

FCC Test Report

Report No.: RF160310C18 R1

FCC ID: A8J-SPR922U1

Test Model: SPR-922U1

Series Model: DuraFon-UHF-HC

Received Date: Mar. 10, 2016

Test Date: Mar. 18 ~ Mar. 29, 2016

Issued Date: Jul. 26, 2016

Applicant: EnGenius Technologies

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

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Release Control Record

Issue No.	Description	Date Issued
RF160310C18	Original release	Mar. 31, 2016
RF160310C18 R1	Added a model	Jul. 26, 2016

1 Certificate of Conformity

Product: Long Range Dual Mode Radio Phone with UHF 2-Way Radio Handset

Brand: 

Test Model: SPR-922U1

Series Model: DuraFon-UHF-HC

Sample Status: ENGINEERING SAMPLE

Applicant: EnGenius Technologies

Test Date: Mar. 18 ~ Mar. 29, 2016

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 EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Jul. 26, 2016
Pettie Chen / Senior Specialist

Approved by :  , **Date:** Jul. 26, 2016
Ken Liu / Senior Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -6.63dB at 0.45400MHz.
15.247(a)(1)(i)	Number of Hopping Frequency Used	Pass	Meet the requirement of limit.
15.247(a)(1)(i)	Dwell Time on Each Channel	Pass	Meet the requirement of limit.
15.247(a)(1) (i)	Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	Pass	Meet the requirement of limit.
15.247(b)(2)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -1.4dB at 920.54MHz.
15.247(d)	Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -26.7dB at 902.00MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is Reverse SMA not a standard connector.

NOTE: If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

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) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
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	Long Range Dual Mode Radio Phone with UHF 2-Way Radio Handset
Brand	EnGenius®
Test Model	SPR-922U1
Series Model	DuraFon-UHF-HC
Model Difference	Marketing purpose
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	3.7Vdc from battery 5Vdc from adapter
Modulation Type	MSK
Channel Spacing	404.544kHz
Operating Frequency	902.383959MHz ~ 927.465638MHz
Number of Channel	50
Output Power	868.960 mW
Antenna Type	Dipole Antenna with 2dBi gain
Antenna Connector	Reverse SMA
Accessory Device	Adapter, charger (Brand: EnGenius), Clip fastener, Belt Clip
Data Cable Supplied	NA

Note:

1. The EUT uses following battery and adapters

Battery	
Brand	EnGenius
Rating	3.7Vdc, Li-ion battery 2300mAh

Adapter 1	
Brand	Powertron Electronics Corp.
Model	PS1012-050HUB200
Input Power	100-240Vac ~50-60Hz 0.4A
Output Power	5Vdc / 2.0A 10W Max
Power Cord	1.2m cable without core

Adapter 2	
Brand	AOEM
Model	ADS012T-W050200
Input Power	100-240Vac~50-60Hz 0.5A
Output Power	5Vdc / 2.0A
Power Cord	1.5m cable without core

2. The EUT doesn't support communication function during charging by charger.

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Description of Test Modes

50 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	902.383959	26	915.329342
2	902.788502	27	915.733885
3	903.193045	28	916.542971
4	903.597589	29	917.352058
5	904.406675	30	917.756601
6	904.811218	31	918.161144
7	905.215761	32	918.970231
8	905.620305	33	919.374774
9	906.024848	34	919.779317
10	906.833934	35	920.183860
11	907.643021	36	920.588403
12	908.047564	37	921.397490
13	908.452107	38	921.802033
14	909.261193	39	922.206576
15	909.665737	40	922.611119
16	910.070280	41	923.015663
17	910.474823	42	923.824749
18	910.879660	43	924.229292
19	911.688453	44	924.633835
20	912.092996	45	925.038379
21	912.497539	46	925.442922
22	912.902082	47	926.252008
23	913.306626	48	926.656551
24	914.115712	49	927.061095
25	914.924798	50	927.465638

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	-	√	-	√	EUT + Battery
B	-	√	√	-	EUT + Adapter 1
C	√	√	√	-	EUT + Adapter 2

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-" 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
C	1 to 50	1, 25, 50	MSK

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
A, B, C	1 to 50	1, 25, 50	MSK

Power Line Conducted Emission Test:

- ☒ 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
B, C	1 to 50	1, 25, 50	MSK

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ 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
A	1 to 50	1, 25, 50	MSK

Test Condition:

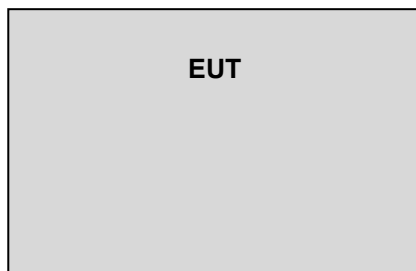
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz (System)	Chris Lin
RE<1G	25deg. C, 65%RH	3.7Vdc (Battery) 120Vac, 60Hz (System)	Chris Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz (System)	Chris Lin
APCM	25deg. C, 65%RH	3.7Vdc (Battery)	Chris Lin

3.3 Description of Support Units

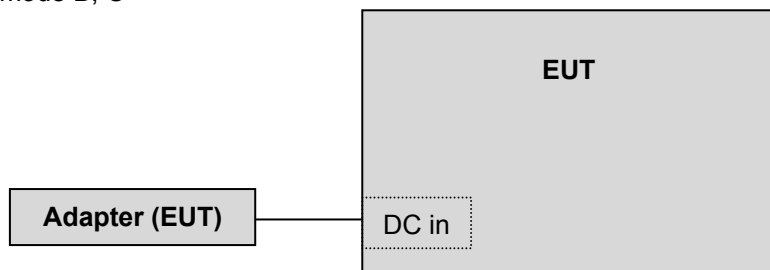
The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 Configuration of System under Test

Test mode A



Test mode B, 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)

ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class A (Verification). The test report has been issued separately.

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.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 12, 2015	Oct. 11, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jul. 08, 2015	Jul. 07, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Jan. 08, 2016	Jan. 07, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2015	Aug. 08, 2016
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-02(295012+309220)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	Aug. 09, 2015	Aug. 08, 2016
Software BV ADT	ADT_Radiated_V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021703	NA	NA
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2015	Jul. 08, 2016
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016

- 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 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC7450F-4.

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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 detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

Note:

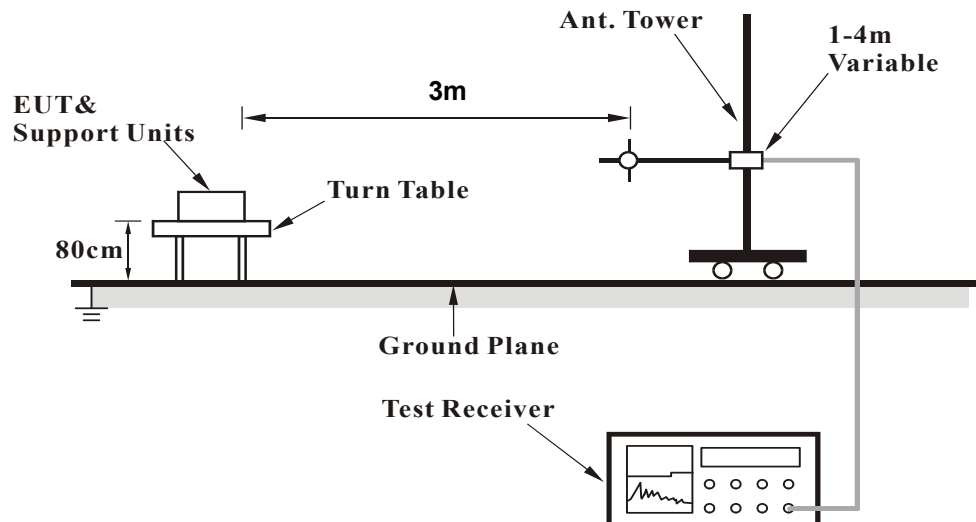
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. For Average measurement, due to the DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on $0.625 * 5$ per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB, therefore Average value = peak reading + $20\log(\text{duty cycle})$.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

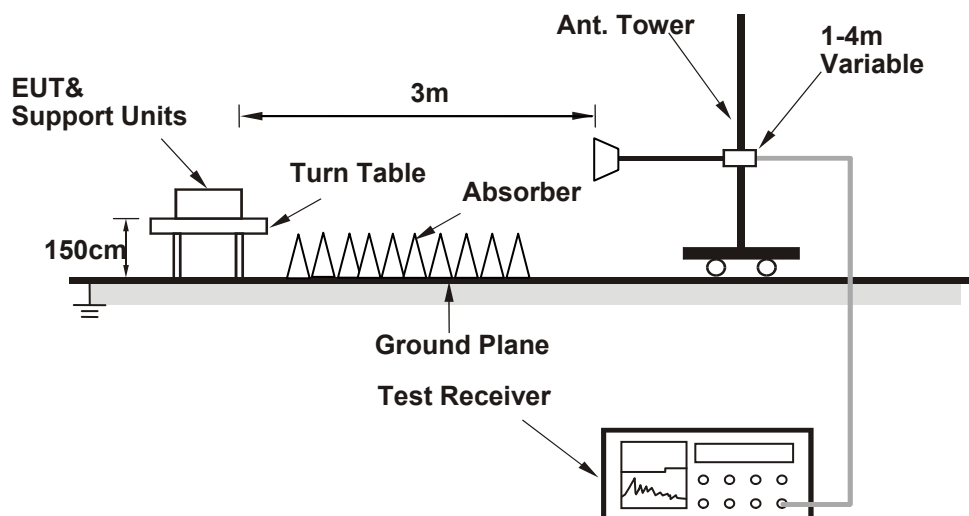
No deviation.

4.1.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

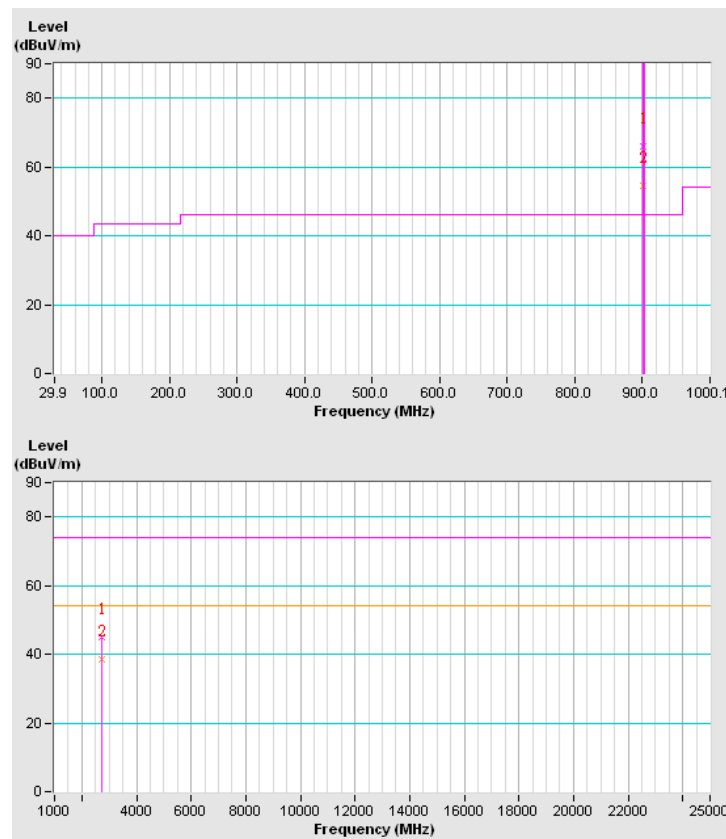
ABOVE 1GHz DATA :

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz	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	902.00	66.1 QP	92.8	-26.7	2.29 H	10	40.00	26.10
2	902.00	54.7 QP	92.5	-37.8	2.29 H	10	28.60	26.10
3	*902.38	112.8 QP			2.29 H	10	86.70	26.10
4	*902.38	112.5 QP			2.29 H	10	86.40	26.10
5	2707.00	45.0 QP	74.0	-29.0	1.02 H	38	46.40	-1.40
6	2707.00	38.6 QP	54.0	-15.4	1.02 H	38	40.00	-1.40

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.
6. " # ": The radiated frequency is out of the restricted band.

