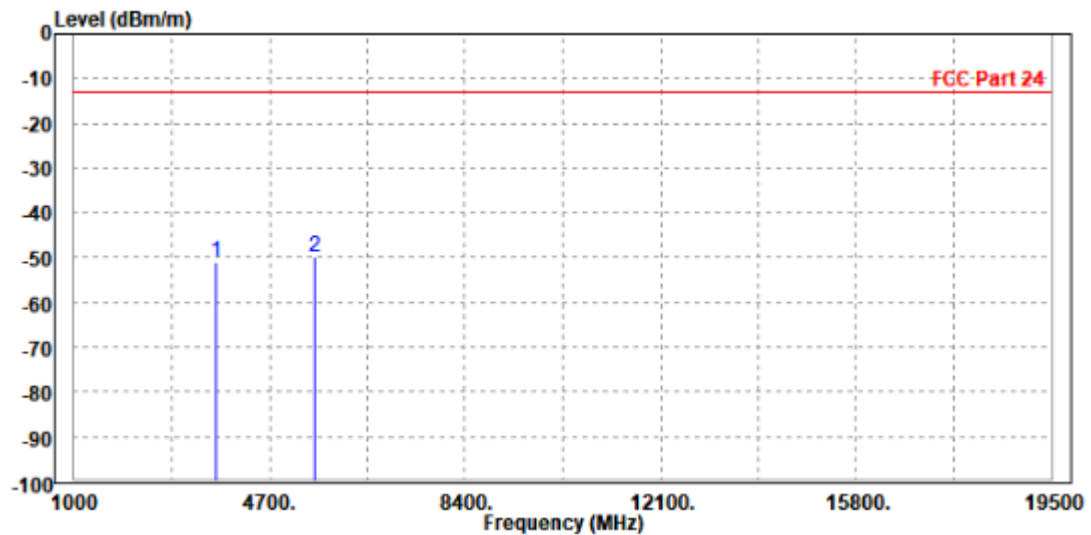
Test Report No.: W7L-240510W001RF02

CHANNEL BANDWIDTH: 3MHz / QPSK

CH18615

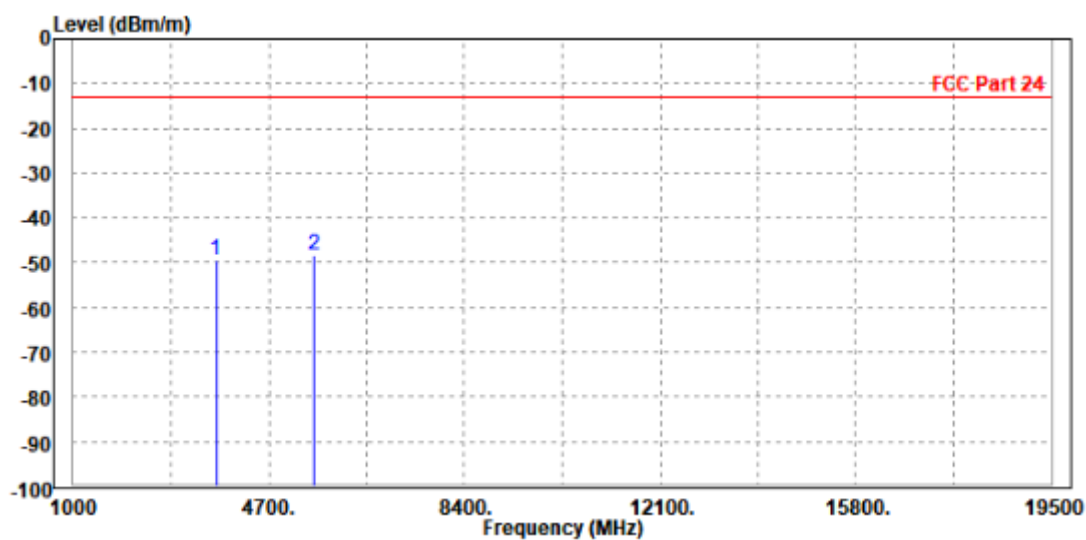
MODE	TX channel 18615	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3701.000	-51.05	-59.45	-13.00	-38.05	8.40	Peak	Horizontal
2 PP	5554.500	-49.75	-61.55	-13.00	-36.75	11.80	Peak	Horizontal



