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FCC TEST REPORT

REPORT NO.: RF130726C13A

MODEL NO.: F740

FCC ID: XLG-F740

RECEIVED: Jul. 26, 2013

TESTED: Aug. 09 ~ Sep. 17, 2013

ISSUED: Jun. 18, 2014

APPLICANT: Favite Inc.

ADDRESS: No. 176, Taihe Rd, Jhubei City, Hsinchu County, 302, Taiwan (R.O.C.)

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130726C13A	Original release	Jun. 18, 2014



1. CERTIFICATION

PRODUCT: 4-port RFID Smart Reader

MODEL NO.: F740

BRAND: FAVITE

APPLICANT: Favite Inc.

TESTED: Aug. 09 ~ Sep. 17, 2013

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: F740) 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 : Ivy Lin, DATE : Jun. 18, 2014
Ivy Lin / Specialist

APPROVED BY : Ken Lin, DATE : Jun. 18, 2014
Ken Lin / 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 -10.69dB at 0.63828MHz.
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 -3.0dB at 8124.75MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is N-Type. (The device is professionally installed)

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	3.19 dB
	200MHz ~1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 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	4-port RFID Smart Reader
MODEL NO.	F740
POWER SUPPLY	19Vdc (Adapter)
MODULATION TYPE	PR-ASK
TRANSFER RATE	640Kbps
OPERATING FREQUENCY	902.75 ~ 927.25MHz
NUMBER OF CHANNEL	50
OUTPUT POWER	909.913mW
ANTENNA TYPE	Patch Antenna with 5.85dBi gain
ANTENNA CONNECTOR	N type (The device is professionally installed)
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT has four antenna ports which cannot transmit simultaneously. After pre-testing, antenna port 2 is the worst case for final test.
2. The EUT uses following adapter.

BRAND	ADAPTER TECH.
MODEL	ATS050-P190
INPUT POWER	100-240Vac, 50-60Hz, 1.2A MAX
OUTPUT POWER	19Vdc, 2.64A
POEWR LINE	DC: 1.5m non-shielded cable with one core

3. 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

50 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
0	902.75	25	915.25
1	903.25	26	915.75
2	903.75	27	916.25
3	904.25	28	916.75
4	904.75	29	917.25
5	905.25	30	917.75
6	905.75	31	918.25
7	906.25	32	918.75
8	906.75	33	919.25
9	907.25	34	919.75
10	907.75	35	920.25
11	908.25	36	920.75
12	908.75	37	921.25
13	909.25	38	921.75
14	909.75	39	922.25
15	910.25	40	922.75
16	910.75	41	923.25
17	911.25	42	923.75
18	911.75	43	924.25
19	912.25	44	924.75
20	912.75	45	925.25
21	913.25	46	925.75
22	913.75	47	926.25
23	914.25	48	926.75
24	914.75	49	927.25

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
-	✓	✓	✓	✓	-

Where
RE \geq 1G: Radiated Emission above 1GHz
PLC: Power Line Conducted Emission
RE $<$ 1G: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

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
-	0 to 49	0, 25, 49	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
-	0 to 49	0, 25, 49	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
-	0 to 49	0, 25, 49	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
-	0 to 49	0, 49	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
-	0 to 49	0, 25, 49	PR-ASK

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	27deg. C, 66%RH	120Vac, 60Hz	Brad Tung
RE<1G	27deg. C, 66%RH, 25deg. C, 64%RH	120Vac, 60Hz	Brad Tung, Alan Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
APCM	23deg. C, 64%RH	120Vac, 60Hz	Antony Lee

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.

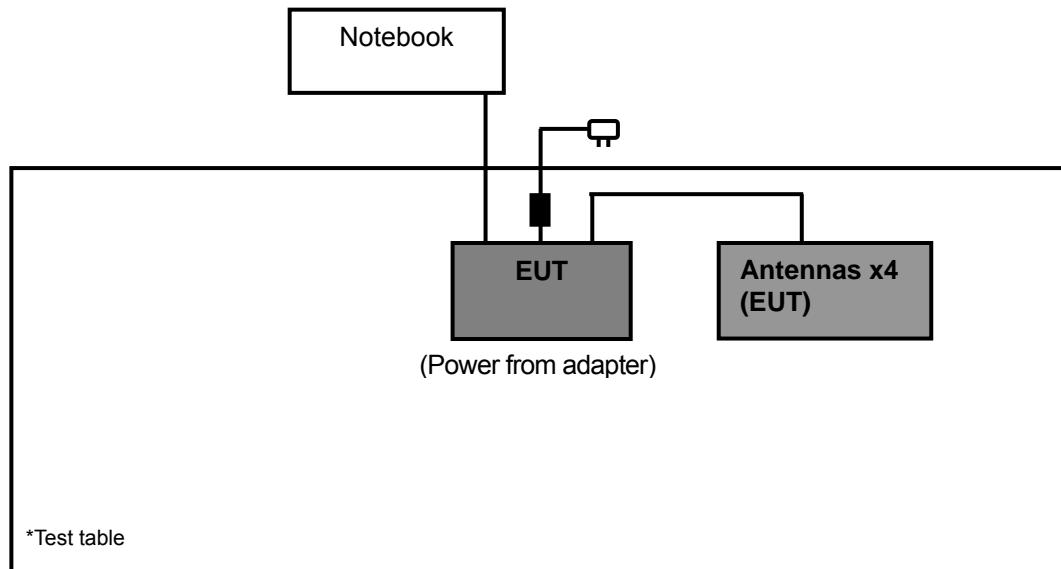
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E5420	BPQ7MQ1	FCC Doc Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 cable

NOTE:

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

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST





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.

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 (dB_uV/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.



