

Partial FCC Test Report

Report No.: RFBHAA-WTW-P21080670A-1 R2

FCC ID: UJH-R1LOW

Model: R1LOW (refer to item 3.1 for more details)

Received Date: Aug. 15, 2022

Test Date: Aug. 15 ~ Aug. 16, 2022 (For middle channel)
Jan. 18, 2023 (For low & high channel)

Issued Date: Jan. 19, 2023

Applicant: Mitsubishi Electric Corporation Sanda Works

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 281270 / TW0032



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Release Control Record

Issue No.	Description	Date Issued
RFBHAA-WTW-P21080670A-1	Original release	Sep. 29, 2022
RFBHAA-WTW-P21080670A-1 R1	Remove some sample No.	Nov. 02, 2022
RFBHAA-WTW-P21080670A-1 R2	Add test data of middle & high channel	Jan. 19, 2023

1 Certificate of Conformity

Product: Display Audio

Brand: Mitsubishi Electric

Model: R1LOW (refer to item 3.1 for more details)

Sample Status: Mass production equivalent (#49, #51, #35)

Applicant: Mitsubishi Electric Corporation Sanda Works

Test Date: Aug. 15 ~ Aug. 16, 2022 (For middle channel)
Jan. 18, 2023 (For low & high channel)

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

This report is issued as a supplementary report of RFBHAA-WTW-P21080670-2 R1. This report shall be used combined together with its original report.

Prepared by : Pettie Chen, **Date:** Jan. 19, 2023
Pettie Chen / Senior Specialist

Approved by : Jeremy Lin, **Date:** Jan. 19, 2023
Jeremy Lin / Senior Engineer

Note: Radiated Emissions test (Frequency range 30MHz~1GHz) is performed for the addendum. Refer to original report for the other test data.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.9dB at 130.88MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 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	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.93 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Display Audio
Brand	Mitsubishi Electric
Model	R1LOW (refer to note for more details)
Sample Status	Mass production equivalent (#49, #51, #35)
Power Supply Rating	12.6Vdc
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 144.44Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20)
Output Power	28.256mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	2m non-shielded DC power cable without core
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to the original BV CPS report no.: RFBHAA-WTW-P21080670-2 R1. The differences are adding 8.4" LCD Driver IC and adding series model (No. 49, No. 51). Only radiated emission test (Frequency range 30MHz~1GHz) for new models were performed for this addendum.
2. The following models with different panel size are provided to this EUT. (New models are marked in boldface)

Brand	Model	Description	Main LCD Driver IC	2 nd LCD Driver IC
Mitsubishi Electric	R1LOW	No. 12 (7" ICS Panel), 16GB	✓	
		No. 45 (7"n-ICS Panel)	✓	
		No. 35 (8.4" AWS Panel and Sirius(GPS))	✓	✓
		No. 38 (8.4" AWS Panel and DAB/FM2)	✓	✓
		No. 13 (8.4" ICS Panel), 32GB	✓	✓
		No. 36 (8.4" AWS Panel): 2USB	✓	✓
		No. 14 (8.4" ICS Panel), 32GB	✓	✓
		No. 40 (8.4" ICS Panel), 16GB	✓	✓
		No. 42 (7" ICS w/Bezel Panel)	✓	
		No. 61 (7"n-ICS Panel), 16GB, digital camera	✓	
		No. 62 (8.4" ICS Panel), 32GB, digital camera	✓	✓
		No. 49 (8.4" ICS-B): SXM, 2USB	✓	✓
		No. 51 (8.4" ICS-B): 2USB	✓	✓
	R1LOW-CN1	No. 31 (8.4" AWS Panel)	✓	✓

3. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX

4. There two modules are collocated in the EUT.

Module No.	Function
1	WLAN 2.4GHz, 5GHz, BT EDR, BT LE (1M)
2	BT LE (1M, 2M)

5. The EUT uses following antennas.

Type	Sheet metal antenna			
Connector	RF Receptacle Connector			
Model	2342059-1		2342059-2	
Frequency (MHz)	2400-2500	5150-5850	2400-2500	5150-5850
Gain (dBi)	3	2	1	4

6. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to	Description
	RE<1G	
A	√	EUT: No. 49
B	√	EUT: No. 51
C	√	EUT: No. 35

Where RE<1G: Radiated Emission below 1GHz

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	25 deg. C, 71% RH	12.6Vdc	Randy Wu

3.3 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.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Battery	YUASA	75D23R-CMF II	NA	NA	-
B.	Fixture Board	NA	NA	NA	NA	Provided by client

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC power cable	1	2	N	0	Accessory
2.	USB cable	1	0.5	Y	0	Provided by client
3.	Harness cable	1	2	N	0	Provided by client

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards and References

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

Test Standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2013

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

References Test Guidance:

KDB 558074 D01 DTS Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 30dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	ESR3	102783	Dec. 21, 2021	Dec. 20, 2022
			Dec. 21, 2022	Dec. 20, 2023
Spectrum Analyzer KEYSIGHT	N9020B	MY60110513	Dec. 24, 2021	Dec. 23, 2022
			Dec. 26, 2022	Dec. 25, 2023
BILOG Antenna SCHWARZBECK	VULB9168	9168-1214	Oct. 27, 2021	Oct. 26, 2022
			Oct. 20, 2022	Oct. 19, 2023
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 14, 2021	Nov. 13, 2022
			Nov. 13, 2022	Nov. 12, 2023
HORN Antenna SCHWARZBECK	BBHA 9170	9170-995	Nov. 14, 2021	Nov. 13, 2022
			Nov. 13, 2022	Nov. 12, 2023
Preamplifier EMCI	EMC330N	980798	Jan. 17, 2022	Jan. 16, 2023
			Jan. 16, 2023	Jan. 15, 2024
Preamplifier EMCI	EMC118A45SE	980808	Dec. 30, 2021	Dec. 29, 2022
			Dec. 29, 2022	Dec. 28, 2023
Preamplifier EMCI	EMC184045SE	980786	Jan. 17, 2022	Jan. 16, 2023
			Jan. 16, 2023	Jan. 15, 2024
RF signal cable EMCI	EMC104-SM-SM- (9000+2000+1000)	201244+ 201232+ 210103	Jan. 17, 2022	Jan. 16, 2023
			Jan. 16, 2023	Jan. 15, 2024
RF signal cable EMCI	EMCCFD400-NM- NM-(9000+300+500)	201251+ 201249+ 201248	Jan. 17, 2022	Jan. 16, 2023
			Jan. 16, 2023	Jan. 15, 2024
RF signal cable EMCI	EMC101G-KM-KM- (5000+3000+2000)	201261+201258+201 249	Jan. 17, 2022	Jan. 16, 2023
			Jan. 16, 2023	Jan. 15, 2024
Software BV ADT	ADT_Radiated_V7.6.1 5.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-515BSN	NA	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208676	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM Chamber 9.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Note:

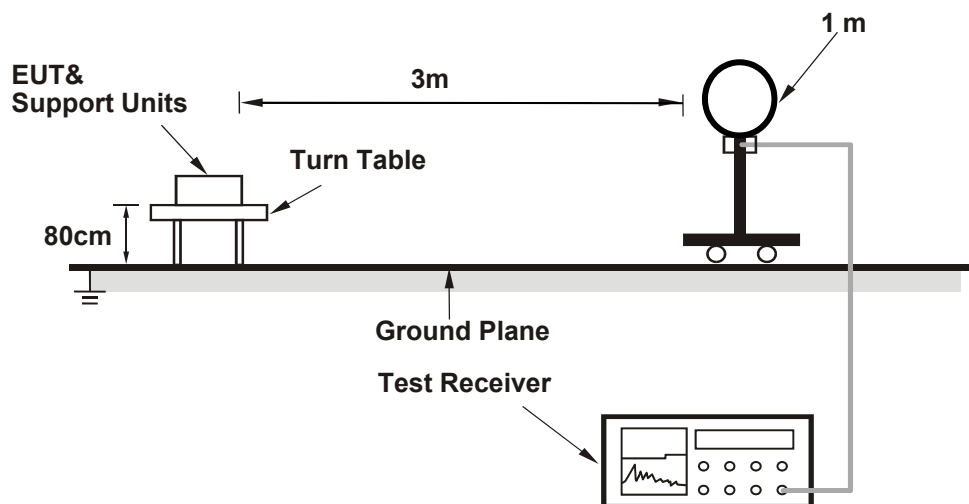
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

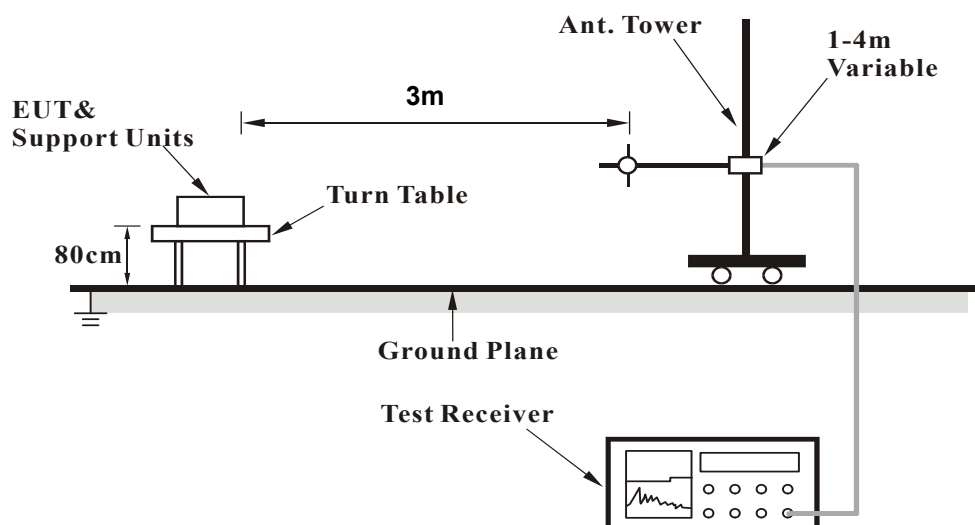
No deviation.