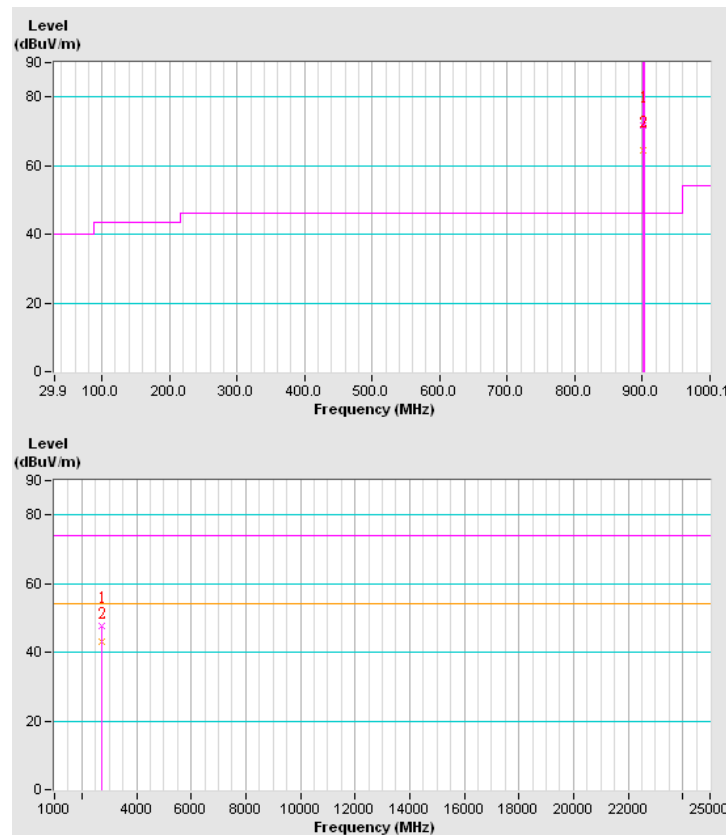


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz	TEST MODE	C

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	902.00	71.7 QP	109.2	-37.5	1.11 V	298	45.60	26.10
2	902.00	64.4 QP	109.1	-44.7	1.11 V	298	38.30	26.10
3	*902.38	129.2 QP			4.00 V	298	103.10	26.10
4	*902.38	129.1 QP			4.00 V	298	103.00	26.10
5	2707.00	47.5 QP	74.0	-26.5	1.20 V	178	48.90	-1.40
6	2707.00	43.2 QP	54.0	-10.8	1.20 V	178	44.60	-1.40

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.
6. " # ": The radiated frequency is out of the restricted band.

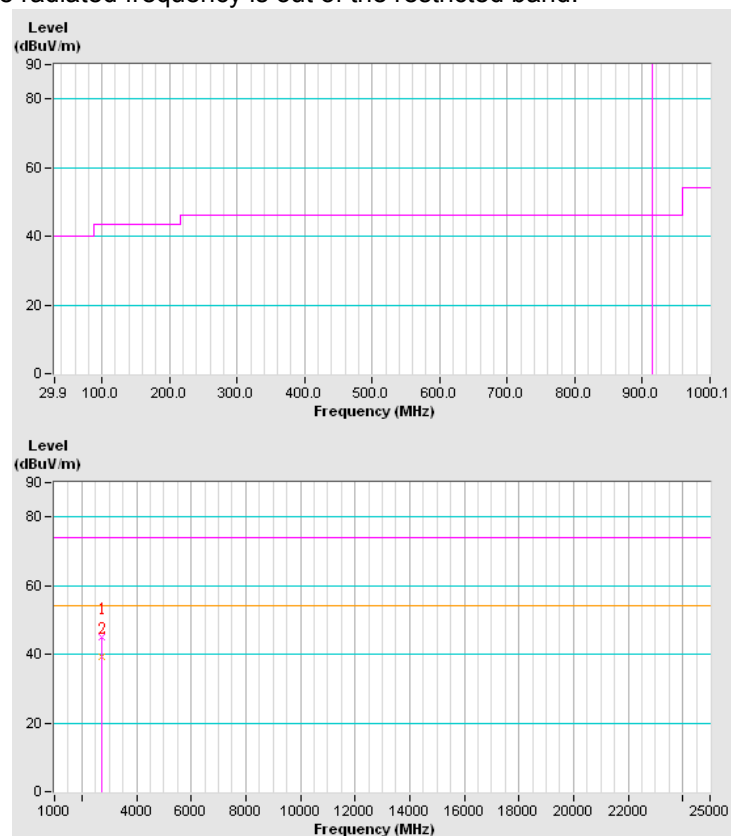


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz	TEST MODE	C

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	*914.92	115.3 QP			2.37 H	16	88.80	26.50
2	*914.92	115.2 QP			2.37 H	16	88.70	26.50
3	2744.00	45.0 QP	74.0	-29.0	1.66 H	166	46.50	-1.50
4	2744.00	39.2 QP	54.0	-14.8	1.66 H	166	40.70	-1.50

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.
6. " # ": The radiated frequency is out of the restricted band.

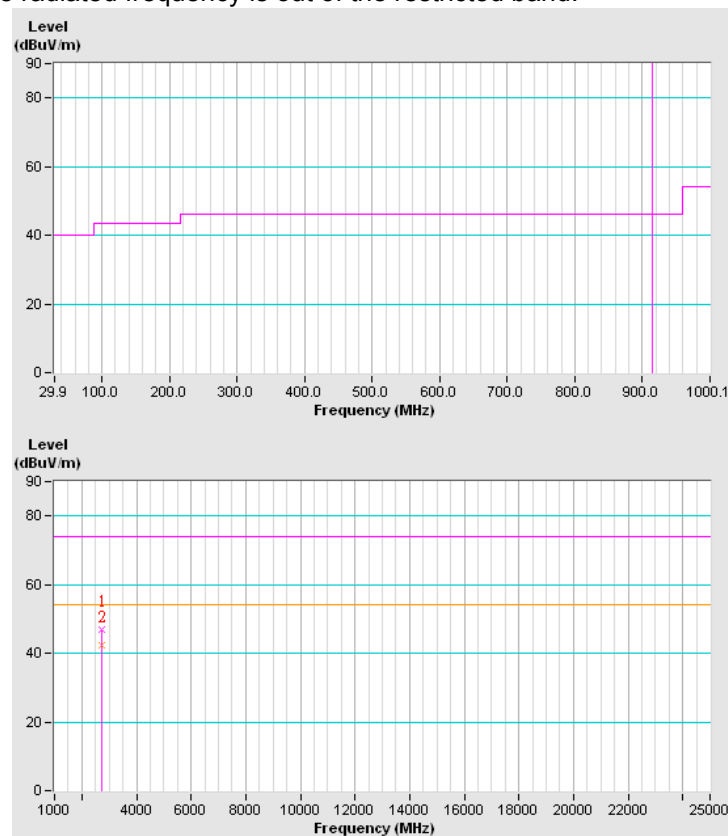


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz	TEST MODE	C

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	*914.92	129.8 QP			1.10 V	299	103.30	26.50
2	*914.92	129.8 QP			1.10 V	299	103.30	26.50
3	2744.00	46.9 QP	74.0	-27.1	1.36 V	229	48.40	-1.50
4	2744.00	42.2 QP	54.0	-11.8	1.36 V	229	43.70	-1.50

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.
6. " # ": The radiated frequency is out of the restricted band.

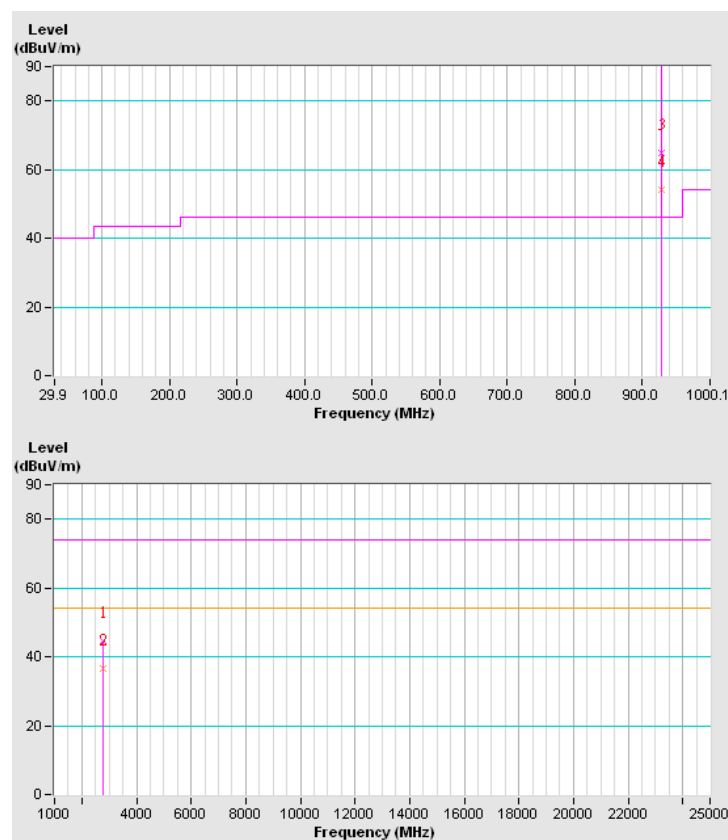


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz	TEST MODE	C

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	*927.46	112.0 QP			1.00 H	44	85.40	26.60
2	*927.46	111.8 QP			1.00 H	44	85.20	26.60
3	928.00	64.7 QP	92.0	-27.3	1.02 H	44	38.10	26.60
4	928.00	54.2 QP	91.8	-37.6	1.02 H	44	27.60	26.60
5	2782.00	44.7 QP	74.0	-29.3	1.12 H	185	46.10	-1.40
6	2782.00	36.7 QP	54.0	-17.3	1.12 H	185	38.10	-1.40

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.
6. " # ": The radiated frequency is out of the restricted band.