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4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2013	Apr. 14, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Oct. 25, 2012	Oct. 24, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-405	Feb. 21, 2013	Feb. 20, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8449B	3008A01961	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10738	Oct. 23, 2012	Oct. 22, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 27, 2012 Aug. 26, 2013	Aug. 26, 2013 Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 27, 2012 Aug. 26, 2013	Aug. 26, 2013 Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 27, 2012 Aug. 26, 2013	Aug. 26, 2013 Aug. 25, 2014
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 inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA
High Speed Peak Power Meter	ML2495A	0824011	Jul. 30, 2013	Jul. 29, 2014
Power Sensor	MA2411B	0738171	Jul. 30, 2013	Jul. 29, 2014

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 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:

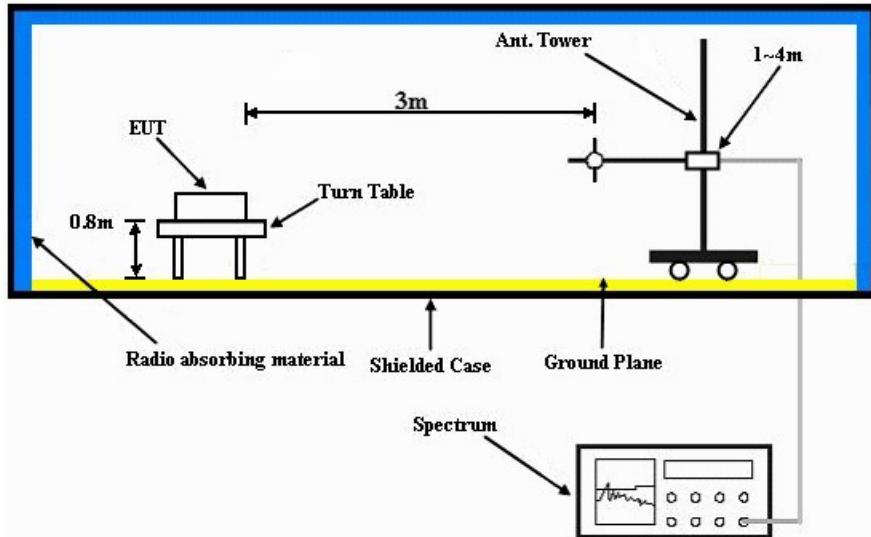
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution 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

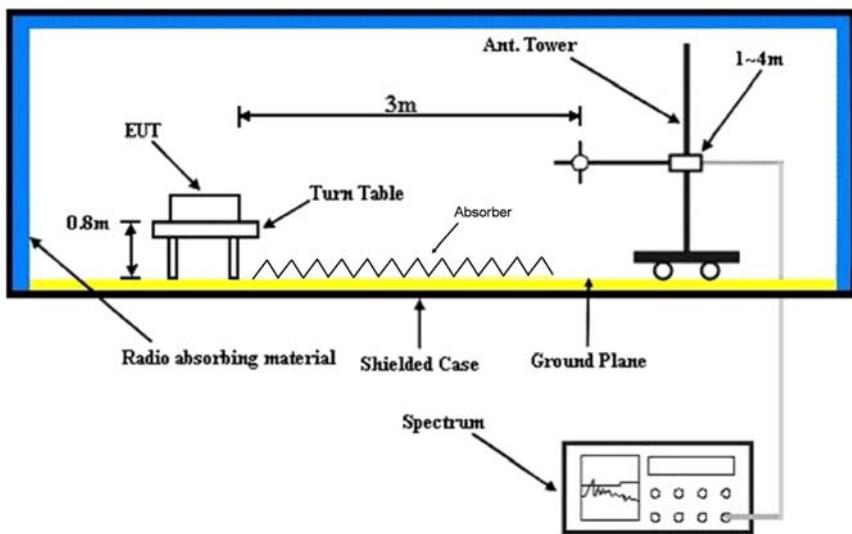
No deviation.

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.



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4.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 66%RH	TESTED BY	Brad Tung

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	72.59	30.3 QP	40.0	-9.7	1.99 H	312	46.60	-16.30
2	249.17	36.9 QP	46.0	-9.1	1.49 H	7	51.40	-14.50
3	268.57	36.1 QP	46.0	-9.9	1.00 H	108	49.80	-13.70
4	381.11	37.2 QP	46.0	-8.8	1.00 H	181	48.30	-11.10
5	425.74	37.1 QP	46.0	-8.9	1.49 H	7	47.40	-10.30
6	499.48	34.7 QP	46.0	-11.3	1.49 H	149	43.70	-9.00
7	#902.00	84.4 PK	113.1	-28.7	1.25 H	3	58.20	26.20
8	#902.00	65.1 AV	112.2	-47.1	1.25 H	3	38.90	26.20
9	*902.75	133.1 PK			1.25 H	3	106.90	26.20
10	*902.75	132.2 AV			1.25 H	3	106.00	26.20

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	41.54	30.9 QP	40.0	-9.1	1.00 V	97	45.80	-14.90
2	64.83	32.6 QP	40.0	-7.4	1.00 V	100	47.80	-15.20
3	249.17	37.9 QP	46.0	-8.1	1.24 V	321	52.40	-14.50
4	425.74	37.8 QP	46.0	-8.2	1.00 V	140	48.10	-10.30
5	499.48	34.5 QP	46.0	-11.5	1.00 V	234	43.50	-9.00
6	625.60	30.3 QP	46.0	-15.7	1.49 V	262	36.60	-6.30
7	#902.00	85.2 PK	113.5	-28.3	1.00 V	6	59.00	26.20
8	#902.00	63.9 AV	112.5	-48.6	1.00 V	6	37.70	26.20
9	*902.75	133.5 PK			1.00 V	6	107.30	26.20
10	*902.75	132.3 AV			1.00 V	6	106.10	26.20

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).
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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 25	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 66%RH	TESTED BY	Brad Tung

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	72.59	27.2 QP	40.0	-12.8	1.24 H	290	43.50	-16.30
2	206.48	32.0 QP	43.5	-11.5	1.24 H	262	48.50	-16.50
3	268.57	35.0 QP	46.0	-11.0	1.75 H	101	48.70	-13.70
4	398.58	38.0 QP	46.0	-8.0	1.00 H	184	48.80	-10.80
5	425.74	38.3 QP	46.0	-7.7	1.00 H	7	48.60	-10.30
6	499.48	31.7 QP	46.0	-14.3	2.00 H	148	40.70	-9.00
7	*915.25	133.0 PK			1.24 H	2	106.50	26.50
8	*915.25	132.1 AV			1.24 H	2	105.60	26.50
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	41.54	31.2 QP	40.0	-8.8	1.75 V	249	46.10	-14.90
2	64.83	32.4 QP	40.0	-7.6	1.00 V	153	47.60	-15.20
3	249.17	40.0 QP	46.0	-6.0	1.00 V	304	54.50	-14.50
4	425.74	38.6 QP	46.0	-7.4	1.24 V	126	48.90	-10.30
5	474.25	34.5 QP	46.0	-11.5	3.00 V	249	43.90	-9.40
6	749.79	29.9 QP	46.0	-16.1	1.24 V	241	33.80	-3.90
7	*915.25	133.5 PK			1.00 V	9	107.00	26.50
8	*915.25	132.5 AV			1.00 V	9	106.00	26.50

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 49	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 66%RH	TESTED BY	Brad Tung

