

FCC TEST REPORT

REPORT NO.: RF140827C07

MODEL NO.: MPR-1914

FCC ID: OGSMMPR1914

RECEIVED: Aug. 27, 2014

TESTED: Oct. 14 ~ Oct. 27, 2014

ISSUED: Nov. 04, 2014

APPLICANT: Applied Wireless identifications Group Inc.

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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.	REASON FOR CHANGE	DATE ISSUED
RF140827C07	Original release	Nov. 04, 2014



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1. CERTIFICATION

PRODUCT: UHF RFID Reader/Writer

MODEL NO.: MPR-1914

BRAND: AWID

APPLICANT: Applied Wireless identifications Group Inc.

TESTED: Oct. 14 ~ Oct. 27, 2014

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

The above equipment (model: MPR-1914) 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 : Polly Chien , **DATE** : Nov. 04, 2014
Polly Chien / Specialist

APPROVED BY : Ken Liu , **DATE** : Nov. 04, 2014
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -20.72dB at 0.15000MHz.
15.247(a)(1)(i)	Number of Hopping Frequency Used Spec.: At least 50 channels	PASS	Meet the requirement of limit.
15.247(a)(1)(i)	Dwell Time on Each Channel Spec.: Max. 0.4 second within 20 second	PASS	Meet the requirement of limit.
15.247(a)(1)(i)	1. Hopping Channel Separation Spec.: Min. 25 kHz or 20 dB bandwidth, whichever is greater 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	PASS	Meet the requirement of limit.
15.247(b)(2)	Maximum Peak Output Power Spec.: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Spec.: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 888.33MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is TNC RP or SMA RP not a standard connector.

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	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.86 dB
	200MHz ~1000MHz	3.87 dB
	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	UHF RFID Reader/Writer
MODEL NO.	MPR-1914
POWER SUPPLY	12Vdc from host equipment
MODULATION TYPE	PR-ASK
TRANSFER RATE	80kbps
OPERATING FREQUENCY	902.60 ~ 927.40MHz
NUMBER OF CHANNEL	125
OUTPUT POWER	Antenna 1: 215.774mW Antenna 2: 933.254mW
ANTENNA TYPE	Refer to NOTE for more details
ANTENNA CONNECTOR	Refer to NOTE for more details
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to NOTE for more details

NOTE:

- The EUT contains the following accessories. (Optional)

No.	Product	Brand	Model	Description
1	Adapter	GME SWITCHING POWER ADAPTER (GME)	GFP241-1220BX-1	Input: 100-240Vac, 50-60Hz, 0.55A Output: 12Vdc, 2A Power line: 1.6m cable with one core attached on adapter
2	Coaxial cable x3	-	-	2.7m shielded coaxial cable w/o core
3	Coaxial cable x1	-	-	2m shielded coaxial cable w/o core

- The antennas used in this EUT are listed as below table: (Optional)

NO.	TYPE	BRAND	MODEL	CONNECTOR	GAIN (dBi) Excluding cable loss
1	Patch	AWID	ANT-915LA2x2	TNC RP	12.43
2	Patch	AWID	ANT-915-CPS	TNC RP	5.84
3	Patch	AWID	ANT-915-CP-R	SMA RP	5.5
4	Patch	AWID	ANT-915-CPS	TNC RP	5.84

* Antennas 1 and 2 were chosen for final test.

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

3.2 DESCRIPTION OF TEST MODES

125 channels are provided to this EUT:

CH.	FREQ. (MHz)	CH.	FREQ. (MHz)	CH.	FREQ. (MHz)	CH.	FREQ. (MHz)	CH.	FREQ. (MHz)
0	902.60	25	907.60	50	912.60	75	917.60	100	922.60
1	902.80	26	907.80	51	912.80	76	917.80	101	922.80
2	903.00	27	908.00	52	913.00	77	918.00	102	923.00
3	903.20	28	908.20	53	913.20	78	918.20	103	923.20
4	903.40	29	908.40	54	913.40	79	918.40	104	923.40
5	903.60	30	908.60	55	913.60	80	918.60	105	923.60
6	903.80	31	908.80	56	913.80	81	918.80	106	923.80
7	904.00	32	909.00	57	914.00	82	919.00	107	924.00
8	904.20	33	909.20	58	914.20	83	919.20	108	924.20
9	904.40	34	909.40	59	914.40	84	919.40	109	924.40
10	904.60	35	909.60	60	914.60	85	919.60	110	924.60
11	904.80	36	909.80	61	914.80	86	919.80	111	924.80
12	905.00	37	910.00	62	915.00	87	920.00	112	925.00
13	905.20	38	910.20	63	915.20	88	920.20	113	925.20
14	905.40	39	910.40	64	915.40	89	920.40	114	925.40
15	905.60	40	910.60	65	915.60	90	920.60	115	925.60
16	905.80	41	910.80	66	915.80	91	920.80	116	925.80
17	906.00	42	911.00	67	916.00	92	921.00	117	926.00
18	906.20	43	911.20	68	916.20	93	921.20	118	926.20
19	906.40	44	911.40	69	916.40	94	921.40	119	926.40
20	906.60	45	911.60	70	916.60	95	921.60	120	926.60
21	906.80	46	911.80	71	916.80	96	921.80	121	926.80
22	907.00	47	912.00	72	917.00	97	922.00	122	927.00
23	907.20	48	912.20	73	917.20	98	922.20	123	927.20
24	907.40	49	912.40	74	917.40	99	922.40	124	927.40

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 with antenna 1
B	√	√	√	√	EUT with antenna 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: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane of EUT and Z-plane of antenna.**

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 TYPE
A, B	0 to 124	0, 62, 124	PR-ASK

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 TYPE
A, B	0 to 124	0, 62, 124	PR-ASK

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 TYPE
A, B	0 to 124	0, 62, 124	PR-ASK



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BANDEDGE MEASUREMENT:

- ☒ 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 TYPE
A, B	0 to 124	0, 124	PR-ASK

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 TYPE
A, B	0 to 124	0, 62, 124	PR-ASK

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	22deg. C, 72%RH	120Vac, 60Hz	Nick Hsu
RE<1G	22deg. C, 72%RH	120Vac, 60Hz	Nick Hsu
PLC	25deg. C, 70%RH	120Vac, 60Hz	Jones Chang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jun Wu

3.3 DESCRIPTION OF SUPPORT UNITS

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

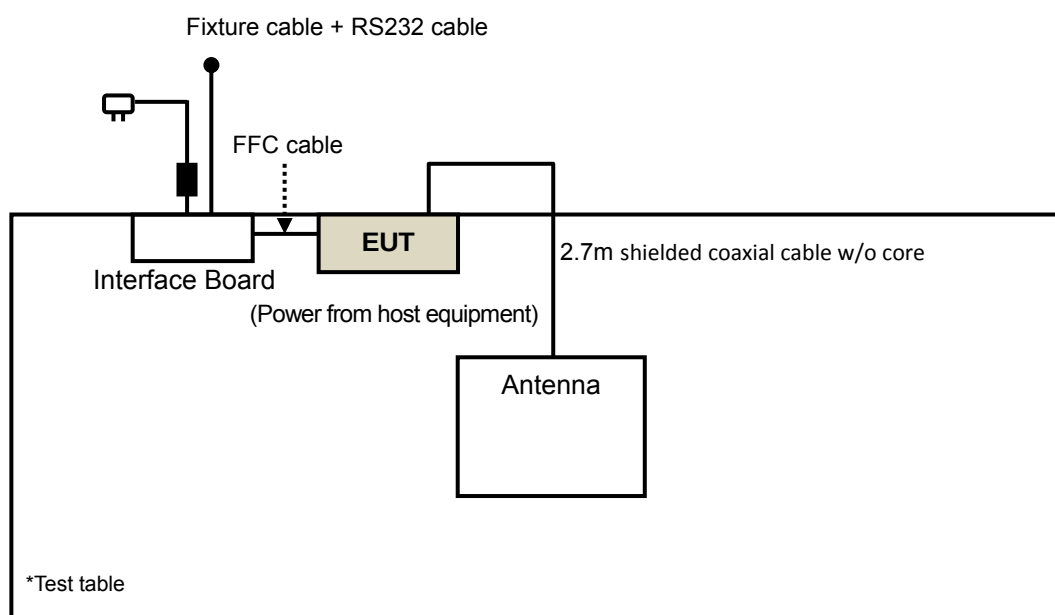
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Interface Board	NA	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	0.3m fixture cable + 1.5m RS232 cable and 0.25m FFC cable

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 was provided by the client.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST





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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 C63.10-2009

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). 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

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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	ESIB7	100187	Jan. 02, 2014	Jan. 01, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Mar. 03, 2014	Mar. 02, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Feb. 26, 2014	Feb. 25, 2015
HORN Antenna SCHWARZBECK	9120D	209	Aug. 25, 2014	Aug. 24, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 17, 2014	Feb. 16, 2015
Loop Antenna	HFH2-Z2	100070	Mar. 06, 2014	Mar. 05, 2016
Preamplifier Agilent	8447D	2944A10633	Oct. 07, 2014	Oct. 05, 2015
Preamplifier Agilent	8449B	3008A01964	Aug. 22, 2014	Aug. 21, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	214378/4	Aug. 22, 2014	Aug. 21, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6 +309224/4	Aug. 22, 2014	Aug. 21, 2015
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	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. 26, 2014	Jul. 25, 2015
Power Sensor	MA2411B	0738171	Jul. 26, 2014	Jul. 25, 2015

- 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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. The test was performed in HwaYa Chamber 3.
 4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 5. The FCC Site Registration No. is 988962.
 6. The IC Site Registration No. is IC 7450F-3.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. 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. Height of receiving 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

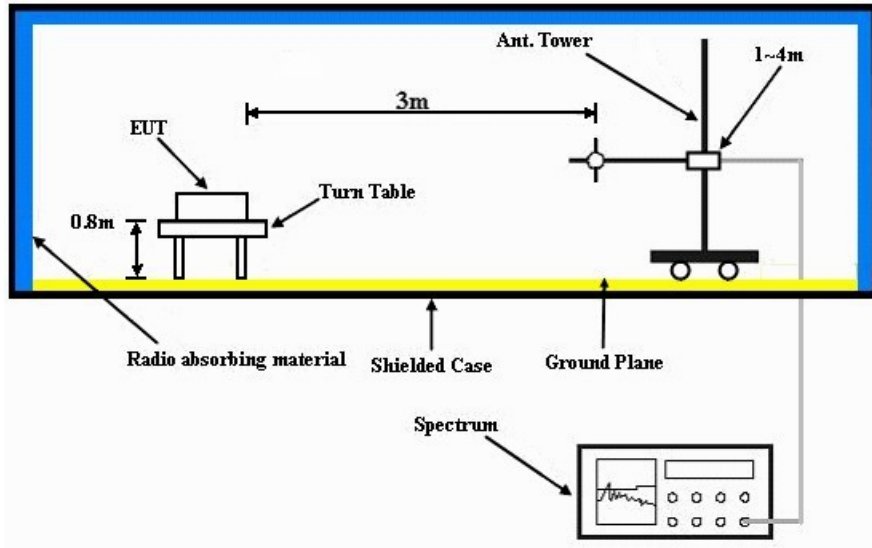
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $> 98\%$) 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

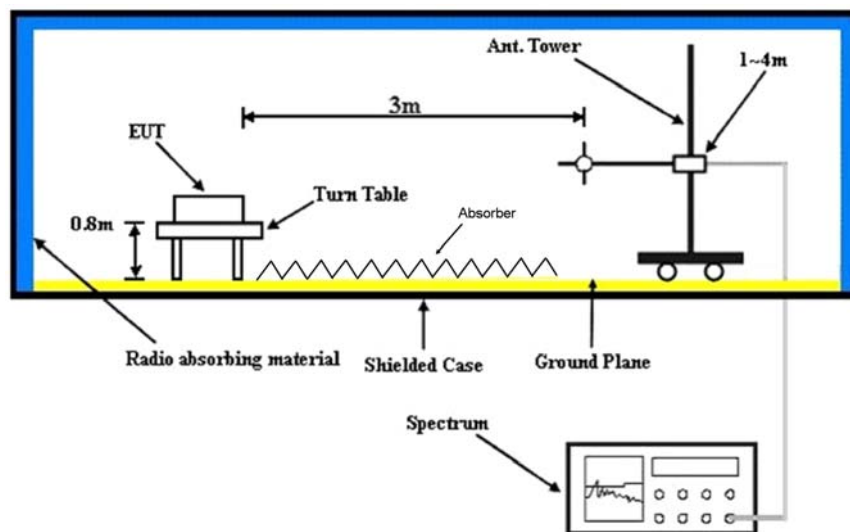
No deviation.

