



BUREAU VERITAS

Test Report No.: W7L-211129W002RF16



ACCREDITED

Certificate # 3939.01

VARIANT FCC TEST REPORT (PART 24)

Applicant:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States

Manufacturer or Supplier:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States
Product:	Mobile Computer
Brand Name:	Honeywell
Model Name:	CT45P-L1N-2
FCC ID:	HD5-CT45PL1N2
Date of tests:	Oct. 25, 2021 ~ Jan. 14, 2022

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: Jan. 14, 2022	Date: Jan. 14, 2022

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21080006RF16	Original release	Sep. 01, 2021
W7L-P21110008RF16	Based on the original report W7L-P21080006RF16 add the band 41C, changing components.	Nov. 12, 2021
W7L-211129W002RF16	Based on the original report W7L-P21110008RF16 Changing components	Jan. 14, 2022



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 24.232	Equivalent Isotropic Radiated Power	Compliance (See Note 1)
2.1055 24.235	Frequency Stability	(See Note 2)
2.1049 24.238(b)	Occupied Bandwidth	(See Note 2)
24.232(d)	Peak to average ratio	(See Note 2)
24.238(b)	Band Edge Measurements	(See Note 2)
2.1051 24.238	Conducted Spurious Emissions	(See Note 2)
2.1053 24.238	Radiated Spurious Emissions	Compliance (See Note 1)

NOTE:

1. Per the change notice provide by manufactory, the difference is changing components, all the change no effect any RF parameter, Therefore only verify the power and radiated emission worse case. The report only show the verify test data.
2. Please refer to original report W7L-P21110008RF16

1.1 MEASUREMENT UNCERTAINTY

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

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

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



1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 22,21	Apr. 21,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Jun. 03,21	Jun. 02,22
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 05,21	Mar. 04,22
Horn Antenna	ETS-LINDGREN	3117	00168728	Apr. 02,21	Apr. 01,22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 25,21	Feb. 24,22
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 03,21	Jun. 02,22
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 22,21	Apr. 21,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
Power Meter	Anritsu	ML2495A	1506002	Apr. 07,21	Apr. 06,22
Power Sensor	Anritsu	MA2411B	1339352	May. 07,21	May. 06,22
Temperature Chamber	ESPEC	SH-242	93000855	Jun. 02,21	Jun. 01,22
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 05,21	Mar. 04,22
Power Divider	MCLI/USA	PS2-15	24880	N/A	N/A

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 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	Mobile Computer	
BRAND NAME	Honeywell	
MODEL NAME	CT45P-L1N-2	
NOMINAL VOLTAGE	3.85Vdc (Lithium-ion cell, battery)	
MODULATION TYPE	GPRS: GMSK EDGE: 8PSK WCDMA: BPSK,QPSK LTE Band 2: QPSK, 16QAM, 64QAM	
FREQUENCY RANGE	GSM, GPRS, EDGE	1850.2MHz ~ 1909.8MHz
	WCDMA	1852.4MHz ~ 1907.6MHz
	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
	LTE Band 25 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1914.3MHz
	LTE Band 25 Channel Bandwidth: 3MHz	1851.5MHz ~ 1913.5MHz
	LTE Band 25 Channel Bandwidth: 5MHz	1852.5MHz ~ 1912.5MHz
	LTE Band 25 Channel Bandwidth: 10MHz	1855.0MHz ~ 1910.0MHz
	LTE Band 25 Channel Bandwidth: 15MHz	1857.5MHz ~ 1907.5MHz
	LTE Band 25 Channel Bandwidth: 20MHz	1860.0MHz ~ 1905.0MHz



MAX. EIRP POWER	GSM	1358.31mW
	EDGE	656.15mW
	WCDMA	114.02mW
	LTE Band 2 Channel Bandwidth: 1.4MHz	223.36mW
	LTE Band 2 Channel Bandwidth: 3MHz	220.80mW
	LTE Band 2 Channel Bandwidth: 5MHz	220.80mW
	LTE Band 2 Channel Bandwidth: 10MHz	221.31mW
	LTE Band 2 Channel Bandwidth: 15MHz	221.82mW
	LTE Band 2 Channel Bandwidth: 20MHz	223.36mW
MAX. EIRP POWER	LTE Band 25 Channel Bandwidth: 1.4MHz	224.91mW
	LTE Band 25 Channel Bandwidth: 3MHz	222.84mW
	LTE Band 25 Channel Bandwidth: 5MHz	221.31mW
	LTE Band 25 Channel Bandwidth: 10MHz	221.82mW
	LTE Band 25 Channel Bandwidth: 15MHz	223.36mW
	LTE Band 25 Channel Bandwidth: 20MHz	225.42mW



EMISSION DESIGNATOR	GSM	240KGXW	
	EDGE	240KG7W	
	WCDMA	4M16F9W	
	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 1M10G7D	
		16QAM: 1M10W7D	
		64QAM: 1M10W7D	
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK: 2M69G7D	
		16QAM: 2M69W7D	
		64QAM: 2M69W7D	
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 4M49G7D	
		16QAM: 4M48W7D	
		64QAM: 4M48W7D	
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 8M97G7D	
		16QAM: 8M97W7D	
		64QAM: 8M98W7D	
	LTE Band 2 Channel Bandwidth: 15MHz	QPSK: 13M5G7D	
		16QAM: 13M5W7D	
		64QAM: 13M5W7D	
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 17M9G7D	
		16QAM: 19M3W7D	
		64QAM: 17M9W7D	
	LTE Band 25 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D	
		16QAM: 1M09W7D	
		64QAM: 1M09W7D	
	LTE Band 25 Channel Bandwidth: 3MHz	QPSK: 2M70G7D	
		16QAM: 2M69W7D	
		64QAM: 2M69W7D	
	LTE Band 25 Channel Bandwidth: 5MHz	QPSK: 4M46G7D	
		16QAM: 4M46W7D	
		64QAM: 4M49W7D	
	LTE Band 25 Channel Bandwidth: 10MHz	QPSK: 8M92G7D	
		16QAM: 8M92W7D	
64QAM: 8M92W7D			
LTE Band 25 Channel Bandwidth: 15MHz	QPSK: 13M5G7D		
	16QAM: 13M4W7D		
	64QAM: 13M5W7D		
LTE Band 25 Channel Bandwidth: 20MHz	QPSK: 18M0G7D		
	16QAM: 18M0W7D		
	64QAM: 18M0W7D		
ANTENNA TYPE	PIFA Antenna with 2.67dBi gain		
HW VERSION	V1.0		



SW VERSION	OS.11.002-HON.11.002
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB CUP: unshielded without ferrite, 1.25 meter Earphone cable: unshielded without ferrite, 1.27 meter
EXTREME TEMPERATURE	-10-55 °C
EXTREME VOLTAGE	3.4V- 4.4V

NOTE:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- This product includes the following three SKU which hardware is exactly same, the difference is described as following, Sample 1 was full test, sample 2 verify the worst case,check worst case Radiated emission:

SAMPLE	EUT CONFIGURATION INFORMATION
1	SKU ID:CT45-L1N-37D120G ,Assembled Scanner Imager: 7-S0703
2	SKU ID:CT45-L1N-38D120G ,Assembled Scanner Imager: 8 - N6803/S0803
3	SKU ID: CT45-L1N-37D220G , Assembled with Scanner: 7-S0703 for China Only with Android non-GMS

