



FCC CERTIFICATION TEST REPORT

REPORT NO.: FC130823C23

MODEL NO.: F-02F

FCC ID: VQK-F02F

RECEIVED: Aug. 23, 2013

TESTED: Sep. 09 ~ Sep. 24, 2013

ISSUED: Oct. 18, 2013

APPLICANT: FUJITSU LIMITED

ADDRESS: 1-1, Kamikodanaka 4-chome, Nakahara-ku,
Kawasaki 211-8588, Japan

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

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

This report should not be used by the client to claim product certification, approval, or endorsement by TAF, NVLAP, NIST or any government agencies.



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

Table of Contents

RELEASE CONTROL RECORD	3
1 CERTIFICATION	4
2 SUMMARY OF TEST RESULTS.....	5
2.1 MEASUREMENT UNCERTAINTY	5
3 GENERAL INFORMATION	6
3.1 GENERAL DESCRIPTION OF EUT	6
3.2 DESCRIPTION OF TEST MODES	7
3.3 DESCRIPTION OF SUPPORT UNITS.....	8
3.4 CONFIGURATION OF SYSTEM UNDER TEST	9
4 TEST TYPES AND RESULTS.....	10
4.1 CONDUCTED EMISSION MEASUREMENT.....	10
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	10
4.1.2 TEST INSTRUMENTS	10
4.1.3 TEST PROCEDURES.....	11
4.1.4 DEVIATION FROM TEST STANDARD	11
4.1.5 TEST SETUP	12
4.1.6 EUT OPERATING CONDITIONS.....	12
4.1.7 TEST RESULTS	13
4.2 RADIATED EMISSION MEASUREMENT.....	15
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	15
4.2.2 TEST INSTRUMENTS	17
4.2.3 TEST PROCEDURES.....	19
4.2.4 DEVIATION FROM TEST STANDARD	20
4.2.5 TEST SETUP	21
4.2.6 EUT OPERATING CONDITIONS.....	21
4.2.7 TEST RESULTS	22
5 PHOTOGRAPHS OF THE TEST CONFIGURATION	26
6 INFORMATION ON THE TESTING LABORATORIES	27
7 APPENDIX A – MODIFICATION RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	28



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FC130823C23	Original release	Oct. 18, 2013



1 CERTIFICATION

PRODUCT: Tablet PC
MODEL: F-02F
BRAND: FUJITSU
APPLICANT: FUJITSU LIMITED
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Sep. 09 ~ Sep. 24, 2013
STANDARD: **FCC Part 15, Subpart B, Class B**
ICES-003:2012 Issue 5, Class B
ANSI C63.4:2009

The above equipment (Model: F-02F) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : , **DATE :** Oct. 18, 2013
Pettie Chen / Senior Specialist

APPROVED BY : , **DATE :** Oct. 18, 2013
David Liu / Technical Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications.

EMISSION			
Standard	Test Type	Result	Remarks
FCC Part 15, Subpart B, Class B	Conducted emissions test	PASS	Meet the requirement of limit. Minimum passing margin is -8.16dB at 1.48047MHz.
ICES-003:2012 Issue 5, Class B	Radiated emissions test (30MHz~40GHz)	PASS	Meet the requirement of limit. Minimum passing margin is -3.12dB at 348.80MHz.

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	Frequency	Uncertainty
Conducted emissions	150kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 1GHz	4.12 dB
	Above 1GHz	2.26 dB

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Tablet PC
MODEL NO.	F-02F
POWER SUPPLY	3.8Vdc (Battery) 5.0Vdc (Adapter or host equipment) 12.0Vdc (Cradle)
I/O PORTS	Refer to users' manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

- The EUT contains following accessories.