MODE	TX channel 18615	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
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	3703.000	-49.28	-57.91	-13.00	-36.28	8.63	Peak	Vertical
2 PP	5551.000	-48.33	-60.66	-13.00	-35.33	12.33	Peak	Vertical





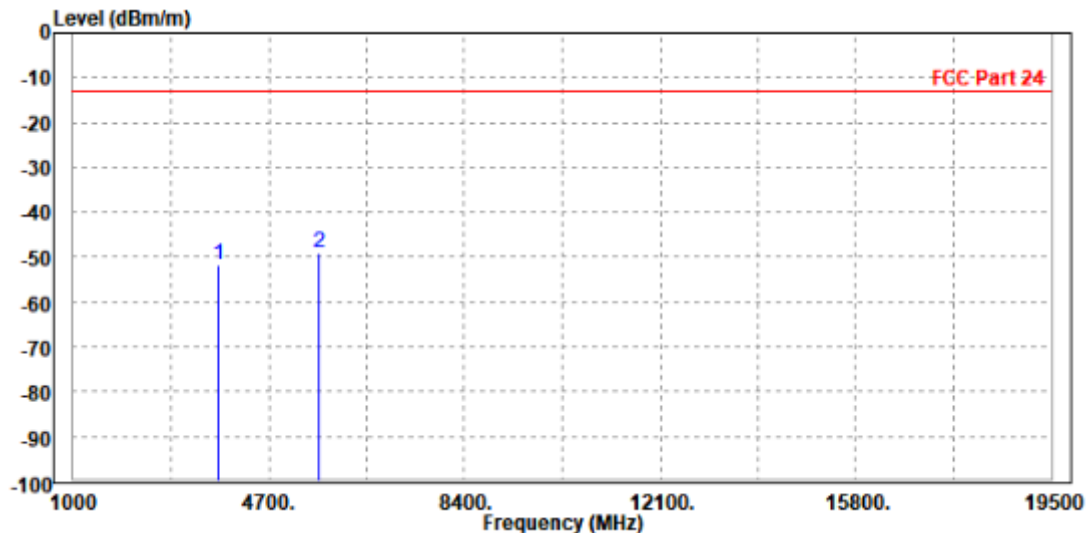
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Test Report No.: W7L-240510W001RF02

CH18900

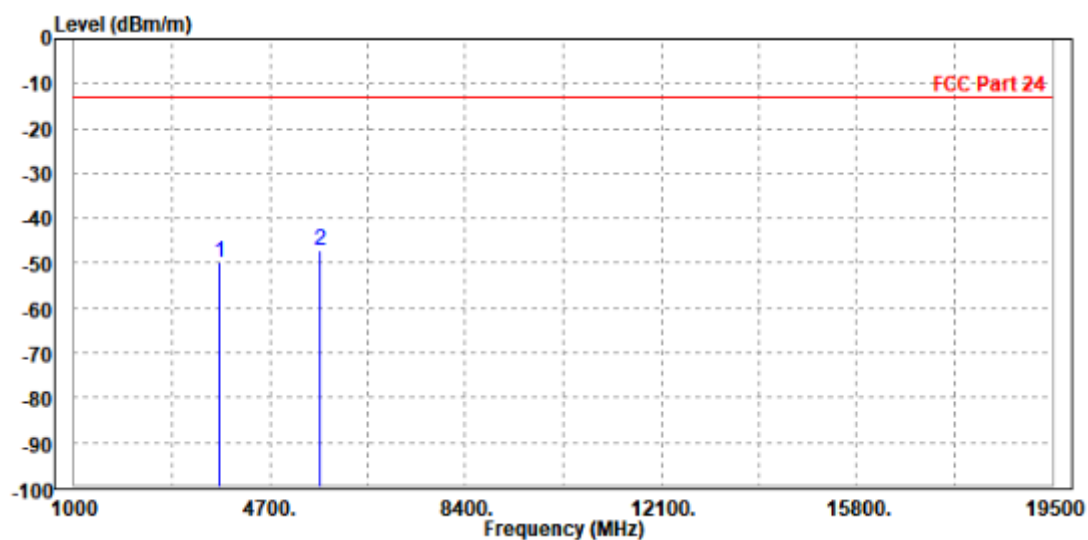
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3756.500	-51.55	-59.90	-13.00	-38.55	8.35	Peak	Horizontal
2 PP	5640.000	-49.21	-61.02	-13.00	-36.21	11.81	Peak	Horizontal