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	72.59	27.2 QP	40.0	-12.8	1.49 H	323	43.50	-16.30
2	206.48	32.0 QP	43.5	-11.5	1.00 H	261	48.50	-16.50
3	249.17	36.4 QP	46.0	-9.6	1.00 H	7	50.90	-14.50
4	379.17	37.8 QP	46.0	-8.2	1.00 H	287	48.90	-11.10
5	499.48	35.3 QP	46.0	-10.7	1.49 H	152	44.30	-9.00
6	625.60	30.1 QP	46.0	-15.9	1.49 H	305	36.40	-6.30
7	*927.25	133.1 PK			1.25 H	0	106.50	26.60
8	*927.25	132.2 AV			1.25 H	0	105.60	26.60
9	#928.00	99.3 PK	113.1	-13.8	1.25 H	0	72.70	26.60
10	#928.00	64.1 AV	112.2	-48.1	1.25 H	0	37.50	26.60
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	41.54	31.9 QP	40.0	-8.1	3.00 V	288	46.80	-14.90
2	64.83	32.8 QP	40.0	-7.2	1.00 V	106	48.00	-15.20
3	249.17	39.7 QP	46.0	-6.3	1.00 V	334	54.20	-14.50
4	425.74	38.5 QP	46.0	-7.5	1.00 V	216	48.80	-10.30
5	499.48	34.8 QP	46.0	-11.2	2.00 V	241	43.80	-9.00
6	600.38	29.9 QP	46.0	-16.1	1.50 V	258	36.90	-7.00
7	*927.25	133.5 PK			1.00 V	2	106.90	26.60
8	*927.25	132.5 AV			1.00 V	2	105.90	26.60
9	#928.00	97.8 PK	113.5	-15.7	1.00 V	2	71.20	26.60
10	#928.00	65.2 AV	112.5	-47.3	1.00 V	2	38.60	26.60

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).
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.



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ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL		Channel 0		FREQUENCY RANGE
INPUT POWER		120Vac, 60 Hz		DETECTOR FUNCTION
ENVIRONMENTAL CONDITIONS		27deg. C, 66%RH		TESTED BY
				Brad Tung

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	5416.00	51.6 PK	74.0	-22.4	1.05 H	204	46.00	5.60
2	5416.00	42.7 AV	54.0	-11.3	1.05 H	204	37.10	5.60
3	8124.75	57.4 PK	74.0	-16.6	1.00 H	193	45.30	12.10
4	8124.75	47.9 AV	54.0	-6.1	1.00 H	193	35.80	12.10
5	9027.50	57.6 PK	74.0	-16.4	1.11 H	222	44.80	12.80
6	9027.50	49.8 AV	54.0	-4.2	1.11 H	222	37.00	12.80
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	5416.50	53.0 PK	74.0	-21.0	1.07 V	232	47.40	5.60
2	5416.50	47.5 AV	54.0	-6.5	1.07 V	232	41.90	5.60
3	8124.75	58.1 PK	74.0	-15.9	1.06 V	170	46.00	12.10
4	8124.75	51.0 AV	54.0	-3.0	1.06 V	170	38.90	12.10
5	9027.50	58.3 PK	74.0	-15.7	1.06 V	215	45.50	12.80
6	9027.50	48.5 AV	54.0	-5.5	1.06 V	215	35.70	12.80

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)
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 25	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 66%RH	TESTED BY	Brad Tung

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	8237.25	57.3 PK	74.0	-16.7	1.00 H	180	45.10	12.20
2	8237.25	47.7 AV	54.0	-6.3	1.00 H	180	35.50	12.20
3	9152.50	57.1 PK	74.0	-16.9	1.09 H	200	44.30	12.80
4	9152.50	49.3 AV	54.0	-4.7	1.09 H	200	36.50	12.80

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	8237.25	56.4 PK	74.0	-17.6	1.00 V	174	44.20	12.20
2	8237.25	49.3 AV	54.0	-4.7	1.00 V	174	37.10	12.20
3	9152.50	56.1 PK	74.0	-17.9	1.05 V	210	43.30	12.80
4	9152.50	48.1 AV	54.0	-5.9	1.05 V	210	35.30	12.80

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)
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 49	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 66%RH	TESTED BY	Brad Tung

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	8345.25	57.1 PK	74.0	-16.9	1.00 H	183	45.00	12.10
2	8345.25	48.1 AV	54.0	-5.9	1.00 H	183	36.00	12.10
3	#9272.50	57.0 PK	74.0	-17.0	1.10 H	201	44.10	12.90
4	#9272.50	49.3 AV	54.0	-4.7	1.10 H	201	36.40	12.90

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	8345.25	56.6 PK	74.0	-17.4	1.10 V	230	44.50	12.10
2	8345.25	50.1 AV	54.0	-3.9	1.10 V	230	38.00	12.10
3	#9272.50	56.2 PK	74.0	-17.8	1.07 V	220	43.30	12.90
4	#9272.50	48.2 AV	54.0	-5.8	1.07 V	220	35.30	12.90

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



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4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	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. 16, 2012	Nov. 15, 2013
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 28, 2012	Dec. 27, 2013
V-LISN SCHWARZBECK (Peripheral)	NNBL 8226-2	8226-142	Jun. 27, 2013	Jun. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 04, 2013	Feb. 03, 2014
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Notes: 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

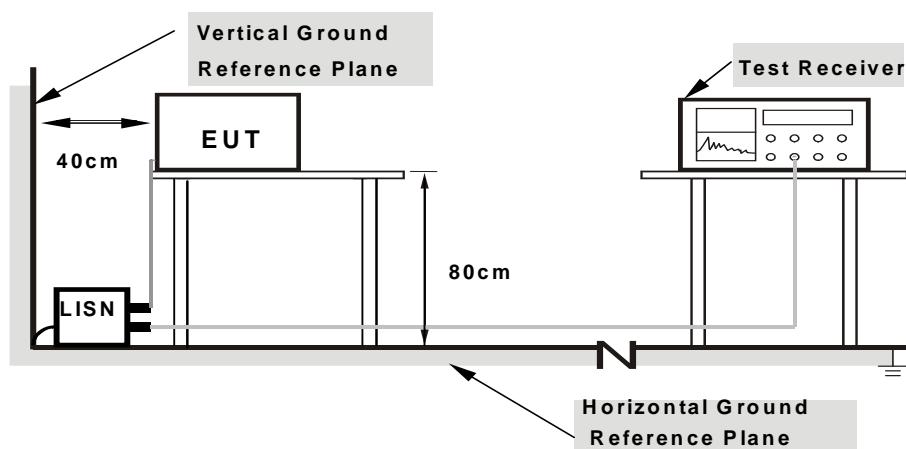
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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