No.	Product	Brand	Model	Description
1	Cradle	NTT docomo	CA50601-1841	Input: 12.0V, 2000mA Output: 12.0V, 2000mA
2	Cradle's adapter	NTT docomo	TA08017-B222	Input: 100-240Vac, 1000mA Output: 12.0Vdc, 3000mA 1m non-shielded AC cable without core 1.8m non-shielded DC cable with 1 core
3	Battery	Fujitsu Limited	CA54310-0048	3.8Vdc, 9600mA

- The EUT uses following support unit.

No.	Product	Brand	Model	Description
1	Adapter	NTT docomo	AC Adaptor 04	Input: 100-240Vac, 0.22A, 50-60Hz Output: 5.0V, 1.8A 1.05m DC cable with 2 cores

- SW version is R23.5e.
- HW version is V2.0.0.
- IMEI code is 357614050005351.
- The EUT's highest operating frequency is 5GHz. Therefore the radiated emissions tests are tested up to 40GHz.
- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

The EUT consumes power from adapter, which is designed with AC power supply of 100-240Vac, 50-60Hz or from cradle with AC power supply of 100-240Vac.

For conducted emissions test, the EUT has been pre-tested under the following test modes, and test **mode 3** was found to be the worst case for final test.

Test Mode	Test Condition
1	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + Adapter
2	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + USB Charging
3	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + Earphone + Adapter + Cradle

For radiated emissions below 1GHz test, the EUT has been pre-tested under the following test modes, and **test mode 6** was found to be the worst case for final test.

Test Mode	Test Condition
1	GSM 850 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + Earphone + Adapter
2	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + Adapter
3	WCDMA Band5 Idle + WIFI Idle + BT Idle + GPS RX + Camera (front) + Earphone + Adapter
4	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + Camera (rear) + Earphone + Adapter
5	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + NFC Idle + RFID Idle + Battery
6	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + Earphone + Adapter + Cradle
7	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + USB Charging

Test results are presented in the report as below.

Test Result	Test Condition
Conducted emissions test	
-	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + Earphone + Adapter + Cradle
Radiated emissions tests	
-	GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD card) + Earphone + Adapter + Cradle

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	Remark
A.	EARPHONE	APPLE	M3770FE/B	NA	NA	-
B.	BLUETOOTH EARPHONE	ELECOM	LBT-MPHS400	NA	NA	-
C.	UNIVERSAL RADIO COMMUNICATION TESTER	R&S	CMU200	122554	NA	-
D.	GPS SIMULATOR	PENDULUM	GSG-54	191121	NA	-
E.	WIRELESS N DUAL BAND ROUTER	D-LINK	DIR-815	PVK21B5000399	KA21R815A1	-
F.	Micro SD CARD (8G)	Transcend	NA	NA	NA	-
G.	SIM CARD	R&S	CMW-Z04	NA	NA	-

