

Partial FCC Test Report

Report No.: RF190104C22-3

FCC ID: AZ489FT7119

Test Model: H55TGT9PW8AN

Received Date: Jan. 04, 2019

Test Date: Jan. 16 ~ Jan. 19, 2019

Issued Date: Jan. 29, 2019

Applicant: Motorola Solutions, Inc.

Address: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

FCC Registration / 788550 / TW0003
Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF190104C22-3	Original release	Jan. 29, 2019

1 Certificate of Conformity

Product: Portable Radio

Brand: Motorola Solutions

Test Model: H55TGT9PW8AN

Sample Status: Engineering sample

Applicant: Motorola Solutions, Inc.

Test Date: Jan. 16 ~ Jan. 19, 2019

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

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Polly Chien, **Date:** Jan. 29, 2019
Polly Chien / Specialist

Approved by : Bruce Chen, **Date:** Jan. 29, 2019
Bruce Chen / Project Engineer

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 -1.9dB at 30.00MHz.

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	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Portable Radio
Brand	Motorola Solutions
Test Model	H55TGT9PW8AN
Sample Status	Engineering sample
Power Supply Rating	14.5Vdc (Single Unit Charger) 12Vdc (Multi-unit Charger) 5Vdc (host equipment) 7.4Vdc (Battery)
Modulation Type	GFSK
Transfer Rate	LE 4.0: 1 Mbps LE 5.0: 2 Mbps
Operating Frequency	2402~2480MHz
Number of Channel	40
Channel Spacing	2MHz
Antenna Type	Refer to Note
Antenna Connector	NA
Accessory Device	Refer to Note
Cable Supplied	Refer to Note

Note:

1. The EUT uses following devices.

Item	Brand	Model	Specification	Remark
Single Unit Charger	MOTOROLA	NNTN8845A (Charger Base) +PS000040A01 (Power Supply)	Input: 110-120Vac, ~60Hz, 1A Output: 14.5Vdc, 2.5A 1.5m DC cable with 1 core attached	Accessory
Standard Cap Battery	MOTOROLA	NNTN9087A	BATTERY PACK, IMPRES GEN2, LIION, IP68, 3800T Rating: 7.4Vdc	Accessory
Hi-Cap Battery	MOTOROLA	NNTN9089A	BATTERY PACK, IMPRES GEN2, LIION, IP68, 5650T Rating: 7.4Vdc	Accessory
Multi-unit Charger	MOTOROLA	NNTN9115A (Charger Base) + 3087791G01 (Linecord)	Input: 100-240Vac, 50/60Hz, 3A Output: 12Vdc, 3A 2.2m DC cable without core attached	Accessory

2. The EUT with follow antennas gain is listed as table below.

Type	Connector	Gain(dBi)		
		2400MHz	2440MHz	2480MHz
Stamped metal	NA	3.1	3.2	2.9

3. For BLE 5.0 mode is the worst case for final radiated emission below 1GHz and AC power conducted emission tests.

3.2 Description of Test Modes

40 channels are provided for EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to		Description
	RE $\geq$ 1G	RE<1G	
A	√	√	EUT with Notebook
B	-	√	EUT with single unit charger
C	-	√	EUT with multi-unit charger

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

Note:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane.
- "-" means no effect.

Radiated Emission Test (Above 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	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	0 to 39	0, 19, 39	GFSK	1, 2	-

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	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A, B, C	0 to 39	19	GFSK	2	-

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	20 deg. C, 69% RH	120Vac, 60Hz	Tim Chen
RE<1G	22 deg. C, 68% RH	120Vac, 60Hz	Greg Lin

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.	Notebook	DELL	E5420	BPQ7MQ1	FCC DoC Approved	-
B.	Battery	MOTOROLA	NNTN9087A	NA	NA	Accessory
C.	Battery	MOTOROLA	NNTN9089A	NA	NA	Accessory
D.	USB Resistive Load x2	NA	NA	NA	NA	Provided by client
E.	USB Resistive Load x6	NA	NA	NA	NA	Provided by client
F.	Fleet Management Module	NA	NA	NA	NA	Provided by client

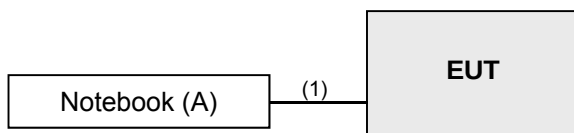
Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as communication partner to transfer data.