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

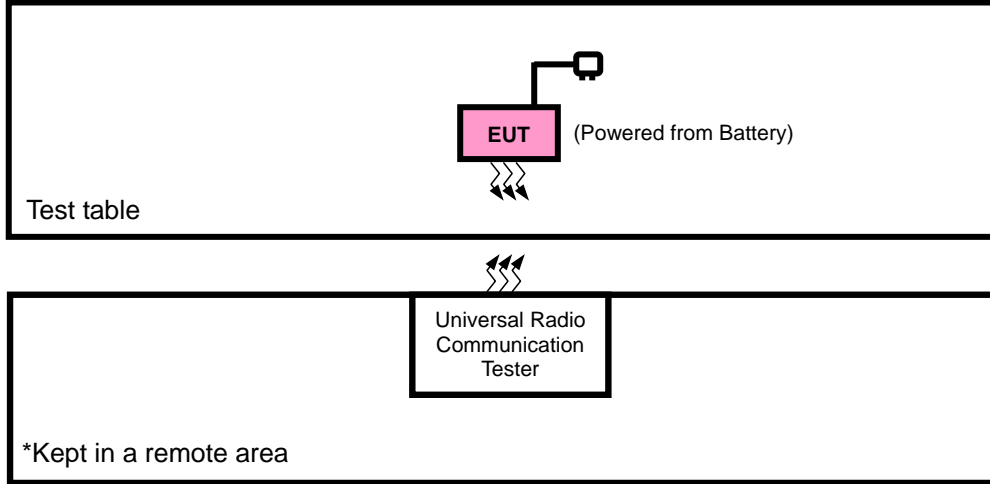
List of Accessory:

ACCESSORIES	BRAND	MODEL	SPECIFICATION
Battery	Honeywell	CT50-BTSC	Capacity : 3.85vdc 4020mAh
AC Adapter	HONOR	ADS-12B-06 05010E	I/P:100-240Vac, 0.3A O/P: 5Vdc, 2A
USB CUP	Honeywell	CT40-SN	Shielded, 1.25meter
Earphone	VIVO	N/A	Shielded, 1.27meter
LCD Panel	CASIL	CTM10801920T01	5.0" FHD(1928*1080)



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:

1.1.1.1.1 DESCRIPTION
EUT + DC Source with GSM or WCDMA or LTE link

GSM MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	512 to 810	512, 661, 810	GPRS, EDGE

WCDMA

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	9262 to 9538	9262, 9400, 9538	WCDMA

LTE BAND 2

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset



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LTE BAND 25

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
	26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
RADIATED EMISSION	26047 to 26683	26365	1.4MHz	QPSK	1 RB / 0 RB Offset
	26055 to 26675	26365	3MHz	QPSK	1 RB / 0 RB Offset
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	1 RB / 0 RB Offset
	26090 to 26640	26365	10MHz	QPSK	1 RB / 0 RB Offset
	26115 to 26615	26365	15MHz	QPSK	1 RB / 0 RB Offset
	26140 to 26590	26365	20MHz	QPSK	1 RB / 0 RB Offset

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	DC 3.85V By Battery	Jace Hu
RADIATED EMISSION	23deg. C, 70%RH	DC 3.85V By Battery	Jace Hu



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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:

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

Where:

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

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

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

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

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

CONDUCTED POWER MEASUREMENT:

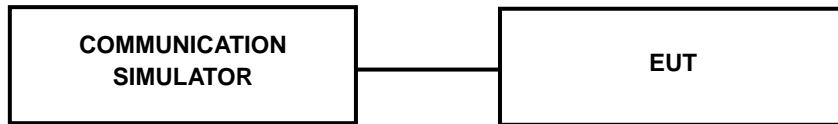
The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.1 TEST RESULTS

Retested Data(For reference only,it's lower than the original report)

CONDUCTED OUTPUT POWER (dBm)

Band	GSM1900			Max. Tune-up Power
	512	661	810	
Channel	1850.2	1880	1909.8	
Frequency				
GSM (GMSK, 1Tx-slot)	28.59	28.63	28.58	29.5
GPRS (GMSK, 1Tx-slot)	28.48	28.50	28.54	29.5
GPRS (GMSK, 2Tx-slot)	27.04	27.01	27.12	28.0
GPRS (GMSK, 3Tx-slot)	25.34	25.66	25.82	26.5
GPRS (GMSK, 4Tx-slot)	23.17	23.34	23.71	24.5
EDGE (8PSK, 1Tx-slot)	25.23	25.29	25.42	26.0
EDGE (8PSK, 2Tx-slot)	23.01	23.01	23.36	24.0
EDGE (8PSK, 3Tx-slot)	21.02	21.19	21.42	22.0
EDGE (8PSK, 4Tx-slot)	19.89	20.06	20.32	21.0

Band	WCDMA II			Max. Tune-up Power
	9262	9400	9538	
Channel	1852.4	1880	1907.6	
Frequency				
RMC 12.2K	21.52	21.56	21.71	22.0
HSDPA Subtest-1	20.62	20.69	20.76	21.0
HSDPA Subtest-2	20.57	20.58	20.78	21.0
HSDPA Subtest-3	20.14	20.12	20.31	20.5
HSDPA Subtest-4	20.09	20.16	20.22	20.5
DC-HSDPA Subtest-1	20.69	20.66	20.78	21.0
DC-HSDPA Subtest-2	20.64	20.72	20.81	21.0
DC-HSDPA Subtest-3	20.21	20.09	20.32	20.5
DC-HSDPA Subtest-4	20.17	20.13	20.26	20.5
HSUPA Subtest-1	20.65	20.74	20.76	21.0
HSUPA Subtest-2	20.54	18.63	18.76	19.0
HSUPA Subtest-3	20.14	19.17	19.32	20.0
HSUPA Subtest-4	20.17	18.12	18.24	19.0
HSUPA Subtest-5	20.70	20.80	20.88	21.0



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Band/BW	Modulation	RB Size	RB Offset	Low CH 18700	Mid CH 18900	High CH 19100	MPR
				Frequency 1860 MHz	Frequency 1880 MHz	Frequency 1900 MHz	
2/ 20	QPSK	1	0	20.75	20.60	20.81	0
		1	50	20.72	20.63	20.74	0
		1	99	20.52	20.43	20.51	0
		50	0	19.81	19.70	19.92	1
		50	25	19.84	19.69	19.82	1
		50	50	19.54	19.44	19.69	1
		100	0	19.95	19.80	19.99	1
	16QAM	1	0	20.08	19.96	20.07	1
		1	50	20.04	19.93	20.04	1
		1	99	19.67	19.59	19.74	1
		50	0	18.90	18.70	18.95	2
		50	25	18.82	18.75	18.90	2
		50	50	18.64	18.46	18.70	2
		100	0	18.91	18.77	18.92	2
	64QAM	1	0	18.85	18.83	18.93	2
		1	50	18.91	18.79	18.98	2
		1	99	18.61	18.51	18.68	2
		50	0	17.81	17.72	17.84	3
		50	25	17.86	17.75	17.88	3
		50	50	17.63	17.57	17.63	3
		100	0	17.93	17.77	18.01	3



LTE BAND 25

Band/BW	Modulation	RB Size	RB Offset	Low CH 26140	Mid CH 26365	High CH 26590	MPR
				Frequency 1860 MHz	Frequency 1882.5 MHz	Frequency 1905 MHz	
25/ 20	QPSK	1	0	20.78	20.78	20.73	0
		1	50	20.61	20.64	20.56	0
		1	99	20.56	20.59	20.48	0
		50	0	19.71	19.72	19.75	1
		50	25	19.83	19.80	19.74	1
		50	50	19.61	19.63	19.69	1
		100	0	19.75	19.72	19.72	1
	16QAM	1	0	20.20	20.20	20.12	1
		1	50	20.10	20.11	20.03	1
		1	99	19.72	19.76	19.72	1
		50	0	18.76	18.68	18.74	2
		50	25	18.71	18.76	18.72	2
		50	50	18.73	18.67	18.72	2
		100	0	18.77	18.75	18.71	2
	64QAM	1	0	18.98	19.08	18.99	2
		1	50	18.73	18.73	18.73	2
		1	99	18.71	18.73	18.71	2
		50	0	17.68	17.71	17.64	3
		50	25	17.73	17.74	17.68	3
		50	50	17.71	17.77	17.64	3
		100	0	17.68	17.64	17.69	3



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.