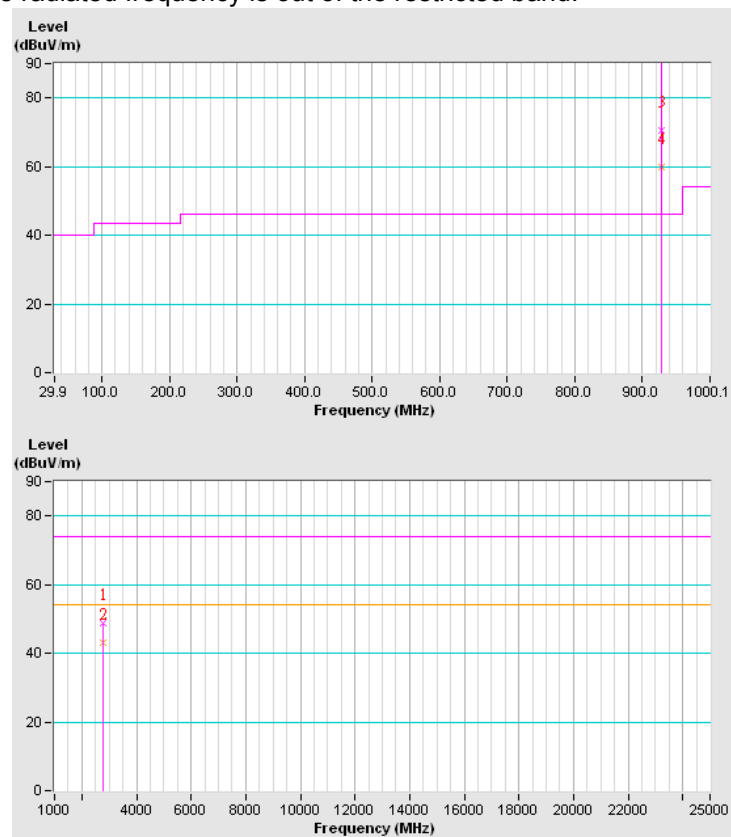


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz	TEST MODE	C

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	*927.46	129.1 QP			1.02 V	255	102.50	26.60
2	*927.46	128.8 QP			1.02 V	255	102.20	26.60
3	928.00	70.5 QP	109.1	-38.6	1.02 V	255	43.90	26.60
4	928.00	59.8 QP	108.8	-49.0	1.02 V	255	33.20	26.60
5	2782.00	48.9 QP	74.0	-25.1	1.14 V	198	46.90	2.00
6	2782.00	43.1 QP	54.0	-10.9	1.14 V	198	41.10	2.00

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.
6. " # ": The radiated frequency is out of the restricted band.



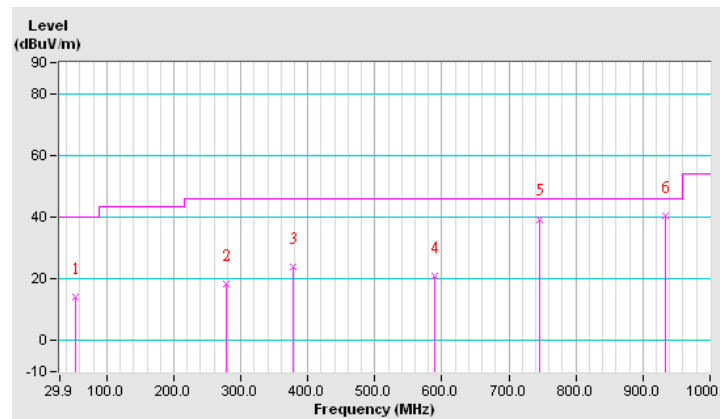
BELOW 1GHz WORST-CASE DATA:

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	53.18	14.1 QP	40.0	-25.9	1.50 H	13	27.90	-13.80
2	278.27	18.5 QP	46.0	-27.5	1.25 H	79	31.70	-13.20
3	377.23	23.7 QP	46.0	-22.3	1.00 H	105	35.20	-11.50
4	588.74	21.1 QP	46.0	-24.9	1.50 H	20	28.70	-7.60
5	745.91	39.4 QP	46.0	-6.6	1.00 H	111	43.30	-3.90
6	934.13	40.4 QP	46.0	-5.6	2.00 H	128	41.30	-0.90

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

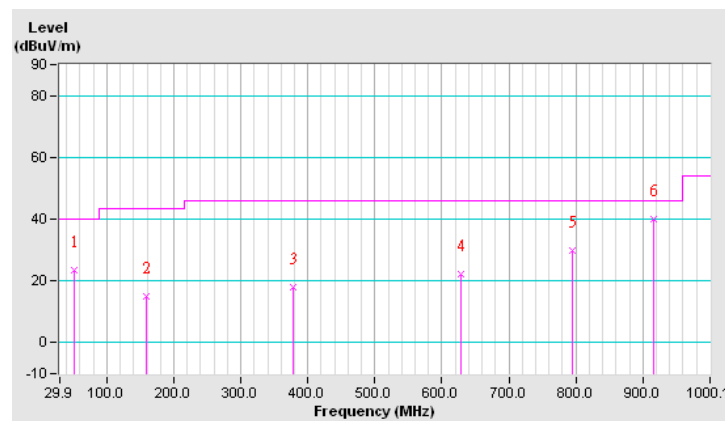


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

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	51.24	23.5 QP	40.0	-16.5	1.25 V	11	37.40	-13.90
2	159.91	15.1 QP	43.5	-28.4	1.00 V	7	28.90	-13.80
3	377.23	17.8 QP	46.0	-28.2	1.50 V	136	29.30	-11.50
4	627.54	22.2 QP	46.0	-23.8	1.00 V	310	28.60	-6.40
5	794.42	30.0 QP	46.0	-16.0	1.25 V	332	33.20	-3.20
6	916.66	40.1 QP	46.0	-5.9	1.50 V	141	41.30	-1.20

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

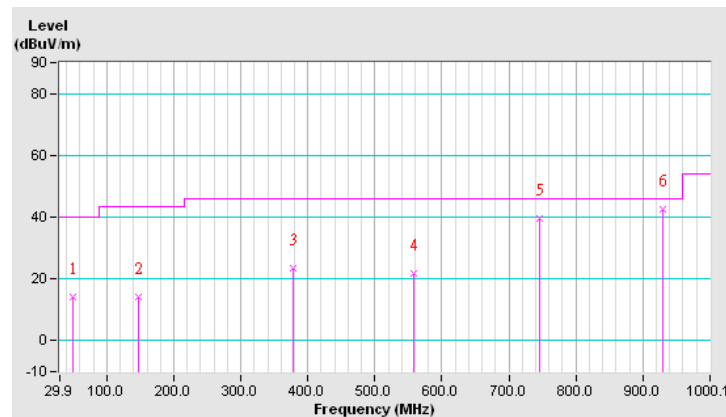


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

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	49.30	14.1 QP	40.0	-25.9	1.25 H	170	28.00	-13.90
2	146.32	14.1 QP	43.5	-29.4	1.00 H	335	28.00	-13.90
3	377.23	23.4 QP	46.0	-22.6	1.50 H	111	34.90	-11.50
4	557.69	21.6 QP	46.0	-24.4	1.00 H	162	30.20	-8.60
5	745.91	39.4 QP	46.0	-6.6	2.00 H	119	43.30	-3.90
6	930.25	42.4 QP	46.0	-3.6	1.00 H	126	43.40	-1.00

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

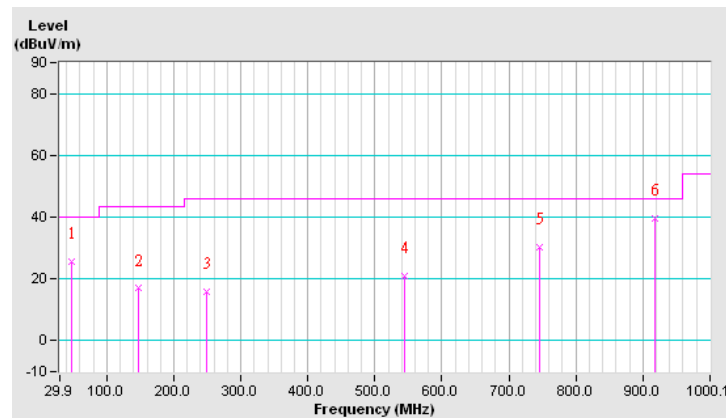


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

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	47.36	25.5 QP	40.0	-14.5	1.50 V	117	39.50	-14.00
2	146.32	16.9 QP	43.5	-26.6	1.00 V	179	30.80	-13.90
3	249.17	16.0 QP	46.0	-30.0	1.25 V	214	30.60	-14.60
4	544.11	20.9 QP	46.0	-25.1	1.00 V	114	29.70	-8.80
5	745.91	30.2 QP	46.0	-15.8	1.50 V	181	34.10	-3.90
6	918.60	39.6 QP	46.0	-6.4	1.25 V	181	40.70	-1.10

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

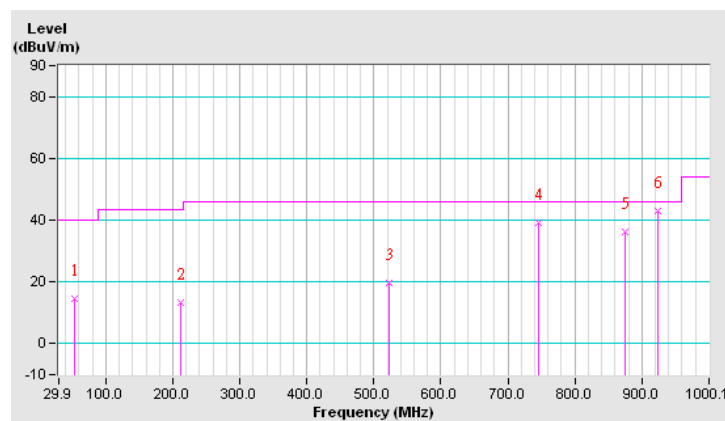


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

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	53.18	14.5 QP	40.0	-25.5	1.25 H	263	28.30	-13.80
2	212.30	13.3 QP	43.5	-30.2	1.00 H	158	29.80	-16.50
3	522.76	19.6 QP	46.0	-26.4	1.00 H	218	28.70	-9.10
4	745.91	39.2 QP	46.0	-6.8	1.50 H	97	43.10	-3.90
5	873.97	36.1 QP	46.0	-9.9	1.25 H	125	38.30	-2.20
6	924.42	42.9 QP	46.0	-3.1	1.50 H	127	43.90	-1.00

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

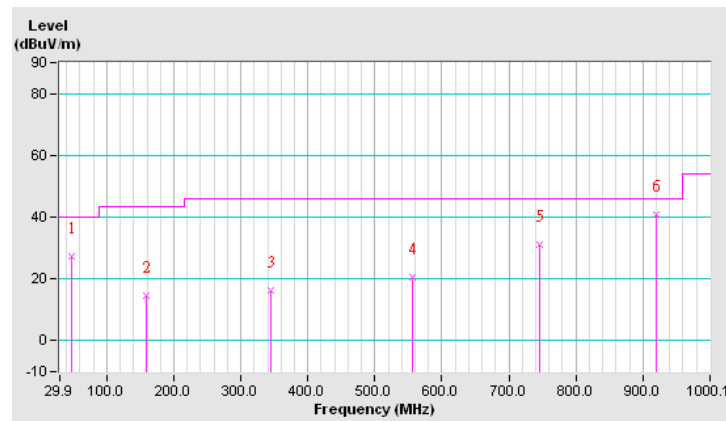


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

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	47.36	27.4 QP	40.0	-12.6	1.25 V	60	41.40	-14.00
2	159.91	14.6 QP	43.5	-28.9	1.00 V	290	28.40	-13.80
3	344.24	16.3 QP	46.0	-29.7	1.50 V	223	28.50	-12.20
4	555.75	20.6 QP	46.0	-25.4	1.25 V	271	29.40	-8.80
5	745.91	31.2 QP	46.0	-14.8	1.00 V	177	35.10	-3.90
6	920.54	40.8 QP	46.0	-5.2	2.00 V	147	41.80	-1.00