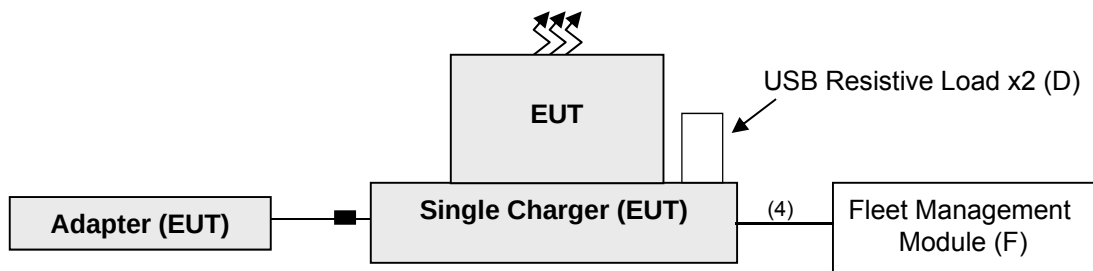
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	1.5	Y	0	-
2.	USB Cable	2	1	Y	0	-
3.	Mini USB cable	1	1	Y	0	Provided by client
4.	Cable	1	0.3	N	0	Provided by client

3.3.1 Configuration of System under Test

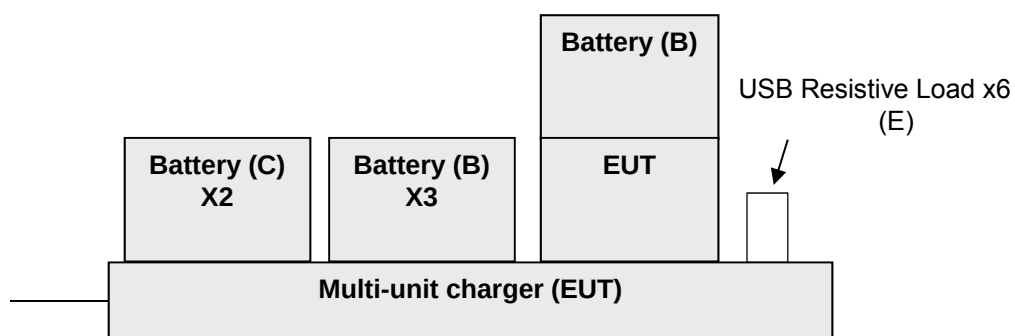
Mode A



Mode B



Mode C



3.4 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 Part 15, Subpart C (15.247)

KDB 558074 D01 15.247 Meas Guidance v05r01

ANSI C63.10:2013

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

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 20dB 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 20dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 11, 2018	Apr. 10, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	May 29, 2018	May 28, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 21, 2018	Nov. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Aug. 08, 2018	Aug. 07, 2019
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 22, 2018	Feb. 21, 2019
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM- SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2018	Jan. 14, 2019
			Jan. 19, 2019	Jan. 18, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Aug. 08, 2018	Aug. 07, 2019
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 31, 2018	Jul. 30, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5519000 4/MY55190007/MY55210 005	Jul. 17, 2018	Jul. 16, 2019

- 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 HwaYa Chamber 9.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-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) / 1.5 meters (for above 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.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