4.1.5 Test Set Up

For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



4.1.6 EUT Operating Conditions

- Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Below 1GHz worst-case data:

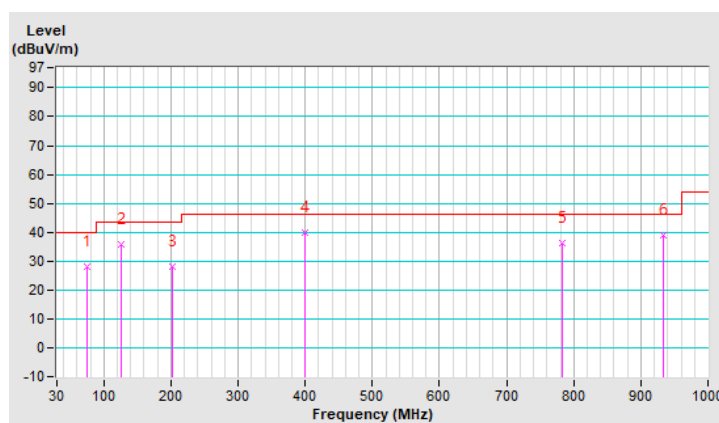
802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	75.59	28.0 QP	40.0	-12.0	2.00 H	220	45.1	-17.1
2	126.03	35.8 QP	43.5	-7.7	1.51 H	94	50.4	-14.6
3	202.66	28.2 QP	43.5	-15.3	1.01 H	93	44.9	-16.7
4	400.54	40.0 QP	46.0	-6.0	1.01 H	177	50.1	-10.1
5	782.72	36.2 QP	46.0	-9.8	2.00 H	18	39.2	-3.0
6	933.07	38.9 QP	46.0	-7.1	1.51 H	137	39.7	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

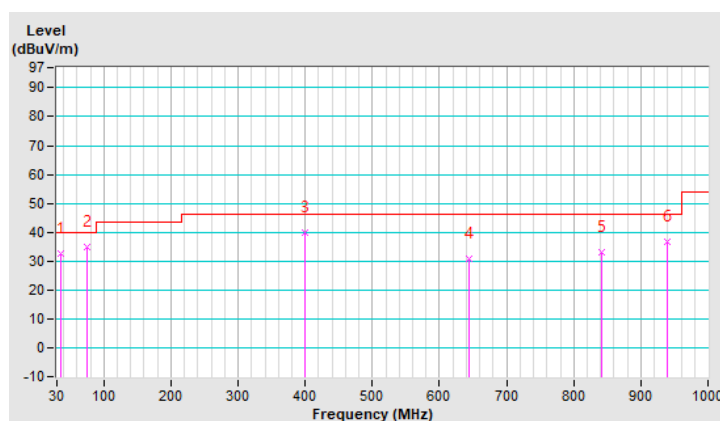


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.82	32.8 QP	40.0	-7.2	1.50 V	280	46.9	-14.1
2	74.88	34.8 QP	40.0	-5.2	1.49 V	219	51.7	-16.9
3	400.54	40.0 QP	46.0	-6.0	1.00 V	273	50.1	-10.1
4	644.98	30.8 QP	46.0	-15.2	1.00 V	101	35.5	-4.7
5	840.92	33.2 QP	46.0	-12.8	1.00 V	86	35.2	-2.0
6	939.86	36.5 QP	46.0	-9.5	1.00 V	221	37.3	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

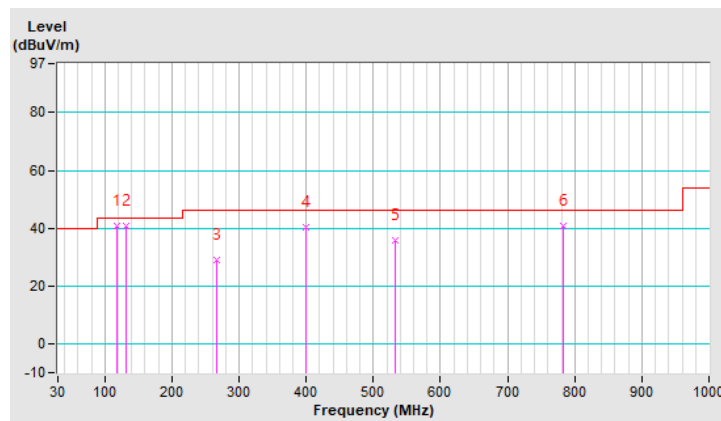


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	118.27	40.7 QP	43.5	-2.8	1.51 H	252	56.1	-15.4
2	130.88	40.9 QP	43.5	-2.6	1.51 H	235	55.1	-14.2
3	266.68	28.9 QP	46.0	-17.1	1.51 H	255	42.4	-13.5
4	400.54	40.5 QP	46.0	-5.5	1.01 H	177	50.5	-10.0
5	533.43	36.0 QP	46.0	-10.0	1.51 H	191	43.3	-7.3
6	783.69	41.0 QP	46.0	-5.0	1.01 H	40	44.0	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