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

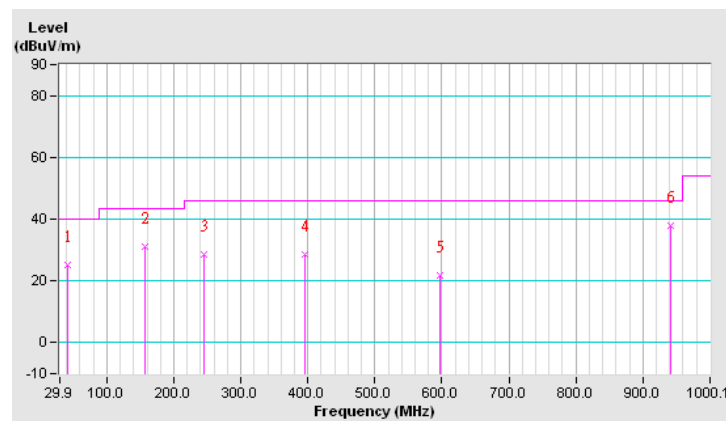


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

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	41.54	25.2 QP	40.0	-14.8	1.25 H	117	39.80	-14.60
2	157.97	31.1 QP	43.5	-12.4	1.00 H	240	44.80	-13.70
3	245.28	28.7 QP	46.0	-17.3	1.00 H	253	43.40	-14.70
4	396.64	28.5 QP	46.0	-17.5	2.00 H	306	39.70	-11.20
5	596.50	21.7 QP	46.0	-24.3	1.50 H	174	29.00	-7.30
6	941.89	37.8 QP	46.0	-8.2	1.00 H	243	38.70	-0.90

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

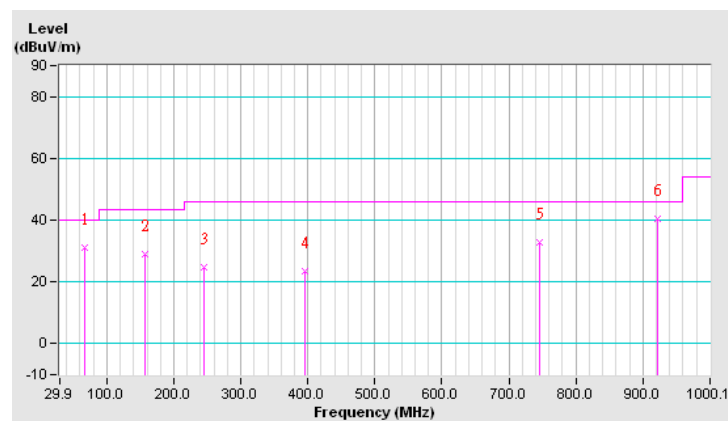


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

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	66.77	30.9 QP	40.0	-9.1	1.25 V	288	46.20	-15.30
2	157.97	29.1 QP	43.5	-14.4	1.00 V	130	42.80	-13.70
3	245.28	24.6 QP	46.0	-21.4	1.50 V	289	39.30	-14.70
4	396.64	23.3 QP	46.0	-22.7	1.00 V	147	34.50	-11.20
5	745.91	32.6 QP	46.0	-13.4	1.25 V	227	36.50	-3.90
6	922.48	40.6 QP	46.0	-5.4	1.00 V	184	41.60	-1.00

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

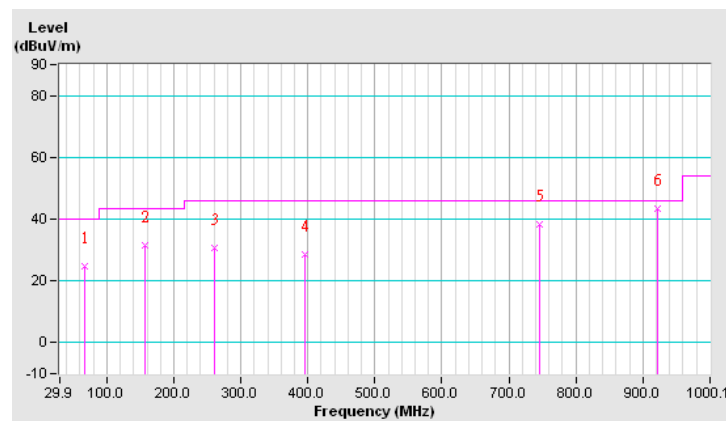


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

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	66.77	24.9 QP	40.0	-15.1	1.25 H	233	40.20	-15.30
2	157.97	31.6 QP	43.5	-11.9	1.00 H	250	45.30	-13.70
3	260.81	30.6 QP	46.0	-15.4	1.50 H	263	44.70	-14.10
4	396.64	28.7 QP	46.0	-17.3	1.25 H	66	39.90	-11.20
5	745.91	38.3 QP	46.0	-7.7	1.00 H	210	42.20	-3.90
6	922.48	43.5 QP	46.0	-2.5	2.00 H	243	44.50	-1.00

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

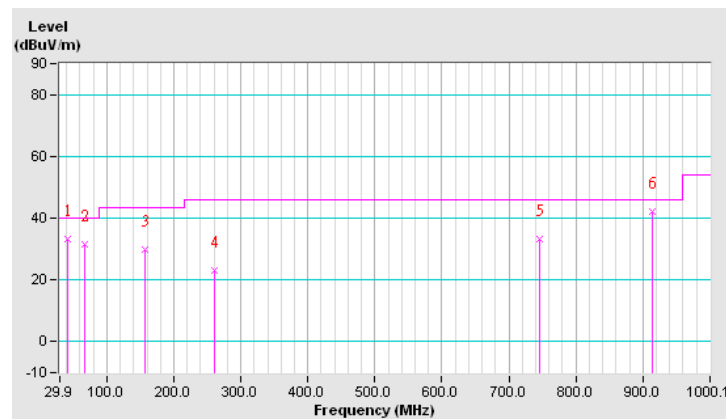


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

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	41.54	33.4 QP	40.0	-6.6	1.50 V	222	48.00	-14.60
2	66.77	31.4 QP	40.0	-8.6	1.25 V	297	46.70	-15.30
3	157.97	29.7 QP	43.5	-13.8	1.00 V	30	43.40	-13.70
4	260.81	22.9 QP	46.0	-23.1	1.50 V	263	37.00	-14.10
5	745.91	33.3 QP	46.0	-12.7	1.00 V	168	37.20	-3.90
6	914.72	42.1 QP	46.0	-3.9	1.25 V	177	43.30	-1.20

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

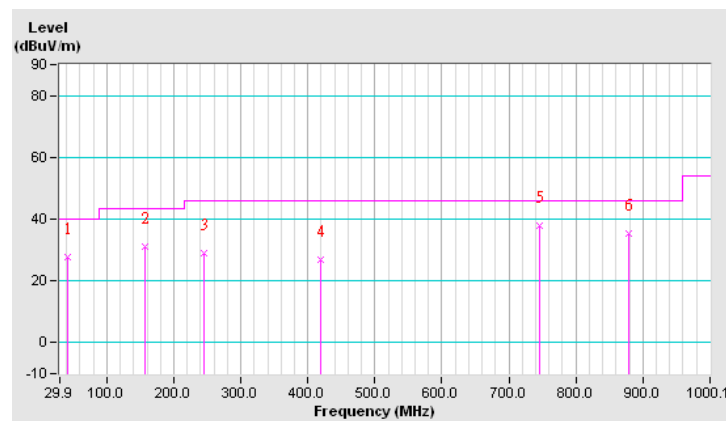


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

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	41.54	27.6 QP	40.0	-12.4	1.25 H	117	42.20	-14.60
2	157.97	31.2 QP	43.5	-12.3	1.00 H	236	44.90	-13.70
3	245.28	29.0 QP	46.0	-17.0	1.50 H	267	43.70	-14.70
4	419.92	26.9 QP	46.0	-19.1	1.25 H	119	37.60	-10.70
5	745.91	38.0 QP	46.0	-8.0	1.00 H	94	41.90	-3.90
6	877.85	35.4 QP	46.0	-10.6	1.50 H	117	37.60	-2.20

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

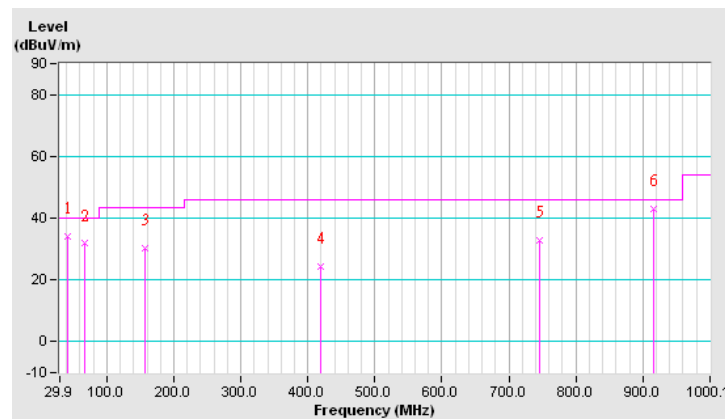


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

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	41.54	34.0 QP	40.0	-6.0	1.25 V	333	48.60	-14.60
2	66.77	31.7 QP	40.0	-8.3	1.00 V	297	47.00	-15.30
3	157.97	30.2 QP	43.5	-13.3	1.50 V	33	43.90	-13.70
4	419.92	24.4 QP	46.0	-21.6	1.00 V	248	35.10	-10.70
5	745.91	32.8 QP	46.0	-13.2	1.25 V	172	36.70	-3.90
6	916.66	43.0 QP	46.0	-3.0	1.50 V	181	44.20	-1.20

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

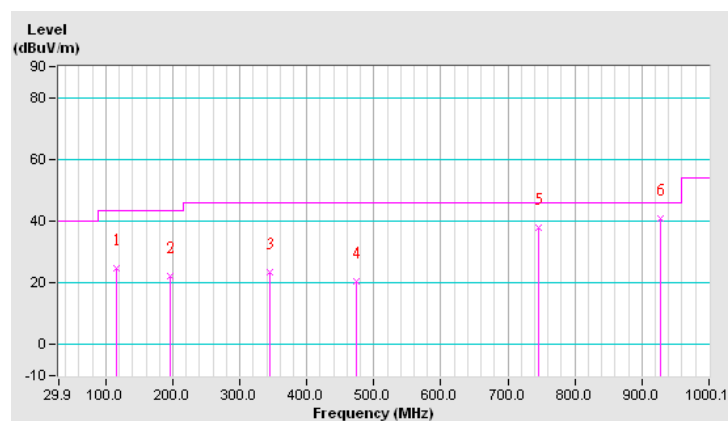


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

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	115.28	24.7 QP	43.5	-18.8	1.25 H	299	41.30	-16.60
2	196.77	22.0 QP	43.5	-21.5	1.00 H	252	38.70	-16.70
3	344.24	23.4 QP	46.0	-22.6	2.00 H	138	35.60	-12.20
4	474.25	20.4 QP	46.0	-25.6	1.25 H	12	30.20	-9.80
5	745.91	37.8 QP	46.0	-8.2	1.00 H	68	41.70	-3.90
6	928.31	41.0 QP	46.0	-5.0	1.50 H	142	42.00	-1.00

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

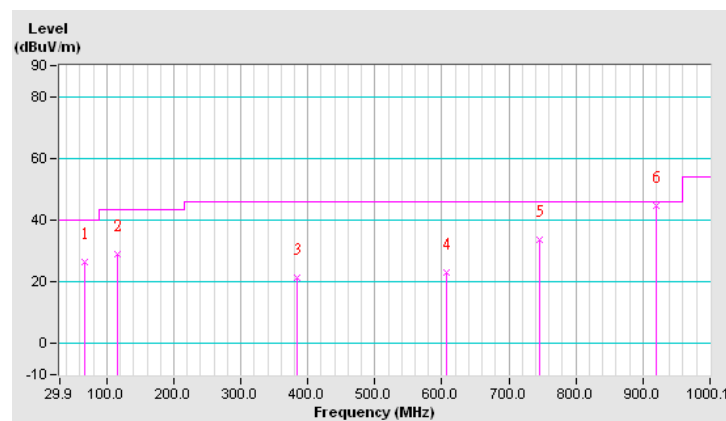


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

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	66.77	26.5 QP	40.0	-13.5	1.50 V	269	41.80	-15.30
2	115.28	28.9 QP	43.5	-14.6	1.00 V	203	45.50	-16.60
3	383.05	21.3 QP	46.0	-24.7	1.25 V	250	32.70	-11.40
4	606.20	22.9 QP	46.0	-23.1	1.00 V	137	29.80	-6.90
5	745.91	33.7 QP	46.0	-12.3	1.50 V	180	37.60	-3.90
6	920.54	44.6 QP	46.0	-1.4	1.00 V	224	45.60	-1.00