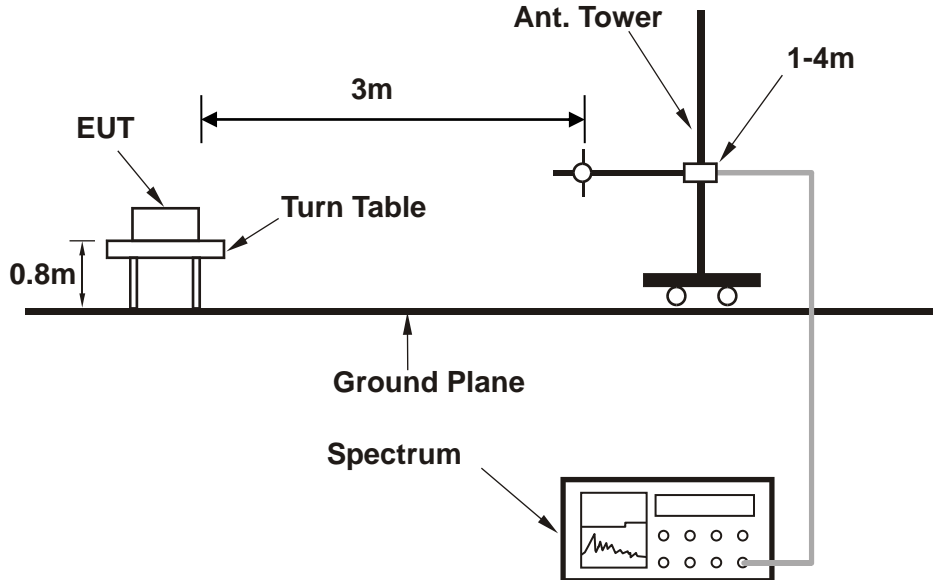
3.2.3 DEVIATION FROM TEST STANDARD

No deviation

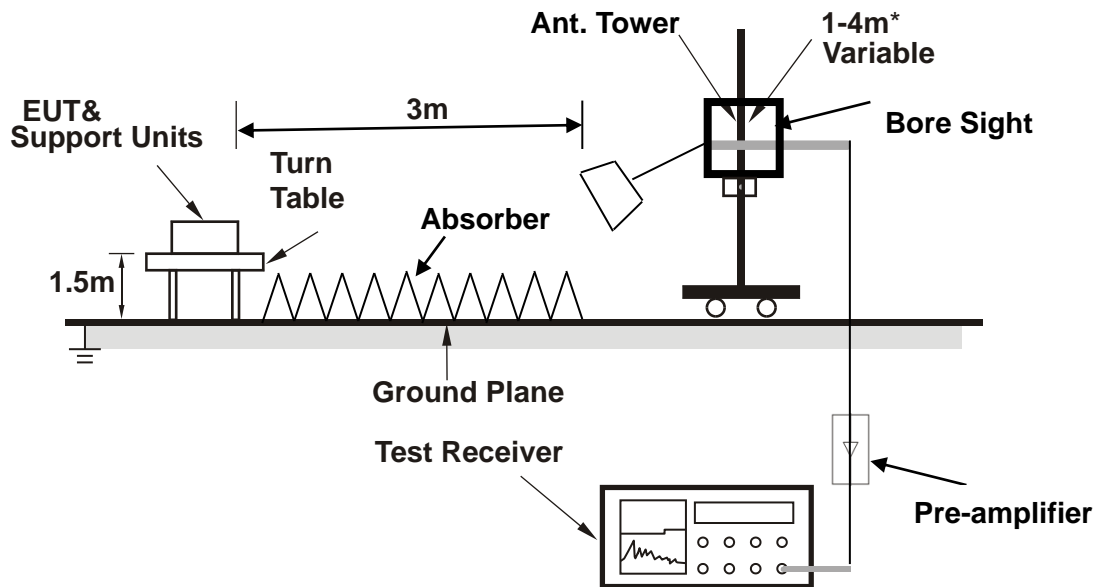


3.2.4 TEST SETUP

< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

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

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



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Test Report No.: W7L-211129W002RF16

3.2.5 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

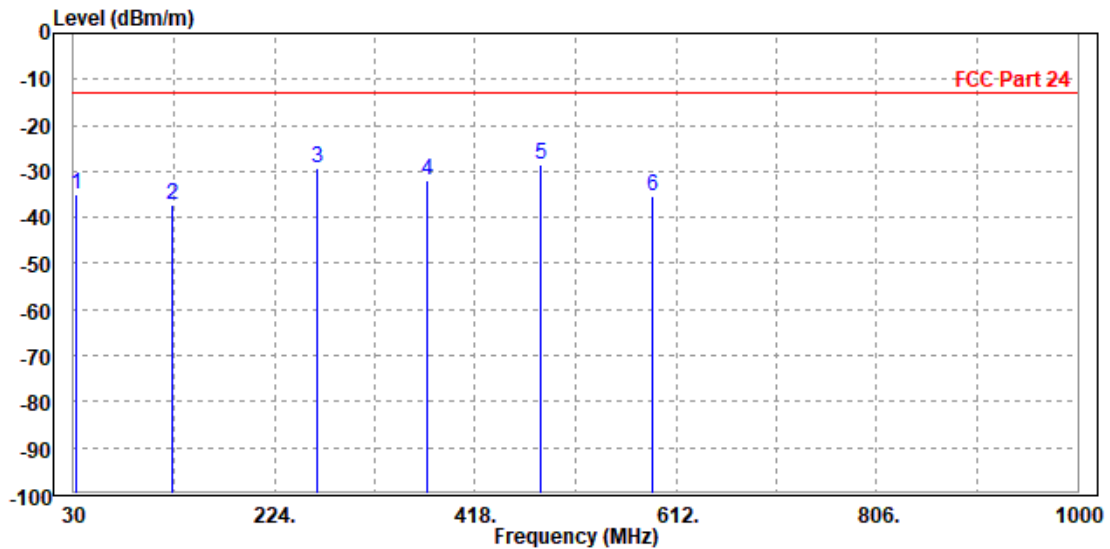
30 MHz – 1GHz data:

LTE Band 25

CHANNEL BANDWIDTH: 10MHz / QPSK

MODE	TX channel 26640	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	32.910	-34.89	-54.32	-13.00	-21.89	19.43	Peak	Horizontal
2	124.670	-37.11	-44.78	-13.00	-24.11	7.67	Peak	Horizontal
3	266.080	-29.19	-42.65	-13.00	-16.19	13.46	Peak	Horizontal
4	372.410	-31.90	-48.00	-13.00	-18.90	16.10	Peak	Horizontal
5 PP	481.050	-28.61	-46.97	-13.00	-15.61	18.36	Peak	Horizontal
6	588.480	-35.47	-55.94	-13.00	-22.47	20.47	Peak	Horizontal