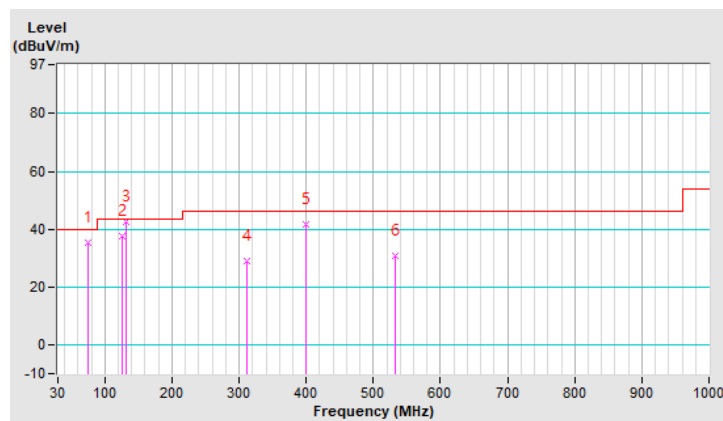


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	75.59	35.2 QP	40.0	-4.8	1.49 V	219	52.0	-16.8
2	126.03	37.7 QP	43.5	-5.8	1.00 V	152	52.3	-14.6
3	130.88	42.6 QP	43.5	-0.9	1.00 V	112	56.8	-14.2
4	311.30	28.8 QP	46.0	-17.2	1.00 V	145	41.0	-12.2
5	400.54	41.8 QP	46.0	-4.2	1.00 V	273	51.8	-10.0
6	533.43	30.6 QP	46.0	-15.4	1.49 V	174	37.9	-7.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

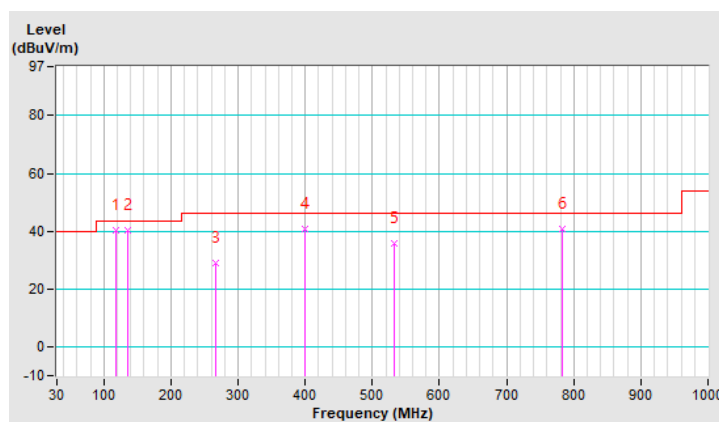


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	118.27	40.5 QP	43.5	-3.0	1.51 H	252	55.9	-15.4
2	135.73	40.2 QP	43.5	-3.3	1.50 H	76	54.0	-13.8
3	266.68	29.0 QP	46.0	-17.0	1.51 H	255	42.6	-13.6
4	400.54	40.7 QP	46.0	-5.3	1.01 H	177	50.8	-10.1
5	533.43	35.8 QP	46.0	-10.2	1.52 H	191	43.2	-7.4
6	783.69	41.0 QP	46.0	-5.0	1.01 H	40	44.0	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

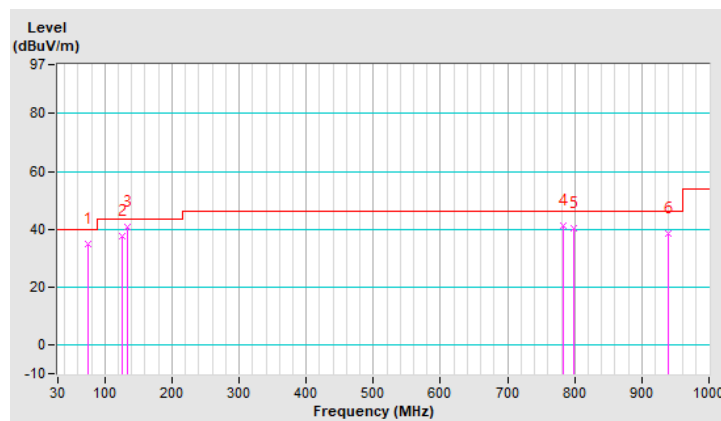


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	74.88	35.0 QP	40.0	-5.0	1.49 V	219	51.9	-16.9
2	125.69	37.7 QP	43.5	-5.8	1.00 V	46	52.4	-14.7
3	133.00	41.0 QP	43.5	-2.5	1.00 V	116	55.0	-14.0
4	783.69	41.1 QP	46.0	-4.9	1.00 V	147	44.1	-3.0
5	799.21	40.4 QP	46.0	-5.6	1.99 V	189	43.2	-2.8
6	939.86	38.3 QP	46.0	-7.7	1.00 V	110	39.1	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