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

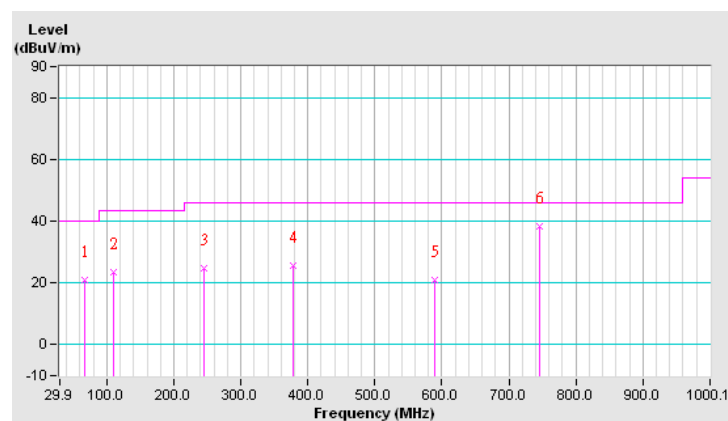


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

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	66.77	20.8 QP	40.0	-19.2	1.25 H	218	36.10	-15.30
2	109.46	23.6 QP	43.5	-19.9	1.00 H	296	40.70	-17.10
3	245.28	24.6 QP	46.0	-21.4	1.50 H	252	39.30	-14.70
4	377.23	25.5 QP	46.0	-20.5	1.00 H	243	37.00	-11.50
5	588.74	20.8 QP	46.0	-25.2	2.00 H	133	28.40	-7.60
6	745.91	38.2 QP	46.0	-7.8	1.00 H	61	42.10	-3.90

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

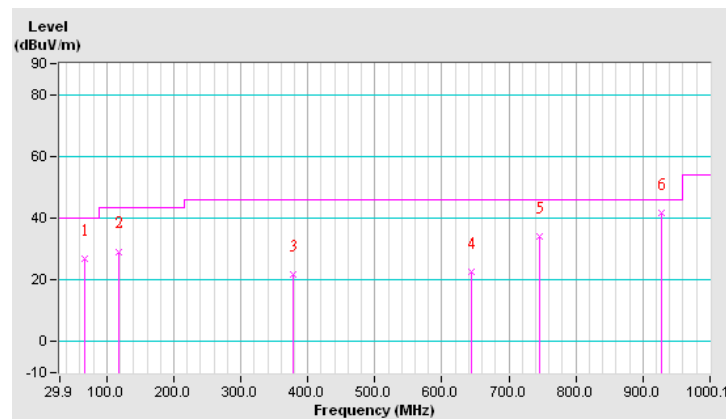


CHANNEL	TX Channel 25	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

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	66.77	27.0 QP	40.0	-13.0	1.25 V	277	42.30	-15.30
2	117.22	29.2 QP	43.5	-14.3	1.00 V	216	45.60	-16.40
3	377.23	21.8 QP	46.0	-24.2	2.00 V	205	33.30	-11.50
4	645.01	22.5 QP	46.0	-23.5	1.00 V	46	28.80	-6.30
5	745.91	34.2 QP	46.0	-11.8	1.00 V	175	38.10	-3.90
6	928.31	41.7 QP	46.0	-4.3	1.25 V	193	42.70	-1.00

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

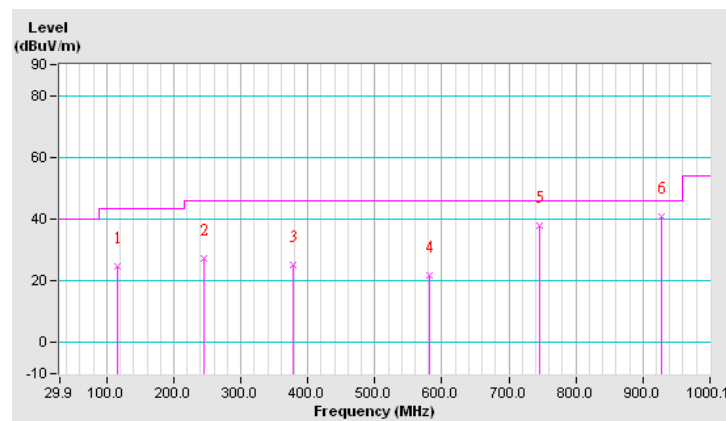


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

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	115.28	24.9 QP	43.5	-18.6	1.50 H	293	41.50	-16.60
2	245.28	27.1 QP	46.0	-18.9	1.00 H	252	41.80	-14.70
3	377.23	25.3 QP	46.0	-20.7	1.25 H	231	36.80	-11.50
4	580.97	21.7 QP	46.0	-24.3	1.00 H	214	29.60	-7.90
5	745.91	37.9 QP	46.0	-8.1	1.50 H	117	41.80	-3.90
6	928.31	40.8 QP	46.0	-5.2	1.25 H	253	41.80	-1.00

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

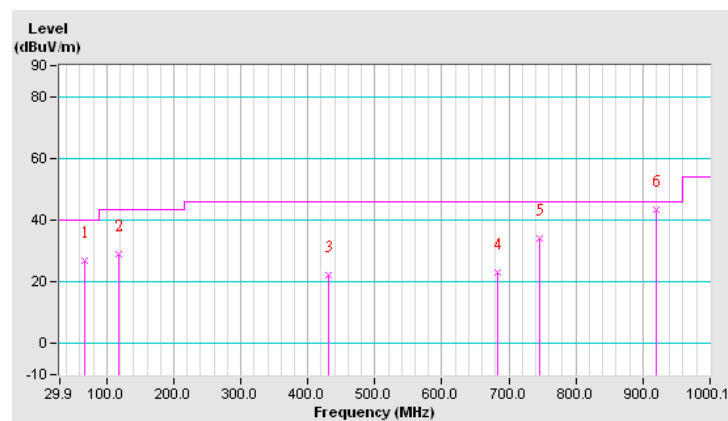


CHANNEL	TX Channel 50	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	C

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	66.77	26.9 QP	40.0	-13.1	1.25 V	291	42.20	-15.30
2	117.22	28.8 QP	43.5	-14.7	1.00 V	196	45.20	-16.40
3	431.56	22.3 QP	46.0	-23.7	1.50 V	342	32.70	-10.40
4	683.81	23.1 QP	46.0	-22.9	1.00 V	7	28.80	-5.70
5	745.91	34.0 QP	46.0	-12.0	1.25 V	189	37.90	-3.90
6	920.54	43.3 QP	46.0	-2.7	2.00 V	223	44.30	-1.00

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 16, 2015	Nov. 15, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2016	Feb. 25, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 24, 2015	Jul. 23, 2016
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	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 HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

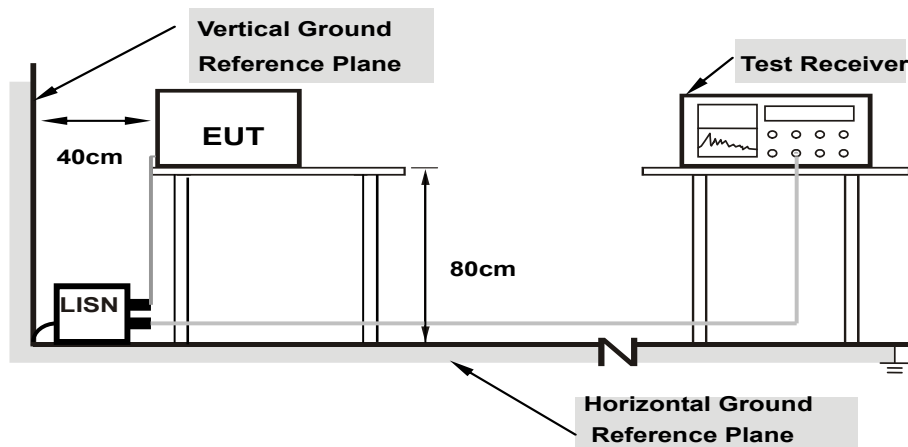
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation From Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT Operating Condition

Same as 4.1.6.

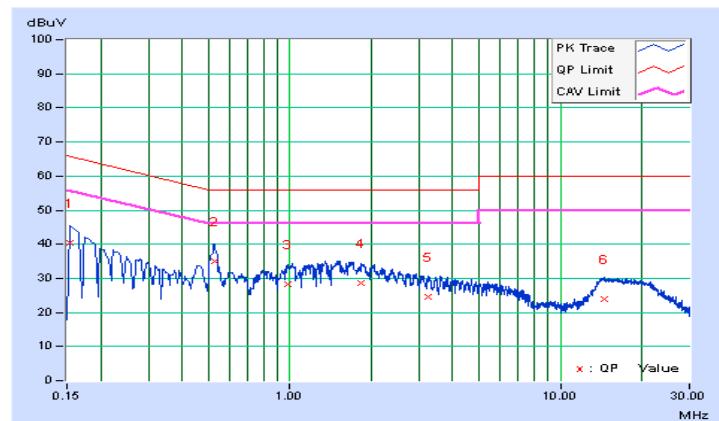
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 1	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.08	30.49	15.23	40.57	25.31	65.78	55.78	-25.22	-30.48
2	0.52567	10.20	24.91	18.31	35.11	28.51	56.00	46.00	-20.89	-17.49
3	0.98148	10.29	18.16	11.00	28.45	21.29	56.00	46.00	-27.55	-24.71
4	1.83400	10.36	18.25	10.31	28.61	20.67	56.00	46.00	-27.39	-25.33
5	3.25452	10.43	14.03	5.74	24.46	16.17	56.00	46.00	-31.54	-29.83
6	14.54200	11.04	12.86	4.58	23.90	15.62	60.00	50.00	-36.10	-34.38

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

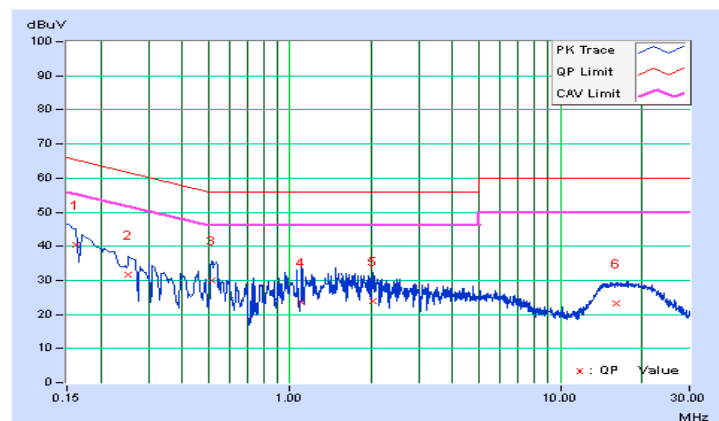


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 1	Test Mode	B

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	10.08	30.29	16.11	40.37	26.19	65.36	55.36	-24.99	-29.17
2	0.25405	10.12	21.40	8.60	31.52	18.72	61.62	51.62	-30.10	-32.90
3	0.51335	10.25	19.82	9.99	30.07	20.24	56.00	46.00	-25.93	-25.76
4	1.10200	10.30	13.16	3.37	23.46	13.67	56.00	46.00	-32.54	-32.33
5	2.03400	10.39	13.51	5.35	23.90	15.74	56.00	46.00	-32.10	-30.26
6	16.17000	11.28	12.04	5.69	23.32	16.97	60.00	50.00	-36.68	-33.03