4.1.5 TEST SETUP

Frequency range 30MHz~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

- Placed the EUT on a testing table.
- Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

Test Mode A

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	68.7 PK	109.4	-40.7	1.19 H	349	41.00	27.70
2	#902.00	65.1 AV	108.8	-43.7	1.19 H	349	37.40	27.70
3	*902.60	129.4 PK			1.20 H	349	101.70	27.70
4	*902.60	128.8 AV			1.20 H	349	101.10	27.70
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	54.9 PK	93.5	-38.6	1.70 V	15	27.20	27.70
2	#902.00	50.6 AV	92.8	-42.2	1.70 V	15	22.90	27.70
3	*902.60	113.5 PK			1.76 V	11	85.80	27.70
4	*902.60	112.8 AV			1.76 V	11	85.10	27.70

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 the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	*915.00	129.0 PK			1.15 H	354	101.00	28.00
2	*915.00	128.6 AV			1.15 H	354	100.60	28.00
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	*915.00	113.5 PK			1.54 V	344	85.50	28.00
2	*915.00	112.7 AV			1.54 V	344	84.70	28.00

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 124	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	*927.40	129.4 PK			1.16 H	356	101.20	28.20
2	*927.40	128.4 AV			1.16 H	356	100.20	28.20
3	#928.00	67.6 PK	109.4	-41.8	1.18 H	354	39.40	28.20
4	#928.00	64.7 AV	108.4	-43.7	1.18 H	354	36.50	28.20
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	*927.40	113.0 PK			1.73 V	30	84.80	28.20
2	*927.40	112.7 AV			1.73 V	30	84.50	28.20
3	#928.00	57.7 PK	93.0	-35.3	1.76 V	15	29.50	28.20
4	#928.00	54.7 AV	92.7	-38.0	1.76 V	15	26.50	28.20

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.
5. “ * “: Fundamental frequency.
6. “ # “: The radiated frequency is out the restricted band.

ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	1805.20	40.7 PK	74.0	-33.3	1.20 H	336	44.20	-3.50
2	1805.20	29.6 AV	54.0	-24.4	1.20 H	336	33.10	-3.50
3	2707.80	45.0 PK	74.0	-29.0	1.02 H	273	45.20	-0.20
4	2707.80	37.2 AV	54.0	-16.8	1.02 H	273	37.40	-0.20
5	3610.40	51.7 PK	74.0	-22.3	1.00 H	200	50.10	1.60
6	3610.40	47.4 AV	54.0	-6.6	1.00 H	200	45.80	1.60
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	1805.20	40.3 PK	74.0	-33.7	1.03 V	246	43.80	-3.50
2	1805.20	31.6 AV	54.0	-22.4	1.03 V	246	35.10	-3.50
3	2707.80	42.4 PK	74.0	-31.6	1.43 V	231	42.60	-0.20
4	2707.80	31.0 AV	54.0	-23.0	1.43 V	231	31.20	-0.20
5	3610.40	50.9 PK	74.0	-23.1	1.02 V	211	49.30	1.60
6	3610.40	46.3 AV	54.0	-7.7	1.02 V	211	44.70	1.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	1830.00	41.2 PK	74.0	-32.8	1.02 H	154	44.70	-3.50
2	1830.00	25.8 AV	54.0	-28.2	1.02 H	154	29.30	-3.50
3	2745.00	41.4 PK	74.0	-32.6	1.32 H	337	41.40	0.00
4	2745.00	28.1 AV	54.0	-25.9	1.32 H	337	28.10	0.00
5	3660.00	49.6 PK	74.0	-24.4	1.20 H	213	47.70	1.90
6	3660.00	44.2 AV	54.0	-9.8	1.20 H	213	42.30	1.90
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	1830.00	40.6 PK	74.0	-33.4	1.01 V	329	44.10	-3.50
2	1830.00	26.1 AV	54.0	-27.9	1.01 V	329	29.60	-3.50
3	2745.00	41.4 PK	74.0	-32.6	1.16 V	134	41.40	0.00
4	2745.00	28.3 AV	54.0	-25.7	1.16 V	134	28.30	0.00
5	3660.00	49.8 PK	74.0	-24.2	1.04 V	121	47.90	1.90
6	3660.00	45.1 AV	54.0	-8.9	1.04 V	121	43.20	1.90

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 124	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	1854.80	38.1 PK	74.0	-35.9	1.02 H	167	41.50	-3.40
2	1854.80	28.7 AV	54.0	-25.3	1.02 H	167	32.10	-3.40
3	2782.20	43.9 PK	74.0	-30.1	1.11 H	329	43.70	0.20
4	2782.20	36.7 AV	54.0	-17.3	1.11 H	329	36.50	0.20
5	3709.60	48.3 PK	74.0	-25.7	1.07 H	182	46.30	2.00
6	3709.60	42.2 AV	54.0	-11.8	1.07 H	182	40.20	2.00
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	1854.80	38.8 PK	74.0	-35.2	1.28 V	194	42.20	-3.40
2	1854.80	30.5 AV	54.0	-23.5	1.28 V	194	33.90	-3.40
3	2782.20	41.7 PK	74.0	-32.3	1.06 V	132	41.50	0.20
4	2782.20	31.2 AV	54.0	-22.8	1.06 V	132	31.00	0.20
5	3709.60	51.1 PK	74.0	-22.9	1.00 V	211	49.10	2.00
6	3709.60	46.3 AV	54.0	-7.7	1.00 V	211	44.30	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

BELOW 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	59.06	22.6 QP	40.0	-17.4	1.50 H	235	37.20	-14.60
2	135.10	32.1 QP	43.5	-11.4	1.50 H	273	46.80	-14.70
3	156.88	24.0 QP	43.5	-19.5	1.50 H	247	37.60	-13.60
4	208.97	21.5 QP	43.5	-22.0	1.50 H	238	37.90	-16.40
5	702.62	28.6 QP	46.0	-17.4	1.50 H	7	32.60	-4.00
6	889.48	44.1 QP	46.0	-1.9	1.50 H	351	44.60	-0.50
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	39.92	32.1 QP	40.0	-7.9	1.00 V	9	47.20	-15.10
2	61.01	32.1 QP	40.0	-7.9	1.00 V	9	47.00	-14.90
3	135.09	25.0 QP	43.5	-18.5	1.00 V	306	39.70	-14.70
4	208.97	21.5 QP	43.5	-22.0	1.00 V	157	37.90	-16.40
5	344.87	19.8 QP	46.0	-26.2	1.50 V	345	31.10	-11.30
6	891.52	31.7 QP	46.0	-14.3	1.00 V	354	32.20	-0.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	59.16	21.0 QP	40.0	-19.0	1.50 H	233	35.70	-14.70
2	134.59	30.5 QP	43.5	-13.0	1.50 H	294	45.20	-14.70
3	207.13	23.3 QP	43.5	-20.2	1.00 H	250	39.70	-16.40
4	572.56	28.1 QP	46.0	-17.9	1.00 H	292	34.90	-6.80
5	702.92	29.0 QP	46.0	-17.0	1.50 H	356	33.00	-4.00
6	860.41	33.9 QP	46.0	-12.1	1.50 H	5	34.80	-0.90
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	40.12	32.3 QP	40.0	-7.7	1.00 V	330	47.40	-15.10
2	59.56	33.2 QP	40.0	-6.8	1.50 V	328	47.90	-14.70
3	134.89	24.6 QP	43.5	-18.9	1.00 V	296	39.30	-14.70
4	201.30	21.4 QP	43.5	-22.1	1.00 V	161	37.90	-16.50
5	379.87	19.2 QP	46.0	-26.8	1.00 V	263	29.70	-10.50
6	829.20	26.9 QP	46.0	-19.1	1.50 V	307	28.30	-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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 124	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	135.39	31.9 QP	43.5	-11.6	1.50 H	265	46.60	-14.70
2	208.97	22.5 QP	43.5	-21.0	1.01 H	240	38.90	-16.40
3	572.76	26.5 QP	46.0	-19.5	1.01 H	289	33.30	-6.80
4	727.40	29.7 QP	46.0	-16.3	1.01 H	14	33.20	-3.50
5	856.42	32.6 QP	46.0	-13.4	1.01 H	14	33.60	-1.00
6	941.97	39.6 QP	46.0	-6.4	1.01 H	358	38.80	0.80
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	39.82	32.1 QP	40.0	-7.9	1.00 V	39	47.20	-15.10
2	59.36	33.2 QP	40.0	-6.8	1.49 V	4	47.90	-14.70
3	134.89	24.8 QP	43.5	-18.7	1.00 V	89	39.50	-14.70
4	218.90	21.4 QP	46.0	-24.6	1.00 V	342	37.50	-16.10
5	778.75	26.3 QP	46.0	-19.7	1.00 V	283	28.30	-2.00
6	866.24	28.8 QP	46.0	-17.2	1.00 V	298	29.70	-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



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Test Mode B

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	65.0 PK	110.6	-45.6	1.35 H	342	37.30	27.70
2	#902.00	63.7 AV	110.1	-46.4	1.35 H	342	36.00	27.70
3	*902.60	130.6 PK			1.34 H	343	102.90	27.70
4	*902.60	130.1 AV			1.34 H	343	102.40	27.70
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	65.4 PK	111.2	-45.8	1.06 V	350	37.70	27.70
2	#902.00	63.9 AV	110.4	-46.5	1.06 V	350	36.20	27.70
3	*902.60	131.2 PK			1.00 V	349	103.50	27.70
4	*902.60	130.4 AV			1.00 V	349	102.70	27.70

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 the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	*915.00	130.6 PK			1.34 H	333	102.60	28.00
2	*915.00	130.2 AV			1.34 H	333	102.20	28.00
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	*915.00	131.9 PK			1.00 V	348	103.90	28.00
2	*915.00	131.3 AV			1.00 V	348	103.30	28.00

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 124	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	*927.40	131.1 PK			1.30 H	346	102.90	28.20
2	*927.40	130.7 AV			1.30 H	346	102.50	28.20
3	#928.00	66.3 PK	111.1	-44.8	1.27 H	344	38.10	28.20
4	#928.00	65.6 AV	110.7	-45.1	1.27 H	344	37.40	28.20
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	*927.40	132.0 PK			1.00 V	348	103.80	28.20
2	*927.40	131.6 AV			1.00 V	348	103.40	28.20
3	#928.00	66.1 PK	112.0	-45.9	1.00 V	349	37.90	28.20
4	#928.00	65.3 AV	111.6	-46.3	1.00 V	349	37.10	28.20

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.
5. “ * “: Fundamental frequency.
6. “ # “: The radiated frequency is out the restricted band.

ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	1805.20	47.1 PK	74.0	-26.9	1.02 H	351	50.60	-3.50
2	1805.20	42.2 AV	54.0	-11.8	1.02 H	351	45.70	-3.50
3	2707.00	41.6 PK	74.0	-32.4	1.00 H	342	41.80	-0.20
4	2707.00	33.9 AV	54.0	-20.1	1.00 H	342	34.10	-0.20
5	3610.40	49.0 PK	74.0	-25.0	1.06 H	176	47.40	1.60
6	3610.40	44.4 AV	54.0	-9.6	1.06 H	176	42.80	1.60
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	1805.20	47.6 PK	74.0	-26.4	1.64 V	335	51.10	-3.50
2	1805.20	45.1 AV	54.0	-8.9	1.64 V	335	48.60	-3.50
3	2707.00	43.0 PK	74.0	-31.0	1.46 V	341	43.20	-0.20
4	2707.00	34.5 AV	54.0	-19.5	1.46 V	341	34.70	-0.20
5	3610.00	50.0 PK	74.0	-24.0	1.39 V	110	48.40	1.60
6	3610.00	45.8 AV	54.0	-8.2	1.39 V	110	44.20	1.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	1830.00	47.2 PK	74.0	-26.8	1.00 H	331	50.70	-3.50
2	1830.00	45.0 AV	54.0	-9.0	1.00 H	331	48.50	-3.50
3	2745.00	41.3 PK	74.0	-32.7	1.20 H	307	41.30	0.00
4	2745.00	30.3 AV	54.0	-23.7	1.20 H	307	30.30	0.00
5	3660.00	48.6 PK	74.0	-25.4	1.20 H	157	46.70	1.90
6	3660.00	43.3 AV	54.0	-10.7	1.20 H	157	41.40	1.90
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	1830.00	47.6 PK	74.0	-26.4	1.61 V	307	51.10	-3.50
2	1830.00	45.1 AV	54.0	-8.9	1.61 V	307	48.60	-3.50
3	2745.00	41.2 PK	74.0	-32.8	1.28 V	336	41.20	0.00
4	2745.00	32.0 AV	54.0	-22.0	1.28 V	336	32.00	0.00
5	3660.00	47.8 PK	74.0	-26.2	1.06 V	144	45.90	1.90
6	3660.00	42.9 AV	54.0	-11.1	1.06 V	144	41.00	1.90

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 124	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	1854.80	42.3 PK	74.0	-31.7	1.02 H	319	45.70	-3.40
2	1854.80	38.5 AV	54.0	-15.5	1.02 H	319	41.90	-3.40
3	2782.20	40.8 PK	74.0	-33.2	1.02 H	100	40.60	0.20
4	2782.20	28.9 AV	54.0	-25.1	1.02 H	100	28.70	0.20
5	3709.60	47.7 PK	74.0	-26.3	1.00 H	201	45.70	2.00
6	3709.60	42.9 AV	54.0	-11.1	1.00 H	201	40.90	2.00
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	1854.80	43.5 PK	74.0	-30.5	1.25 V	339	46.90	-3.40
2	1854.80	39.4 AV	54.0	-14.6	1.25 V	339	42.80	-3.40
3	2782.20	40.9 PK	74.0	-33.1	1.64 V	312	40.70	0.20
4	2782.20	29.3 AV	54.0	-24.7	1.64 V	312	29.10	0.20
5	3709.60	48.0 PK	74.0	-26.0	1.03 V	191	46.00	2.00
6	3709.60	42.7 AV	54.0	-11.3	1.03 V	191	40.70	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

BELOW 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	39.62	24.2 QP	40.0	-15.8	2.00 H	99	39.30	-15.10
2	115.45	26.2 QP	43.5	-17.3	1.50 H	11	42.90	-16.70
3	257.38	22.1 QP	46.0	-23.9	1.00 H	203	36.00	-13.90
4	364.32	23.7 QP	46.0	-22.3	1.00 H	286	34.70	-11.00
5	702.62	36.4 QP	46.0	-9.6	1.00 H	7	40.70	-4.30
6	891.78	41.8 QP	46.0	-4.2	1.28 H	0	42.60	-0.80
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	39.80	30.6 QP	40.0	-9.4	1.00 V	327	45.70	-15.10
2	61.31	33.0 QP	40.0	-7.0	1.49 V	15	47.90	-14.90
3	115.97	21.0 QP	43.5	-22.5	1.99 V	91	37.50	-16.50
4	702.42	31.8 QP	46.0	-14.2	1.49 V	333	35.80	-4.00
5	888.33	45.0 QP	46.0	-1.0	1.09 V	0	45.50	-0.50
6	928.41	40.7 QP	46.0	-5.3	1.00 V	331	40.10	0.60

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	117.87	25.3 QP	43.5	-18.2	1.49 H	341	41.50	-16.20
2	134.89	27.4 QP	43.5	-16.1	1.49 H	15	42.10	-14.70
3	220.97	23.5 QP	46.0	-22.5	1.49 H	185	39.50	-16.00
4	716.53	34.4 QP	46.0	-11.6	1.49 H	15	38.20	-3.80
5	901.89	41.4 QP	46.0	-4.6	1.49 H	346	41.40	0.00
6	928.70	43.5 QP	46.0	-2.5	1.23 H	337	42.90	0.60
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	61.41	27.4 QP	40.0	-12.6	1.49 V	15	42.30	-14.90
2	115.75	20.6 QP	43.5	-22.9	1.49 V	104	37.10	-16.50
3	137.16	20.6 QP	43.5	-22.9	1.49 V	90	35.20	-14.60
4	716.83	31.9 QP	46.0	-14.1	1.49 V	341	35.70	-3.80
5	898.14	38.5 QP	46.0	-7.5	1.00 V	6	38.70	-0.20
6	928.68	43.5 QP	46.0	-2.5	1.00 V	0	42.90	0.60

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 124	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 72%RH	TESTED BY	Nick Hsu

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	115.45	25.3 QP	43.5	-18.2	1.00 H	11	41.90	-16.60
2	137.04	26.5 QP	43.5	-17.0	1.99 H	250	41.10	-14.60
3	364.72	24.6 QP	46.0	-21.4	1.00 H	66	35.30	-10.70
4	728.40	38.2 QP	46.0	-7.8	1.00 H	15	41.70	-3.50
5	902.89	36.1 QP	46.0	-9.9	1.49 H	9	36.10	0.00
6	941.97	42.7 QP	46.0	-3.3	1.99 H	325	41.90	0.80
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	39.92	32.1 QP	40.0	-7.9	1.00 V	29	47.20	-15.10
2	61.01	32.8 QP	40.0	-7.2	1.50 V	14	47.70	-14.90
3	115.75	21.5 QP	43.5	-22.0	2.00 V	117	38.00	-16.50
4	727.90	34.1 QP	46.0	-11.9	1.00 V	3	37.60	-3.50
5	889.38	37.3 QP	46.0	-8.7	1.00 V	348	37.80	-0.50
6	941.97	43.9 QP	46.0	-2.1	1.00 V	348	43.10	0.80

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 OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	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.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 29, 2013	Nov. 28, 2014
Test Receiver ROHDE & SCHWARZ	ESCI	100612	Sep. 30, 2014	Sep. 29, 2015
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 13, 2014	Feb. 12, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 21, 2014	Jul. 20, 2015
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

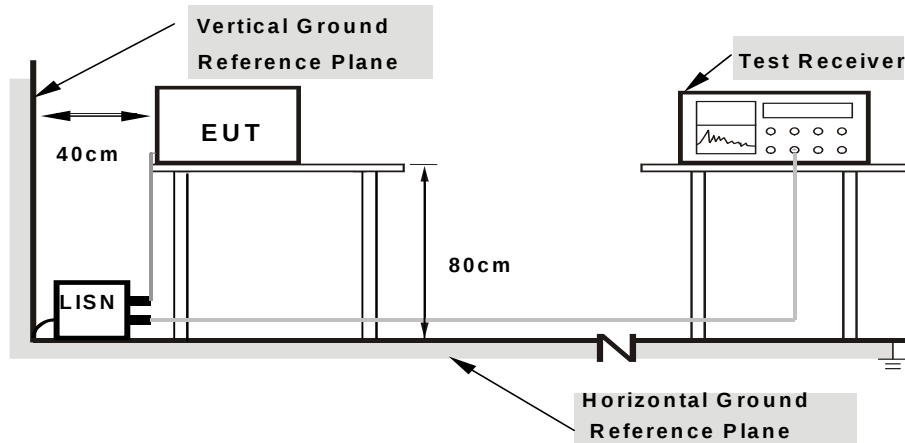
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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: All modes of operation were investigated and the worst-case emissions are reported.

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 cm 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 CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

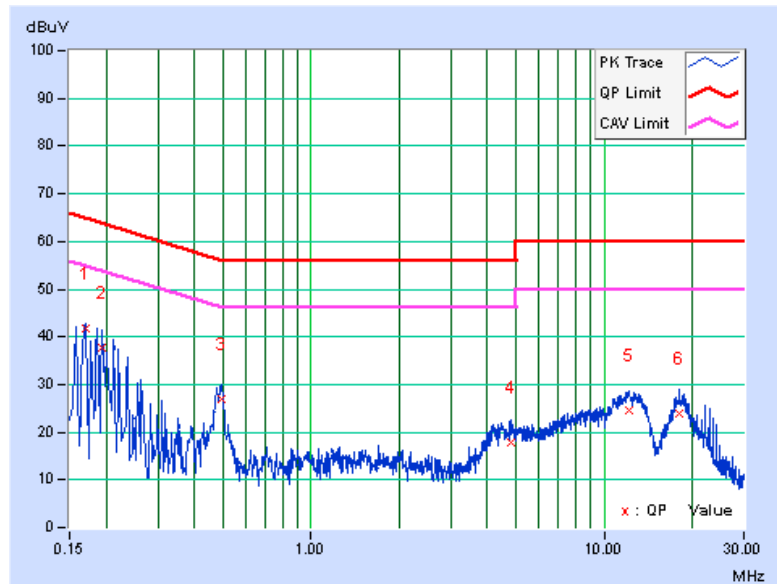
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 0	TEST MODE	A

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	0.16955	0.10	41.79	18.84	41.89	18.94	64.98	54.98	-23.09	-36.04
2	0.19301	0.09	37.73	15.01	37.82	15.10	63.91	53.91	-26.08	-38.80
3	0.49324	0.13	26.69	15.61	26.82	15.74	56.11	46.11	-29.30	-30.38
4	4.82245	0.30	17.56	7.83	17.86	8.13	56.00	46.00	-38.14	-37.87
5	12.13415	0.67	23.97	14.44	24.64	15.11	60.00	50.00	-35.36	-34.89
6	18.12427	1.00	22.82	14.10	23.82	15.10	60.00	50.00	-36.18	-34.90

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

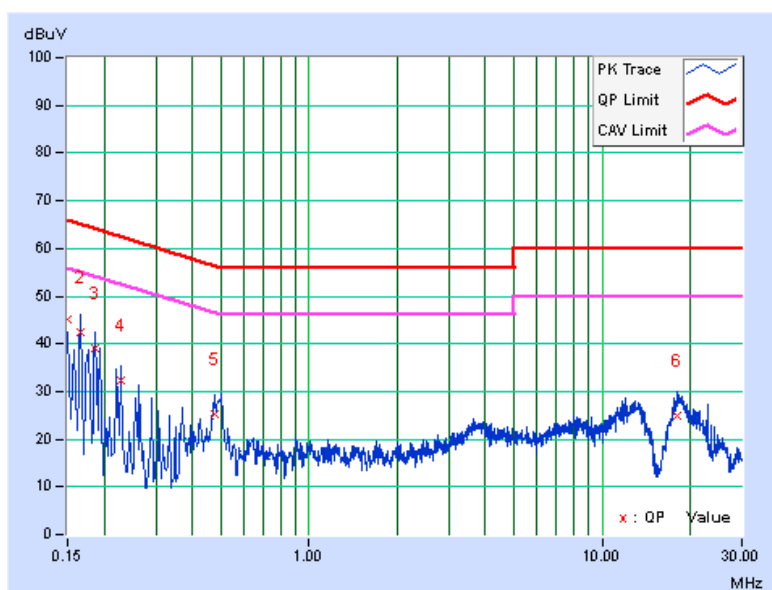


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 0	TEST MODE	A

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	0.15000	0.05	44.97	26.85	45.02	26.90	66.00	56.00	-20.98	-29.10
2	0.16564	0.06	42.39	19.35	42.45	19.41	65.18	55.18	-22.72	-35.76
3	0.18519	0.08	39.00	16.33	39.08	16.41	64.25	54.25	-25.17	-37.84
4	0.22820	0.10	32.38	17.66	32.48	17.76	62.51	52.51	-30.03	-34.75
5	0.47453	0.18	25.17	13.34	25.35	13.52	56.43	46.43	-31.09	-32.92
6	17.93659	0.92	23.84	15.65	24.76	16.57	60.00	50.00	-35.24	-33.43