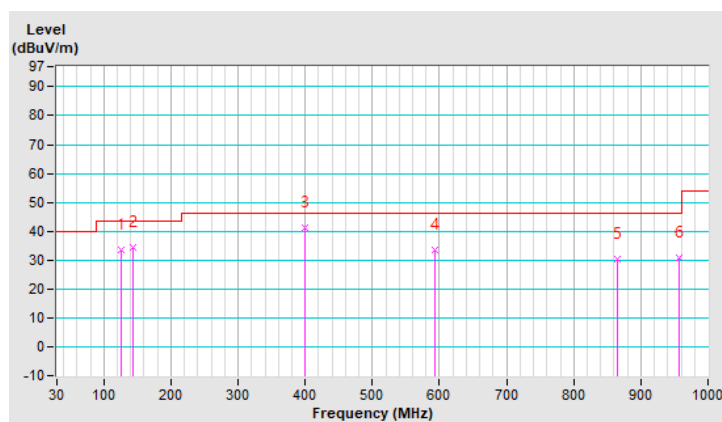


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	126.03	33.7 QP	43.5	-9.8	1.01 H	162	48.3	-14.6
2	143.49	34.4 QP	43.5	-9.1	2.00 H	18	47.7	-13.3
3	400.54	41.1 QP	46.0	-4.9	1.01 H	321	51.2	-10.1
4	593.57	33.4 QP	46.0	-12.6	1.01 H	161	39.0	-5.6
5	865.17	30.3 QP	46.0	-15.7	1.51 H	2	32.3	-2.0
6	957.32	31.0 QP	46.0	-15.0	2.00 H	170	31.4	-0.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

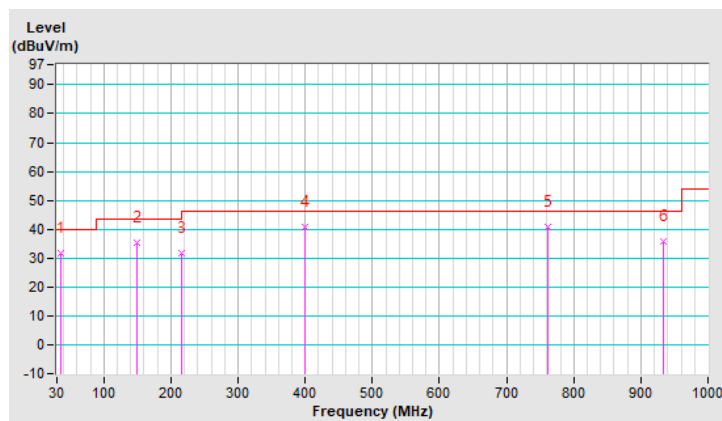


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.82	31.9 QP	40.0	-8.1	1.00 V	154	46.0	-14.1
2	148.34	35.4 QP	43.5	-8.1	1.00 V	82	48.5	-13.1
3	215.27	31.5 QP	43.5	-12.0	1.00 V	267	48.1	-16.6
4	399.57	40.8 QP	46.0	-5.2	1.00 V	312	50.9	-10.1
5	762.35	40.8 QP	46.0	-5.2	1.99 V	279	43.8	-3.0
6	933.07	35.6 QP	46.0	-10.4	1.00 V	82	36.4	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

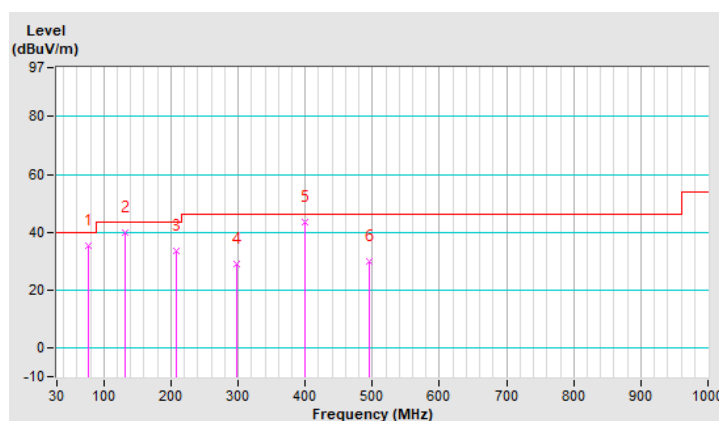


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	76.56	35.5 QP	40.0	-4.5	1.01 H	349	52.7	-17.2
2	130.88	40.0 QP	43.5	-3.5	1.01 H	199	54.2	-14.2
3	208.48	33.5 QP	43.5	-10.0	1.01 H	277	49.9	-16.4
4	297.72	29.0 QP	46.0	-17.0	1.01 H	147	41.5	-12.5
5	400.54	43.6 QP	46.0	-2.4	1.01 H	326	53.6	-10.0
6	494.63	29.8 QP	46.0	-16.2	1.01 H	124	37.7	-7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