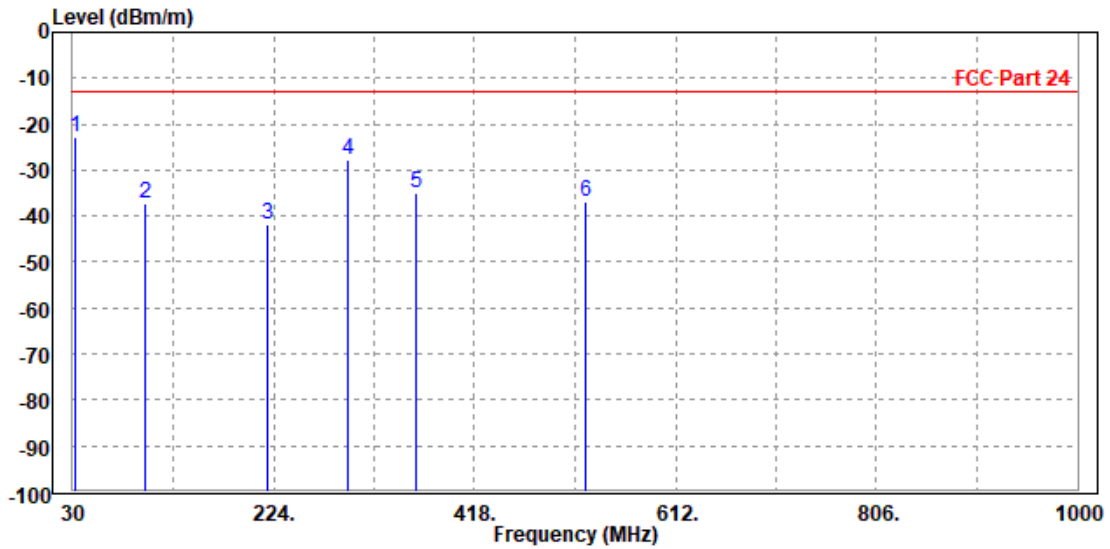


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26640	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	32.940	-22.64	-41.55	-13.00	-9.64	18.91 Peak	Vertical
2		99.390	-37.28	-45.69	-13.00	-24.28	8.41 Peak	Vertical
3		217.540	-41.92	-54.23	-13.00	-28.92	12.31 Peak	Vertical
4		295.390	-27.78	-42.67	-13.00	-14.78	14.89 Peak	Vertical
5		361.740	-34.87	-51.23	-13.00	-21.87	16.36 Peak	Vertical
6		524.630	-36.84	-56.38	-13.00	-23.84	19.54 Peak	Vertical





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ABOVE 1GHz DATA

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

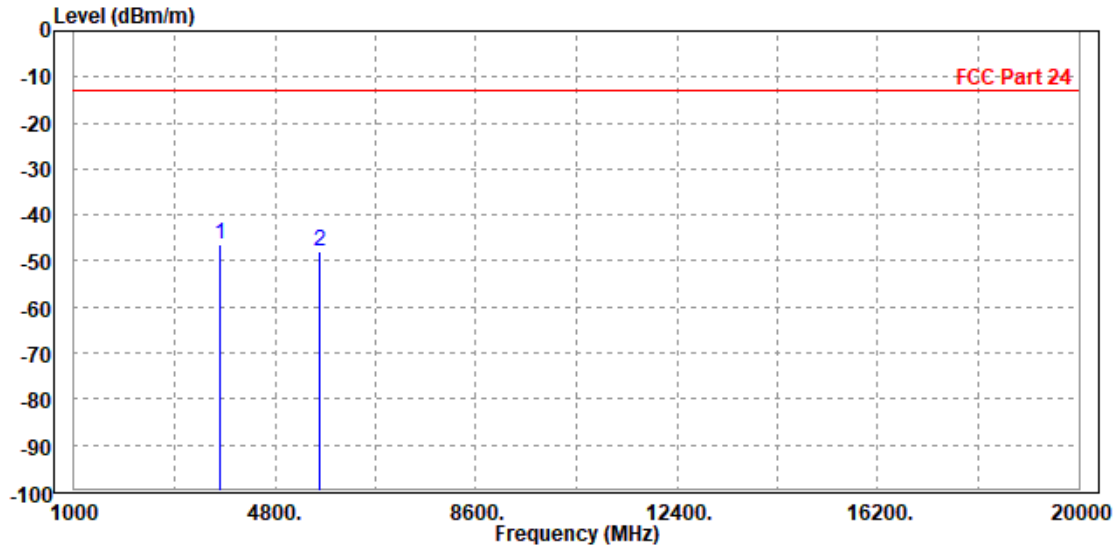
WORST-CASE DATA

LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 3774.000	-46.39	-55.26	-13.00	-33.39	8.87	Peak	Horizontal
2	5647.500	-48.09	-58.60	-13.00	-35.09	10.51	Peak	Horizontal



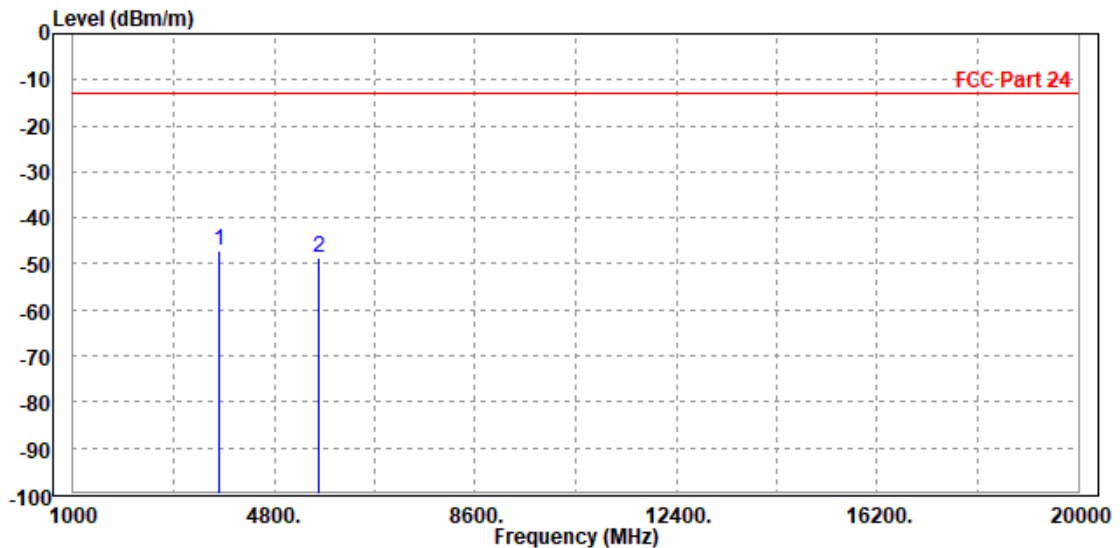


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 3765.000	-47.09	-56.36	-13.00	-34.09	9.27	Peak	Vertical
2	5655.000	-48.73	-59.04	-13.00	-35.73	10.31	Peak	Vertical