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

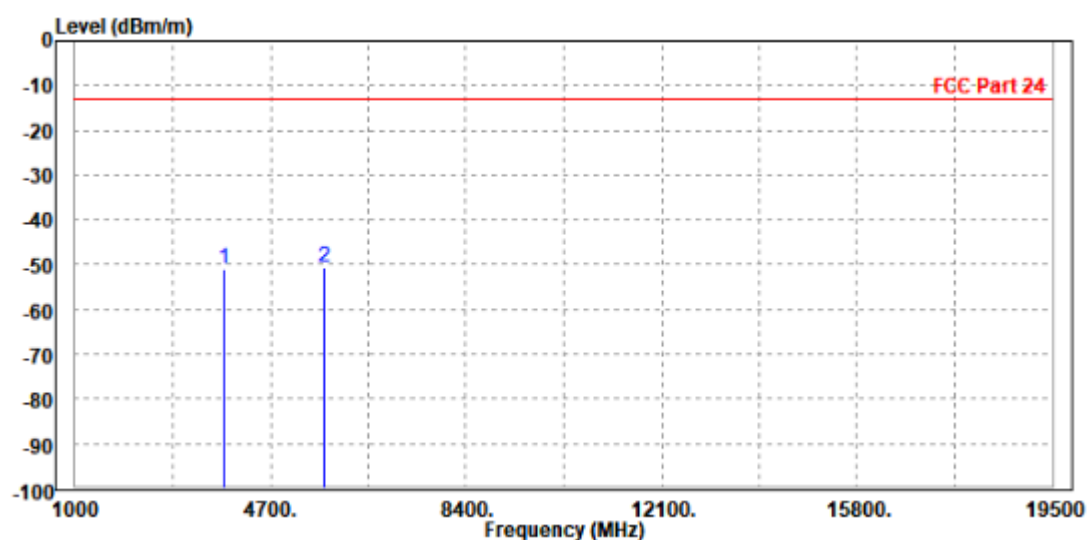
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-49.69	-58.32	-13.00	-36.69	8.63	Peak	Vertical
2 PP	5643.500	-47.29	-59.61	-13.00	-34.29	12.32	Peak	Vertical