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

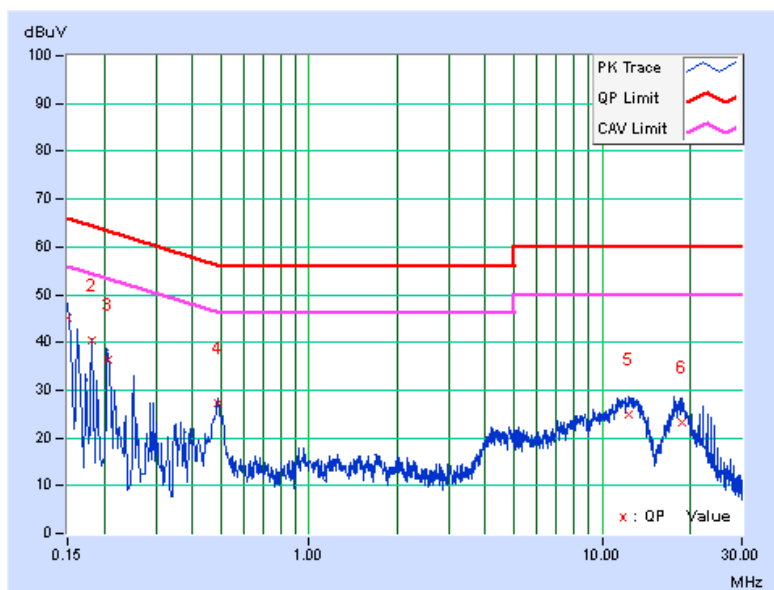


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 62	TEST MODE	A

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	0.15000	0.11	45.17	26.90	45.28	27.01	66.00	56.00	-20.72	-28.99
2	0.18128	0.10	40.18	17.25	40.28	17.35	64.43	54.43	-24.15	-37.08
3	0.20511	0.09	36.17	14.73	36.26	14.82	63.40	53.40	-27.14	-38.58
4	0.48626	0.12	27.01	15.71	27.13	15.83	56.23	46.23	-29.10	-30.40
5	12.35702	0.68	24.15	14.78	24.83	15.46	60.00	50.00	-35.17	-34.54
6	18.84371	1.05	22.14	12.84	23.19	13.89	60.00	50.00	-36.81	-36.11

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

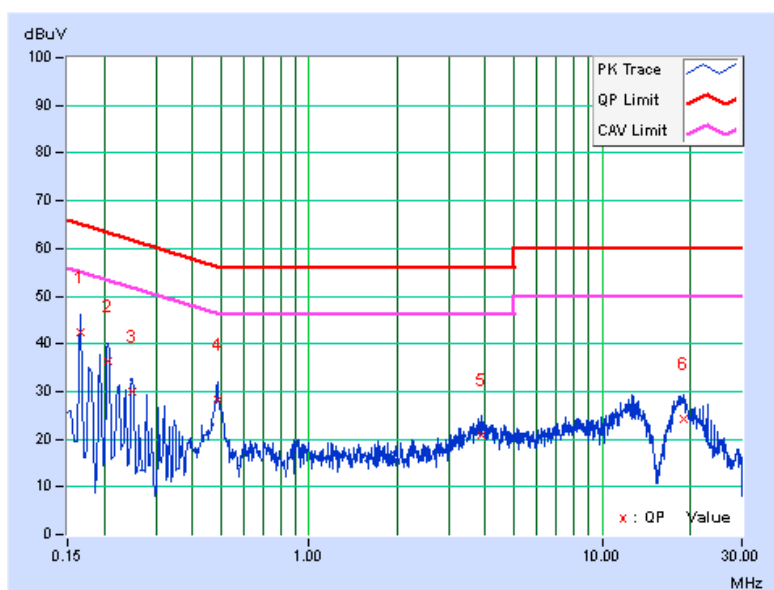


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 62	TEST MODE	A

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	0.16564	0.06	42.51	19.46	42.57	19.52	65.18	55.18	-22.60	-35.65
2	0.20511	0.09	36.19	14.76	36.28	14.85	63.40	53.40	-27.12	-38.55
3	0.24796	0.11	29.88	10.48	29.99	10.59	61.83	51.83	-31.84	-41.24
4	0.48626	0.18	27.95	16.46	28.13	16.64	56.23	46.23	-28.10	-29.59
5	3.89578	0.26	20.52	10.64	20.78	10.90	56.00	46.00	-35.22	-35.10
6	19.07440	0.98	23.40	13.89	24.38	14.87	60.00	50.00	-35.62	-35.13

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

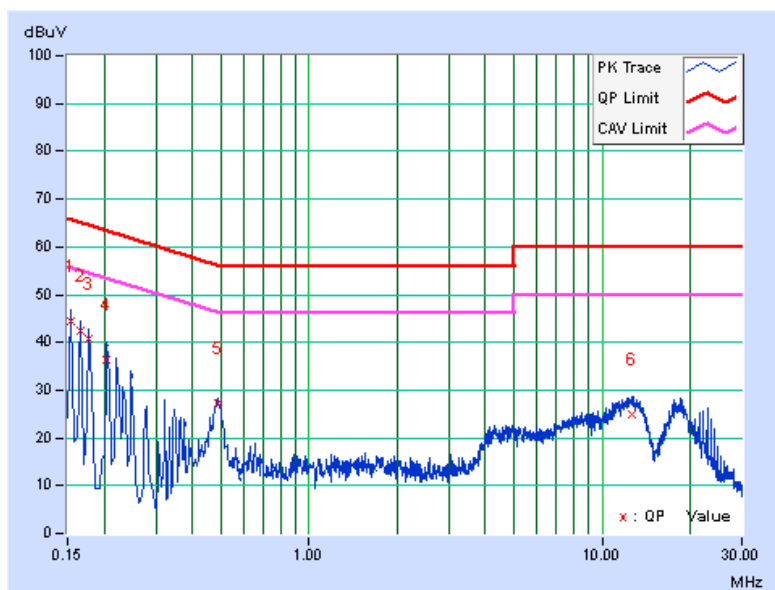


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 124	TEST MODE	A

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	0.15391	0.11	44.49	26.70	44.60	26.81	65.79	55.79	-21.19	-28.98
2	0.16564	0.10	42.25	19.34	42.35	19.44	65.18	55.18	-22.82	-35.73
3	0.17744	0.10	40.77	17.43	40.87	17.53	64.60	54.60	-23.74	-37.08
4	0.20474	0.09	36.33	14.77	36.42	14.86	63.42	53.42	-27.00	-38.56
5	0.48626	0.12	27.00	15.69	27.12	15.81	56.23	46.23	-29.11	-30.42
6	12.56425	0.69	24.37	14.91	25.06	15.60	60.00	50.00	-34.94	-34.40

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

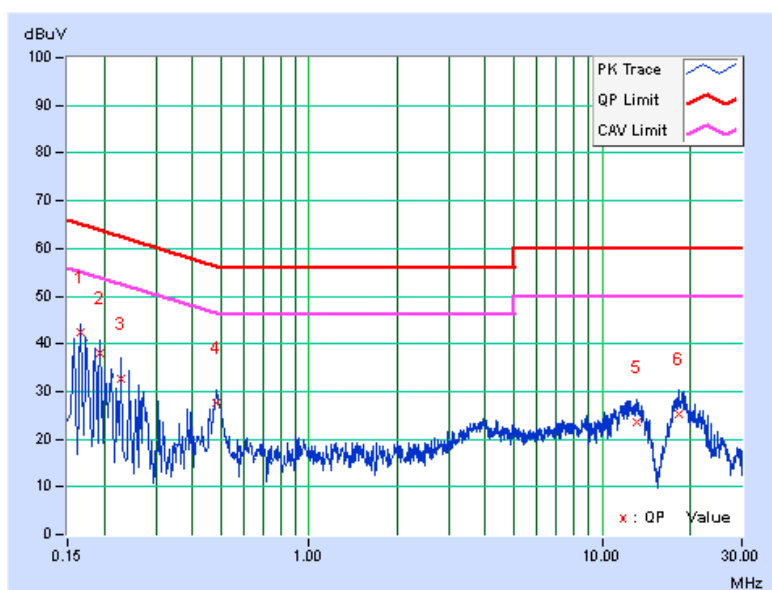


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 124	TEST MODE	A

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	0.16564	0.06	42.31	19.16	42.37	19.22	65.18	55.18	-22.80	-35.95
2	0.19301	0.08	37.81	15.03	37.89	15.11	63.91	53.91	-26.01	-38.79
3	0.22820	0.10	32.41	17.79	32.51	17.89	62.51	52.51	-30.00	-34.62
4	0.48295	0.18	27.51	15.67	27.69	15.85	56.29	46.29	-28.60	-30.44
5	13.20158	0.69	22.80	12.65	23.49	13.34	60.00	50.00	-36.51	-36.66
6	18.24157	0.94	24.42	15.77	25.36	16.71	60.00	50.00	-34.64	-33.29

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

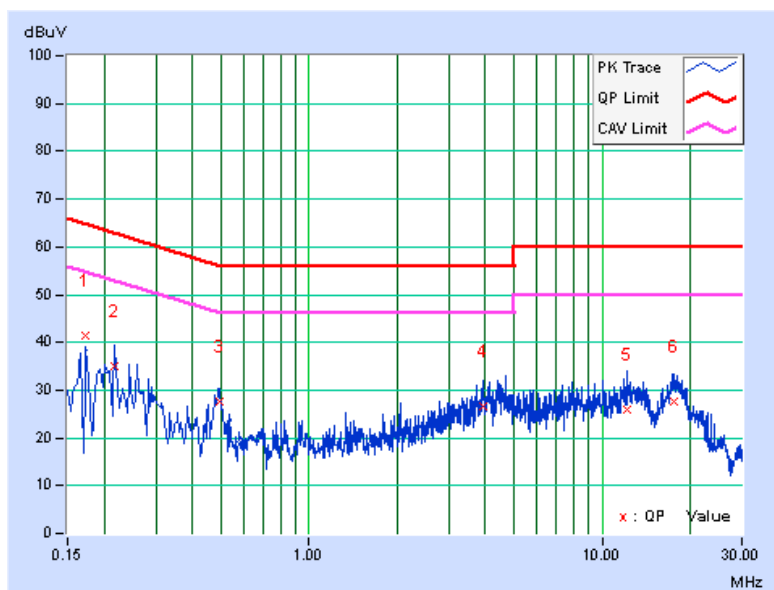


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 0	TEST MODE	B

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	0.17346	0.10	41.45	19.82	41.55	19.92	64.79	54.79	-23.24	-34.87
2	0.21647	0.09	34.96	18.07	35.05	18.16	62.95	52.95	-27.90	-34.79
3	0.49324	0.13	27.48	17.21	27.61	17.34	56.11	46.11	-28.51	-28.78
4	3.94270	0.26	26.32	17.24	26.58	17.50	56.00	46.00	-29.42	-28.50
5	12.22408	0.67	25.14	17.14	25.81	17.81	60.00	50.00	-34.19	-32.19
6	17.61206	0.98	26.52	19.69	27.50	20.67	60.00	50.00	-32.50	-29.33

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

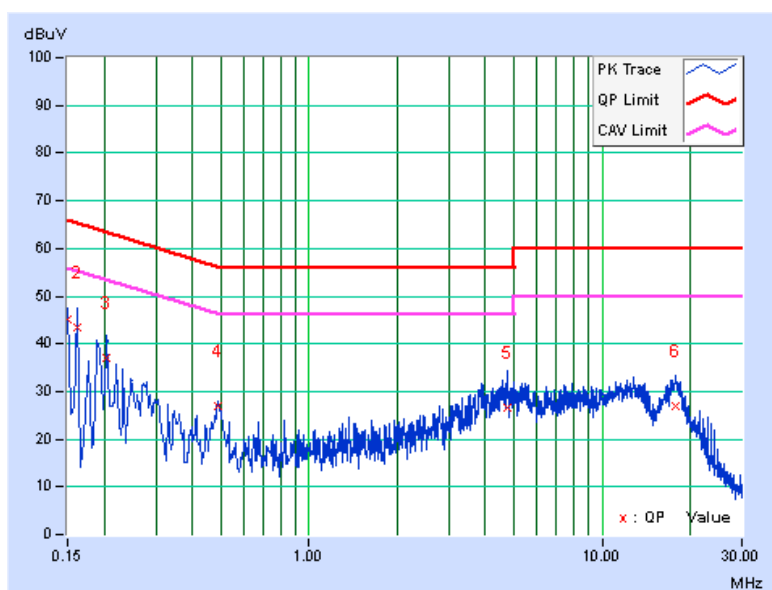


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 0	TEST MODE	B

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	0.15000	0.05	45.07	27.98	45.12	28.03	66.00	56.00	-20.88	-27.97
2	0.16173	0.06	43.33	20.88	43.39	20.94	65.37	55.37	-21.99	-34.44
3	0.20474	0.09	36.96	24.05	37.05	24.14	63.42	53.42	-26.36	-29.27
4	0.48626	0.18	26.83	16.44	27.01	16.62	56.23	46.23	-29.22	-29.61
5	4.72470	0.29	26.43	17.11	26.72	17.40	56.00	46.00	-29.28	-28.60
6	17.72154	0.91	25.91	19.12	26.82	20.03	60.00	50.00	-33.18	-29.97