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

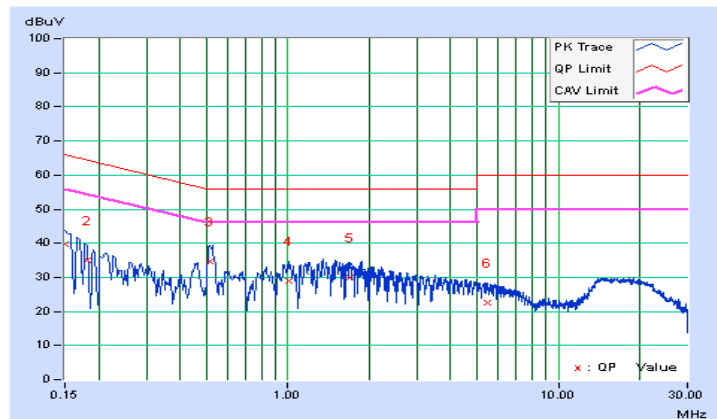


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 25	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.07	29.62	13.94	39.69	24.01	66.00	56.00	-26.31	-31.99
2	0.18200	10.08	24.92	9.80	35.00	19.88	64.39	54.39	-29.40	-34.52
3	0.51200	10.19	24.40	16.46	34.59	26.65	56.00	46.00	-21.41	-19.35
4	1.00600	10.29	18.79	11.76	29.08	22.05	56.00	46.00	-26.92	-23.95
5	1.69800	10.35	19.55	10.74	29.90	21.09	56.00	46.00	-26.10	-24.91
6	5.44200	10.54	12.05	3.54	22.59	14.08	60.00	50.00	-37.41	-35.92

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

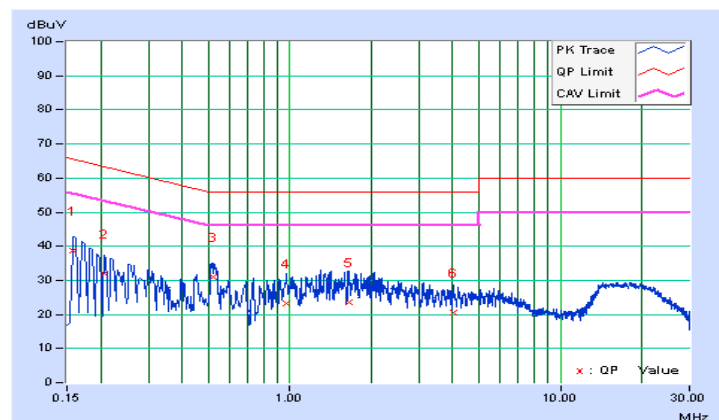


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 25	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15811	10.08	28.58	12.74	38.66	22.82	65.56	55.56	-26.90	-32.74
2	0.20631	10.09	21.82	7.61	31.91	17.70	63.35	53.35	-31.45	-35.66
3	0.52290	10.25	20.69	10.41	30.94	20.66	56.00	46.00	-25.06	-25.34
4	0.97376	10.29	12.96	4.99	23.25	15.28	56.00	46.00	-32.75	-30.72
5	1.65400	10.36	13.29	2.83	23.65	13.19	56.00	46.00	-32.35	-32.81
6	4.01400	10.59	9.87	1.17	20.46	11.76	56.00	46.00	-35.54	-34.24

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

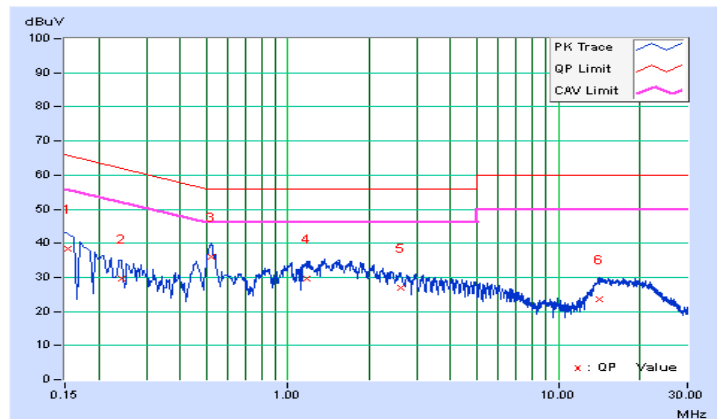


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 50	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.08	28.37	9.99	38.45	20.07	65.78	55.78	-27.34	-35.72
2	0.24164	10.10	19.46	7.37	29.56	17.47	62.04	52.04	-32.48	-34.57
3	0.52153	10.19	25.85	16.63	36.04	26.82	56.00	46.00	-19.96	-19.18
4	1.17405	10.30	19.25	9.39	29.55	19.69	56.00	46.00	-26.45	-26.31
5	2.60154	10.40	16.53	5.60	26.93	16.00	56.00	46.00	-29.07	-30.00
6	14.09800	11.01	12.54	2.82	23.55	13.83	60.00	50.00	-36.45	-36.17

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

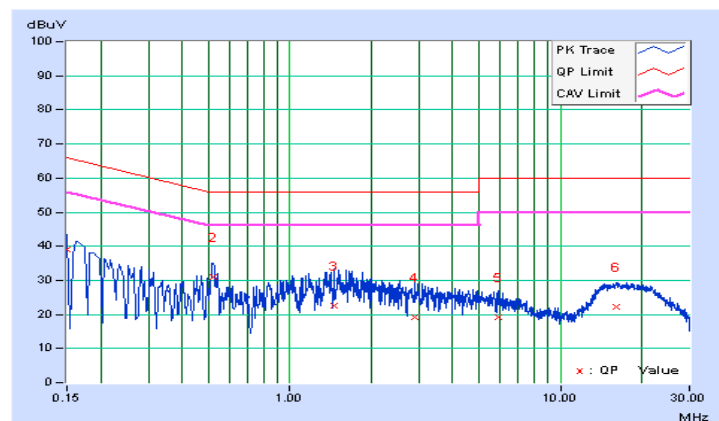


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 50	Test Mode	B

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.08	28.95	10.48	39.03	20.56	66.00	56.00	-26.97	-35.44
2	0.52016	10.25	20.86	8.11	31.11	18.36	56.00	46.00	-24.89	-27.64
3	1.46200	10.34	12.31	1.33	22.65	11.67	56.00	46.00	-33.35	-34.33
4	2.89400	10.48	8.80	-1.12	19.28	9.36	56.00	46.00	-36.72	-36.64
5	5.91000	10.67	8.47	-0.28	19.14	10.39	60.00	50.00	-40.86	-39.61
6	16.03000	11.27	11.10	2.29	22.37	13.56	60.00	50.00	-37.63	-36.44

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

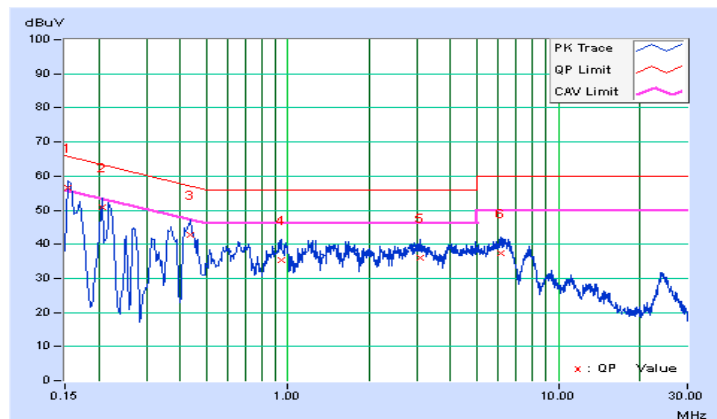


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 1	Test Mode	C

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.08	46.50	35.93	56.58	46.01	65.78	55.78	-9.21	-9.78
2	0.20600	10.08	40.85	29.43	50.93	39.51	63.37	53.37	-12.43	-13.85
3	0.43800	10.18	32.59	24.47	42.77	34.65	57.10	47.10	-14.33	-12.45
4	0.94200	10.28	25.08	20.62	35.36	30.90	56.00	46.00	-20.64	-15.10
5	3.10200	10.43	25.48	19.12	35.91	29.55	56.00	46.00	-20.09	-16.45
6	6.09800	10.57	26.67	20.93	37.24	31.50	60.00	50.00	-22.76	-18.50

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

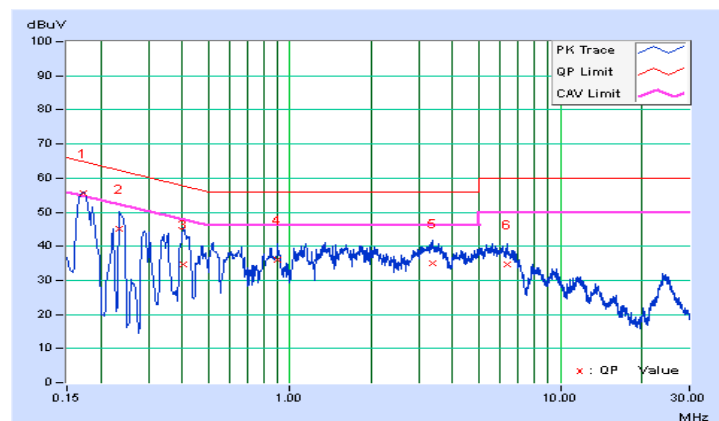


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 1	Test Mode	C

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17202	10.08	45.57	34.17	55.65	44.25	64.86	54.86	-9.21	-10.61
2	0.23412	10.11	35.07	20.67	45.18	30.78	62.30	52.30	-17.12	-21.52
3	0.40285	10.24	24.39	14.10	34.63	24.34	57.79	47.79	-23.16	-23.45
4	0.90213	10.28	25.87	20.39	36.15	30.67	56.00	46.00	-19.85	-15.33
5	3.39000	10.53	24.65	18.96	35.18	29.49	56.00	46.00	-20.82	-16.51
6	6.37800	10.69	24.13	18.78	34.82	29.47	60.00	50.00	-25.18	-20.53

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

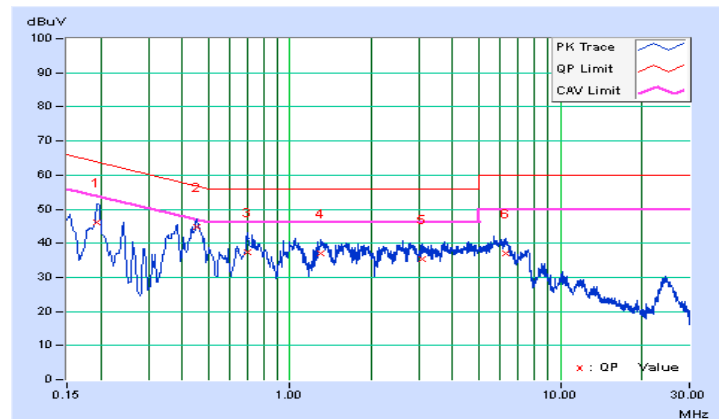


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 25	Test Mode	C

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19418	10.08	35.98	24.41	46.06	34.49	63.86	53.86	-17.80	-19.37
2	0.45400	10.18	34.66	29.99	44.84	40.17	56.80	46.80	-11.96	-6.63
3	0.69400	10.23	27.31	21.96	37.54	32.19	56.00	46.00	-18.46	-13.81
4	1.30200	10.31	26.60	21.30	36.91	31.61	56.00	46.00	-19.09	-14.39
5	3.08200	10.42	24.80	18.85	35.22	29.27	56.00	46.00	-20.78	-16.73
6	6.31400	10.59	26.36	21.07	36.95	31.66	60.00	50.00	-23.05	-18.34