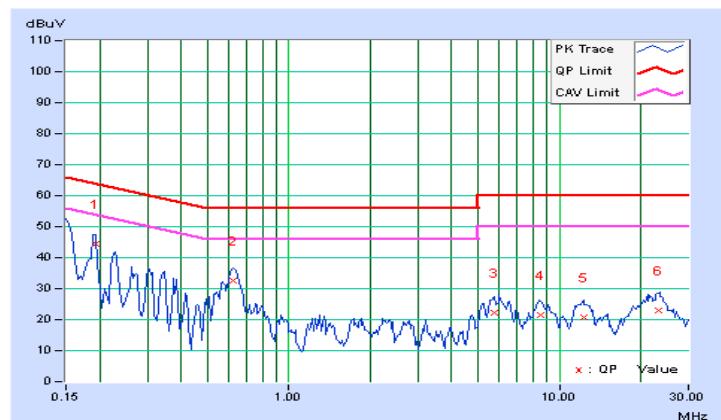
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 0		

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	0.19297	0.16	44.15	37.16	44.31	37.32	63.91	53.91	-19.60	-16.59
2	0.61875	0.24	32.39	16.98	32.63	17.22	56.00	46.00	-23.37	-28.78
3	5.73828	0.49	21.77	16.65	22.26	17.14	60.00	50.00	-37.74	-32.86
4	8.58203	0.64	20.99	16.24	21.63	16.88	60.00	50.00	-38.37	-33.12
5	12.28906	0.83	19.95	14.72	20.78	15.55	60.00	50.00	-39.22	-34.45
6	23.19141	1.39	21.64	15.79	23.03	17.18	60.00	50.00	-36.97	-32.82

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.

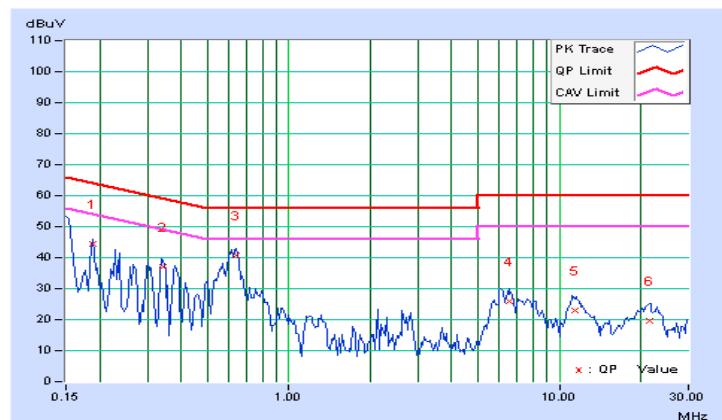


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 0		

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	0.18906	0.17	44.20	35.65	44.37	35.82	64.08	54.08	-19.71	-18.26
2	0.34141	0.22	36.89	33.96	37.11	34.18	59.17	49.17	-22.06	-14.99
3	0.63828	0.24	40.45	35.07	40.69	35.31	56.00	46.00	-15.31	-10.69
4	6.50000	0.47	25.29	20.04	25.76	20.51	60.00	50.00	-34.24	-29.49
5	11.35547	0.64	22.18	16.23	22.82	16.87	60.00	50.00	-37.18	-33.13
6	21.49609	0.98	18.74	13.40	19.72	14.38	60.00	50.00	-40.28	-35.62

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.

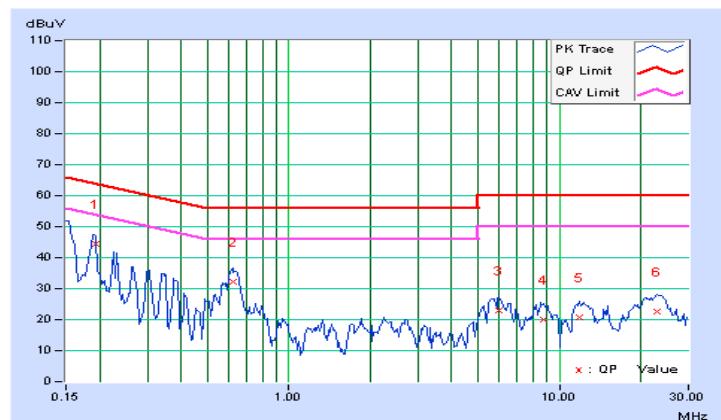


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 25		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.16	44.23	37.02	44.39	37.18	63.91	53.91	-19.52	-16.73
2	0.61875	0.24	31.80	16.14	32.04	16.38	56.00	46.00	-23.96	-29.62
3	5.96094	0.50	22.37	16.51	22.87	17.01	60.00	50.00	-37.13	-32.99
4	8.75781	0.65	19.53	13.39	20.18	14.04	60.00	50.00	-39.82	-35.96
5	11.88281	0.81	19.79	14.82	20.60	15.63	60.00	50.00	-39.40	-34.37
6	22.93359	1.38	21.33	14.93	22.71	16.31	60.00	50.00	-37.29	-33.69

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.

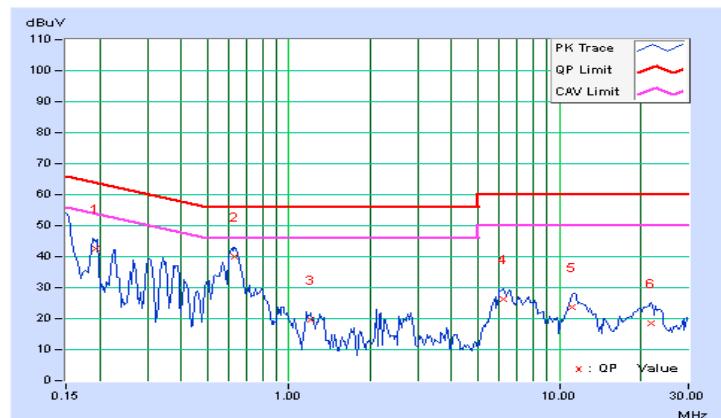


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 25		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.17	42.55	32.79	42.72	32.96	63.91	53.91	-21.19	-20.95
2	0.63438	0.24	39.67	29.58	39.91	29.82	56.00	46.00	-16.09	-16.18
3	1.19922	0.26	19.31	10.10	19.57	10.36	56.00	46.00	-36.43	-35.64
4	6.16797	0.46	25.82	20.99	26.28	21.45	60.00	50.00	-33.72	-28.55
5	11.09375	0.64	23.12	18.08	23.76	18.72	60.00	50.00	-36.24	-31.28
6	21.90625	1.00	17.64	11.72	18.64	12.72	60.00	50.00	-41.36	-37.28

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.