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

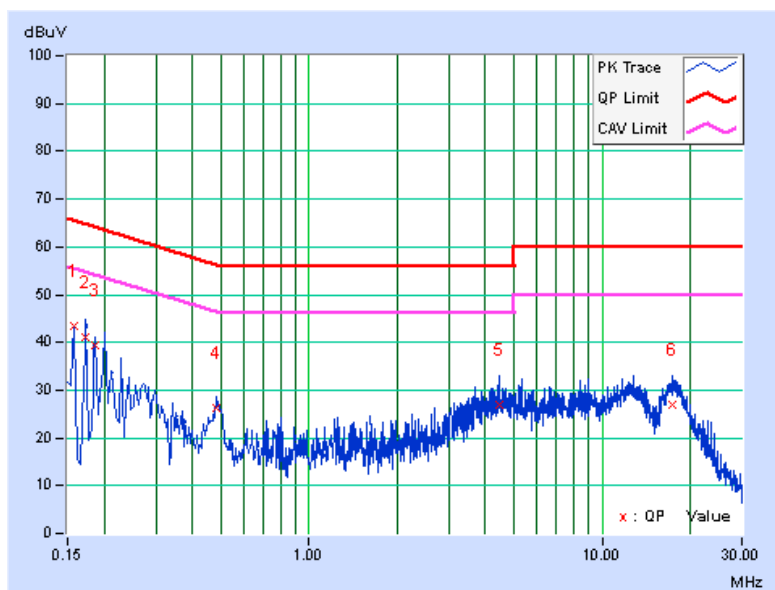


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 62	TEST MODE	B

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	0.15760	0.11	43.34	23.84	43.45	23.95	65.59	55.59	-22.14	-31.64
2	0.17346	0.10	41.12	19.62	41.22	19.72	64.79	54.79	-23.57	-35.07
3	0.18519	0.10	39.39	20.41	39.49	20.51	64.25	54.25	-24.76	-33.74
4	0.48235	0.12	26.24	15.40	26.36	15.52	56.30	46.30	-29.93	-30.77
5	4.46664	0.28	26.56	17.08	26.84	17.36	56.00	46.00	-29.16	-28.64
6	17.47521	0.97	26.03	19.64	27.00	20.61	60.00	50.00	-33.00	-29.39

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

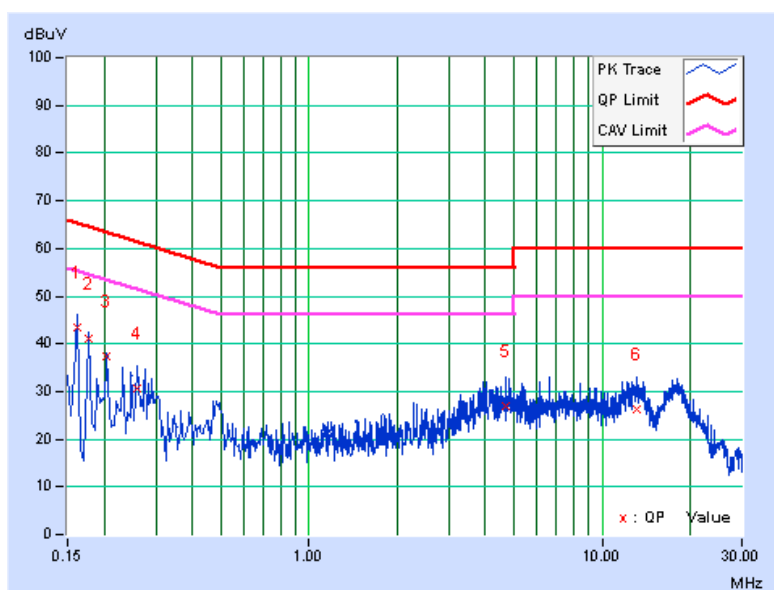


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 62	TEST MODE	B

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	0.16173	0.06	43.23	20.92	43.29	20.98	65.37	55.37	-22.09	-34.40
2	0.17737	0.07	41.01	20.07	41.08	20.14	64.61	54.61	-23.53	-34.47
3	0.20474	0.09	37.20	24.20	37.29	24.29	63.42	53.42	-26.12	-29.12
4	0.25948	0.11	30.62	19.69	30.73	19.80	61.45	51.45	-30.71	-31.64
5	4.70124	0.29	26.71	17.26	27.00	17.55	56.00	46.00	-29.00	-28.45
6	13.05691	0.69	25.56	17.25	26.25	17.94	60.00	50.00	-33.75	-32.06

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

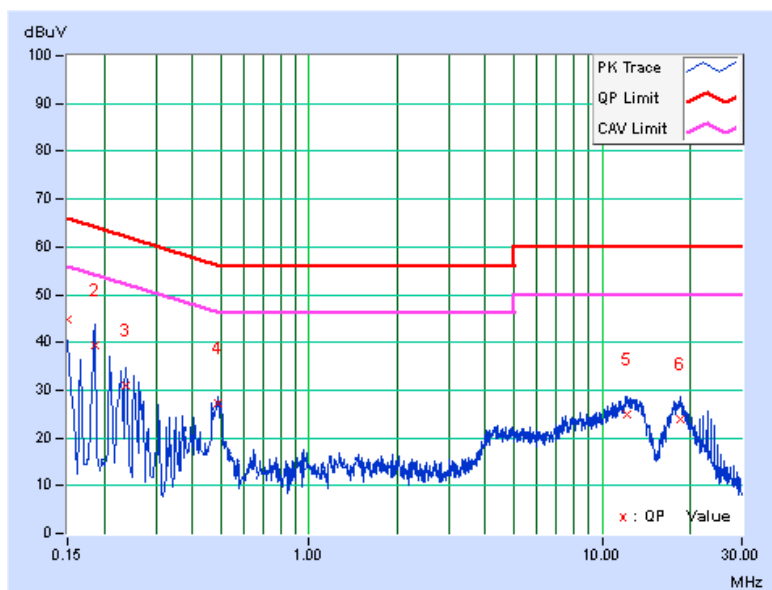


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 124	TEST MODE	B

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	0.15000	0.11	44.80	26.77	44.91	26.88	66.00	56.00	-21.09	-29.12
2	0.18519	0.10	39.20	16.56	39.30	16.66	64.25	54.25	-24.95	-37.59
3	0.23602	0.09	30.99	10.60	31.08	10.69	62.24	52.24	-31.15	-41.54
4	0.49017	0.13	27.08	15.95	27.21	16.08	56.16	46.16	-28.96	-30.09
5	12.20453	0.67	24.13	14.69	24.80	15.36	60.00	50.00	-35.20	-34.64
6	18.39797	1.02	22.77	13.32	23.79	14.34	60.00	50.00	-36.21	-35.66

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

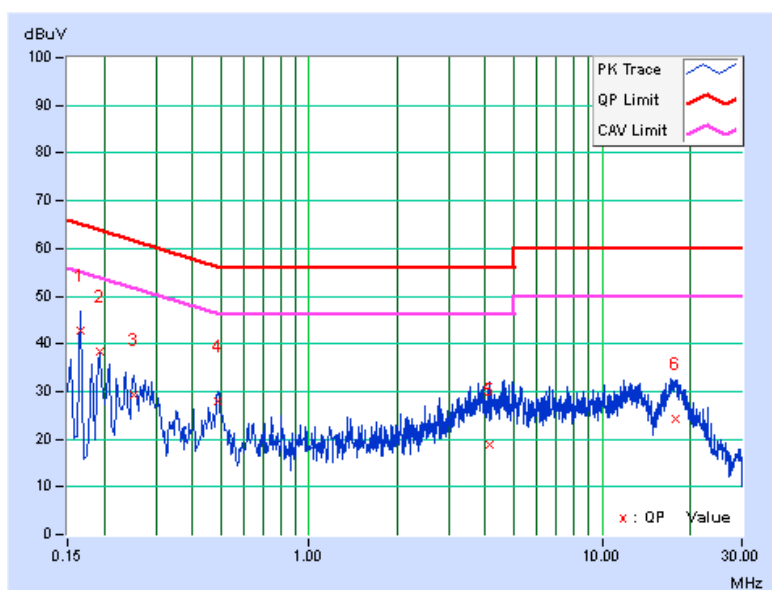


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 124	TEST MODE	B

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	0.16564	0.06	42.60	20.76	42.66	20.82	65.18	55.18	-22.51	-34.35
2	0.19305	0.08	38.26	24.84	38.34	24.92	63.90	53.90	-25.56	-28.98
3	0.25192	0.11	29.31	8.97	29.42	9.08	61.69	51.69	-32.27	-42.61
4	0.48935	0.18	27.83	17.47	28.01	17.65	56.18	46.18	-28.17	-28.53
5	4.15775	0.27	18.62	8.75	18.89	9.02	56.00	46.00	-37.11	-36.98
6	17.86621	0.92	23.49	14.32	24.41	15.24	60.00	50.00	-35.59	-34.76

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

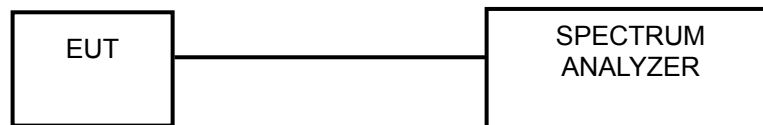


4.3 NUMBER OF HOPPING FREQUENCY USED

4.3.1 LIMIT OF HOPPING FREQUENCY USED

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 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. 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.
- d. Set the SA on View mode and then plot the result on SA screen.
- e. Repeat above procedures until all frequencies measured were complete.

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

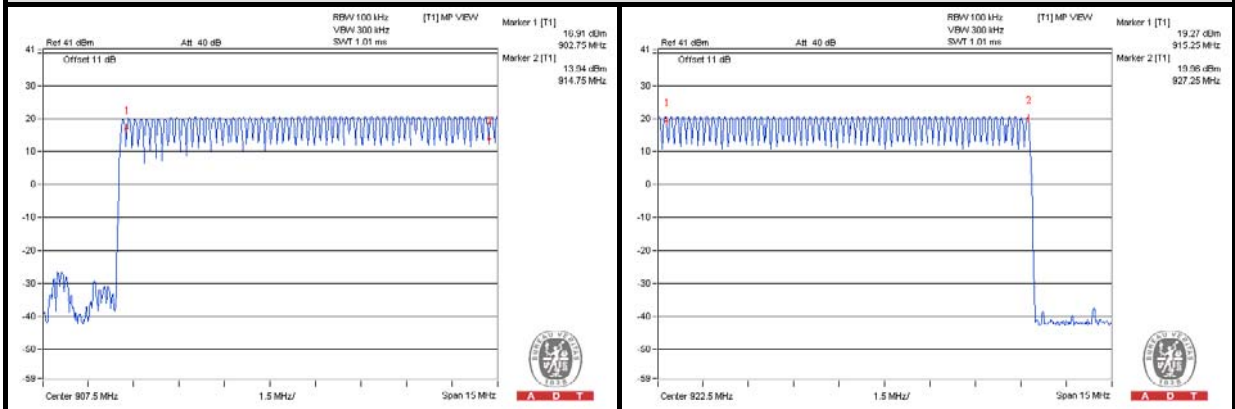
4.3.6 TEST RESULTS

There are 125 hopping frequencies in the hopping mode. Please refer to next page for the test result. On the plots, it shows that the hopping frequencies are equally spaced.

