

FCC TEST REPORT

REPORT NO.: RF990316C02

MODEL NO.: FS-GM102

RECEIVED: Mar. 16, 2010

TESTED: Apr. 02 to 14, 2010

ISSUED: Apr. 16, 2010

APPLICANT: Favite Inc.

ADDRESS: No. 176, Taihe Road, Jhubei City, Hsinchu

County 30267, Taiwan

ISSUED BY: Bureau Veritas Consumer Products Services

(H.K.) Ltd., Taoyuan Branch

LAB LOCATION: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,

Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

This test report consists of 53 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.







TABLE OF CONTENTS

1	CERTIFICATION	4
2	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	6
3	GENERAL INFORMATION	7
3.1	GENERAL DESCRIPTION OF EUT	7
3.2	DESCRIPTION OF TEST MODES	8
3.3	TEST MODE APPLICABLITY AND TESTED CHANNEL DETAIL:	9
3.4	GENERAL DESCRIPTION OF APPLIED STANDARDS	. 11
3.5	DESCRIPTION OF SUPPORT UNITS	. 12
3.6	CONFIGURATION OF SYSTEM UNDER TEST	. 12
4	TEST PROCEDURES AND RESULTS	. 13
4.1	CONDUCTED EMISSION MEASUREMENT	. 13
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	. 13
4.1.2	TEST INSTRUMENTS	. 13
4.1.3	TEST PROCEDURES	. 14
4.1.4	DEVIATION FROM TEST STANDARD	. 14
4.1.5	TEST SETUP	. 15
4.1.6	EUT OPERATING CONDITIONS	. 15
4.1.7	TEST RESULTS	. 16
4.2	NUMBER OF HOPPING FREQUENCY USED	. 18
4.2.1	LIMIT OF HOPPING FREQUENCY USED	. 18
4.2.2	TEST INSTRUMENTS	. 18
4.2.3	TEST PROCEDURES	. 19
4.2.4	DEVIATION FROM TEST STANDARD	. 19
4.2.5	TEST SETUP	.20
4.2.6	TEST RESULTS	.20
4.3	DWELL TIME ON EACH CHANNEL	. 22
4.3.1	LIMIT OF DWELL TIME USED	.22
4.3.2	TEST INSTRUMENTS	.22
4.3.3	TEST PROCEDURES	.23
4.3.4	DEVIATION FROM TEST STANDARD	. 23
4.3.5	TEST SETUP	. 23
4.3.6	TEST RESULTS	. 24
4.4	CHANNEL BANDWIDTH	. 26
4.4.1	TEST INSTRUMENTS	. 26
4.4.2	TEST PROCEDURE	. 27
4.4.3	DEVIATION FROM TEST STANDARD	. 27
4.4.4	TEST SETUP	. 27



4.4.5	EUT OPERATING CONDITION	. 27
4.4.6	TEST RESULTS	. 28
4.5	HOPPING CHANNEL SEPARATION	. 29
4.5.1	LIMIT OF HOPPING CHANNEL SEPARATION	. 29
4.5.2	TEST INSTRUMENTS	. 29
4.5.3	TEST PROCEDURES	. 30
4.5.4	DEVIATION FROM TEST STANDARD	. 30
4.5.5	TEST SETUP	. 30
4.5.6	TEST RESULTS	. 31
4.6	MAXIMUM PEAK OUTPUT POWER	. 34
4.6.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	. 34
4.6.2	INSTRUMENTS	. 34
4.6.3	TEST PROCEDURES	. 35
4.6.4	DEVIATION FROM TEST STANDARD	. 35
4.6.5	TEST SETUP	. 36
4.6.6	EUT OPERATING CONDITION	. 36
4.6.7	TEST RESULTS	. 37
4.7	RADIATED EMISSION MEASUREMENT	. 38
4.7.1	LIMITS OF RADIATED EMISSION MEASUREMENT	. 38
4.7.2	TEST INSTRUMENTS	. 39
4.7.3	TEST PROCEDURES	.40
4.7.4	DEVIATION FROM TEST STANDARD	.40
4.7.5	TEST SETUP	.41
4.7.6	TEST RESULTS	.42
4.8	CONDUCTED OUT-BAND EMISSION MEASUREMENT	. 48
4.8.1	LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT	.48
4.8.2	TEST INSTRUMENTS	.48
4.8.3	TEST PROCEDURE	.48
4.8.4	DEVIATION FROM TEST STANDARD	.48
4.8.5	EUT OPERATING CONDITION	.48
4.8.6	TEST RESULTS	.49
5	INFORMATION ON THE TESTING LABORATORIES	. 52
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANG	ES
	TO THE EUT BY THE LAB	. 53



1 CERTIFICATION

PRODUCT: UHF RFID (902-928MHz)

BRAND NAME: FAVITE

MODEL NO.: FS-GM102

APPLICANT: Favite Inc.