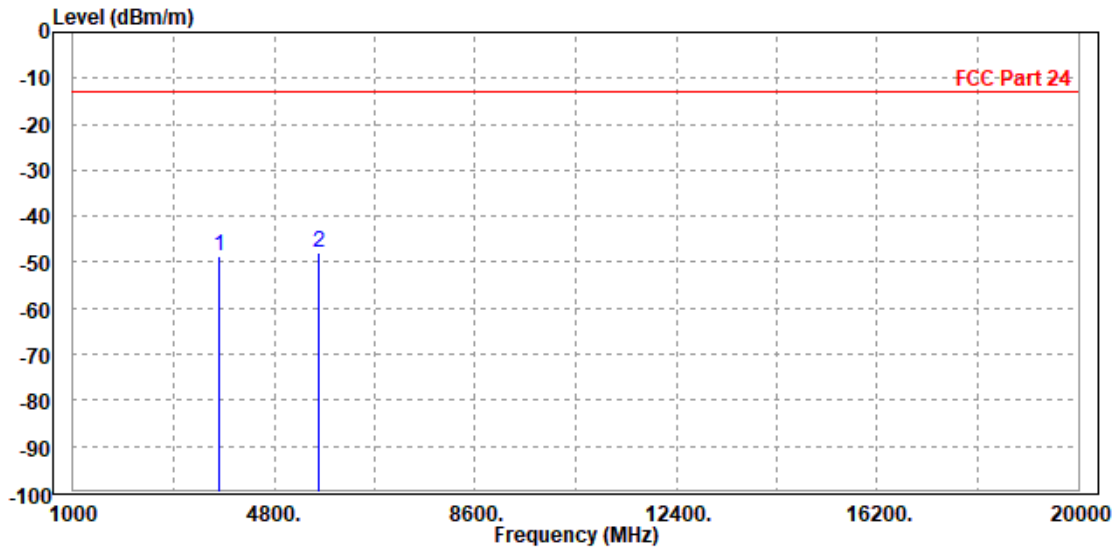
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Test Report No.: W7L-211129W002RF16

CHANNEL BANDWIDTH: 3MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-48.75	-57.61	-13.00	-35.75	8.86	Peak	Horizontal
2 PP	5655.000	-47.95	-58.48	-13.00	-34.95	10.53	Peak	Horizontal



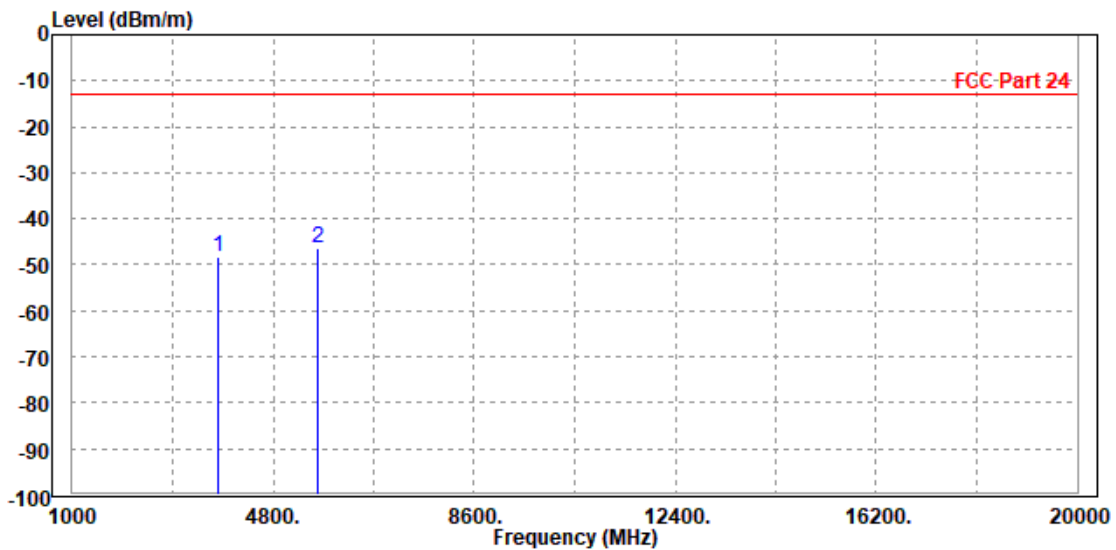


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-48.45	-57.72	-13.00	-35.45	9.27	Peak	Vertical
2	PP 5647.500	-46.30	-56.58	-13.00	-33.30	10.28	Peak	Vertical





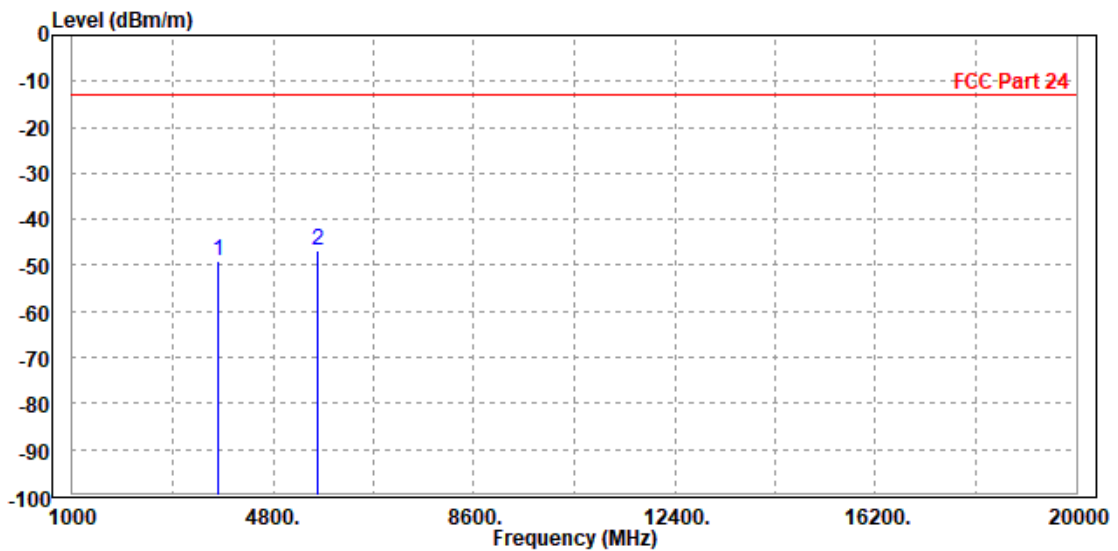
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Test Report No.: W7L-211129W002RF16

CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-48.99	-57.86	-13.00	-35.99	8.87	Peak	Horizontal
2 PP	5647.500	-46.90	-57.41	-13.00	-33.90	10.51	Peak	Horizontal



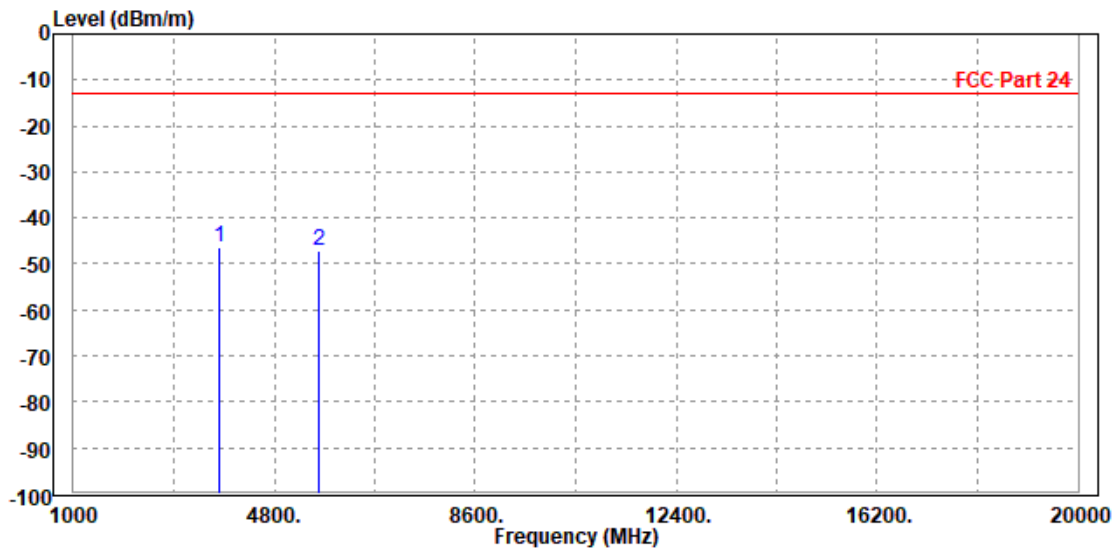


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 3765.000	-46.21	-55.48	-13.00	-33.21	9.27	Peak	Vertical
2	5655.000	-47.17	-57.48	-13.00	-34.17	10.31	Peak	Vertical