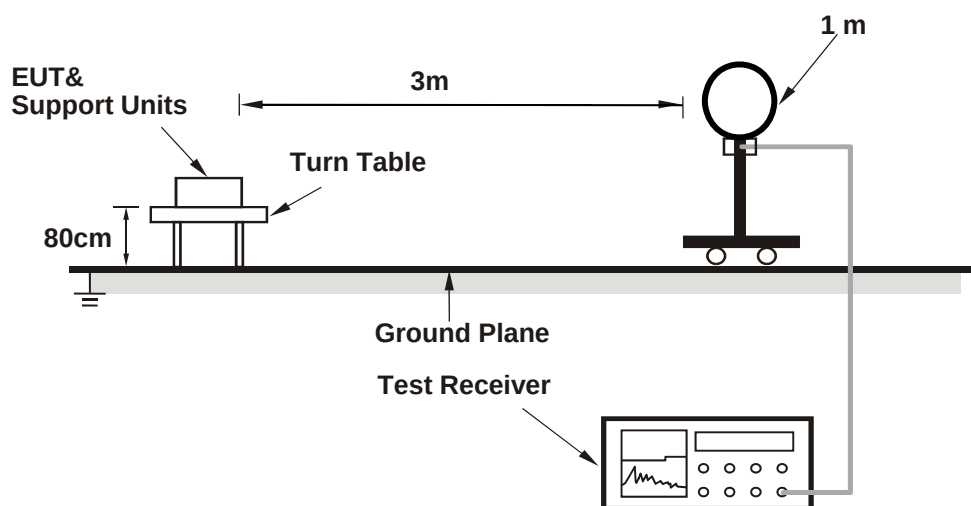
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. 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.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

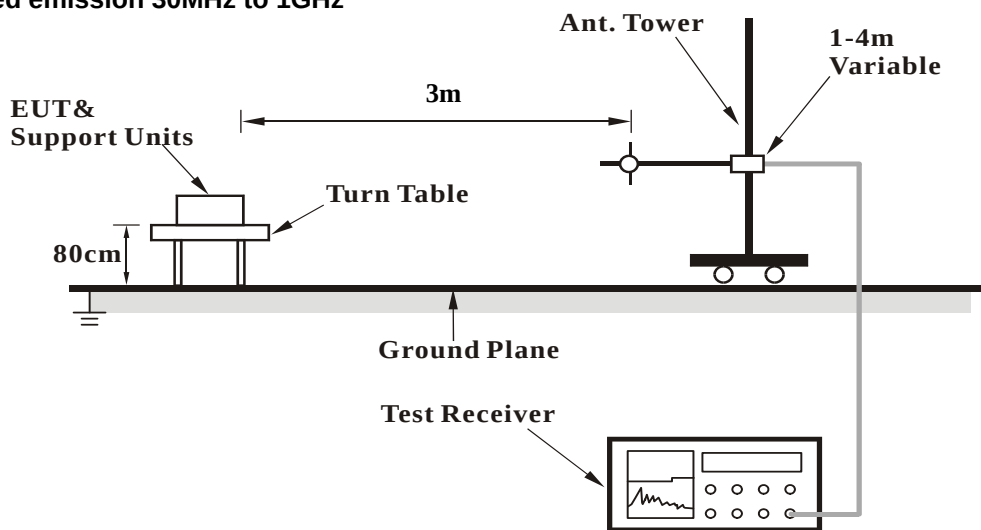
No deviation.

4.1.5 Test Setup

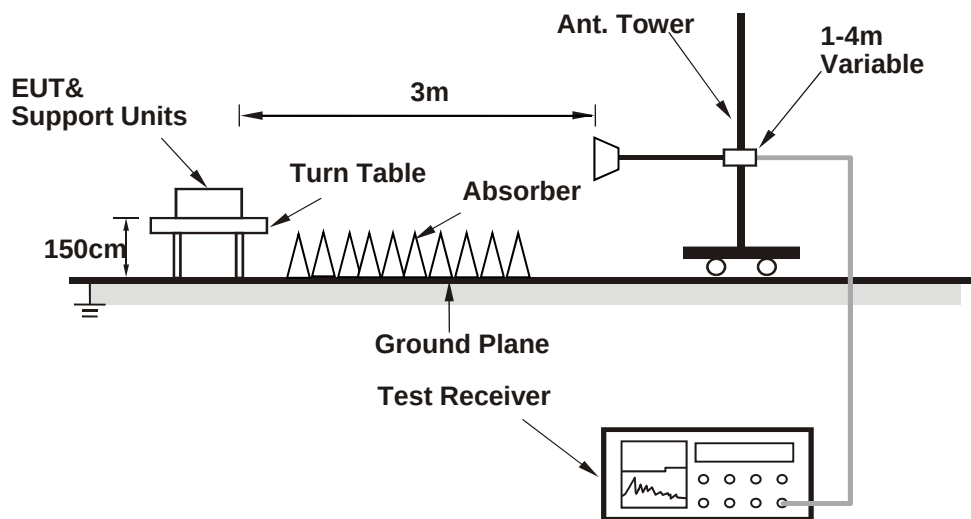
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

Mode A

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

Mode B

- Placed the EUT on the charger under charging.
- Set the EUT under transmission condition continuously at specific channel frequency.