CH19185

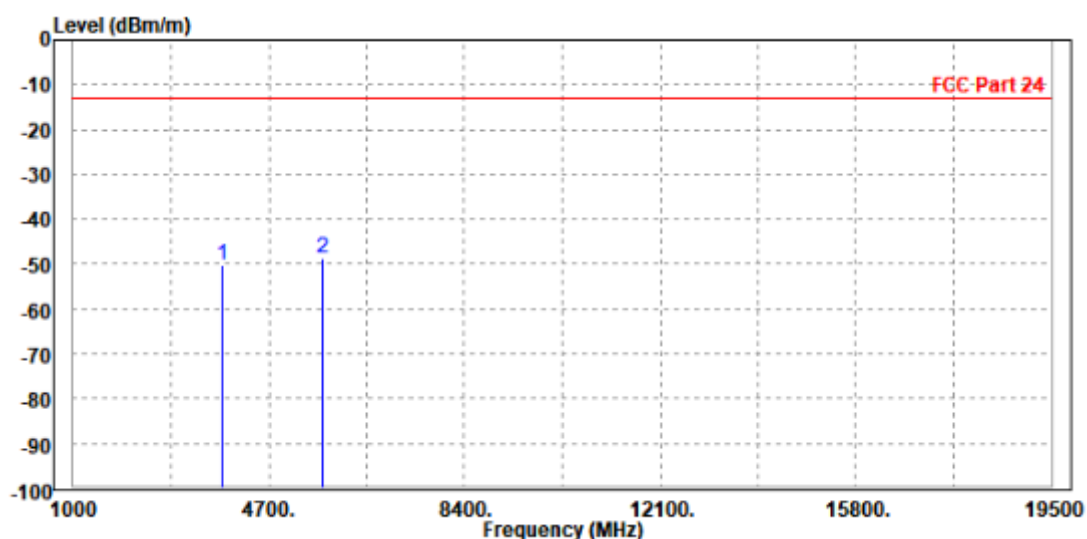
MODE	TX channel 19185	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3817.000	-50.99	-59.30	-13.00	-37.99	8.31	Peak	Horizontal
2 PP	5717.500	-50.39	-62.21	-13.00	-37.39	11.82	Peak	Horizontal



MODE	TX channel 19185	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

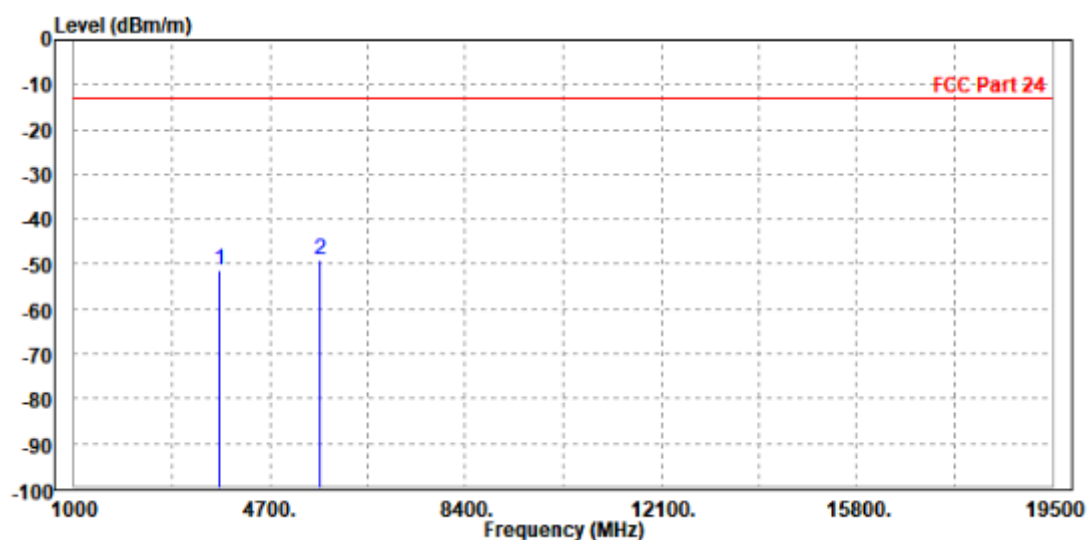
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3812.000	-50.04	-58.67	-13.00	-37.04	8.63	Peak	Vertical
2 PP	5725.500	-48.67	-60.98	-13.00	-35.67	12.31	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