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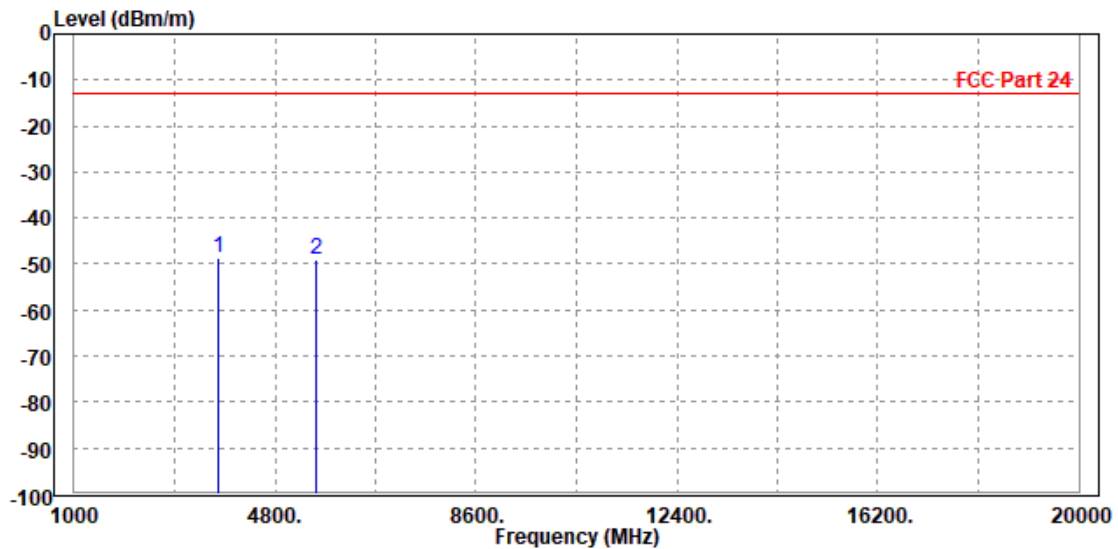
Test Report No.: W7L-211129W002RF16

CHANNEL BANDWIDTH: 10MHz / QPSK

CH 26090

MODE	TX channel 26090	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Read	Limit	Over				
	Freq	Level	Level	Line	Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 3717.000	-48.68	-57.49	-13.00	-35.68	8.81	Peak	Horizontal
2	5565.000	-49.02	-59.26	-13.00	-36.02	10.24	Peak	Horizontal



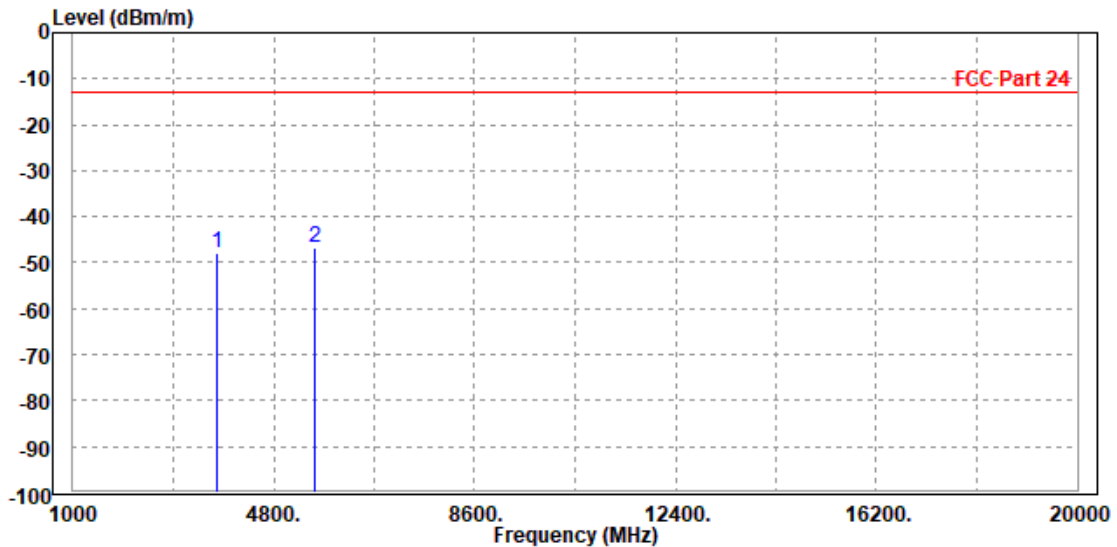


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VERITAS**

Test Report No.: W7L-211129W002RF16

MODE	TX channel 26090	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3717.000	-47.84	-57.10	-13.00	-34.84	9.26	Peak	Vertical
2	PP 5565.000	-46.73	-56.69	-13.00	-33.73	9.96	Peak	Vertical





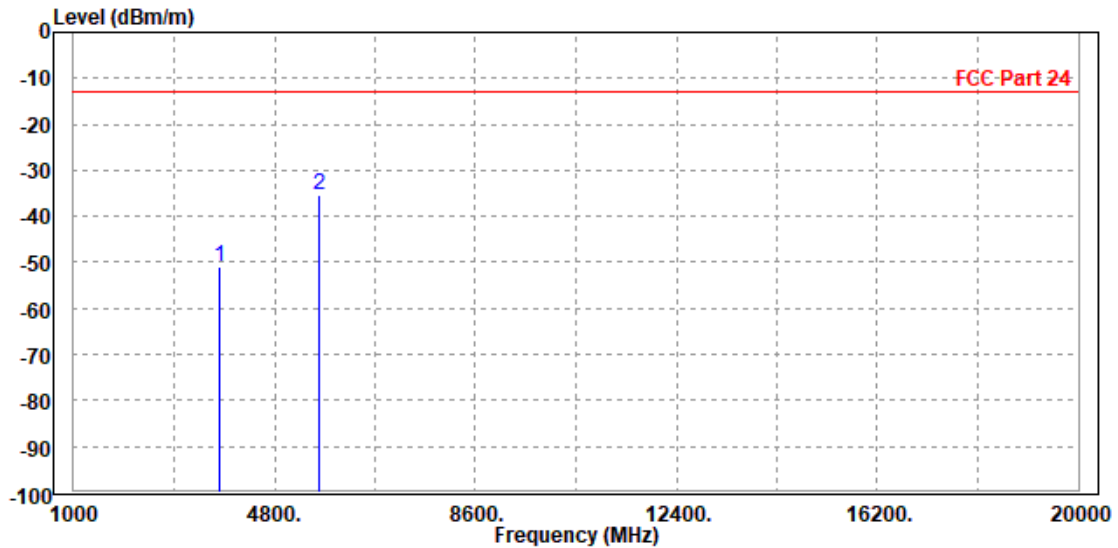
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Test Report No.: W7L-211129W002RF16

CH 26365

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-50.87	-59.74	-13.00	-37.87	8.87	Peak	Horizontal
2 PP	5647.500	-35.45	-45.96	-13.00	-22.45	10.51	Peak	Horizontal