TESTED DATE: Apr. 02 to 14, 2010

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: 47 CFR Part 15, Subpart C (Section 15.247),

ANSI C63.4-2003

The above equipment (Model: FS-GM102) 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: (arol Gao, DATE: Apr. 16, 2010

(Carol Liao, Specialist)

TECHNICAL

ACCEPTANCE: /orkell , DATE: Apr. 16, 2010

(Hank Chung, Deputy/Manager)

APPROVED BY: , **DATE**: Apr. 16, 2010

(May Chen, Deputy Manager)



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

	APPLIED STANDARD: 47 CFR Part 15, Subpart C					
Standard Section	Test Type and Limit	Result	REMARK			
			Meet the requirement of limit			
15.207	AC Power Conducted Emission	PASS	Minimum passing margin is -22.41dB at 0.373 MHz			
15.247(a)(1) (I)	Number of Hopping Frequency Used Spec.:	PASS	Meet the requirement of limit			
15.247(a)(1) (i)	Dwell Time on Each Channel Spec. : Max. 0.4 second	PASS	Meet the requirement of limit			
15.247(a)(1)	Hopping Channel Separation Spec.: Min. 25 kHz or 20 dB bandwidth, which ever is greater	PASS	Meet the requirement of limit			
15.247(a)(1) (i)	Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System Spec.: Max. 0.5 MHz	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 -0.92dB at 487.94MHz			
15.247(d)	Conducted Out-Band Emission Measurement	PASS	Meet the requirement of limit			
15.203	Antenna Requirement	PASS	Antenna connector is UFL 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:

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

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz ~18GHz)	2.49 dB
Radiated emissions (18GHz ~40GHz)	2.70 dB



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	UHF RFID (902-928MHz)
MODEL NO.	FS-GM102
FCC ID	XLG-FS-GM102
POWER SUPPLY	DC 3.8V from host equipment
MODULATION TYPE	PR-ASK
MODULATION TECHNOLOGY	FHSS
FREQUENCY RANGE	902.75MHz ~ 927.25MHz
NUMBER OF CHANNEL	50
OUTPUT POWER	977.2mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. There is one antenna provided to this EUT as following information:

Antenna Type	Connector Type	Gain (dBi)
Patch	UFL	5

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



3.2 DESCRIPTION OF TEST MODES

Fifty channels are provided to this EUT.

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



3.3 TEST MODE APPLICABLITY AND TESTED CHANNEL DETAIL:

EUT configure mode		Applic	able to		Description
	PLC	RE<1G	RE ³ 1G	APCM	Besonption
-	V	√	√	√	NA

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

Power Line Conducted Emission:

Pre-Scan to determine the worst-case mode from all possible combinations between available modulations and packet types.

Following channel(s) was (were) selected for the final test as listed below.

Available	Tested	Modulation	Modulation
Channel	Channel	Technology	Type
0 to 49	49	FHSS	

Radiated Emission Test (Below 1 GHz):

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.

Available	Tested	Modulation	Modulation
Channel	Channel	Technology	Type
0 to 49	0, 25, 49	FHSS	PR-ASK

Radiated Emission Test (Above 1 GHz):

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.

Available	Tested	Modulation	Modulation
Channel	Channel	Technology	Type
0 to 49	0, 25, 49	FHSS	PR-ASK



Conducted Out-Band Emission 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.

Available	Tested	Modulation	Modulation
Channel	Channel	Technology	Type
0 to 49	0, 49	FHSS	PR-ASK

Antenna Port Conducted 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.

Available	Tested	Modulation	Modulation
Channel	Channel	Technology	Type
0 to 49	0, 25, 49	FHSS	PR-ASK

*** TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE ³ 1G	25deg. C, 66%RH, 1025 hPa	120Vac, 60Hz	Frank Liu
RE<1G	25deg. C, 60%RH, 1025 hPa	120Vac, 60Hz	Nick Tsai
PLC	25deg. C, 75%RH, 1025 hPa	120Vac, 60Hz	Mike Hsieh
APCM	20deg. C, 60%RH, 1025 hPa	120Vac, 60Hz	Wen Yu



3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a UHF RFID (902-928MHz). According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C. (15.247) ANSI C63.4: 2003

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.



3.5 DESCRIPTION OF SUPPORT UNITS

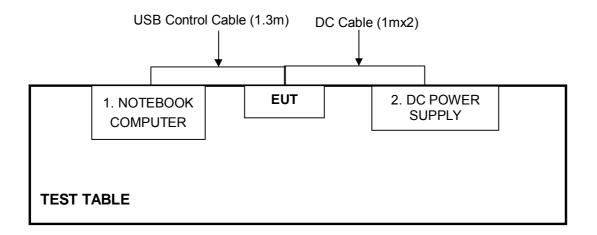
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	ASUS	M2400N	4ANP088103	FCC DoC
I	COMPUTER	A303	101240011	4AN 000103	FCC DOC
	DO DOWED	GOOD WILL			
2	2 DC POWER SUPPLY	INSTRUMENT	GPC-3030D	7700087	NA
		CO., LTD.			

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

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

3.6 CONFIGURATION OF SYSTEM UNDER TEST





4 TEST PROCEDURES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)		
0.15-0.5	Quasi-peak	Average	
0.5-5	66 to 56 56	56 to 46 46	
5-30	60	50	

Notes:

- 1. The lower limit shall apply at the transition frequencies.
- 2. 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 23,2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 08, 2009	June 07, 2010
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
Software	BV ADT_ Cond_V7.3.7	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 Shielded Room No. A.
- 3 The VCCI Con A Registration No. is C-817.