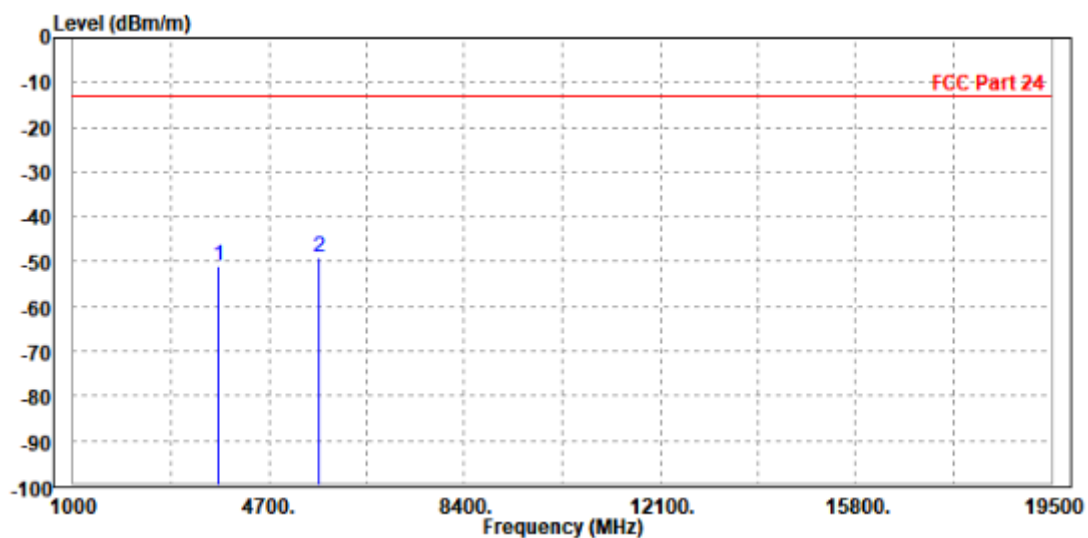
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-51.28	-59.63	-13.00	-38.28	8.35	Peak	Horizontal
2 PP	5643.500	-49.09	-60.90	-13.00	-36.09	11.81	Peak	Horizontal



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

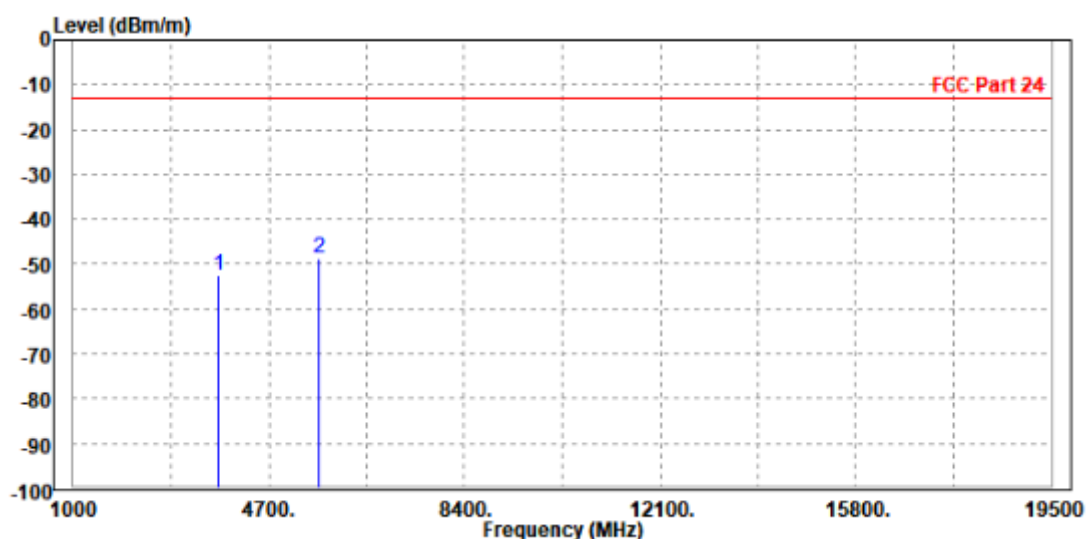
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3756.500	-50.87	-59.50	-13.00	-37.87	8.63	Peak	Vertical
2 PP	5640.000	-49.04	-61.36	-13.00	-36.04	12.32	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