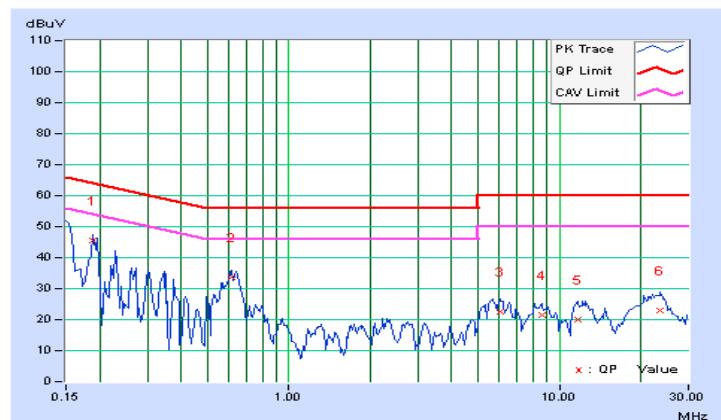


PHASE	Line 1	6dB BANDWIDTH	9kHz
CHANNEL	Channel 49		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18906	0.16	45.57	39.85	45.73	40.01	64.08	54.08	-18.35	-14.07
2	0.61094	0.24	33.50	26.89	33.74	27.13	56.00	46.00	-22.26	-18.87
3	6.01563	0.51	22.11	16.92	22.62	17.43	60.00	50.00	-37.38	-32.57
4	8.60156	0.65	20.83	16.22	21.48	16.87	60.00	50.00	-38.52	-33.13
5	11.64453	0.80	19.09	14.12	19.89	14.92	60.00	50.00	-40.11	-35.08
6	23.54297	1.41	21.44	15.16	22.85	16.57	60.00	50.00	-37.15	-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.

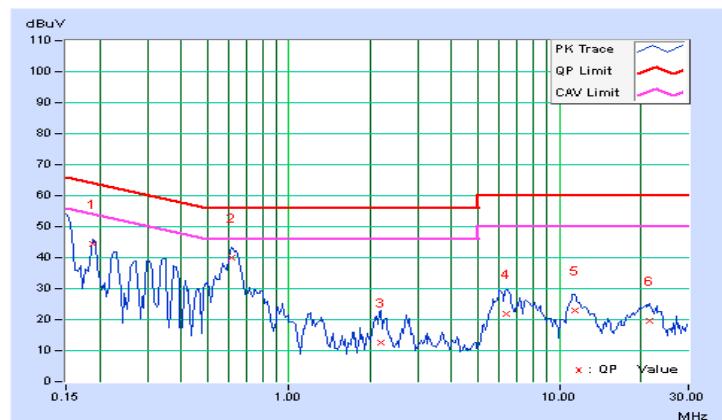


PHASE	Line 2	6dB BANDWIDTH	9kHz
CHANNEL	Channel 49		

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	0.18906	0.17	44.23	35.96	44.40	36.13	64.08	54.08	-19.68	-17.95
2	0.61484	0.24	39.64	27.71	39.88	27.95	56.00	46.00	-16.12	-18.05
3	2.20313	0.29	12.23	0.58	12.52	0.87	56.00	46.00	-43.48	-45.13
4	6.39453	0.47	21.49	12.50	21.96	12.97	60.00	50.00	-38.04	-37.03
5	11.37109	0.64	22.22	16.56	22.86	17.20	60.00	50.00	-37.14	-32.80
6	21.50781	0.98	18.69	13.18	19.67	14.16	60.00	50.00	-40.33	-35.84

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.

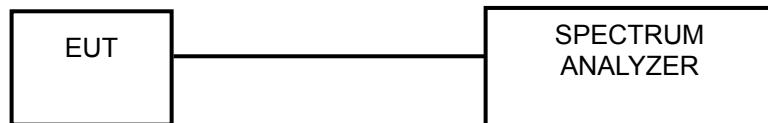


4.3 NUMBER OF HOPPING FREQUENCY USED

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

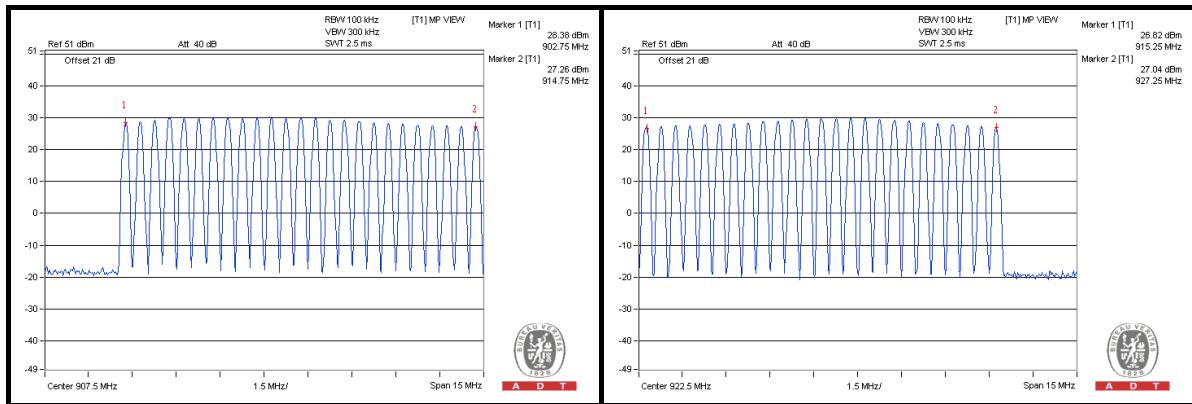
No deviation.

4.3.6 TEST RESULTS

There are 50 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.



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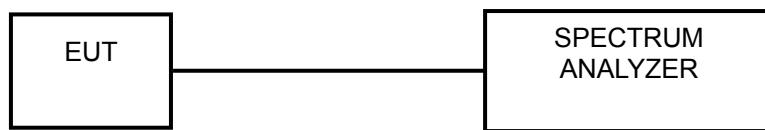


4.4 DWELL TIME ON EACH CHANNEL

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

- 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 to 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.