4.1.3 TEST PROCEDURES

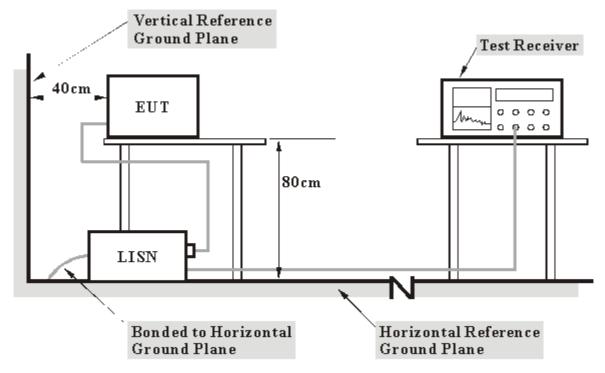
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation



4.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Connect the EUT with the support unit 1 (Notebook computer) which placed on a testing table via one USB control cable.
- c. The support unit 1 (Notebook computer) runs test program "RFID Tracer.exe" to enable EUT under transmission condition continuously at specific channel frequency.



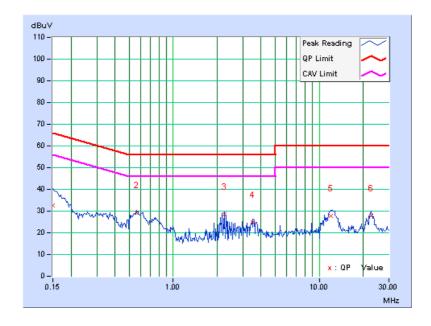
4.1.7 TEST RESULTS

PHASE Line	6dB BANDWIDTH	9 kHz
------------	---------------	-------

	Freq.	Corr.	Readin	g Value	Emis Le	sion vel	Lir	nit	Mar	gin
No		Factor	[dB	(uV)]	[dB ((uV)]	[dB	(uV)]	(dl	3)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.70	22.98	-	32.68	-	66.00	56.00	-33.32	-
2	0.564	9.74	19.55	-	29.29	-	56.00	46.00	-26.71	-
3	2.234	9.79	18.69	ı	28.48	ı	56.00	46.00	-27.52	-
4	3.520	9.85	15.03	-	24.88	ı	56.00	46.00	-31.12	-
5	11.984	10.04	17.86	-	27.90	-	60.00	50.00	-32.10	-
6	22.820	10.22	17.60	-	27.82	Ī	60.00	50.00	-32.18	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- 4. Margin value = Emission level Limit value
- 5. Correction factor = Insertion loss + Cable loss
- 6. Emission Level = Correction Factor + Reading Value.



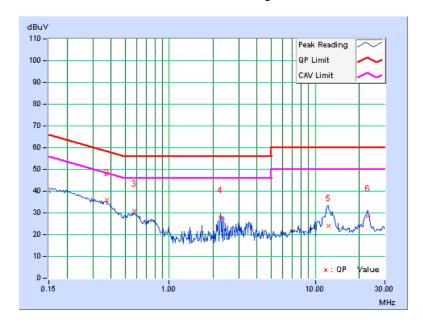


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
-------	-------------	---------------	-------

	Freq.	Corr.	Readin	g Value	Emis Le		Lir	nit	Mar	gin
No		Factor	[dB	(uV)]	[dB ((uV)]	[dB	(uV)]	(dl	3)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.70	30.26	ı	39.96	ı	66.00	56.00	-26.04	-
2	0.373	9.73	26.30	•	36.03	•	58.44	48.44	-22.41	-
3	0.580	9.74	20.99	-	30.73	-	56.00	46.00	-25.27	-
4	2.234	9.79	18.07	-	27.86	ı	56.00	46.00	-28.14	-
5	12.328	10.11	13.89	1	24.00	ı	60.00	50.00	-36.00	-
6	22.957	10.41	17.95	-	28.36	-	60.00	50.00	-31.64	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- 4. Margin value = Emission level Limit value
- 5. Correction factor = Insertion loss + Cable loss
- 6. Emission Level = Correction Factor + Reading Value.





4.2 NUMBER OF HOPPING FREQUENCY USED

4.2.1 LIMIT OF HOPPING FREQUENCY USED

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



4.2.3 TEST PROCEDURES

- 1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- 2. 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.
- 3. 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.
- 4. Set the SA on View mode and then plot the result on SA screen.
- 5. Repeat above procedures until all frequencies measured were complete.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation



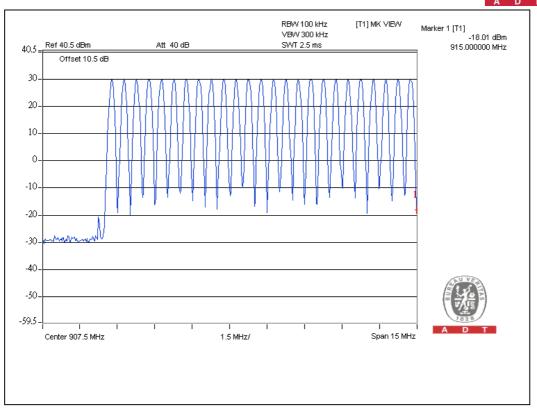
4.2.5 TEST SETUP

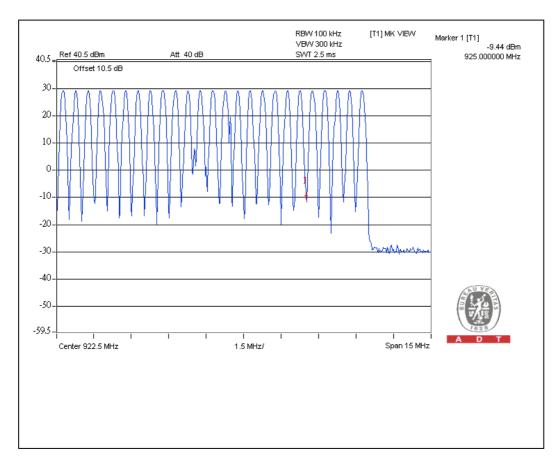


4.2.6 TEST RESULTS

There are 50 hopping frequencies in the hopping mode. Please refer to next two pages for the test result. On the plots, it shows that the hopping frequencies are equally spaced.