Mode C

- Placed the EUT and batteries on the charger under charging.
- Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

<LE 4.0>

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	2390.00	57.1 PK	74.0	-16.9	1.63 H	236	25.1	32.0
2	2390.00	45.2 AV	54.0	-8.8	1.63 H	236	13.2	32.0
3	*2402.00	101.4 PK			1.61 H	233	69.4	32.0
4	*2402.00	96.5 AV			1.61 H	233	64.5	32.0
5	4804.00	43.7 PK	74.0	-30.3	1.00 H	180	42.5	1.2
6	4804.00	30.7 AV	54.0	-23.3	1.00 H	180	29.5	1.2
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	2390.00	57.2 PK	74.0	-16.8	1.18 V	192	25.2	32.0
2	2390.00	44.9 AV	54.0	-9.1	1.18 V	192	12.9	32.0
3	*2402.00	103.5 PK			1.21 V	190	71.5	32.0
4	*2402.00	98.3 AV			1.21 V	190	66.3	32.0
5	4804.00	43.6 PK	74.0	-30.4	1.00 V	182	42.4	1.2
6	4804.00	30.5 AV	54.0	-23.5	1.00 V	182	29.3	1.2

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	*2440.00	102.8 PK			1.36 H	231	70.8	32.0
2	*2440.00	98.4 AV			1.36 H	231	66.4	32.0
3	4880.00	43.7 PK	74.0	-30.3	1.00 H	174	42.4	1.3
4	4880.00	30.6 AV	54.0	-23.4	1.00 H	174	29.3	1.3
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	*2440.00	104.8 PK			1.00 V	198	72.8	32.0
2	*2440.00	100.0 AV			1.00 V	198	68.0	32.0
3	4880.00	43.8 PK	74.0	-30.2	1.00 V	188	42.5	1.3
4	4880.00	30.8 AV	54.0	-23.2	1.00 V	188	29.5	1.3

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	*2480.00	99.7 PK			1.38 H	233	67.7	32.0
2	*2480.00	94.9 AV			1.38 H	233	62.9	32.0
3	2483.50	57.3 PK	74.0	-16.7	1.32 H	239	25.3	32.0
4	2483.50	45.1 AV	54.0	-8.9	1.32 H	239	13.1	32.0
5	4960.00	44.2 PK	74.0	-29.8	1.00 H	186	42.5	1.7
6	4960.00	30.8 AV	54.0	-23.2	1.00 H	186	29.1	1.7
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	*2480.00	101.2 PK			1.00 V	184	69.2	32.0
2	*2480.00	96.1 AV			1.00 V	184	64.1	32.0
3	2483.50	56.8 PK	74.0	-17.2	1.00 V	180	24.8	32.0
4	2483.50	45.9 AV	54.0	-8.1	1.00 V	180	13.9	32.0
5	4960.00	44.1 PK	74.0	-29.9	1.00 V	182	42.4	1.7
6	4960.00	31.1 AV	54.0	-22.9	1.00 V	182	29.4	1.7

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

<LE 5.0>

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	2390.00	56.1 PK	74.0	-17.9	1.32 H	229	24.1	32.0
2	2390.00	44.6 AV	54.0	-9.4	1.32 H	229	12.6	32.0
3	*2402.00	100.8 PK			1.38 H	234	68.8	32.0
4	*2402.00	83.4 AV			1.38 H	234	51.4	32.0
5	4804.00	43.5 PK	74.0	-30.5	1.00 H	187	42.3	1.2
6	4804.00	29.7 AV	54.0	-24.3	1.00 H	187	28.5	1.2
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	2390.00	56.5 PK	74.0	-17.5	1.26 V	193	24.5	32.0
2	2390.00	44.4 AV	54.0	-9.6	1.26 V	193	12.4	32.0
3	*2402.00	103.6 PK			1.29 V	189	71.6	32.0
4	*2402.00	85.6 AV			1.29 V	189	53.6	32.0
5	4804.00	43.4 PK	74.0	-30.6	1.00 V	177	42.2	1.2
6	4804.00	30.0 AV	54.0	-24.0	1.00 V	177	28.8	1.2