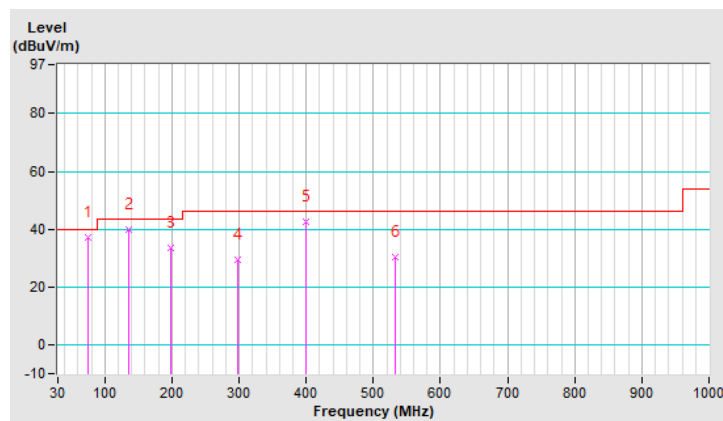


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	75.59	37.2 QP	40.0	-2.8	1.99 V	132	54.0	-16.8
2	135.73	39.7 QP	43.5	-3.8	1.49 V	134	53.5	-13.8
3	197.81	33.7 QP	43.5	-9.8	1.00 V	264	50.1	-16.4
4	297.72	29.4 QP	46.0	-16.6	1.00 V	156	41.9	-12.5
5	399.57	42.5 QP	46.0	-3.5	1.00 V	329	52.6	-10.1
6	533.43	30.3 QP	46.0	-15.7	1.00 V	174	37.6	-7.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

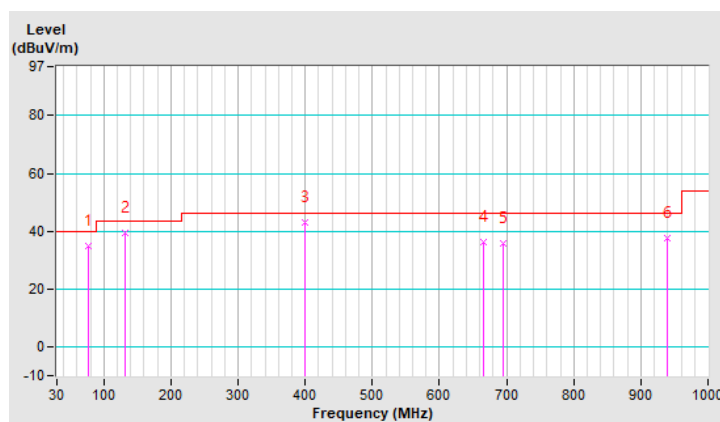


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	76.56	35.0 QP	40.0	-5.0	1.01 H	315	52.4	-17.4
2	130.88	39.4 QP	43.5	-4.1	1.01 H	156	53.7	-14.3
3	400.54	43.0 QP	46.0	-3.0	1.01 H	321	53.1	-10.1
4	666.32	36.2 QP	46.0	-9.8	1.01 H	217	40.7	-4.5
5	694.45	35.9 QP	46.0	-10.1	1.01 H	237	40.0	-4.1
6	939.86	37.5 QP	46.0	-8.5	1.01 H	78	38.3	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

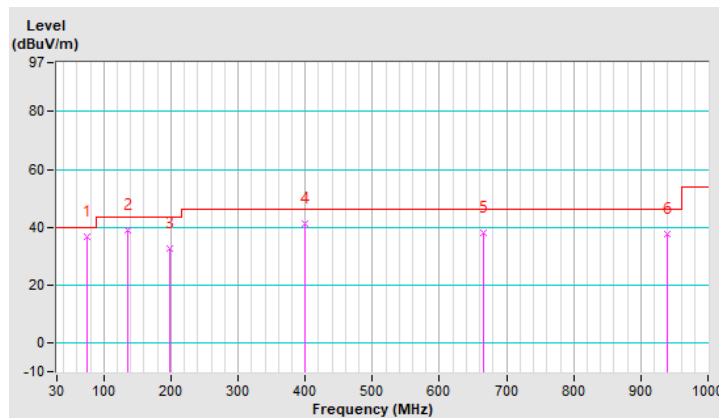


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	75.59	36.7 QP	40.0	-3.3	1.99 V	132	53.8	-17.1
2	135.73	39.0 QP	43.5	-4.5	1.49 V	105	52.8	-13.8
3	197.81	32.5 QP	43.5	-11.0	1.00 V	22	49.1	-16.6
4	399.57	41.2 QP	46.0	-4.8	1.00 V	312	51.3	-10.1
5	666.32	38.2 QP	46.0	-7.8	1.00 V	235	42.7	-4.5
6	939.86	37.7 QP	46.0	-8.3	1.00 V	101	38.5	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