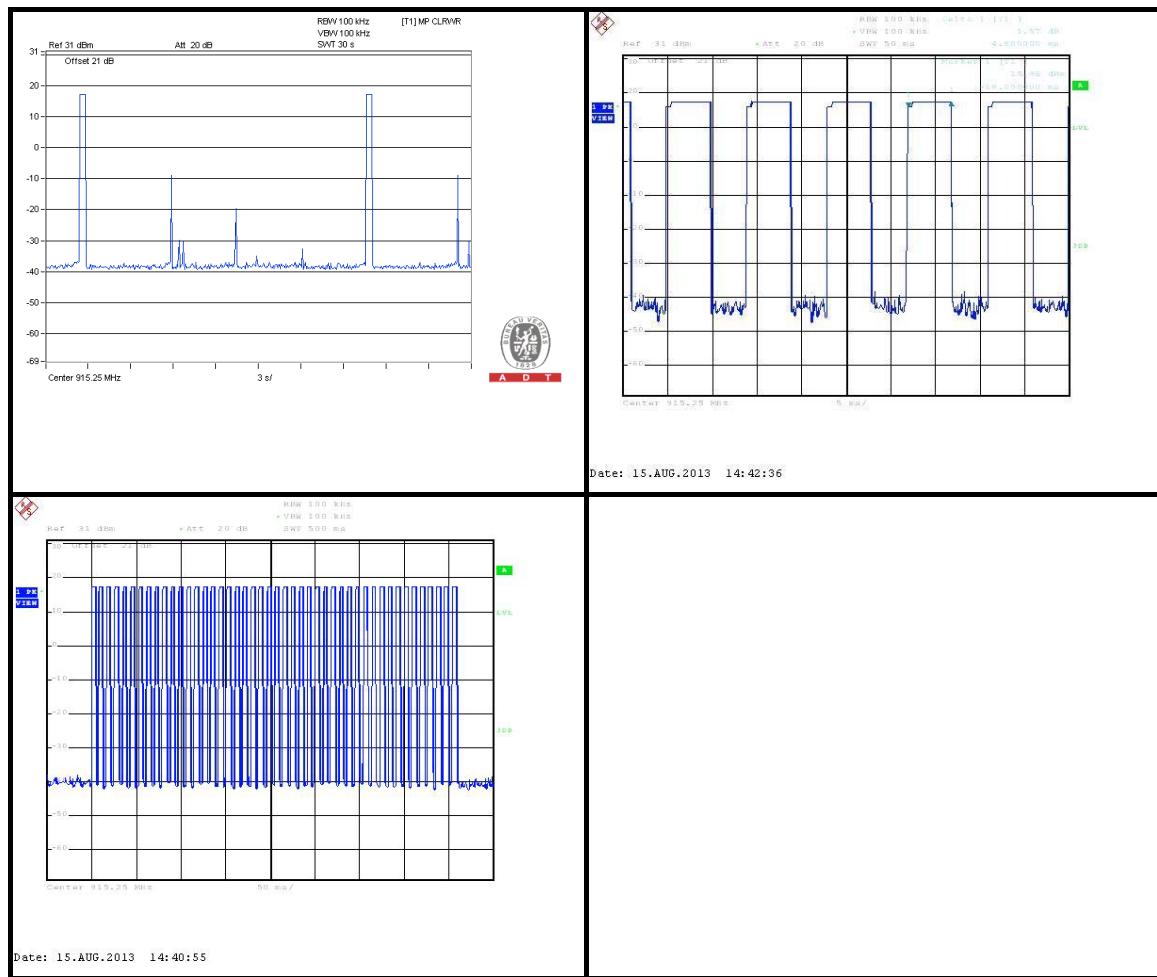
4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 TEST RESULTS

Length of transmission time (ms)	Number of transmission times	TX Burst of 20s period	Result	Limit
4.8	46	1	220.8ms / 20s	400ms / 20s

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

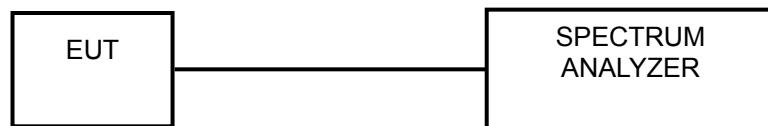


4.5 CHANNEL BANDWIDTH

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

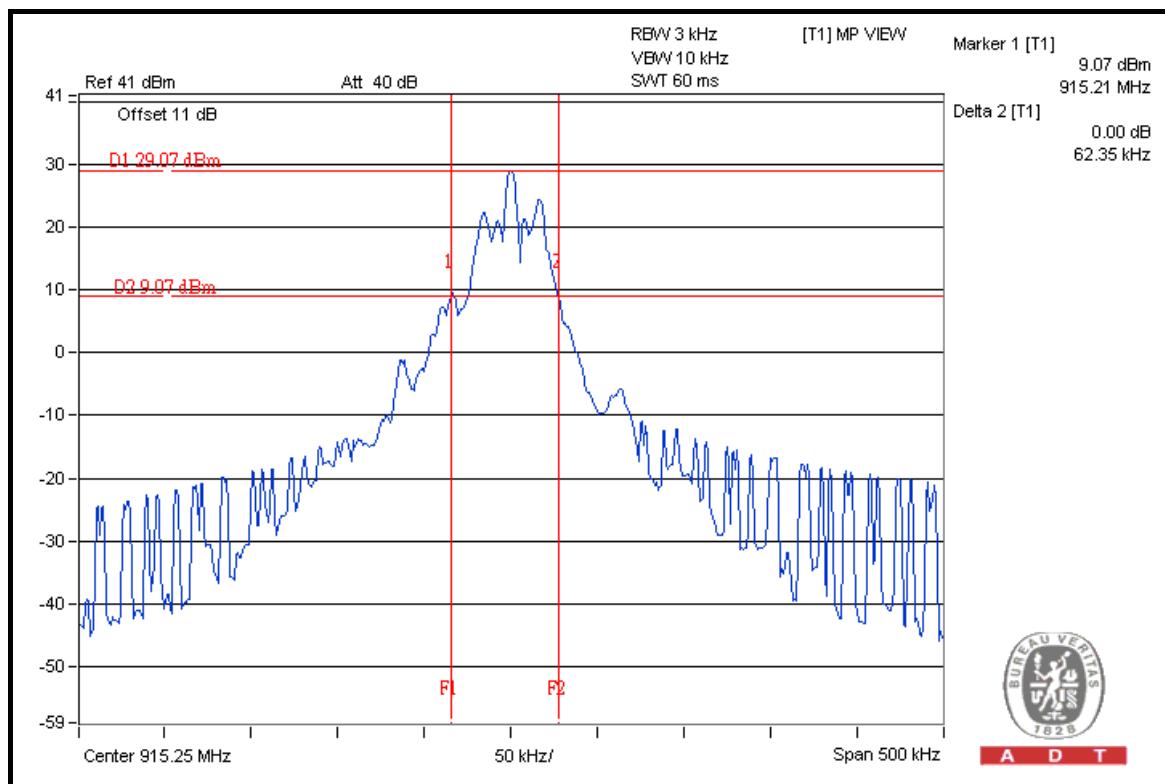
No deviation.