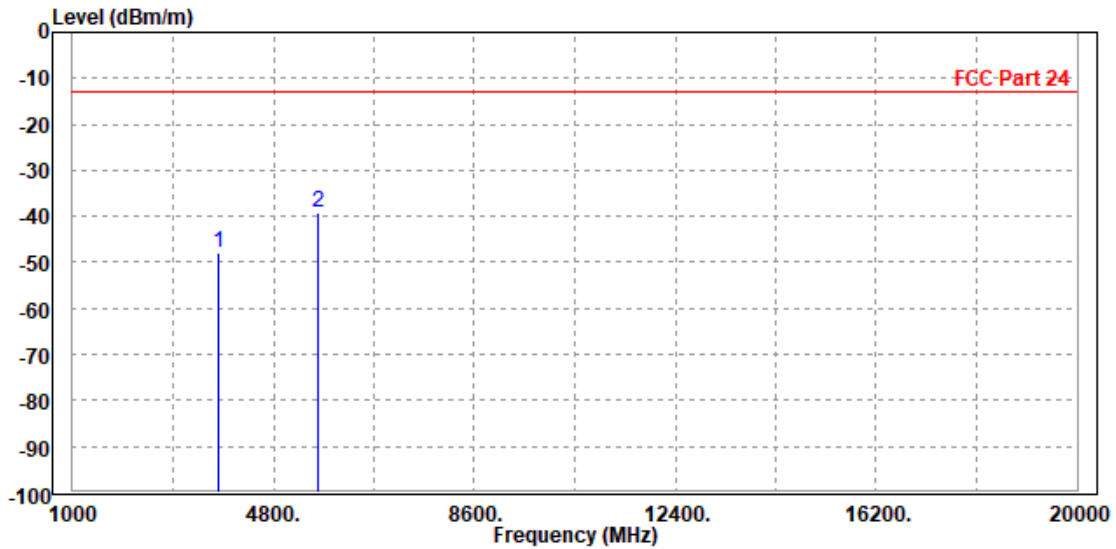


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-47.88	-57.15	-13.00	-34.88	9.27	Peak	Vertical
2 PP	5655.000	-39.05	-49.36	-13.00	-26.05	10.31	Peak	Vertical





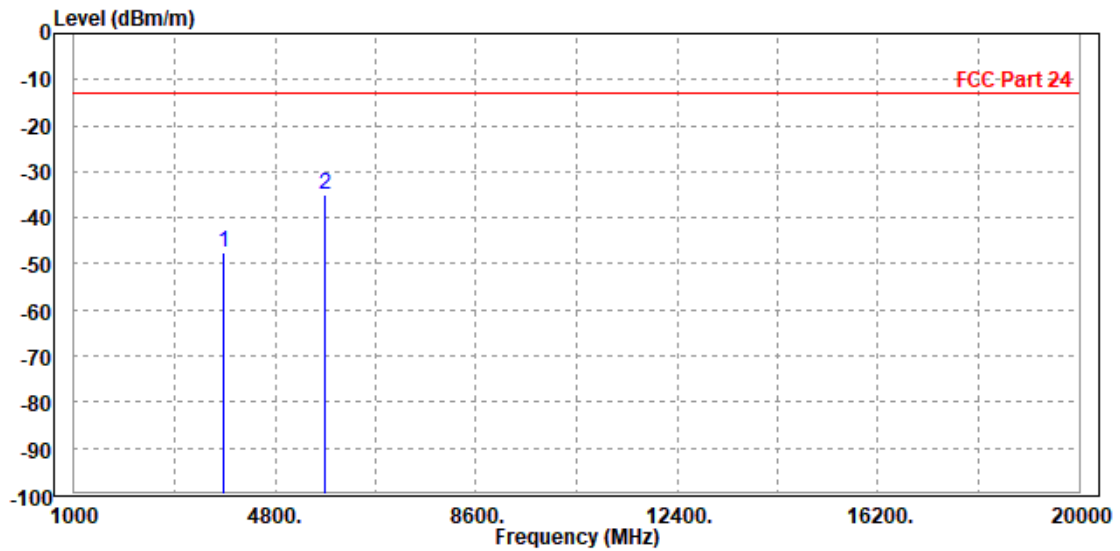
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Test Report No.: W7L-211129W002RF16

CH 26640

MODE	TX channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3812.000	-47.38	-56.29	-13.00	-34.38	8.91	Peak	Horizontal
2 PP	5730.000	-34.95	-45.73	-13.00	-21.95	10.78	Peak	Horizontal



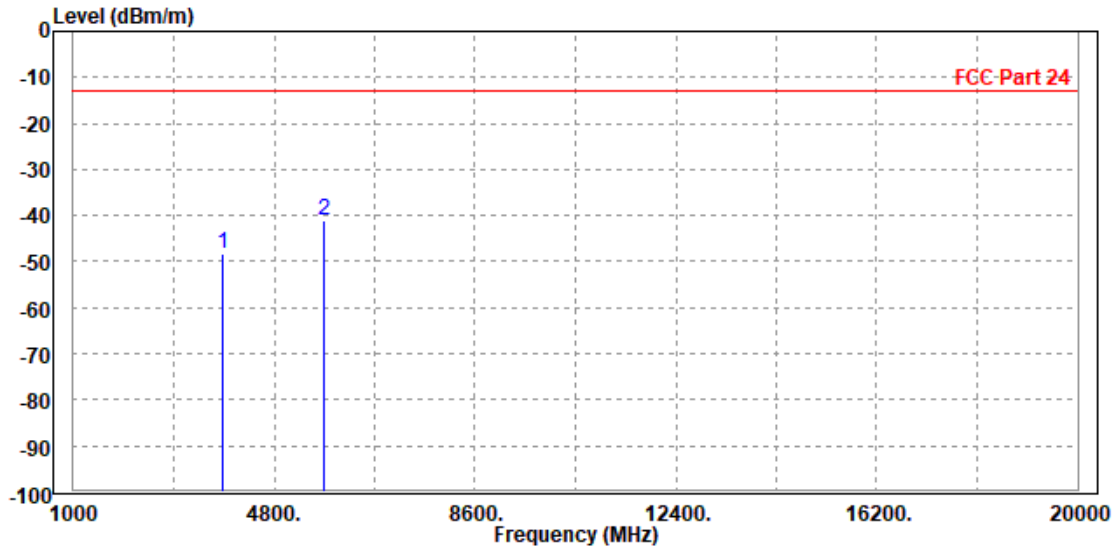


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3812.000	-48.26	-57.55	-13.00	-35.26	9.29	Peak	Vertical
2 PP	5730.000	-40.97	-51.57	-13.00	-27.97	10.60	Peak	Vertical





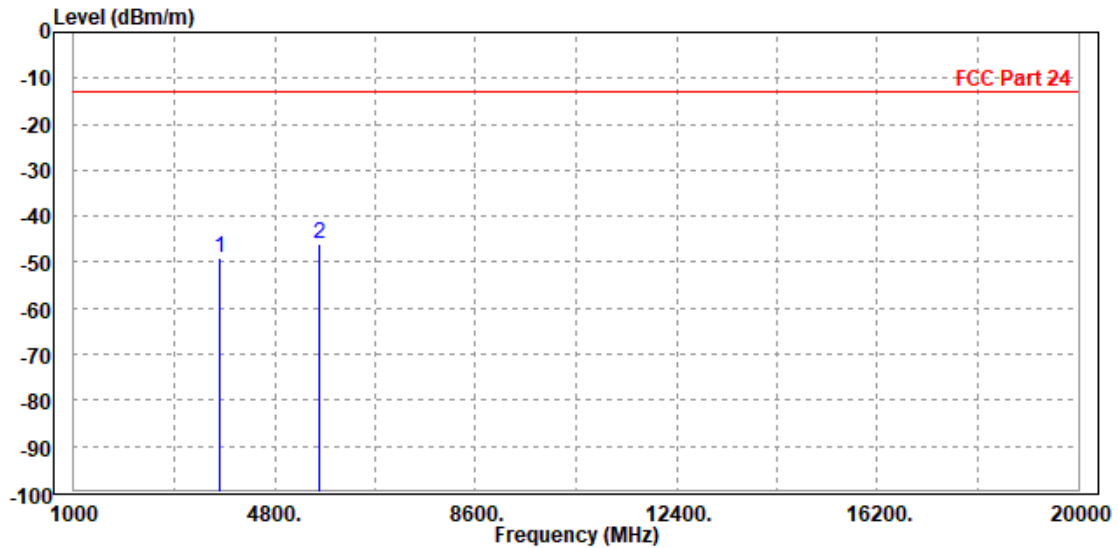
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Test Report No.: W7L-211129W002RF16