4.3 DWELL TIME ON EACH CHANNEL

4.3.1 LIMIT OF DWELL TIME USED

For FHSS, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period. For hybrid systems, the average time of occupancy on any frequency should not exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



4.3.3 TEST PROCEDURES

- 1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- 2. 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.
- 3. 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.
- 4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
- 5. Repeat above procedures until all frequencies measured were complete.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



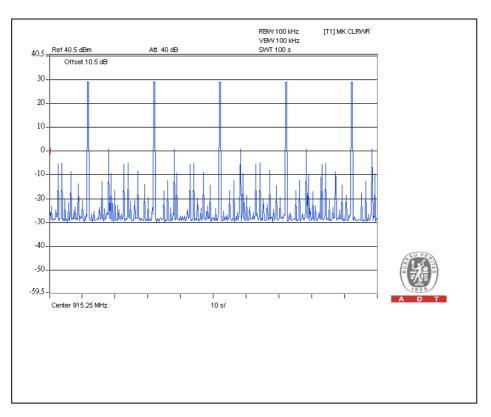


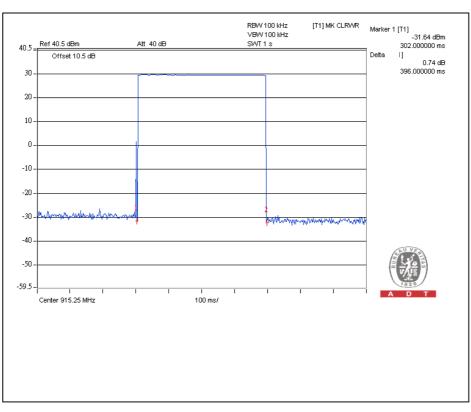
4.3.6 TEST RESULTS

Number of transmission in a 20 s	Length of transmission time (msec)	Result (msec)	Limit (msec)
1 time	396	396	400

Test plots of the transmitting time slot are shown on next page.









4.4 CHANNEL BANDWIDTH

4.4.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



4.4.2 TEST PROCEDURE

- 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. Set a reference level on the measuring instrument equal to the highest peak value.
- Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- 4. Repeat above procedures until all frequencies measured were complete.

4.4.3 DEVIATION FROM TEST STANDARD

No deviation

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITION

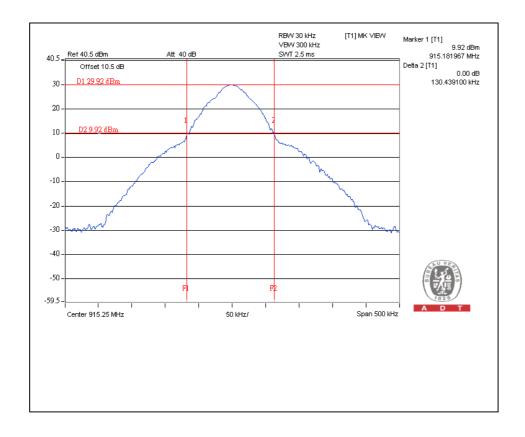
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.



4.4.6 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (kHz)
0	902.75	120
25	915.25	130
49	927.25	120

Channel 25





4.5 HOPPING CHANNEL SEPARATION

4.5.1 LIMIT OF HOPPING CHANNEL SEPARATION

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

4.5.2 TEST INSTRUMENTS

DESCRIPTION &	MODEL NO.	SERIAL	CALIBRATED	CALIBRATED
MANUFACTURER	MODEL NO.	NO.	DATE	UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



4.5.3 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.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP





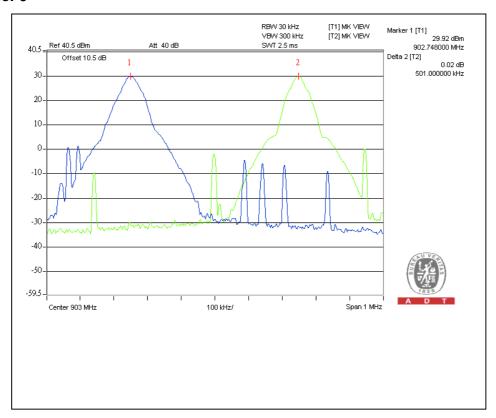
4.5.6 TEST RESULTS

Channel	Frequency (MHz)	Adjacent Channel Separation	Minimum Limit (kHz)	Pass / Fail
0	902.75	501kHz	120	PASS
25	915.25	503kHz	130	PASS
49	927.25	501kHz	120	PASS

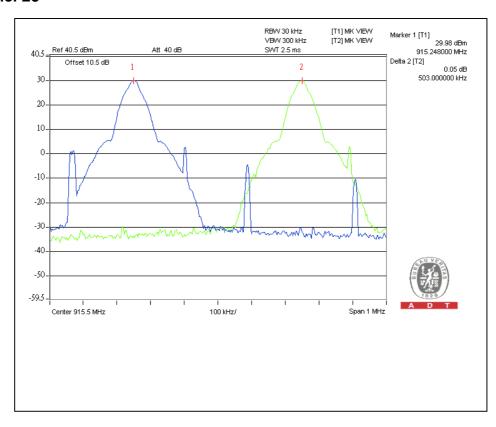
The minimum limit is 20dB bandwidth. Test results please refer to next two pages.