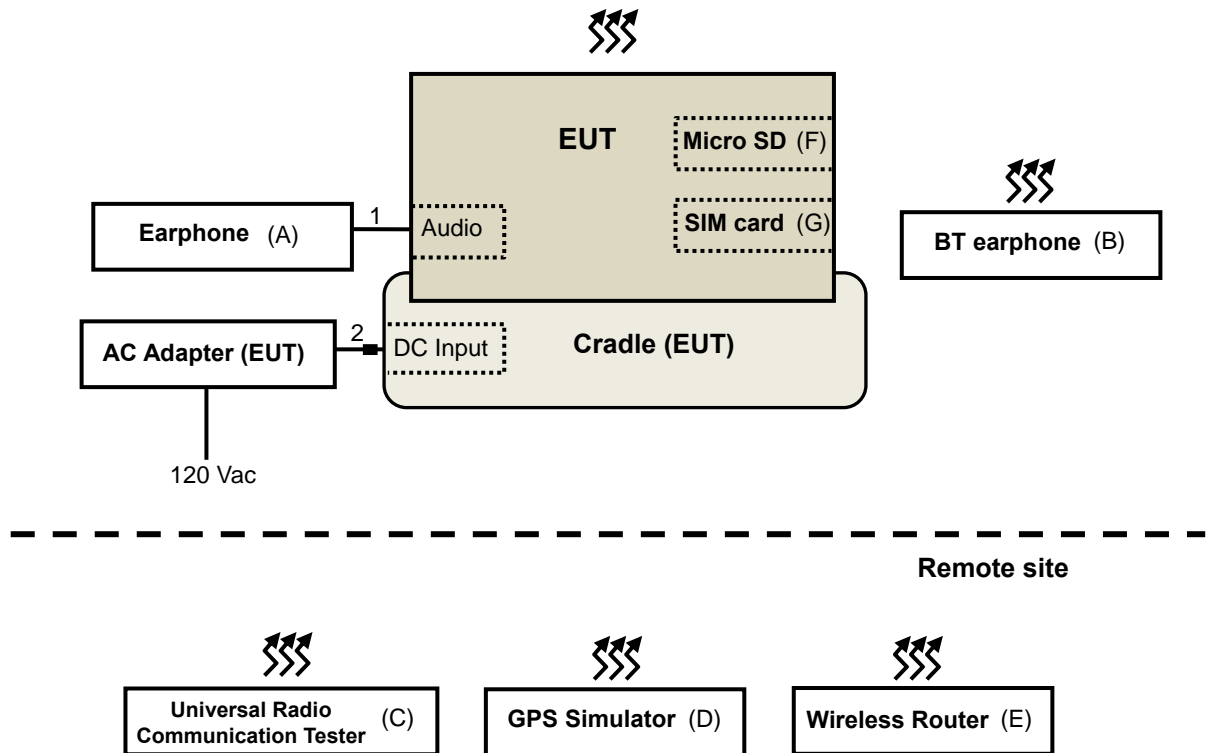
NOTE:

1. All power cords of the above support units are non-shielded (1.8 m).
2. Items B-E acted as communication partners to transfer data.

No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1.	Earphone cable	1	1.0	N	0	-
2.	Power cable	1	1.8	N	1	Attached on adapter

NOTE: The core(s) is(are) originally attached to the cable(s).

3.4 CONFIGURATION OF SYSTEM UNDER TEST



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSIONS MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSIONS MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (section: 15.107)

ICES-003:2012 Issue 5 (section: 6.1)

Frequency (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15-0.5	79	66	66-56	56-46
0.5-5	73	60	56	46
5-30	73	60	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 0.50 MHz.
 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 09, 2012	Nov. 08, 2013
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 21, 2012	Dec. 20, 2013
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 17, 2013	Jul. 16, 2014
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 2.
 3. The VCCI Site Registration No. is C-2047.