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	*2440.00	104.1 PK			1.35 H	231	72.1	32.0
2	*2440.00	86.1 AV			1.35 H	231	54.1	32.0
3	4880.00	42.7 PK	74.0	-31.3	1.00 H	182	41.4	1.3
4	4880.00	29.8 AV	54.0	-24.2	1.00 H	182	28.5	1.3
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	*2440.00	106.3 PK			1.32 V	186	74.3	32.0
2	*2440.00	88.3 AV			1.32 V	186	56.3	32.0
3	4880.00	43.0 PK	74.0	-31.0	1.00 V	181	41.7	1.3
4	4880.00	29.9 AV	54.0	-24.1	1.00 V	181	28.6	1.3

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	*2480.00	99.4 PK			1.39 H	236	67.4	32.0
2	*2480.00	82.1 AV			1.39 H	236	50.1	32.0
3	2483.50	56.4 PK	74.0	-17.6	1.32 H	235	24.4	32.0
4	2483.50	45.6 AV	54.0	-8.4	1.32 H	235	13.6	32.0
5	4960.00	43.8 PK	74.0	-30.2	1.00 H	177	42.1	1.7
6	4960.00	30.1 AV	54.0	-23.9	1.00 H	177	28.4	1.7
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	*2480.00	101.7 PK			1.28 V	185	69.7	32.0
2	*2480.00	84.1 AV			1.28 V	185	52.1	32.0
3	2483.50	56.8 PK	74.0	-17.2	1.32 V	183	24.8	32.0
4	2483.50	46.1 AV	54.0	-7.9	1.32 V	183	14.1	32.0
5	4960.00	44.1 PK	74.0	-29.9	1.00 V	176	42.4	1.7
6	4960.00	30.4 AV	54.0	-23.6	1.00 V	176	28.7	1.7

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

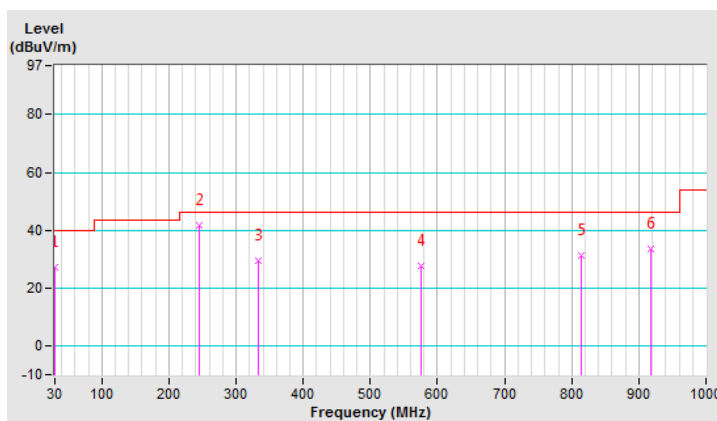
Below 1GHz worst-case data:

FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 19	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	30.00	27.3 QP	40.0	-12.7	1.00 H	166	38.5	-11.2
2	245.34	41.5 QP	46.0	-4.5	1.25 H	102	51.3	-9.8
3	333.61	29.6 QP	46.0	-16.4	1.25 H	58	36.8	-7.2
4	576.11	27.5 QP	46.0	-18.5	1.50 H	127	30.5	-3.0
5	813.76	31.3 QP	46.0	-14.7	1.00 H	199	29.4	1.9
6	917.55	33.3 QP	46.0	-12.7	1.25 H	347	29.6	3.7

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. 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.