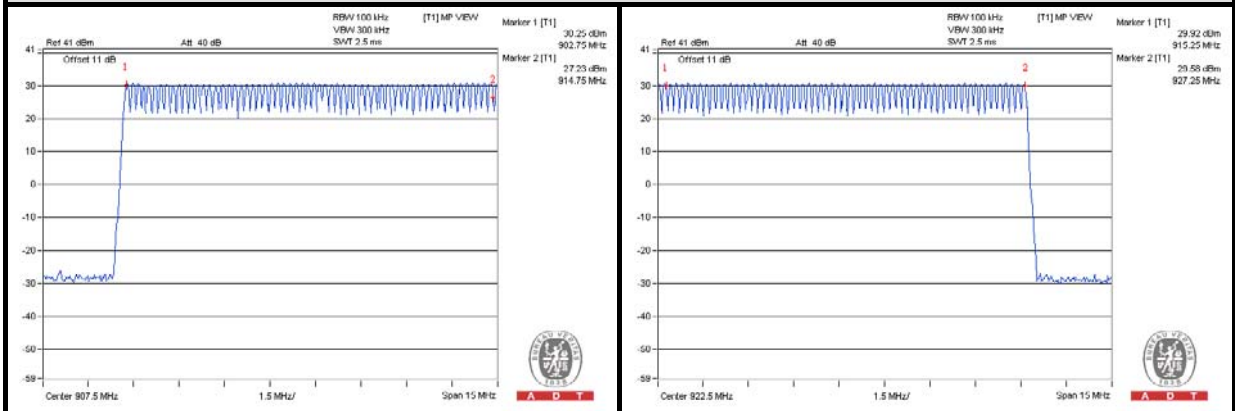


A D T

Test Mode A



Test Mode B

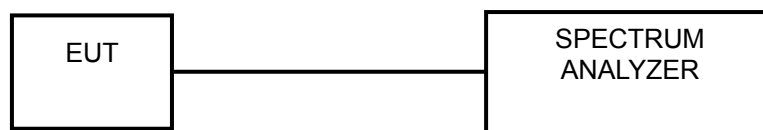


4.4 DWELL TIME ON EACH CHANNEL

4.4.1 LIMIT OF DWELL TIME USED

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

- 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.
- 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.
- Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
- Repeat above procedures until all different time-slot modes have been completed.

4.4.5 DEVIATION FROM TEST STANDARD

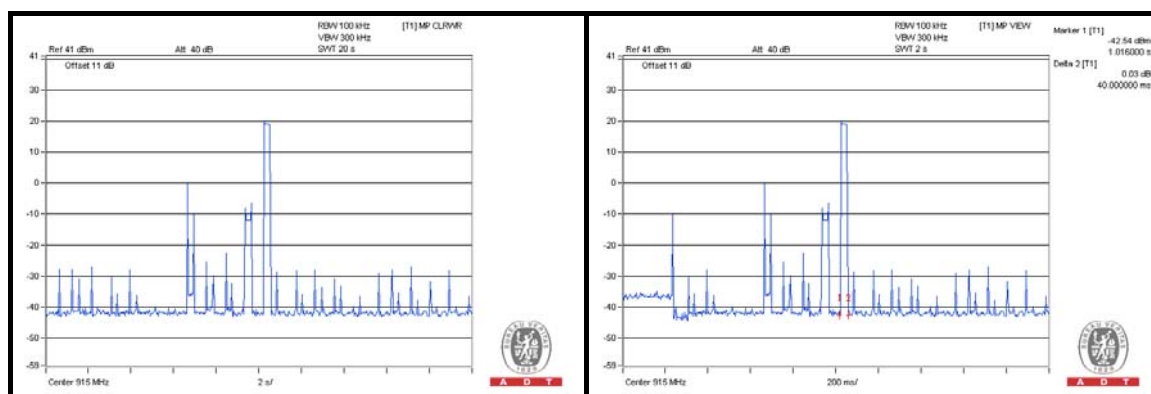
No deviation.

4.4.6 TEST RESULTS

Test Mode A

Length of transmission time (ms)	TX Burst of 20s period	Result	Limit
40	1	40ms / 20s	400ms / 20s

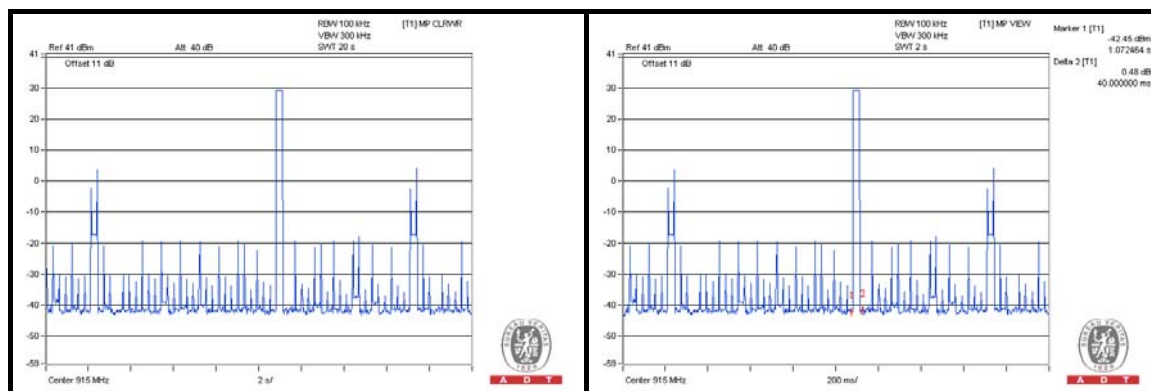
NOTE: Test plots of the transmitting time slot are shown on following.



Test Mode B

Length of transmission time (ms)	TX Burst of 20s period	Result	Limit
40	1	40ms / 20s	400ms / 20s

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

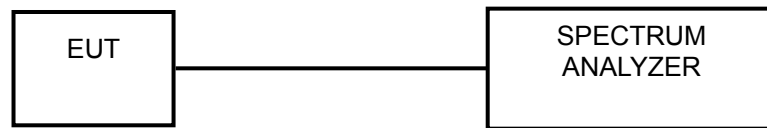


4.5 CHANNEL BANDWIDTH

4.5.1 LIMITS OF CHANNEL BANDWIDTH

The 20 dB bandwidth of the hopping channel shall be less than 250 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

- 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. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- d. Repeat above procedures until all frequencies measured were complete.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

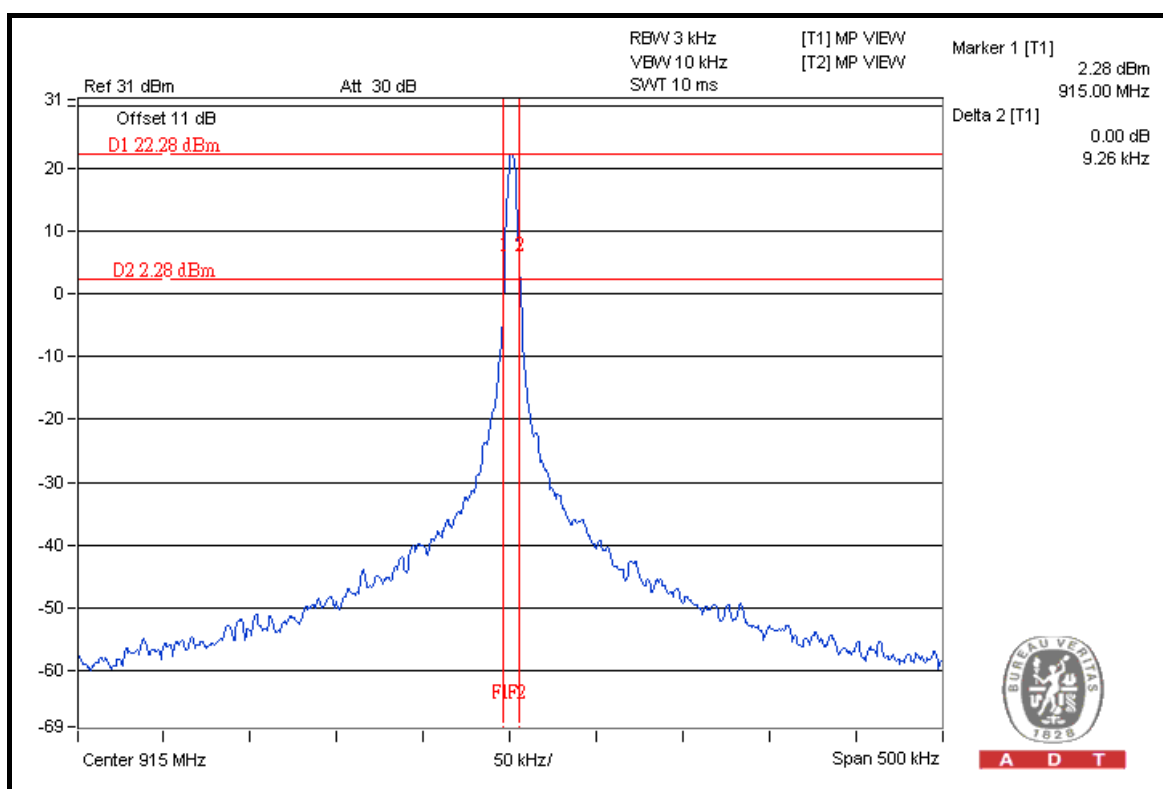
4.5.6 EUT OPERATING CONDITION

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

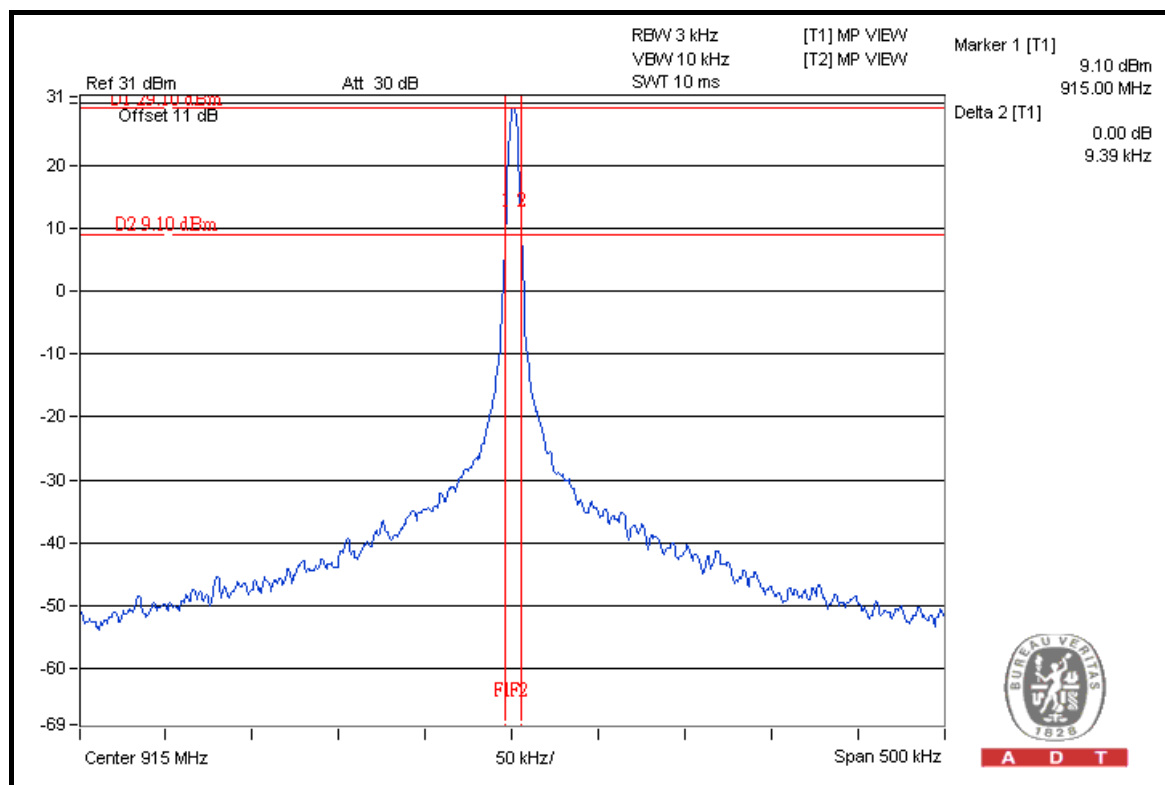
Test Mode A

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (kHz)	LIMIT (kHz)
0	902.6	8.99	250
62	915.0	9.26	250
124	927.4	9.14	250



Test Mode B

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (kHz)	LIMIT (kHz)
0	902.6	8.99	250
62	915.0	9.39	250
124	927.4	9.31	250

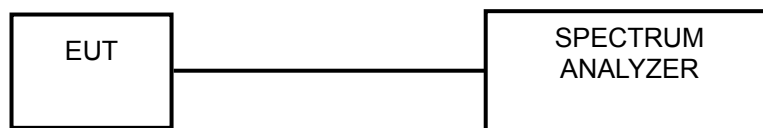


4.6 HOPPING CHANNEL SEPARATION

4.6.1 LIMIT OF HOPPING CHANNEL SEPARATION

At least 25kHz or 20dB hopping channel bandwidth (whichever is greater).