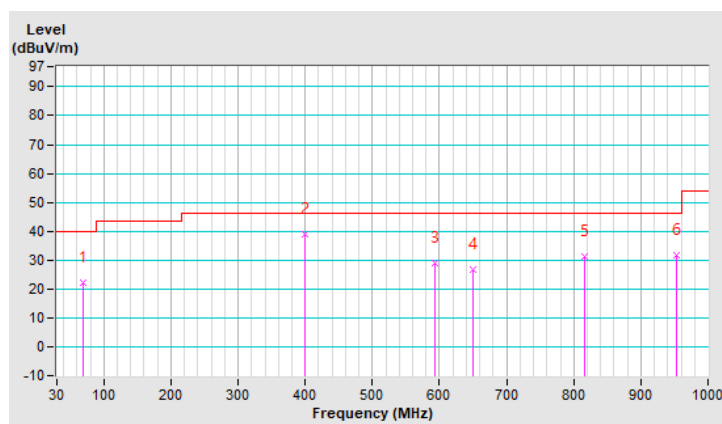


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	68.80	22.4 QP	40.0	-17.6	2.00 H	253	38.1	-15.7
2	400.54	39.1 QP	46.0	-6.9	1.50 H	360	49.2	-10.1
3	593.57	28.9 QP	46.0	-17.1	1.51 H	223	34.5	-5.6
4	650.80	26.6 QP	46.0	-19.4	2.00 H	222	31.3	-4.7
5	816.67	31.4 QP	46.0	-14.6	2.00 H	78	33.9	-2.5
6	953.44	31.9 QP	46.0	-14.1	1.00 H	239	32.5	-0.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

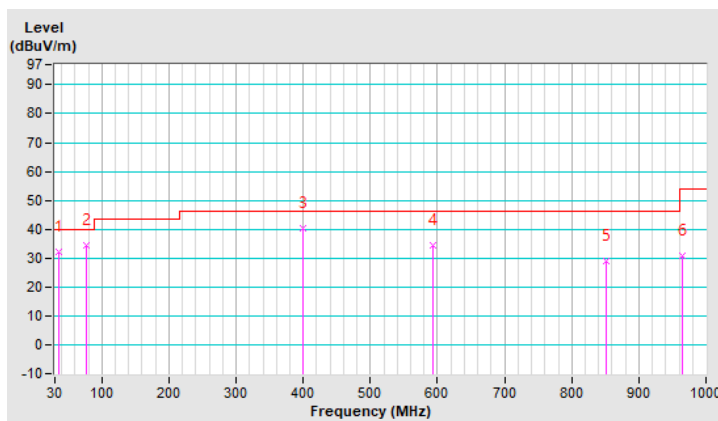


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.82	32.2 QP	40.0	-7.8	1.00 V	162	46.3	-14.1
2	76.56	34.4 QP	40.0	-5.6	1.00 V	172	51.8	-17.4
3	400.54	40.2 QP	46.0	-5.8	1.00 V	159	50.3	-10.1
4	593.57	34.4 QP	46.0	-11.6	1.00 V	172	40.0	-5.6
5	851.59	29.0 QP	46.0	-17.0	1.00 V	30	31.0	-2.0
6	965.08	30.6 QP	54.0	-23.4	1.00 V	2	31.0	-0.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

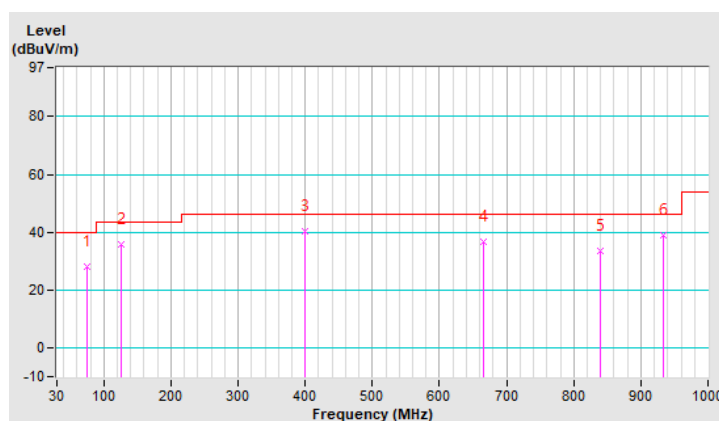


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	75.59	28.3 QP	40.0	-11.7	1.51 H	220	45.1	-16.8
2	126.03	35.8 QP	43.5	-7.7	1.51 H	94	50.4	-14.6
3	399.06	40.4 QP	46.0	-5.6	1.00 H	179	50.5	-10.1
4	666.32	36.6 QP	46.0	-9.4	1.51 H	135	41.1	-4.5
5	839.95	33.4 QP	46.0	-12.6	2.00 H	65	35.4	-2.0
6	933.07	38.9 QP	46.0	-7.1	1.51 H	137	39.5	-0.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