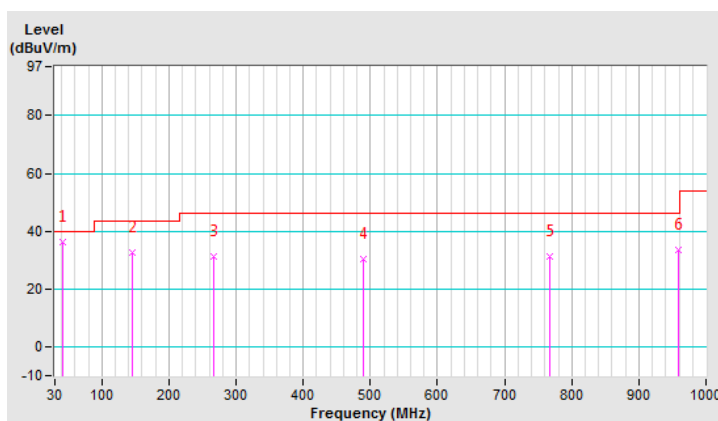


FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 19	TEST MODE	A

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	42.61	36.3 QP	40.0	-3.7	1.50 V	70	46.4	-10.1
2	144.46	32.4 QP	43.5	-11.1	1.00 V	300	42.0	-9.6
3	266.68	31.4 QP	46.0	-14.6	1.25 V	147	40.3	-8.9
4	489.78	30.5 QP	46.0	-15.5	1.25 V	198	35.2	-4.7
5	767.20	31.2 QP	46.0	-14.8	1.50 V	166	29.9	1.3
6	959.26	33.6 QP	46.0	-12.4	1.00 V	342	29.2	4.4

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. 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.

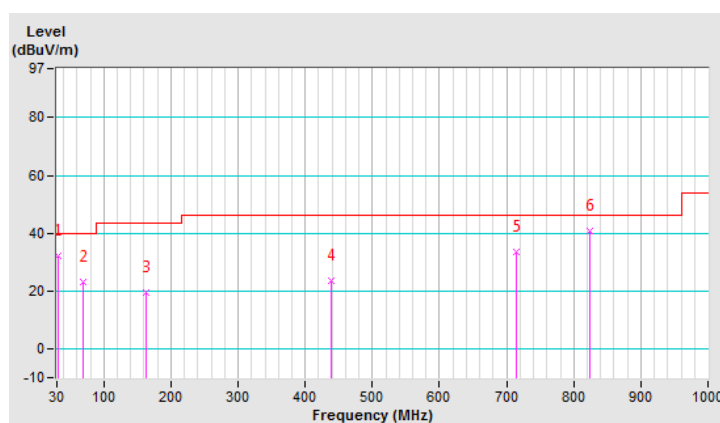


FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 19	TEST MODE	B

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	32.91	32.2 QP	40.0	-7.8	1.25 H	53	43.3	-11.1
2	68.80	23.3 QP	40.0	-16.7	1.25 H	82	34.9	-11.6
3	162.89	19.3 QP	43.5	-24.2	1.00 H	46	28.6	-9.3
4	439.34	23.5 QP	46.0	-22.5	1.50 H	201	29.0	-5.5
5	714.82	33.5 QP	46.0	-12.5	1.00 H	241	33.8	-0.3
6	824.43	40.6 QP	46.0	-5.4	1.00 H	144	38.5	2.1

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. 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.

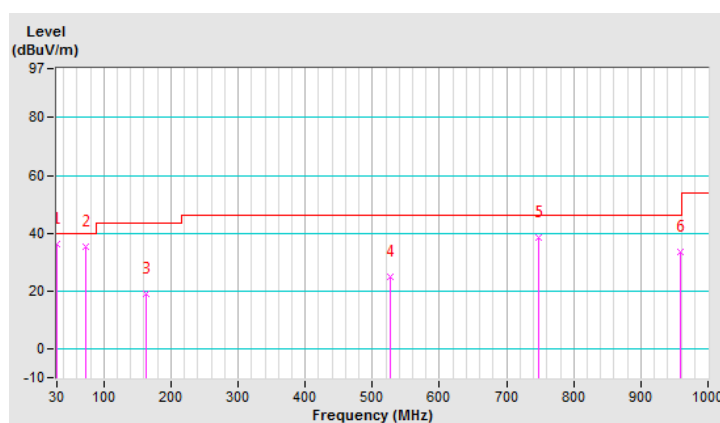


FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 19	TEST MODE	B

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	30.00	36.2 QP	40.0	-3.8	1.50 V	233	47.4	-11.2
2	72.68	35.5 QP	40.0	-4.5	1.25 V	99	47.9	-12.4
3	163.86	19.1 QP	43.5	-24.4	1.25 V	21	28.4	-9.3
4	526.64	24.9 QP	46.0	-21.1	1.00 V	66	29.0	-4.1
5	746.83	38.3 QP	46.0	-7.7	1.00 V	326	37.6	0.7
6	958.29	33.3 QP	46.0	-12.7	1.50 V	16	28.9	4.4