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 PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

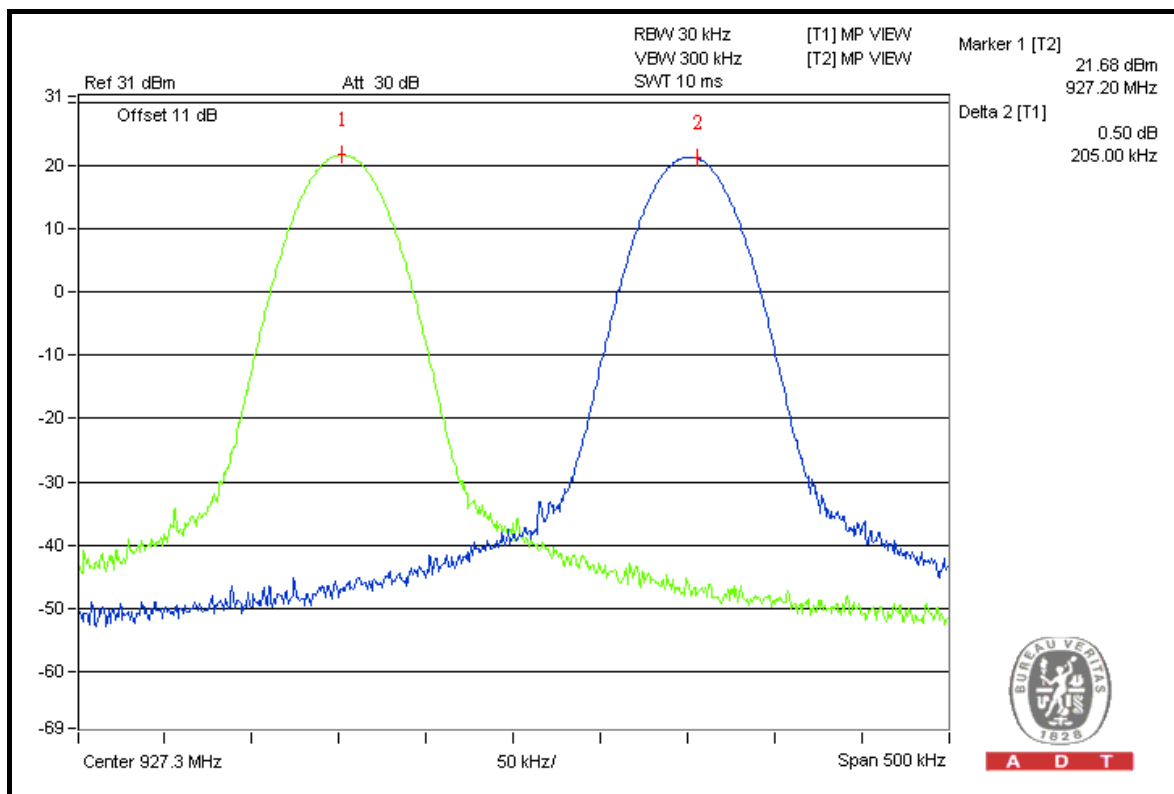
4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 TEST RESULTS

Test Mode A

CHANNEL	FREQUENCY (MHz)	ADJACENT CHANNEL SEPARATION (kHz)	MINIMUM LIMIT (kHz)	PASS / FAIL
0	902.6	203.0	9.26	PASS
62	915.0	203.0	9.26	PASS
124	927.4	205.0	9.26	PASS

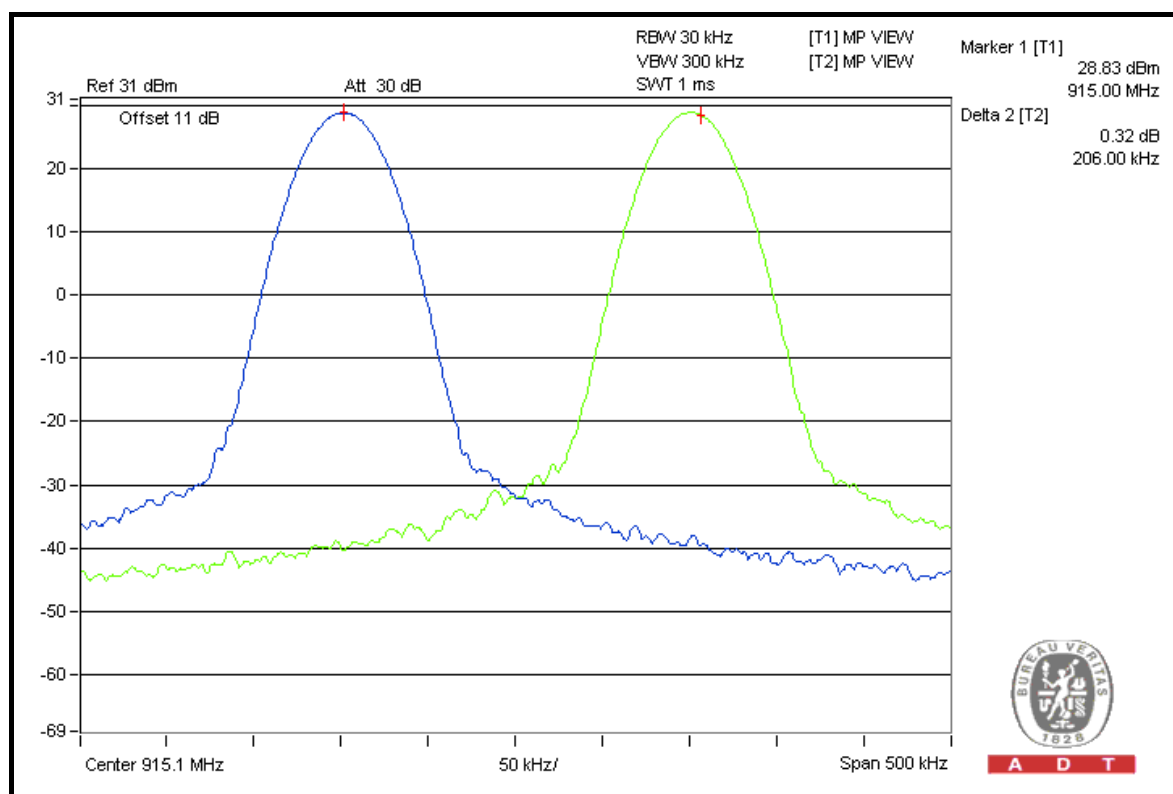




A D T

Test Mode B

CHANNEL	FREQUENCY (MHz)	ADJACENT CHANNEL SEPARATION (kHz)	MINIMUM LIMIT (kHz)	PASS / FAIL
0	902.6	201.0	9.39	PASS
62	915.0	206.0	9.39	PASS
124	927.4	204.0	9.39	PASS

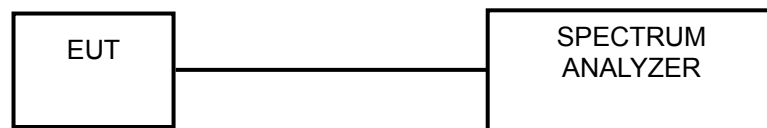


4.7 MAXIMUM OUTPUT POWER

4.7.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

4.7.2 TEST SETUP



4.7.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.7.4 TEST PROCEDURES

- 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.

4.7.5 DEVIATION FROM TEST STANDARD

No deviation

4.7.6 EUT OPERATING CONDITION

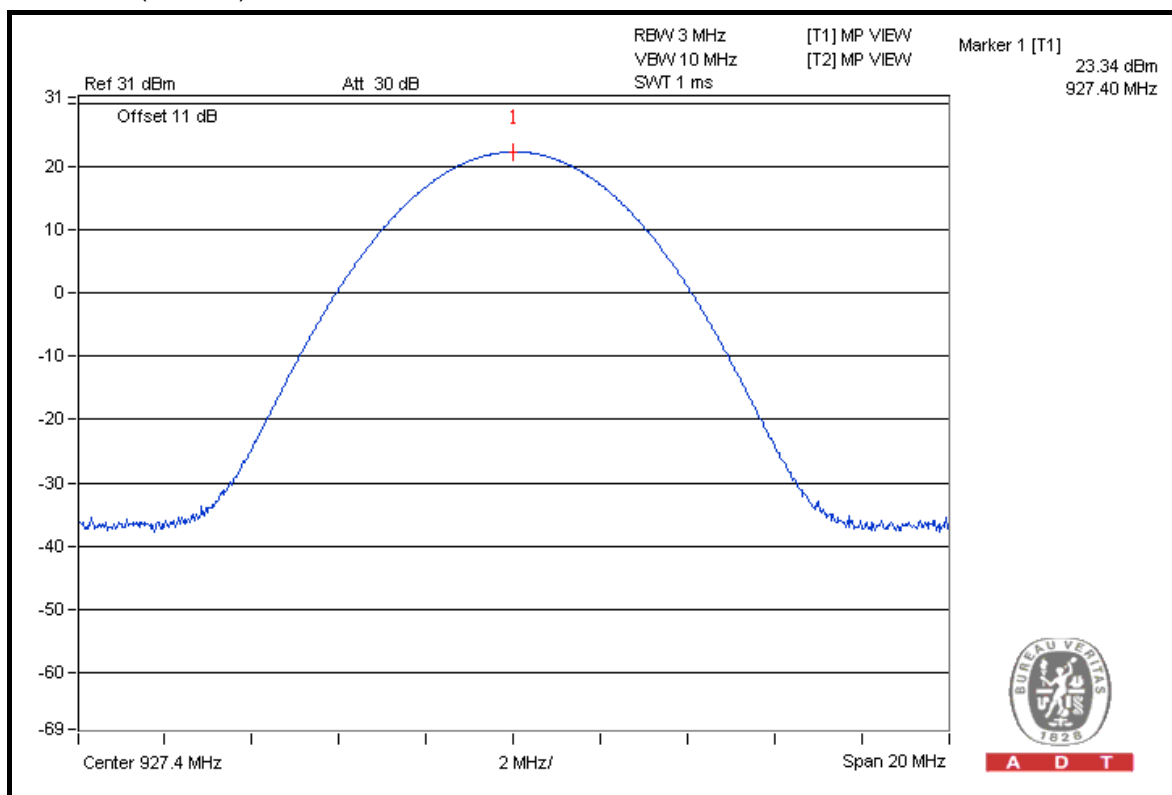
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.7.7 TEST RESULTS

Test Mode A

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
0	902.6	212.324	23.27	23.57	PASS
62	915.0	214.289	23.31	23.57	PASS
124	927.4	215.774	23.34	23.57	PASS

NOTE: Directional gain = 12.43dBi > 6dBi, so the conducted power limit shall be reduced to $30 - (12.43 - 6) = 23.57\text{dBm}$.