Channel 0

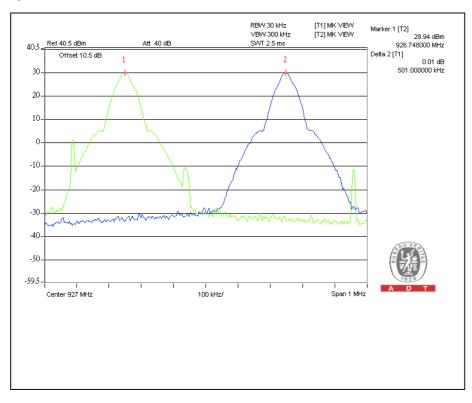


Channel 25





Channel 49





4.6 MAXIMUM PEAK OUTPUT POWER

4.6.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.6.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



4.6.3 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 3 MHz VBW.
- d. Measure the captured power within the band and recording the plot.
- e. Repeat above procedures until all frequencies required were complete.

464	DEVIATION	FROM TEST	STANDARD
+ 0 +	171 VIAIIVIN		CIANNALL

No deviation



4.6.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.6.6 EUT OPERATING CONDITION

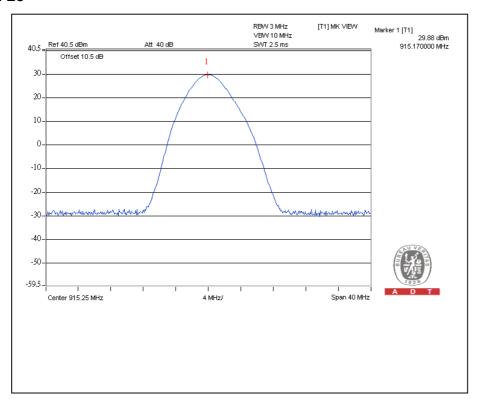
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.



4.6.7 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
0	902.75	955.0	29.8	30	PASS
25	915.25	977.2	29.9	30	PASS
49	927.25	955.0	29.8	30	PASS

Channel 25





4.7 RADIATED EMISSION MEASUREMENT

4.7.1 LIMITS OF RADIATED EMISSION 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

As shown in 15.35(b), 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.



4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 27, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 29, 2009	Apr. 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
R&S Loop Antenna	HFH2-Z2	100070	Feb. 3, 2010	Feb. 2, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8DFB	STCCAB-30M- 1GHz	NA	NA
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.



4.7.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height 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 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

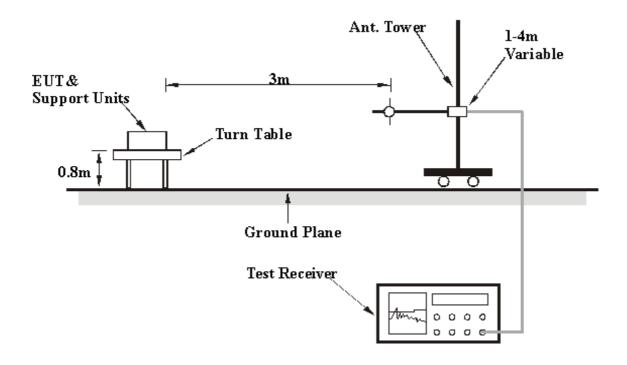
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency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

4.7.4 DEVIATION FROM TEST STANDARD

No deviation



4.7.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



4.7.6 TEST RESULTS

CHANNEL	0	FREQUENCY RANGE	Below 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 1025 hPa	TESTED BY	Nick Tsai

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)	
1	76.58	21.62 QP	40.00	-18.38	2.51 H	107	10.37	11.25	
2	121.07	24.03 QP	43.50	-19.47	1.55 H	128	11.97	12.06	
3	239.81	36.77 QP	46.00	-9.23	1.02 H	146	23.44	13.33	
4	426.39	42.03 QP	46.00	-3.97	1.66 H	173	22.78	19.25	
5	505.02	38.55 QP	46.00	-7.45	1.73 H	215	17.11	21.44	
6	516.17	39.25 QP	46.00	-6.75	1.51 H	125	17.52	21.73	
7	845.92	32.52 QP	46.00	-13.48	1.06 H	233	5.22	27.30	
8	902.00	104.01 PK	116.21	-12.2	1.94 H	169	75.8	28.21	
9	902.00	55.41 AV	114.61	-59.2	1.94 H	169	27.2	28.21	
10	*902.75	136.21 PK			1.95 H	170	108.0	28.21	
11	*902.75	134.61 AV			1.95 H	170	106.4	28.21	