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

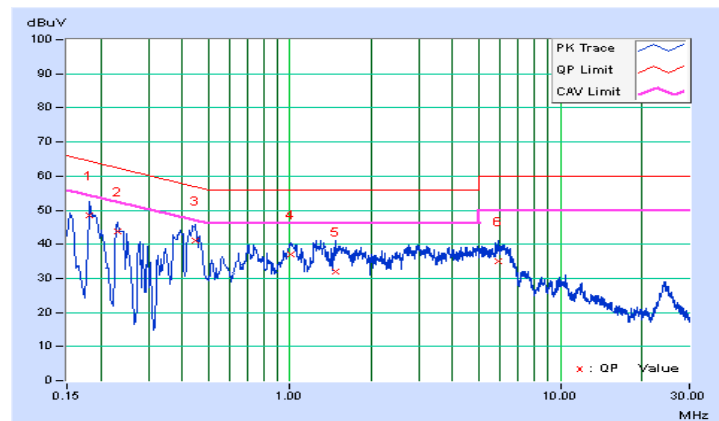


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 25	Test Mode	C

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18200	10.08	38.32	24.73	48.40	34.81	64.39	54.39	-15.99	-19.58
2	0.23000	10.10	33.77	20.73	43.87	30.83	62.45	52.45	-18.58	-21.62
3	0.44999	10.24	30.86	21.89	41.10	32.13	56.88	46.88	-15.77	-14.74
4	1.01034	10.29	26.58	21.48	36.87	31.77	56.00	46.00	-19.13	-14.23
5	1.48200	10.34	21.74	14.82	32.08	25.16	56.00	46.00	-23.92	-20.84
6	5.91800	10.67	24.28	18.34	34.95	29.01	60.00	50.00	-25.05	-20.99

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

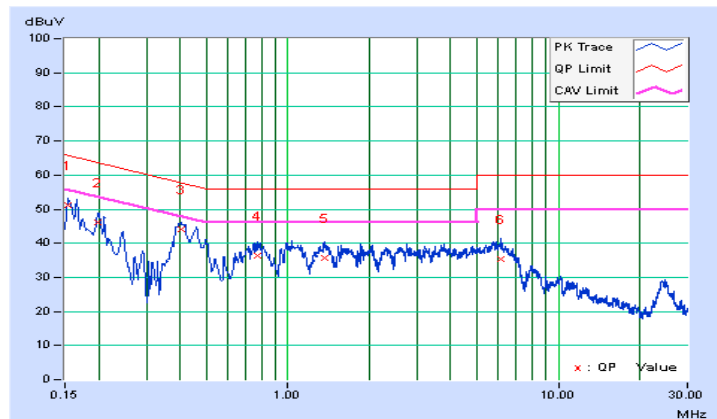


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 50	Test Mode	C

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.08	41.19	32.31	51.27	42.39	65.78	55.78	-14.52	-13.40
2	0.19937	10.08	36.21	27.19	46.29	37.27	63.64	53.64	-17.35	-16.37
3	0.40179	10.17	33.93	27.42	44.10	37.59	57.82	47.82	-13.72	-10.23
4	0.77023	10.24	26.12	21.84	36.36	32.08	56.00	46.00	-19.64	-13.92
5	1.37400	10.32	25.44	20.63	35.76	30.95	56.00	46.00	-20.24	-15.05
6	6.09400	10.57	24.64	19.60	35.21	30.17	60.00	50.00	-24.79	-19.83

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

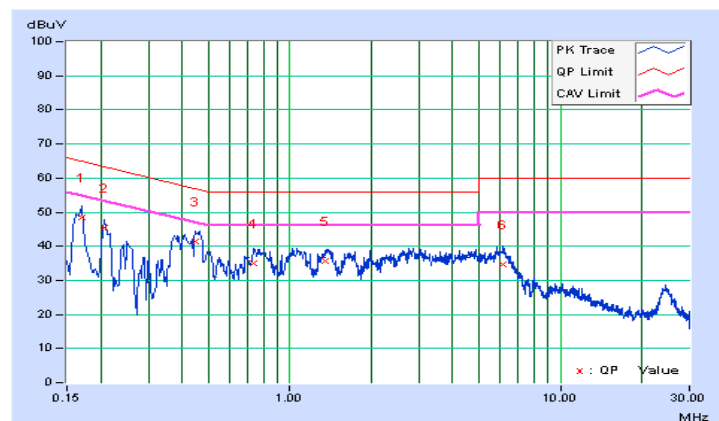


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 50	Test Mode	C

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16977	10.08	38.29	29.00	48.37	39.08	64.97	54.97	-16.60	-15.89
2	0.20600	10.08	35.28	27.41	45.36	37.49	63.37	53.37	-18.00	-15.87
3	0.44645	10.24	31.30	26.16	41.54	36.40	56.94	46.94	-15.40	-10.54
4	0.73455	10.27	24.74	20.06	35.01	30.33	56.00	46.00	-20.99	-15.67
5	1.34998	10.32	25.33	20.36	35.65	30.68	56.00	46.00	-20.35	-15.32
6	6.09260	10.68	24.15	18.18	34.83	28.86	60.00	50.00	-25.17	-21.14

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

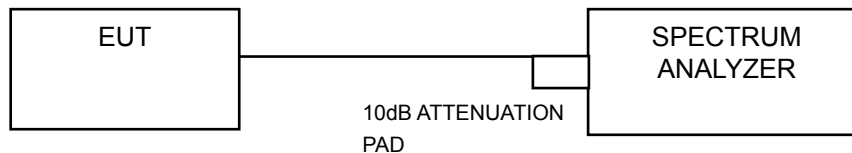


4.3 Number of Hopping Frequency Used

4.3.1 Limits of Hopping Frequency Used Measurement

At least 50 channels frequencies, and should be equally spaced.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

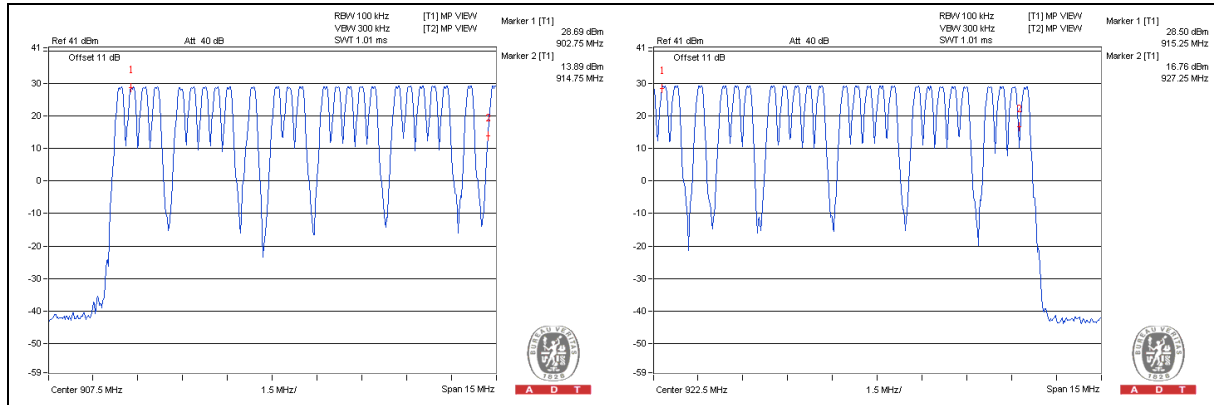
- Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
- Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
- Set the SA on View mode and then plot the result on SA screen.
- Repeat above procedures until all frequencies measured were complete.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 Test Results

There are 50 hopping frequencies in the hopping mode. On the plots, it shows that the hopping frequencies are equally spaced.



4.4 Dwell Time on Each Channel

4.4.1 Limits of Dwell Time on Each Channel Measurement

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

- a. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
- c. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
- d. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
- e. Repeat above procedures until all different time-slot modes have been completed.

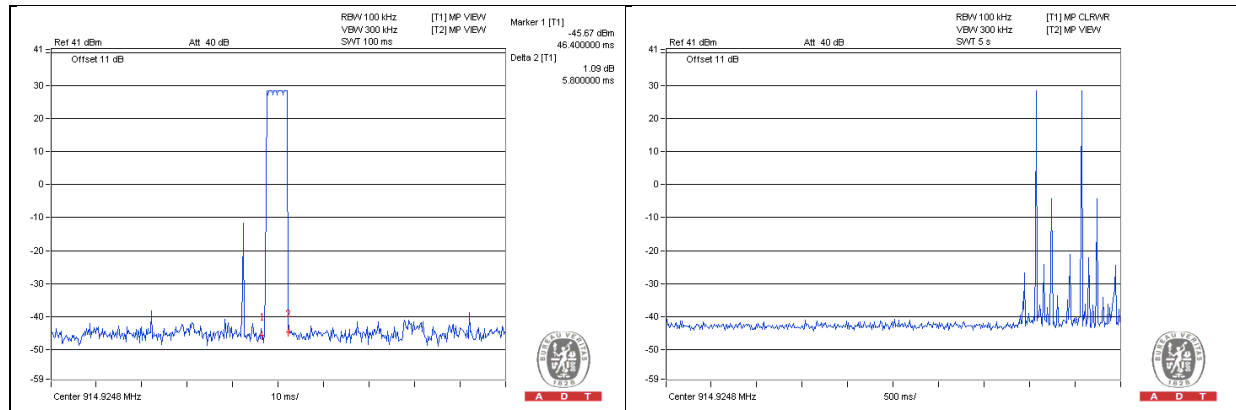
4.4.5 Deviation from Test Standard

No deviation.

4.4.6 Test Results

Number of transmission in a 20 (50Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
2 (times / 5 sec) * 4 = 8 times	5.8	46.4	400

NOTE: Test plots of the transmitting time slot are shown on following.



4.5 Channel Bandwidth

4.5.1 Limits of Channel Bandwidth Measurement

The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

- Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- Repeat above procedures until all frequencies measured were complete.

4.5.5 Deviation from Test Standard

No deviation.