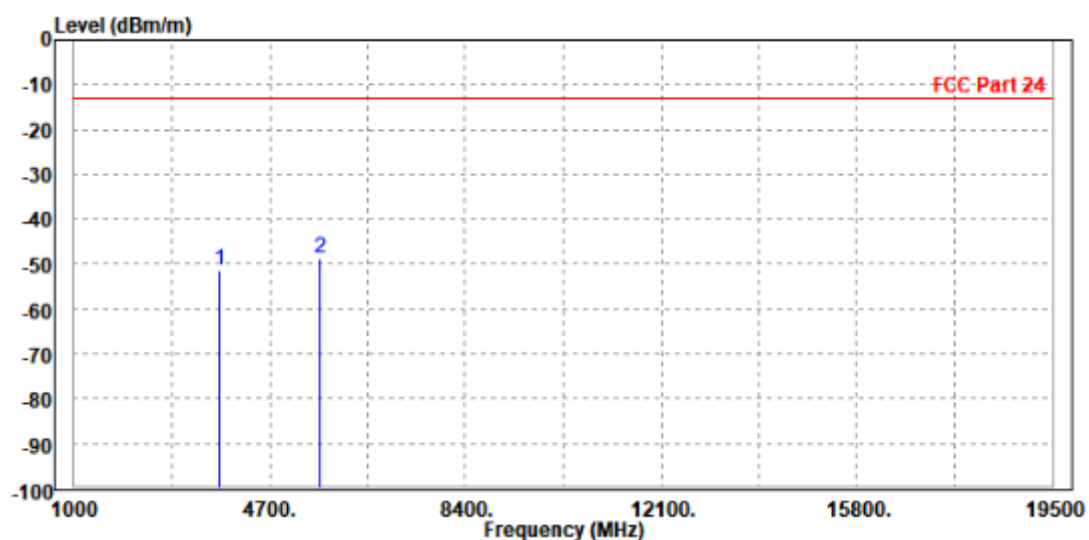
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3756.500	-52.38	-60.73	-13.00	-39.38	8.35	Peak	Horizontal
2 PP	5640.000	-48.80	-60.61	-13.00	-35.80	11.81	Peak	Horizontal



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

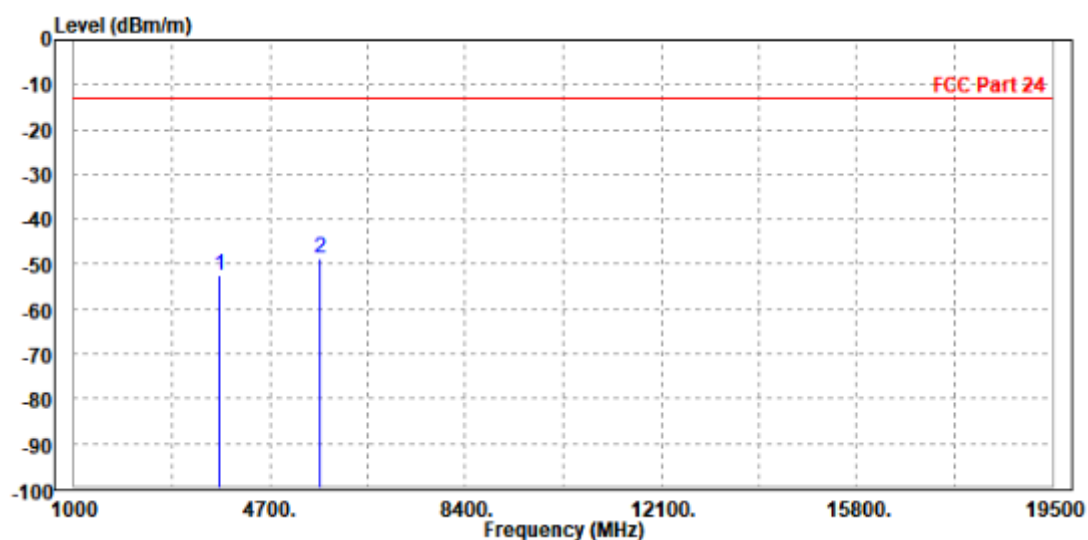
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-51.16	-59.79	-13.00	-38.16	8.63	Peak	Vertical
2 PP	5643.500	-48.67	-60.99	-13.00	-35.67	12.32	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