	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	57.38	33.45 QP	40.00	-6.55	1.42 V	149	20.17	13.28	
2	65.81	28.21 QP	40.00	-11.79	1.47 V	342	15.17	13.04	
3	120.07	31.54 QP	43.50	-11.96	1.44 V	31	19.58	11.96	
4	252.51	27.58 QP	46.00	-18.42	1.52 V	226	13.76	13.82	
5	299.91	28.37 QP	46.00	-17.63	1.49 V	42	12.36	16.01	
6	487.21	43.49 QP	46.00	-2.51	1.36 V	181	22.54	20.95	
7	548.87	40.89 QP	46.00	-5.11	1.32 V	156	18.32	22.57	
8	902.00	104.71 PK	116.71	-12.0	1.00 V	184	76.5	28.21	
9	902.00	56.91 AV	115.31	-58.4	1.00 V	184	28.7	28.21	
10	*902.75	136.71 PK			1.00 V	184	108.5	28.21	
11	*902.75	135.31 AV			1.00 V	184	107.1	28.21	

- 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.



			AUI
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~10GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH, 1025 hPa	TESTED BY	Frank Liu

	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	1805.50	47.50 PK	74.00	-26.50	1.00 H	351	19.15	28.35	
2	1805.50	37.90 AV	54.00	-16.10	1.00 H	351	9.55	28.35	
3	2708.25	50.45 PK	74.00	-23.55	1.66 H	177	19.37	31.08	
4	2708.25	41.30 AV	54.00	-12.70	1.66 H	177	10.22	31.08	
5	3611.00	47.20 PK	74.00	-26.80	1.54 H	124	14.78	32.42	
6	3611.00	38.30 AV	54.00	-15.70	1.54 H	124	5.88	32.42	
7	4513.75	42.60 PK	74.00	-31.40	1.29 H	156	7.75	34.85	
8	4513.75	31.30 AV	54.00	-22.70	1.29 H	156	-3.55	34.85	
9	5416.50	47.60 PK	74.00	-26.40	1.24 H	109	11.17	36.43	
10	5416.50	36.07 AV	54.00	-17.93	1.24 H	109	-0.36	36.43	

	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	1805.50	47.10 PK	74.00	-26.90	1.00 V	124	18.75	28.35	
2	1805.50	36.50 AV	54.00	-17.50	1.00 V	124	8.15	28.35	
3	2708.25	55.60 PK	74.00	-18.40	1.00 V	332	24.52	31.08	
4	2708.25	46.40 AV	54.00	-7.60	1.00 V	332	15.32	31.08	
5	3611.00	51.40 PK	74.00	-22.60	1.80 V	169	18.98	32.42	
6	3611.00	42.00 AV	54.00	-12.00	1.80 V	169	9.58	32.42	
7	4513.75	44.30 PK	74.00	-29.70	1.00 V	204	9.45	34.85	
8	4513.75	33.20 AV	54.00	-20.80	1.00 V	204	-1.65	34.85	
9	5416.50	47.40 PK	74.00	-26.60	1.09 V	9	10.97	36.43	
10	5416.50	37.50 AV	54.00	-16.50	1.09 V	9	1.07	36.43	

- 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.



CHANNEL	25	FREQUENCY RANGE	Below 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 1025 hPa	TESTED BY	Nick Tsai

	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	78.02	21.01 QP	40.00	-18.99	2.56 H	251	10.11	10.90	
2	120.31	24.12 QP	43.50	-19.38	1.53 H	124	12.14	11.98	
3	240.11	36.71 QP	46.00	-9.29	1.01 H	143	23.37	13.34	
4	427.00	42.16 QP	46.00	-3.84	1.67 H	171	22.89	19.27	
5	504.02	38.28 QP	46.00	-7.72	1.77 H	216	16.87	21.41	
6	516.02	39.05 QP	46.00	-6.95	1.55 H	120	17.33	21.72	
7	846.91	32.48 QP	46.00	-13.52	1.02 H	227	5.17	27.31	
8	*915.25	135.91 PK			1.99 H	175	107.6	28.31	
9	*915.25	133.81 AV			1.99 H	175	105.5	28.31	

	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	57.35	30.32 QP	40.00	-9.68	1.51 V	144	17.04	13.28	
2	120.00	31.49 QP	43.50	-12.01	1.49 V	42	19.54	11.95	
3	253.11	27.87 QP	46.00	-18.13	1.51 V	218	14.02	13.85	
4	300.80	28.54 QP	46.00	-17.46	1.52 V	47	12.51	16.03	
5	487.94	45.08 QP	46.00	-0.92	1.41 V	179	24.11	20.97	
6	548.87	40.48 QP	46.00	-5.52	1.31 V	152	17.91	22.57	
7	625.07	39.43 QP	46.00	-6.57	1.51 V	344	15.31	24.12	
8	*915.25	136.51 PK			1.00 V	182	108.2	28.31	
9	*915.25	135.01 AV			1.00 V	182	106.7	28.31	

- 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.