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

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (kHz)	LIMIT (kHz)
0	902.75	52.64	250
25	915.25	62.35	250
49	927.25	51.78	250

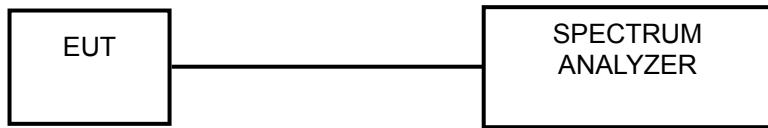


4.6 HOPPING CHANNEL SEPARATION

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

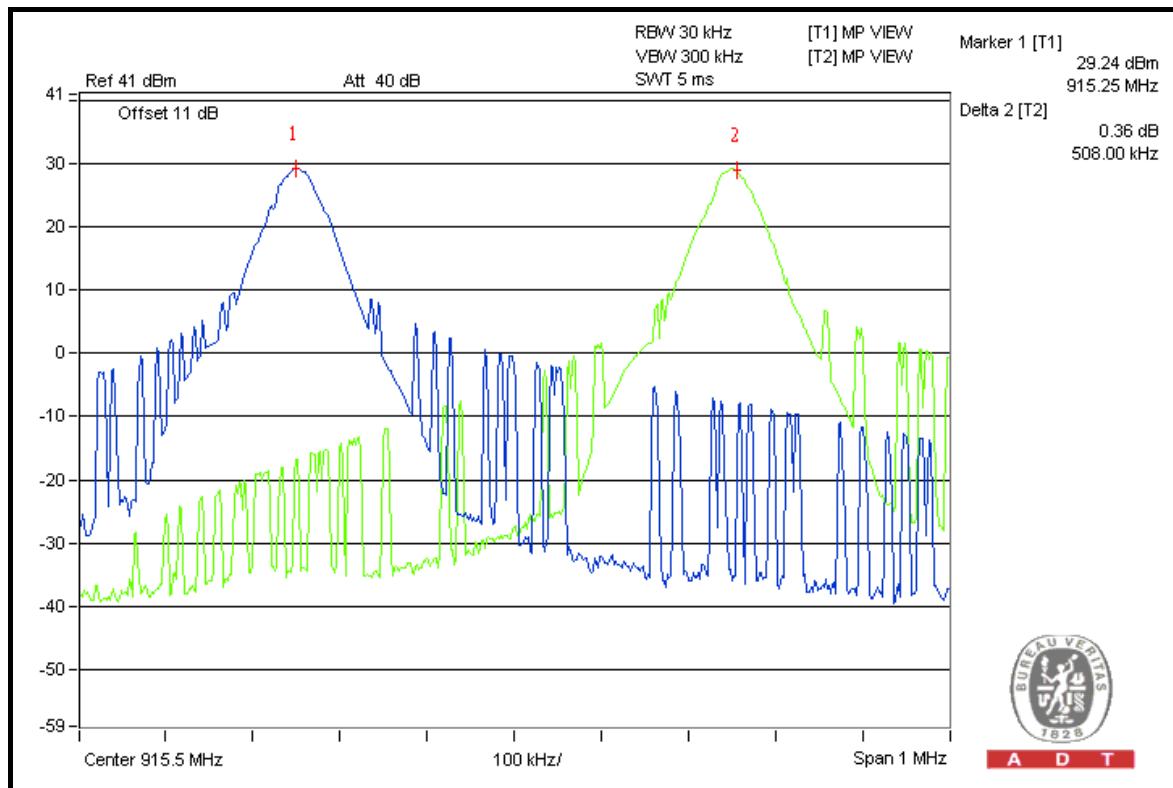
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function 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

CHANNEL	FREQUENCY (MHz)	ADJACENT CHANNEL SEPARATION (kHz)	MINIMUM LIMIT (kHz)	PASS / FAIL
0	902.75	502.00	52.64	PASS
25	915.25	508.00	62.35	PASS
49	927.25	503.00	51.78	PASS

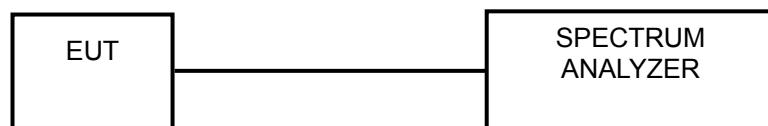


4.7 MAXIMUM OUTPUT POWER

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 10MHz 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