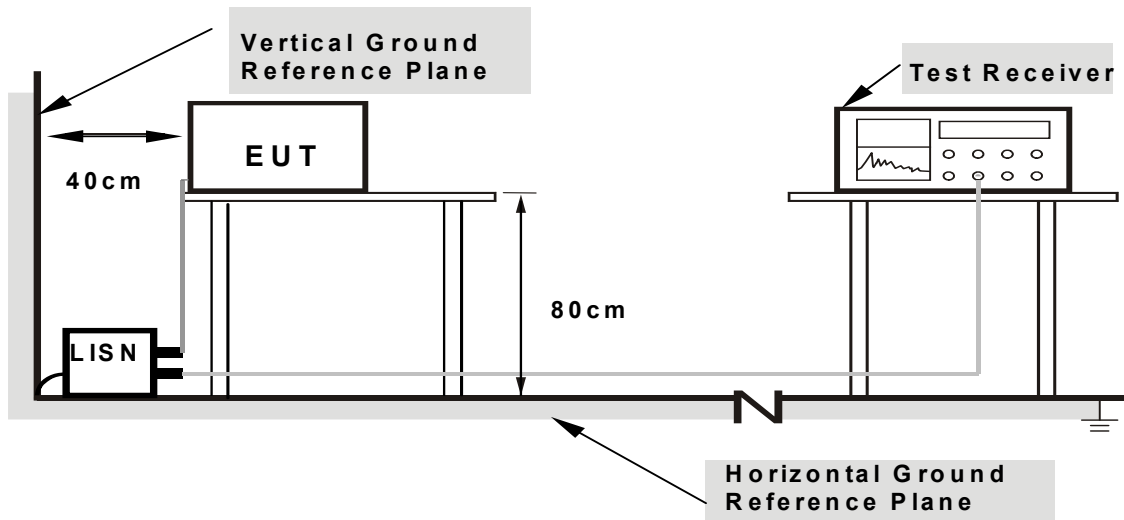
4.1.3 TEST PROCEDURES

- 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 150 kHz to 30 MHz 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) 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 related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the cradle and located it on the test table, and the EUT was powered by cradle.
- b. The EUT linked with the Universal Radio Communication Tester, Wireless Router, Bluetooth Earphone and GPS Simulator, which acted as communication partners, and then set the GSM, WIFI and Bluetooth functions in idle condition.
- c. The EUT played MP4 function and sent audio signals to the earphone.

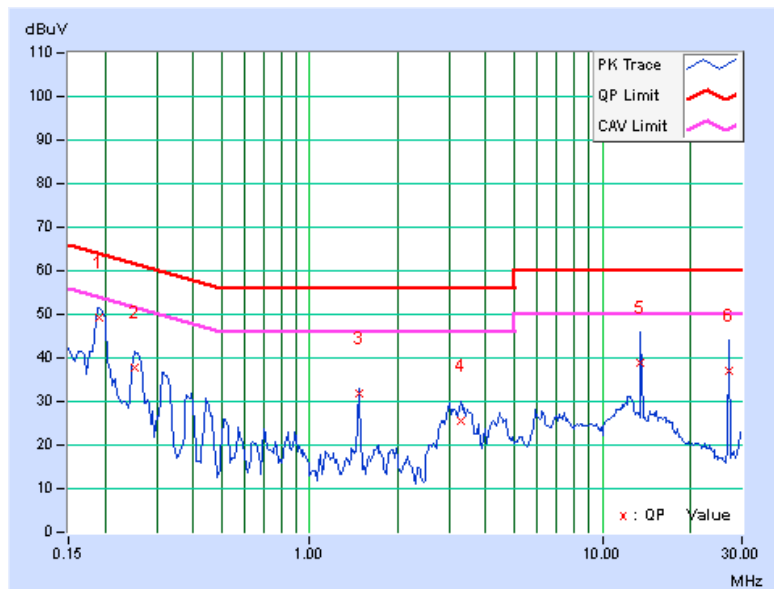
4.1.7 TEST RESULTS

INPUT POWER (CRADLE)	120 Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 60% RH	PHASE	Line 1
TESTED BY	Ben Huang		

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	0.19034	0.17	49.26	38.14	49.43	38.31	64.02	54.02	-14.59	-15.71
2	0.25156	0.18	37.62	25.07	37.80	25.25	61.71	51.71	-23.91	-26.46
3	1.48047	0.27	31.62	31.46	31.89	31.73	56.00	46.00	-24.11	-14.27
4	3.26953	0.34	25.17	13.37	25.51	13.71	56.00	46.00	-30.49	-32.29
5	13.55859	0.50	38.28	33.71	38.78	34.21	60.00	50.00	-21.22	-15.79
6	27.12109	0.56	36.34	31.43	36.90	31.99	60.00	50.00	-23.10	-18.01