CHANNEL	Channel 25	FREQUENCY RANGE	1 ~10GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH, 1025 hPa	TESTED BY	Frank Liu

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Emission Level	Limit (dBuV/m)	Margin (dB)	Antenna Height	Table Angle	Raw Value	Correction Factor			
	(1411 12)	(dBuV/m)	(aba v/III)	(ub)	(m)	(Degree)	(dBuV)	(dB/m)			
1	1830.50	46.40 PK	74.00	-27.60	1.00 H	329	18.02	28.38			
2	1830.50	36.80 AV	54.00	-17.20	1.00 H	329	8.42	28.38			
3	2745.75	50.10 PK	74.00	-23.90	1.56 H	169	18.91	31.19			
4	2745.75	40.70 AV	54.00	-13.30	1.56 H	169	9.51	31.19			
5	3661.00	47.90 PK	74.00	-26.10	1.59 H	136	15.34	32.56			
6	3661.00	38.70 AV	54.00	-15.30	1.59 H	136	6.14	32.56			
7	4576.25	41.90 PK	74.00	-32.10	1.24 H	157	6.94	34.96			
8	4576.25	31.20 AV	54.00	-22.80	1.24 H	157	-3.76	34.96			
9	5491.50	47.80 PK	74.00	-26.20	1.24 H	157	11.25	36.55			
10	5491.50	34.60 AV	54.00	-19.40	1.24 H	157	-1.95	36.55			

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M									
	Freg.	Emission	Limit	Margin	Antenna	Table	Raw	Correction		
No.	(MHz)	Level	(dBuV/m)	(dB)	Height	Angle	Value	Factor		
	(1011 12)	(dBuV/m)	(ubu v/III)	(UD)	(m)	(Degree)	(dBuV)	(dB/m)		
1	1830.50	46.90 PK	74.00	-27.10	1.00 V	129	18.52	28.38		
2	1830.50	35.20 AV	54.00	-18.80	1.00 V	129	6.82	28.38		
3	2745.75	53.70 PK	74.00	-20.30	1.00 V	354	22.51	31.19		
4	2745.75	44.60 AV	54.00	-9.40	1.00 V	354	13.41	31.19		
5	3661.00	51.20 PK	74.00	-22.80	1.83 V	165	18.64	32.56		
6	3661.00	41.90 AV	54.00	-12.10	1.83 V	165	9.34	32.56		
7	4576.25	41.60 PK	74.00	-32.40	1.00 V	213	6.64	34.96		
8	4576.25	33.70 AV	54.00	-20.30	1.00 V	213	-1.26	34.96		
9	5491.50	43.70 PK	74.00	-30.30	1.00 V	121	7.15	36.55		
10	5491.50	34.60 AV	54.00	-19.40	1.00 V	121	-1.95	36.55		

- 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.



CHANNEL	49	FREQUENCY RANGE	Below 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 1025 hPa	TESTED BY	Nick Tsai

	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	77.95	20.76 QP	40.00	-19.24	2.52 H	252	9.84	10.92		
2	120.00	23.79 QP	43.50	-19.71	1.55 H	223	11.84	11.95		
3	239.99	36.89 QP	46.00	-9.11	1.00 H	145	23.56	13.33		
4	287.98	32.28 QP	46.00	-13.72	1.00 H	20	16.83	15.45		
5	383.98	32.46 QP	46.00	-13.54	1.00 H	133	14.33	18.13		
6	400.00	33.89 QP	46.00	-12.11	1.00 H	189	15.35	18.54		
7	427.00	42.27 QP	46.00	-3.73	1.69 H	173	23.00	19.27		
8	503.97	38.33 QP	46.00	-7.67	1.80 H	218	16.92	21.41		
9	515.97	38.97 QP	46.00	-7.03	1.56 H	117	17.25	21.72		
10	846.83	32.58 QP	46.00	-13.42	1.00 H	231	5.27	27.31		
11	*927.25	133.41 PK			1.98 H	175	105.0	28.41		
12	*927.25	131.01 AV			1.98 H	175	102.6	28.41		
13	928.00	100.91 PK	113.41	-12.50	1.98 H	171	72.5	28.41		
14	928.00	55.71 AV	111.01	-55.30	1.98 H	171	27.3	28.41		

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
No.	Freq.	Emission Level	Limit	Margin	Antenna	Table	Raw Value	Correction Factor			
NO.	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	Height (m)	Angle (Degree)	(dBuV)	(dB/m)			
1	57.45	33.32 QP	40.00	-6.68	1.47 V	147	20.04	13.28			
2	119.96	31.23 QP	43.50	-12.27	1.47 V	36	19.28	11.95			
3	252.15	27.34 QP	46.00	-18.66	1.47 V	221	13.54	13.80			
4	300.42	28.14 QP	46.00	-17.86	1.53 V	44	12.12	16.02			
5	488.02	44.31 QP	46.00	-1.69	1.38 V	184	23.34	20.97			
6	549.00	40.67 QP	46.00	-5.33	1.33 V	153	18.10	22.57			
7	624.99	39.60 QP	46.00	-6.40	1.52 V	19	15.48	24.12			
8	*927.25	136.41 PK			1.00 V	183	108.0	28.41			
9	*927.25	135.01 AV			1.00 V	183	106.6	28.41			
10	928.00	103.61 PK	116.41	-12.80	1.00 V	184	75.2	28.41			
11	928.00	55.81 AV	115.01	-59.20	1.00 V	184	27.4	28.41			

- **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.