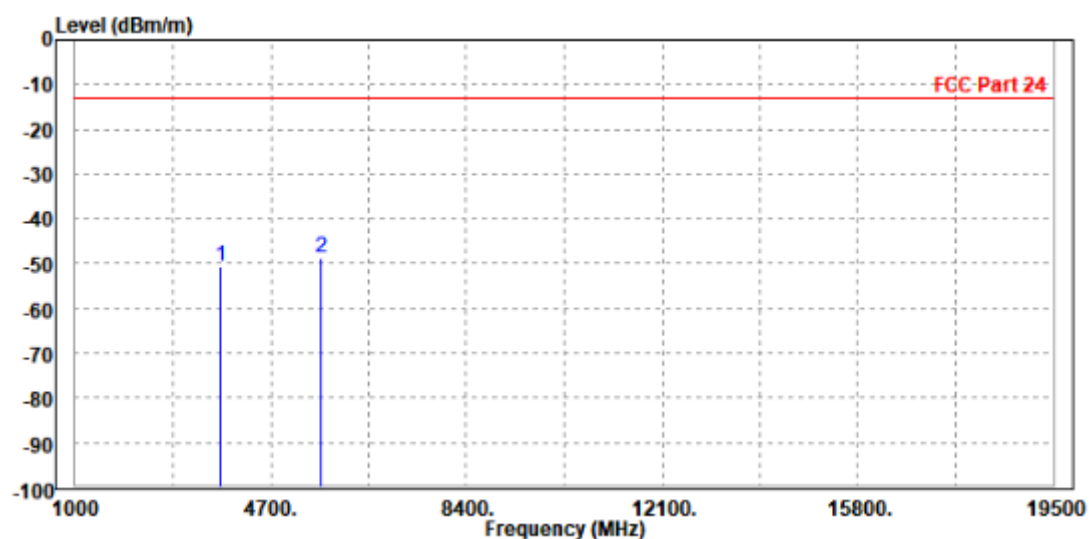
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3756.500	-52.54	-60.89	-13.00	-39.54	8.35	Peak	Horizontal
2 PP	5640.000	-48.82	-60.63	-13.00	-35.82	11.81	Peak	Horizontal