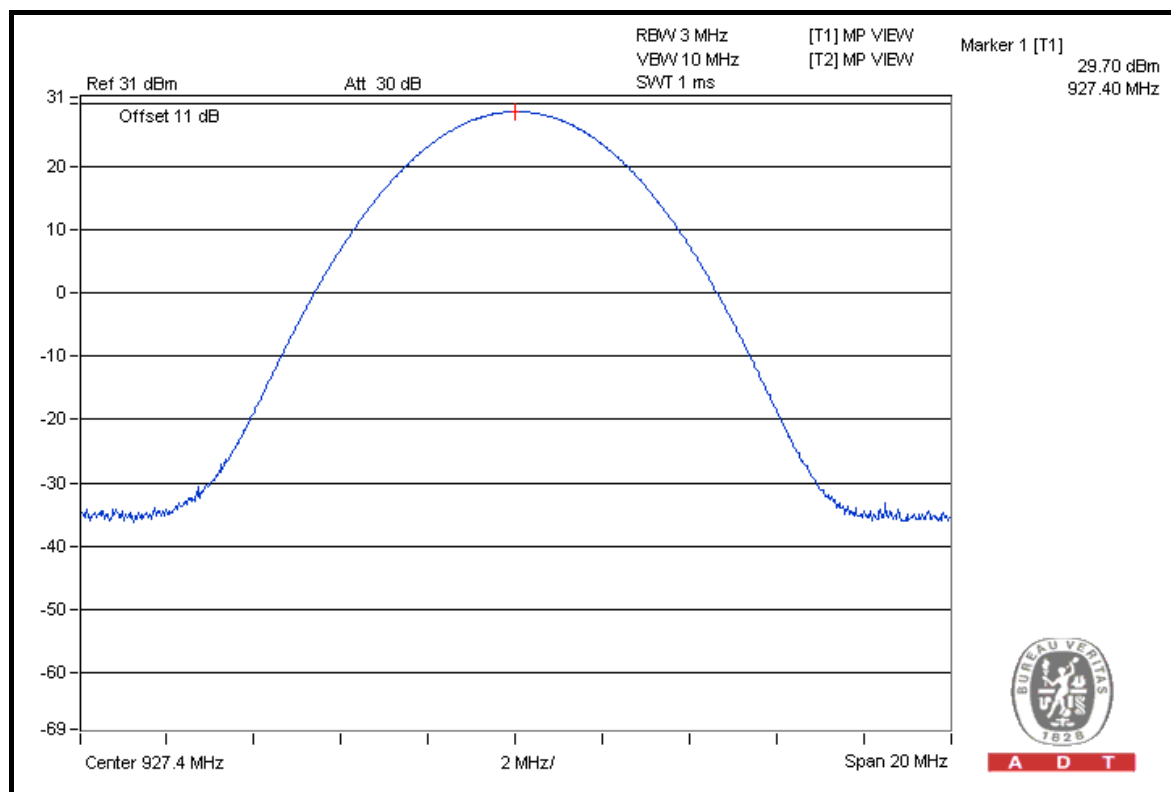




A D T

Test Mode B

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
0	902.6	877.001	29.43	30	PASS
62	915.0	877.001	29.43	30	PASS
124	927.4	933.254	29.70	30	PASS



4.8 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.8.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

4.8.2 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.8.3 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 100kHz and 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation.

4.8.5 EUT OPERATING CONDITION

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

4.8.6 TEST RESULTS

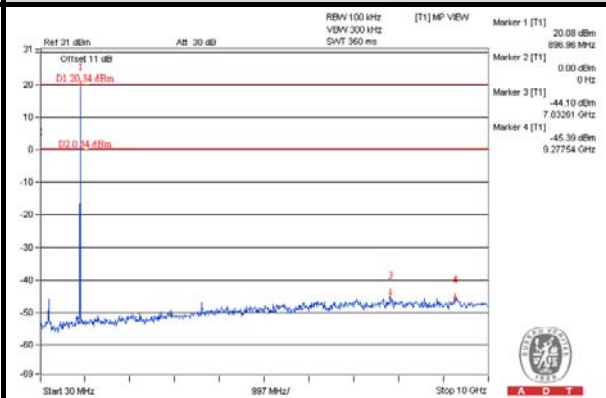
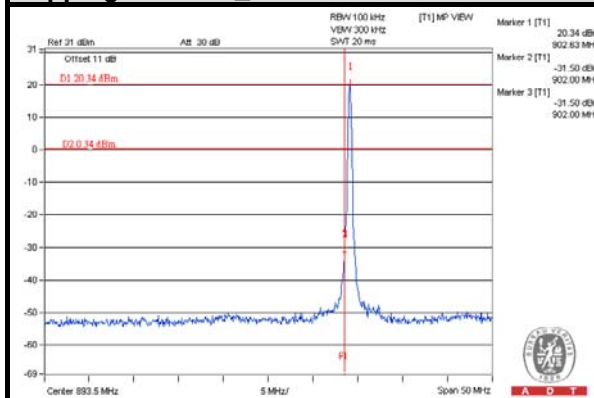
The spectrum plots are attached on the following images. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



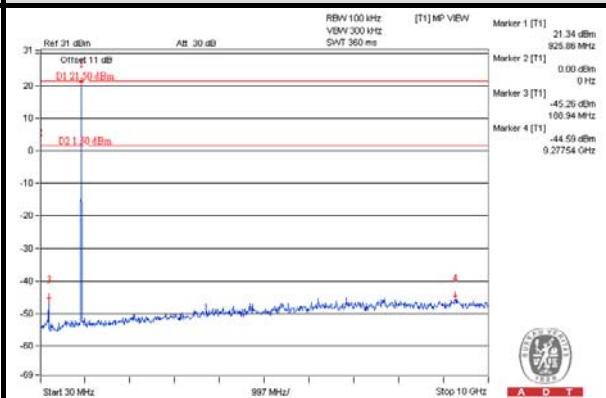
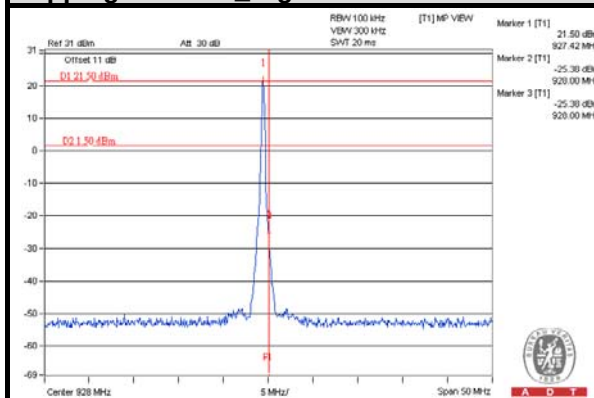
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Test Mode A

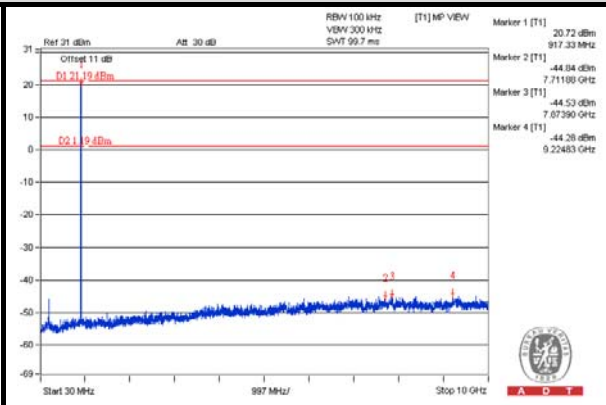
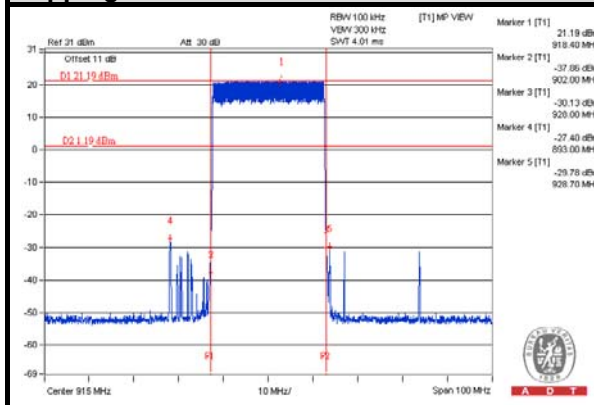
Hopping disabled_Low Channel



Hopping disabled_High Channel



Hopping enabled

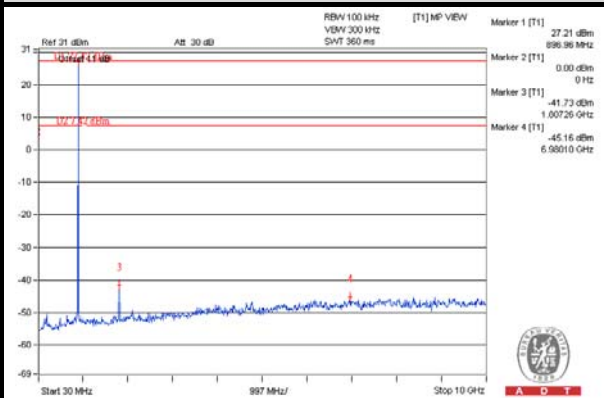
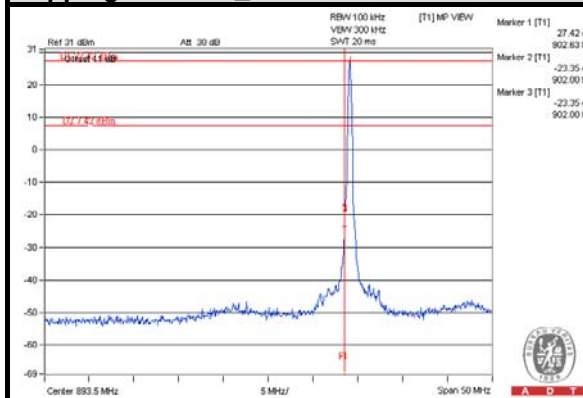




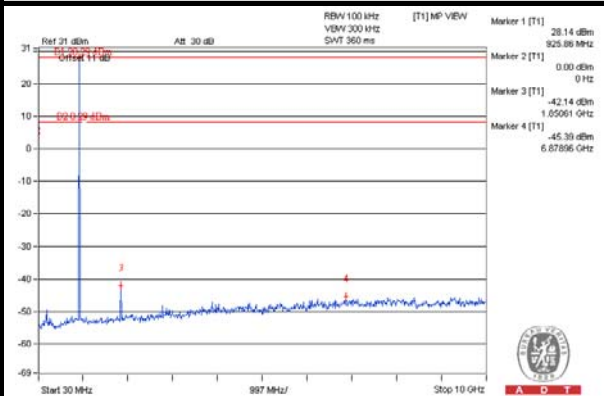
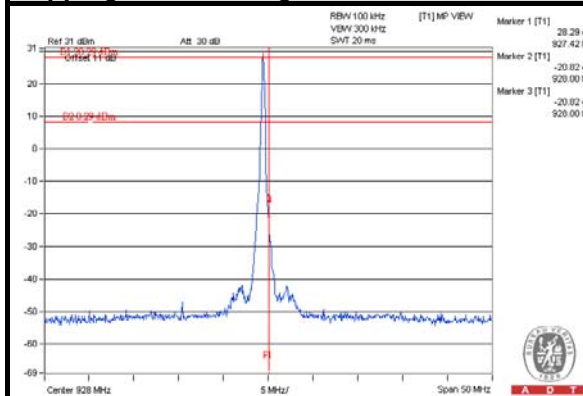
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Test Mode B

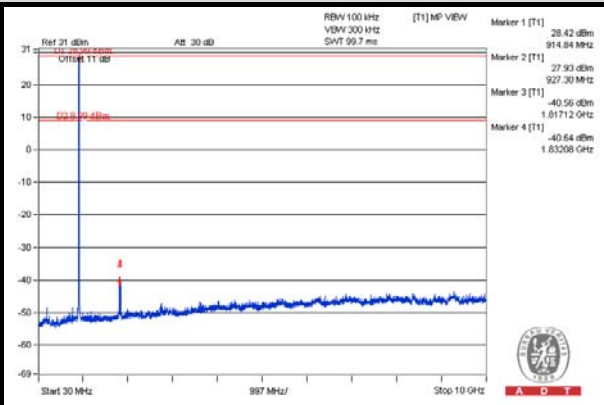
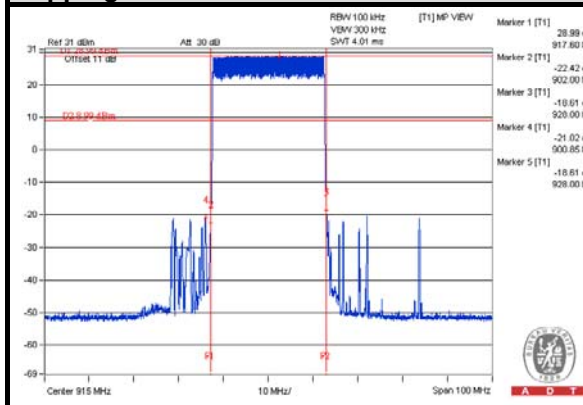
Hopping disabled_Low Channel



Hopping disabled_High Channel



Hopping enabled





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5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. 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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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



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7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

---END---