CHANNEL	Channel 49	FREQUENCY RANGE	1 ~10GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH, 1025 hPa	TESTED BY	Frank Liu

	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	1854.52	45.60 PK	74.00	-28.40	1.00 H	322	17.20	28.40			
2	1854.52	38.40 AV	54.00	-15.60	1.00 H	322	10.00	28.40			
3	2781.75	50.00 PK	74.00	-24.00	1.68 H	104	18.71	31.29			
4	2781.75	40.50 AV	54.00	-13.50	1.68 H	104	9.21	31.29			
5	3709.02	47.80 PK	74.00	-26.20	1.55 H	51	15.10	32.70			
6	3709.02	39.20 AV	54.00	-14.80	1.55 H	51	6.50	32.70			
7	4636.27	41.60 PK	74.00	-32.40	1.04 H	153	6.52	35.08			
8	4636.27	31.40 AV	54.00	-22.60	1.04 H	153	-3.68	35.08			
9	5563.50	47.40 PK	74.00	-26.60	1.21 H	104	10.67	36.73			
10	5563.50	35.40 AV	54.00	-18.60	1.21 H	104	-1.33	36.73			

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
No.	Freq.	Emission Level	Limit	Margin	Antenna Height	Table Angle	Raw Value	Correction Factor			
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(m)	(Degree)	(dBuV)	(dB/m)			
1	1854.52	47.20 PK	74.00	-26.80	1.00 V	103	18.80	28.40			
2	1854.52	36.40 AV	54.00	-17.60	1.00 V	103	8.00	28.40			
3	2781.75	51.10 PK	74.00	-22.90	1.00 V	328	19.81	31.29			
4	2781.75	42.90 AV	54.00	-11.10	1.00 V	328	11.61	31.29			
5	3709.00	49.60 PK	74.00	-24.40	1.06 V	0	16.90	32.70			
6	3709.00	41.30 AV	54.00	-12.70	1.06 V	0	8.60	32.70			
7	4636.25	41.90 PK	74.00	-32.10	1.00 V	103	6.82	35.08			
8	4636.25	30.60 AV	54.00	-23.40	1.00 V	103	-4.48	35.08			
9	5563.50	43.70 PK	74.00	-30.30	1.00 V	124	6.97	36.73			
10	5563.50	34.80 AV	54.00	-19.20	1.00 V	124	-1.93	36.73			

- 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.



4.8 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.8.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.8.2 TEST INSTRUMENTS

DESCRIPTION &	MODEL NO.	SERIAL	CALIBRATED	CALIBRATED
MANUFACTURER		NO.	DATE	UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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 100 kHz with suitable frequency span including 20 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, middle and highest channel frequencies individually.

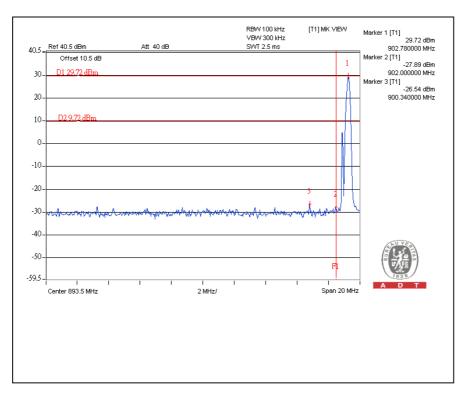


4.8.6 TEST RESULTS

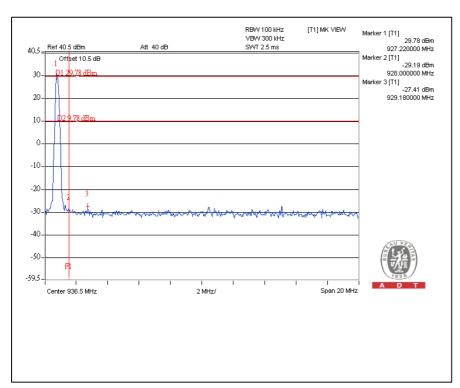
The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).



CH0

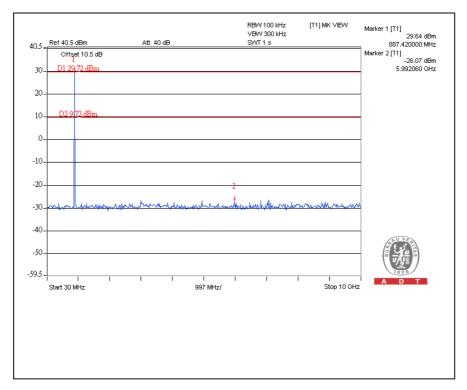


CH49

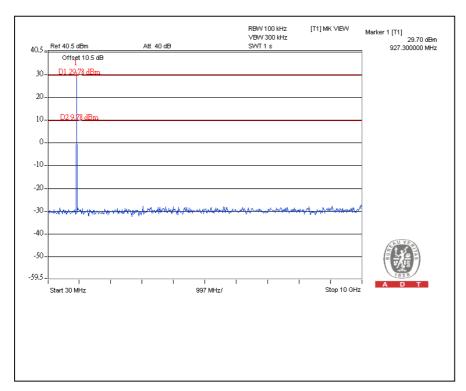




CH0



CH49





5 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.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

 Linko EMC/RF Lab:
 Hsin Chu EMC/RF Lab:

 Tel: 886-2-26052180
 Tel: 886-3-5935343

 Fax: 886-2-26051924
 Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab: Web Site: www.adt.com.tw

Tel: 886-3-3183232 Fax: 886-3-3185050

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



6 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 ---