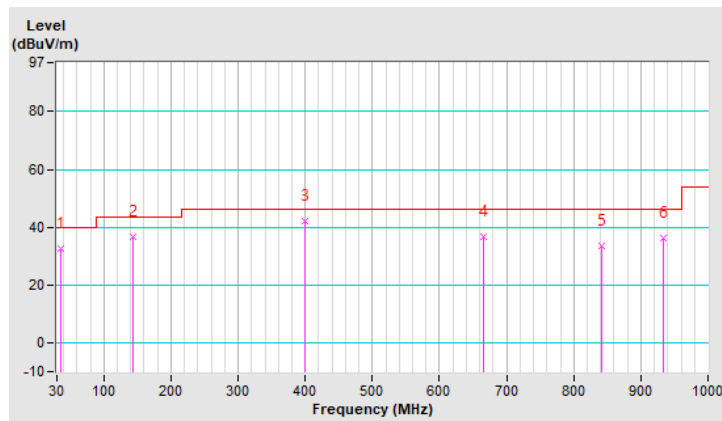


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.82	32.8 QP	40.0	-7.2	1.00 V	280	47.0	-14.2
2	142.52	36.5 QP	43.5	-7.0	1.49 V	33	49.8	-13.3
3	399.54	42.0 QP	46.0	-4.0	1.00 V	275	52.1	-10.1
4	666.32	36.5 QP	46.0	-9.5	1.00 V	220	41.0	-4.5
5	840.92	33.6 QP	46.0	-12.4	1.00 V	86	35.6	-2.0
6	933.07	36.1 QP	46.0	-9.9	1.00 V	81	36.7	-0.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

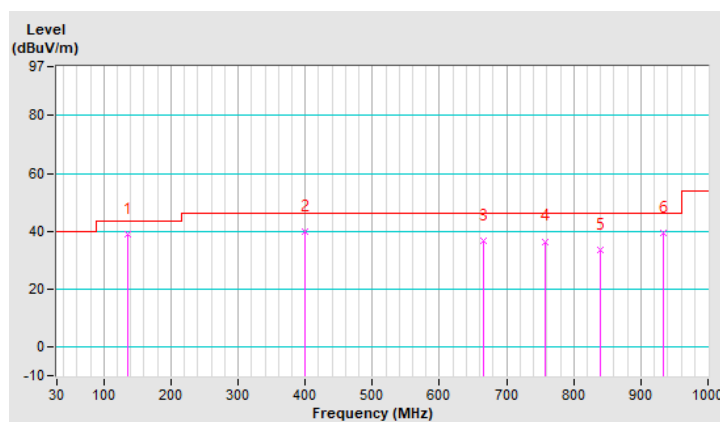


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	135.73	39.0 QP	43.5	-4.5	1.50 H	255	52.8	-13.8
2	400.54	40.0 QP	46.0	-6.0	1.50 H	100	50.1	-10.1
3	666.32	36.5 QP	46.0	-9.5	1.50 H	169	41.0	-4.5
4	758.47	36.5 QP	46.0	-9.5	2.00 H	192	39.5	-3.0
5	839.95	33.5 QP	46.0	-12.5	2.00 H	67	35.5	-2.0
6	933.07	39.3 QP	46.0	-6.7	1.00 H	137	40.1	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

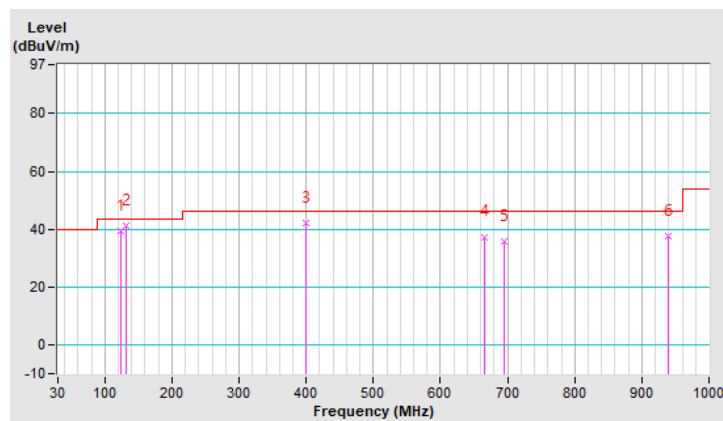


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	124.09	39.4 QP	43.5	-4.1	1.00 V	156	54.3	-14.9
2	130.88	41.2 QP	43.5	-2.3	1.00 V	240	55.5	-14.3
3	400.54	42.0 QP	46.0	-4.0	1.00 V	332	52.1	-10.1
4	666.32	37.4 QP	46.0	-8.6	1.00 V	236	41.9	-4.5
5	694.45	35.9 QP	46.0	-10.1	1.00 V	240	40.0	-4.1
6	939.86	37.4 QP	46.0	-8.6	1.00 V	123	38.2	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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