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



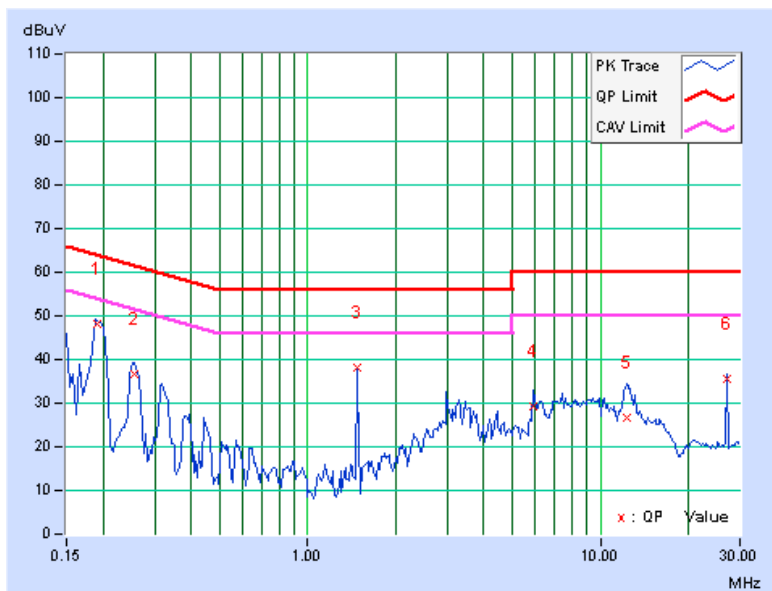


INPUT POWER (CRADLE)	120 Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 60% RH	PHASE	Line 2
TESTED BY	Ben Huang		

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	0.19171	0.18	47.98	38.04	48.16	38.22	63.96	53.96	-15.80	-15.74
2	0.25547	0.20	36.37	25.81	36.57	26.01	61.58	51.58	-25.01	-25.57
3	1.48047	0.25	37.75	37.59	38.00	37.84	56.00	46.00	-18.00	-8.16
4	5.92188	0.42	28.97	28.39	29.39	28.81	60.00	50.00	-30.61	-21.19
5	12.28125	0.54	26.24	17.59	26.78	18.13	60.00	50.00	-33.22	-31.87
6	27.12118	0.65	34.83	29.70	35.48	30.35	60.00	50.00	-24.52	-19.65

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



4.2 RADIATED EMISSIONS MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSIONS MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (section: 15.109)

ICES-003:2012 Issue 5 (section: 6.2)

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

Radiated Emissions Limits at 10 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5	Not defined	Not defined
1000-3000	Avg: 49.5	Avg: 43.5		
Above 3000	Peak: 69.5	Peak: 63.5	Not defined	Not defined

Radiated Emissions Limits at 3 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960			57.5	47.5
960-1000	60	54	Avg: 56 Peak: 76	Avg: 50 Peak: 70
1000-3000	Avg: 60	Avg: 54		
Above 3000	Peak: 80	Peak: 74	Avg: 60 Peak: 80	Avg: 54 Peak: 74

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).
 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. QP detector shall be applied if not specified.

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 TEST INSTRUMENTS

Frequency range 30MHz~1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ (V)	ESIB7	100187	Dec. 27, 2012	Dec. 26, 2013
Test Receiver ROHDE & SCHWARZ (H)	ESIB7	100188	May 21, 2013	May 20, 2014
BILOG Antenna SCHWARZBECK (V)	VULB9168	9168-148	Mar. 19, 2013	Mar. 18, 2014
BILOG Antenna SCHWARZBECK (H)	VULB9168	9168-149	Mar. 19, 2013	Mar. 19, 2014
Preamplifier Agilent (V)	8447D	2944A10636	Oct. 20, 2012	Oct. 19, 2013
Preamplifier Agilent (H)	8447D	2944A10637	Oct. 20, 2012	Oct. 19, 2013
Preamplifier Agilent	8449B	3008A01959	Oct. 25, 2012	Oct. 24, 2013
RF signal cable Woken (V)	8D-FB	Cable-Hych1-01	Oct. 26, 2012	Oct. 25, 2013
RF signal cable Woken (H)	8D-FB	Cable-Hych1-02	Oct. 26, 2012	Oct. 25, 2013
Software BV ADT	BV ADT_Radiated_ V 7.7.03.8	NA	NA	NA
Antenna Tower (V)	MFA-440	9707	NA	NA
Antenna Tower (H)	MFA-440	970705	NA	NA
Turn Table	DS430	50303	NA	NA
Controller (V)	MF7802	074	NA	NA
Controller (H)	MF7802	08093	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 Chamber 1.
 3. The FCC Site Registration No. is 477732.
 4. The IC Site Registration No. is IC 7450F-1.
 5. The VCCI Site Registration No. is R-1893, G-113.