CHANNEL BANDWIDTH: 15MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-49.09	-57.96	-13.00	-36.09	8.87	Peak	Horizontal
2 PP	5647.500	-45.84	-56.35	-13.00	-32.84	10.51	Peak	Horizontal



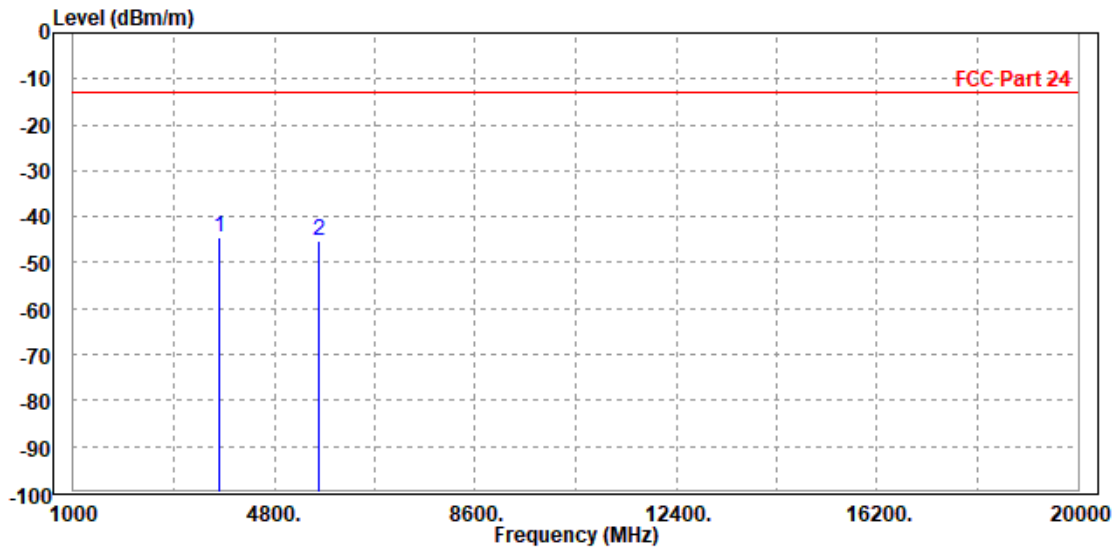


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 3765.000	-44.48	-53.75	-13.00	-31.48	9.27	Peak	Vertical
2	5655.000	-45.38	-55.69	-13.00	-32.38	10.31	Peak	Vertical





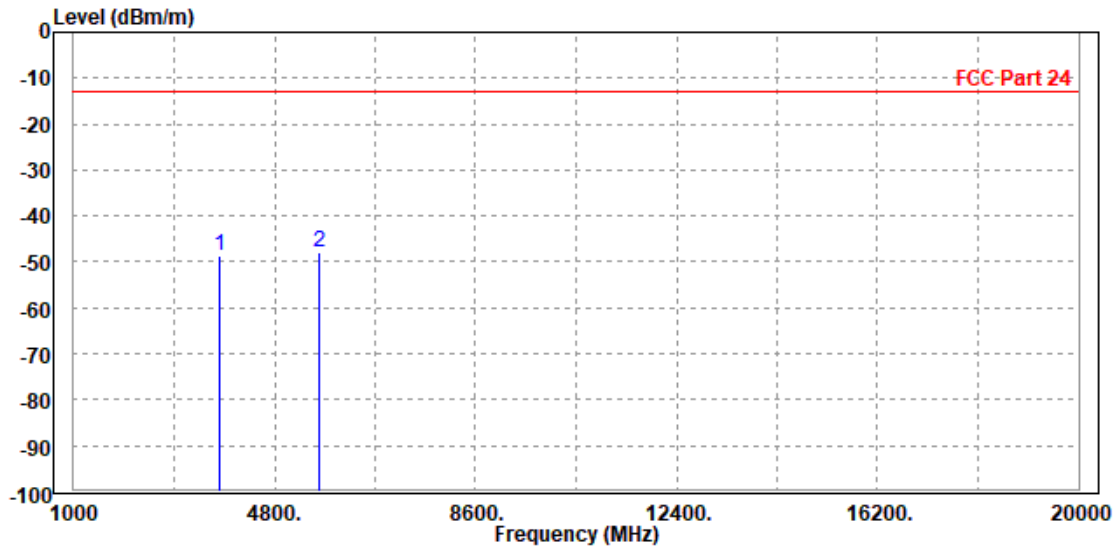
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Test Report No.: W7L-211129W002RF16

CHANNEL BANDWIDTH: 20MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3774.000	-48.67	-57.54	-13.00	-35.67	8.87	Peak	Horizontal
2 PP	5647.500	-47.78	-58.29	-13.00	-34.78	10.51	Peak	Horizontal



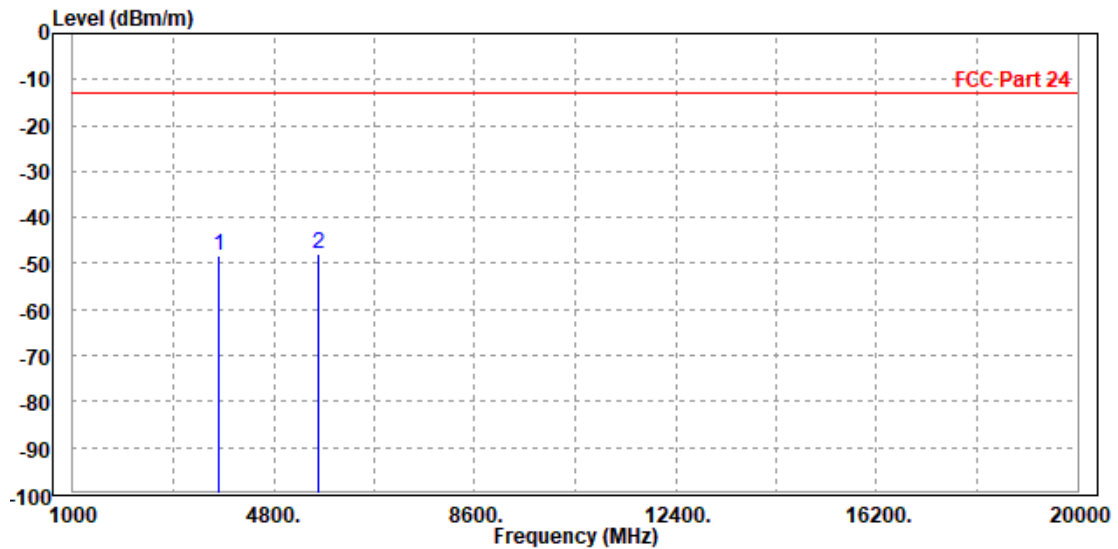


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Test Report No.: W7L-211129W002RF16

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3765.000	-48.36	-57.63	-13.00	-35.36	9.27	Peak	Vertical
2 PP	5655.000	-48.01	-58.32	-13.00	-35.01	10.31	Peak	Vertical





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Test Report No.: W7L-211129W002RF16

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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Test Report No.: W7L-211129W002RF16

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

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

---END---