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

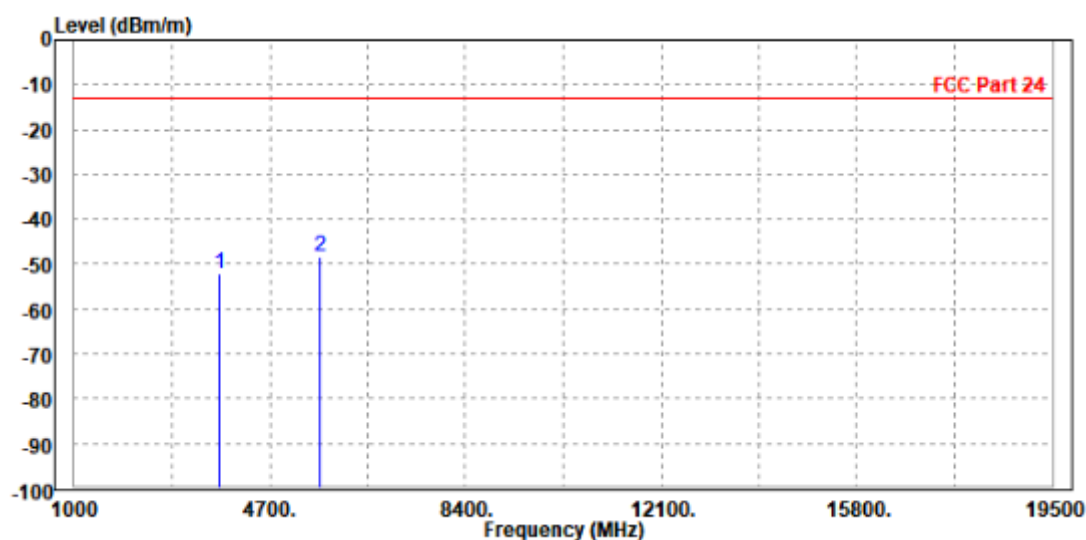
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-50.47	-59.10	-13.00	-37.47	8.63	Peak	Vertical
2 PP	5643.500	-48.79	-61.11	-13.00	-35.79	12.32	Peak	Vertical



CHANNEL BANDWIDTH: 20MHz / QPSK

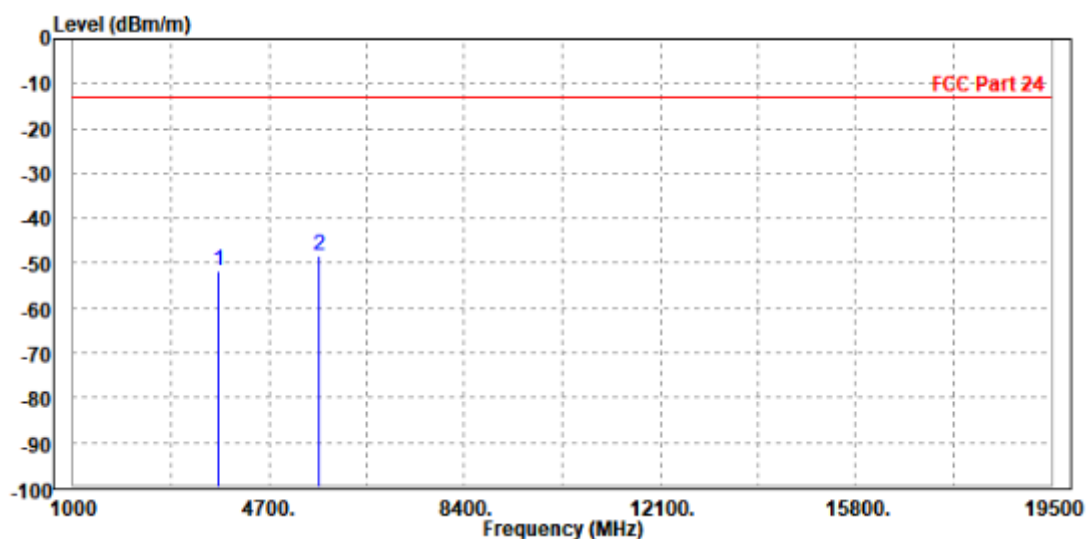
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3760.000	-51.99	-60.34	-13.00	-38.99	8.35	Peak	Horizontal
2 PP	5643.500	-48.28	-60.09	-13.00	-35.28	11.81	Peak	Horizontal



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	Battery(x12AA) 6V
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	3756.500	-51.57	-60.20	-13.00	-38.57	8.63	Peak	Vertical
2 PP	5640.000	-48.32	-60.64	-13.00	-35.32	12.32	Peak	Vertical





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4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Shenzhen EMC/RF Lab:

Tel: +86-755-88696566

Fax: +86-755-88696577

Email: customerservice.sw@bureauveritas.com

Web Site: www.adt.com.tw

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



Test Report No.: W7L-240510W001RF02

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---