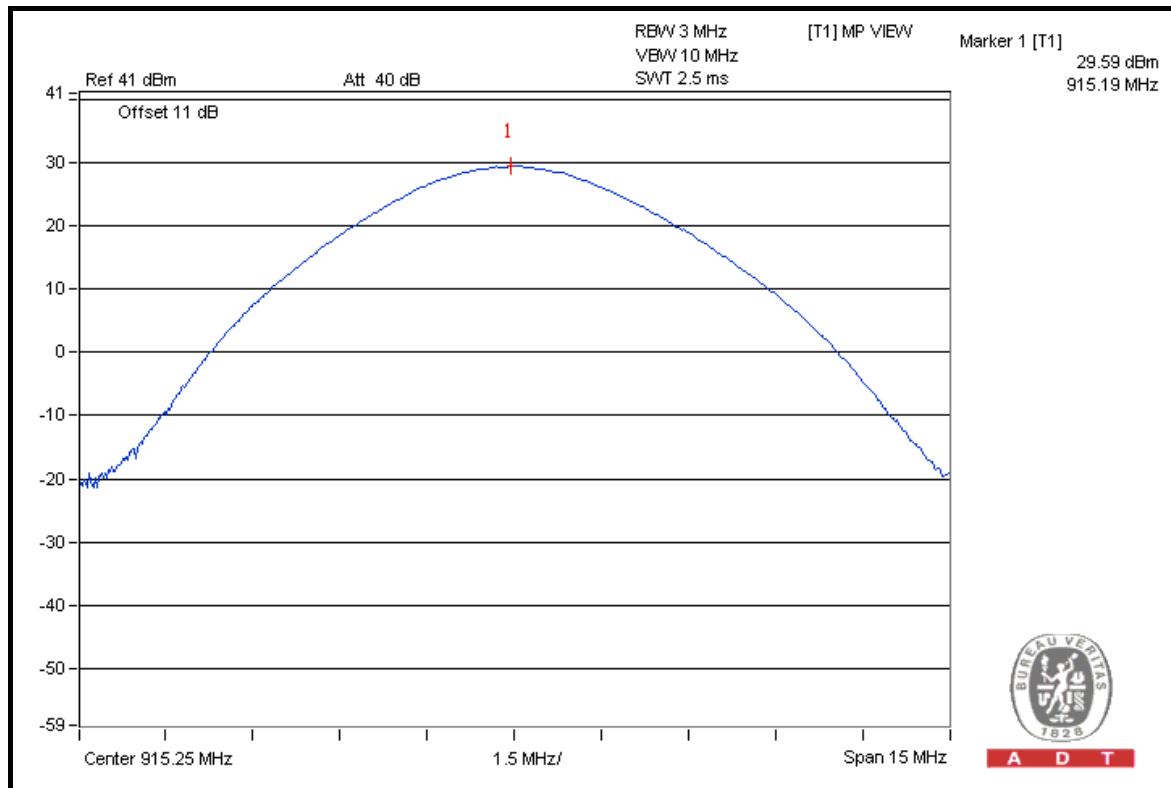
No deviation

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

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
0	902.75	891.251	29.50	30	PASS
25	915.25	909.913	29.59	30	PASS
49	927.25	909.913	29.59	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 loss cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

4.8.4 DEVIATION FROM TEST STANDARD

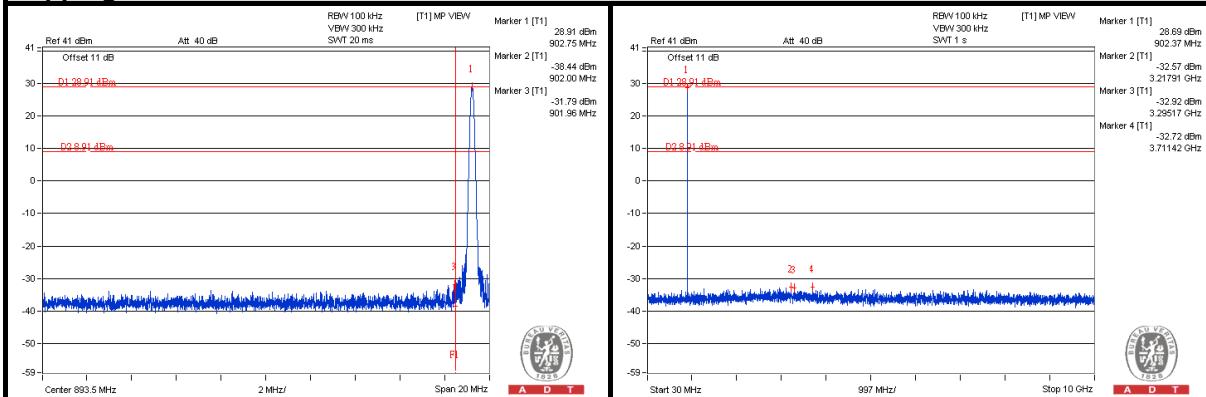
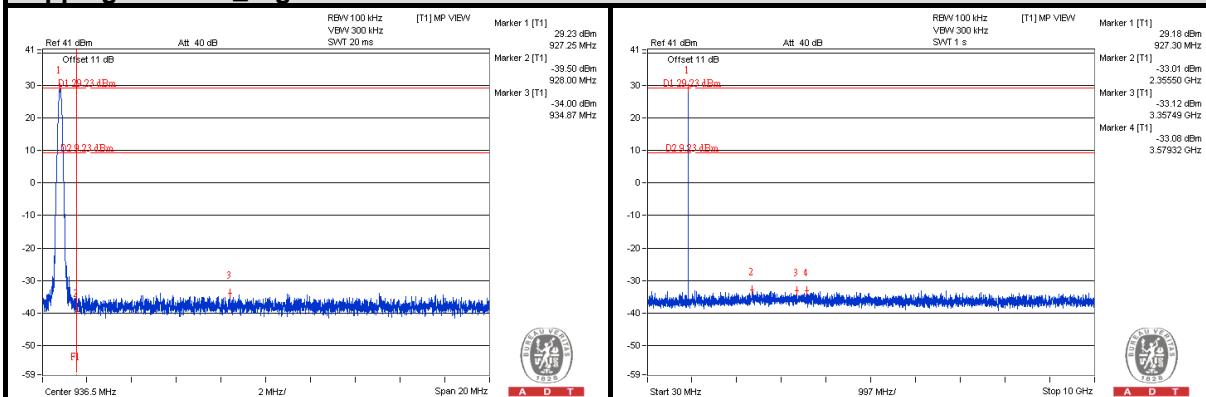
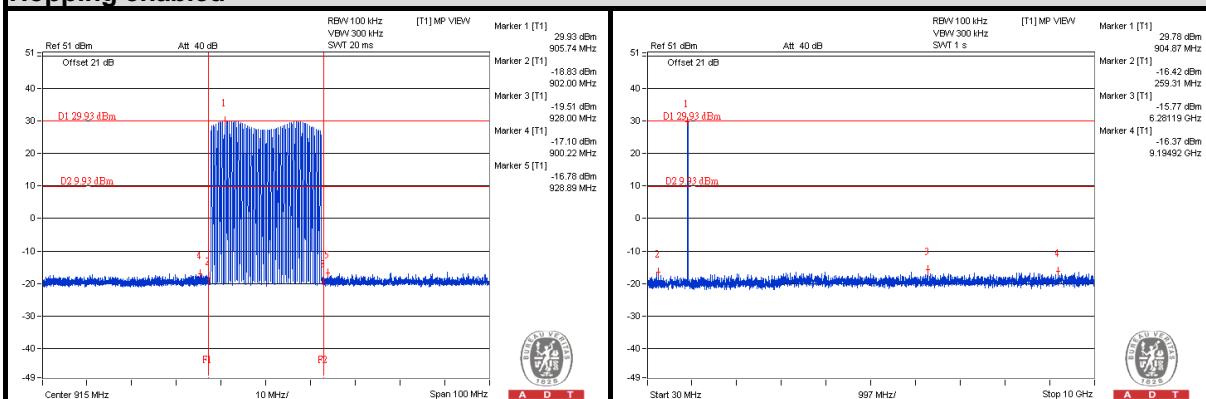
No deviation.

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.

Hopping disabled_Low Channel

Hopping disabled_High Channel

Hopping enabled




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:

Linko EMC/RF Lab:

Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



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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---