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) – Pre-Amplifier Factor(dB)
3. 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.
4. Margin value = Emission Level – Limit value

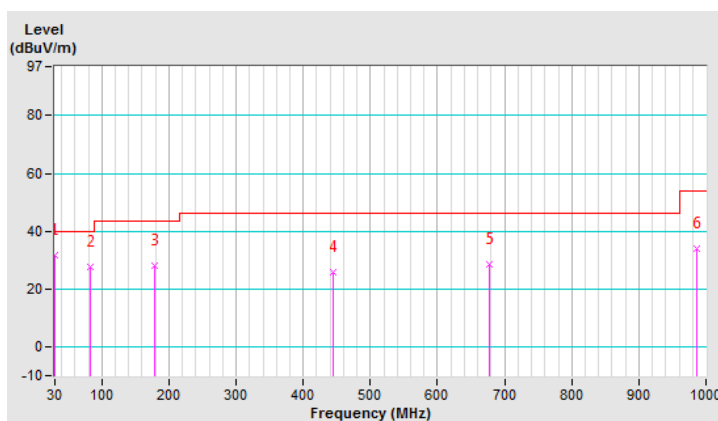


FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 19	TEST MODE	C

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	30.00	31.6 QP	40.0	-8.4	1.50 H	178	42.8	-11.2
2	83.35	27.7 QP	40.0	-12.3	1.00 H	332	42.3	-14.6
3	179.38	28.1 QP	43.5	-15.4	1.25 H	71	38.5	-10.4
4	445.16	25.6 QP	46.0	-20.4	1.00 H	163	30.9	-5.3
5	677.96	28.7 QP	46.0	-17.3	1.25 H	169	29.7	-1.0
6	985.45	34.1 QP	54.0	-19.9	1.00 H	317	29.6	4.5

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. 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.

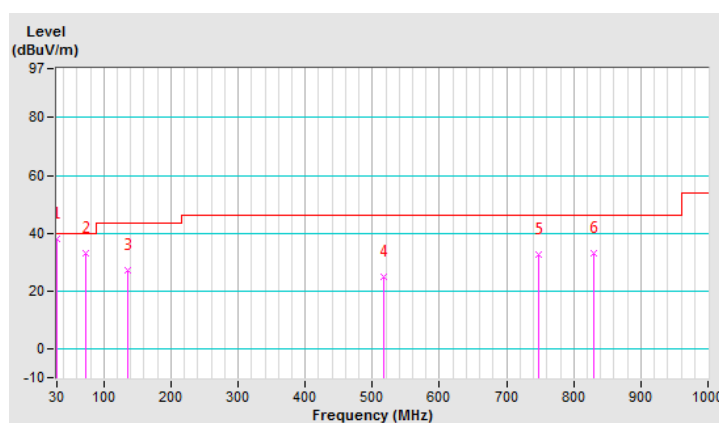


FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 19	TEST MODE	C

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	30.00	38.1 QP	40.0	-1.9	1.00 V	303	49.3	-11.2
2	72.68	33.0 QP	40.0	-7.0	1.25 V	9	45.4	-12.4
3	134.76	27.1 QP	43.5	-16.4	1.50 V	19	37.4	-10.3
4	516.94	24.8 QP	46.0	-21.2	1.25 V	102	29.0	-4.2
5	746.83	32.6 QP	46.0	-13.4	1.00 V	199	31.9	0.7
6	830.25	33.2 QP	46.0	-12.8	1.00 V	6	31.0	2.2

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) – Pre-Amplifier Factor(dB)
3. 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.
4. Margin value = Emission Level – Limit value



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.

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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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