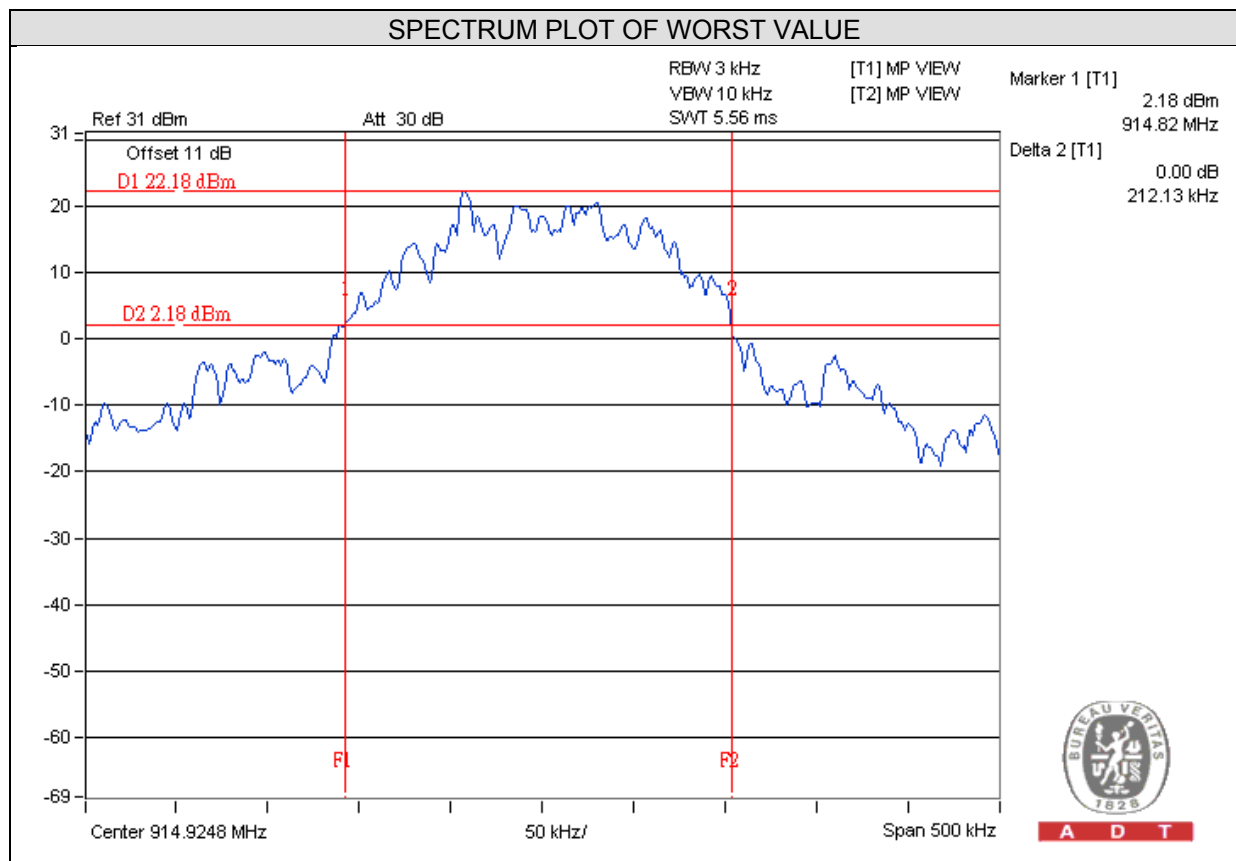
4.5.6 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.5.7 Test Results

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	Limit (MHz)
1	902.383959	0.21	0.5
25	914.924798	0.21	0.5
50	927.465638	0.21	0.5

Note: 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.



4.6 Maximum Output Power

4.6.1 Limits of Maximum Output Power Measurement

The Maximum Output Power Measurement is 30dBm.

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3MHz RBW and 10 MHz VBW.
- d. Measure the captured power within the band and recording the plot.
- e. Repeat above procedures until all frequencies required were complete.

4.6.5 Deviation from Test Standard

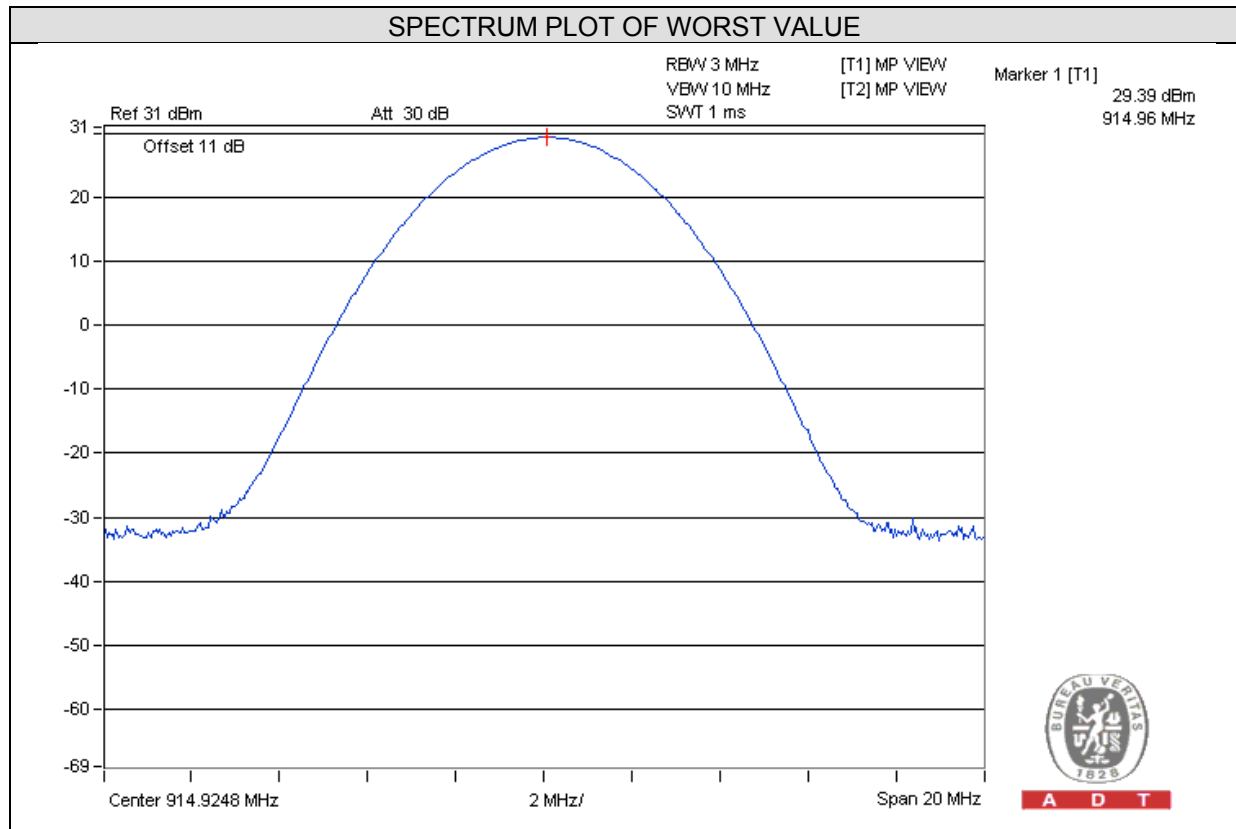
No deviation.

4.6.6 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.6.7 Test Results

Channel	Frequency (MHz)	Output Power (mW)	Output Power (dBm)	Power Limit (dBm)	Pass / Fail
1	902.383959	835.603	29.22	30	PASS
25	914.924798	868.960	29.39	30	PASS
50	927.465638	826.038	29.17	30	PASS



4.7 Conducted Out of Band Emission Measurement

4.7.1 Limits Of Conducted Out Of Band Emission Measurement

Below –20dB of the highest emission level of operating band (in 100kHz RBW).

4.7.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.3 Test Procedure

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz and 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.4 Deviation From Test Standard

No deviation.

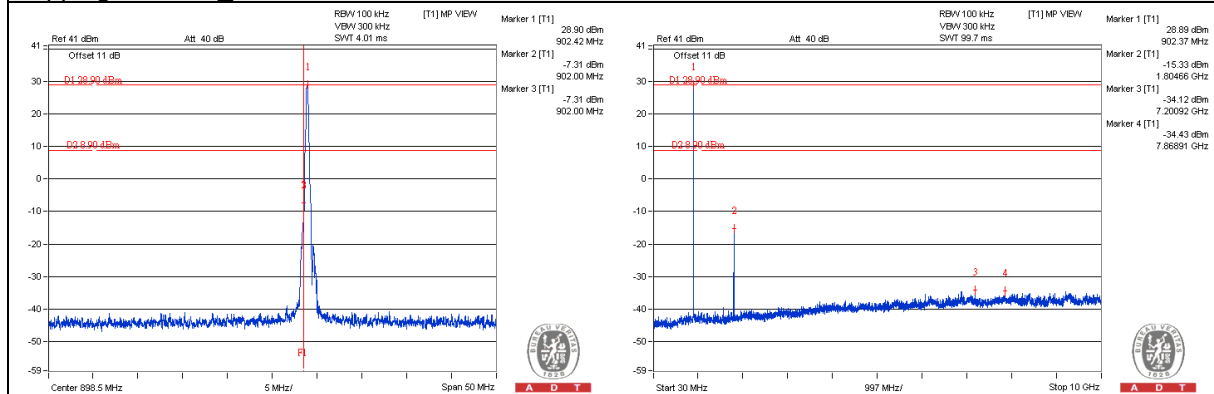
4.7.5 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

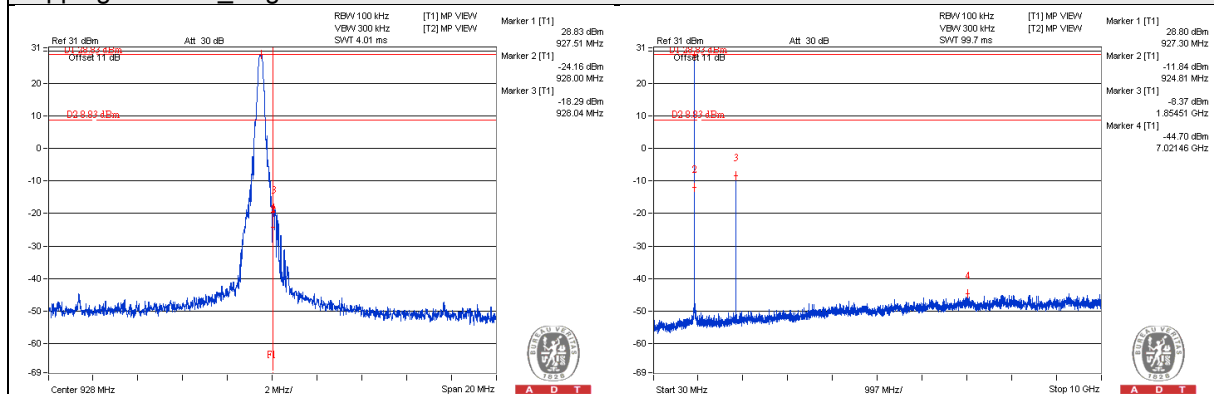
4.7.6 Test Results

The spectrum plots are attached on the following images. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

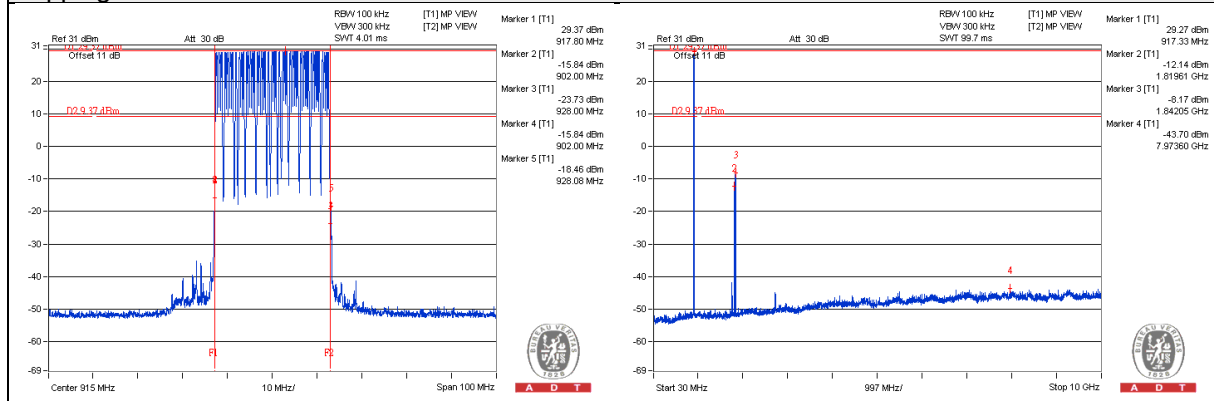
Hopping disabled Low Channel



Hopping disabled High Channel



Hopping enabled





5 Pictures of Test Arrangements

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

Appendix – Information on 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 accredited and approved according to ISO/IEC 17025.

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

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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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