Frequency range above 1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E4446A	MY51100039	Jan. 31, 2013	Jan. 30, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Mar. 20, 2013	Mar. 19, 2014
RF signal cable Woken	8D-FB	NA	Mar. 23, 2013	Mar. 22, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2012	Dec. 24, 2013
Preamplifier Agilent (Below 1GHz)	8447D	2944A10629	Oct. 26, 2012	Oct. 25, 2013
Preamplifier Agilent (Above 1GHz)	8449B	3008A01959	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNER	SUCOFLEX 104	230132/4	Oct. 26, 2012	Oct. 25, 2013
RF signal cable HUBER+SUHNER	SUCOFLEX 104	309223/4+309 218/4	Oct. 26, 2012	Oct. 25, 2013
Software BV ADT	BV ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Controller BV ADT	SC100	SC93021702	NA	NA
RF signal cable HUBER+SUHNER	SUCOFLEX 102	38218/2+ 37433/2	Oct. 26, 2012	Oct. 25, 2013
Fix tool for Boresight antenna tower	BAF-01	2	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013

- 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 2.
 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 686814.
 5. The IC Site Registration No. is IC 7450F-2.
 6. The VCCI Site Registration No. is G-18.

4.2.3 TEST PROCEDURES

Frequency range 30MHz~1GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-Peak (QP) detection at frequency below 1GHz.

Frequency range above 1GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna can be varied from 1 meter to 4 meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect 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 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 and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.

NOTE:

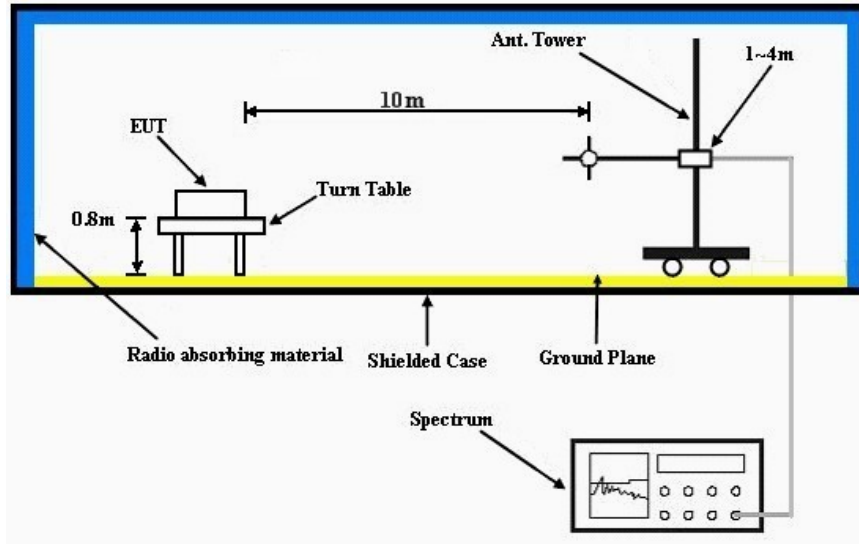
1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak (PK) detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz for Average (AV) detection at frequency above 1GHz.
2. For measurement of frequency above 1000MHz, the EUT was set 3 meters away from the receiver antenna.

4.2.4 DEVIATION FROM TEST STANDARD

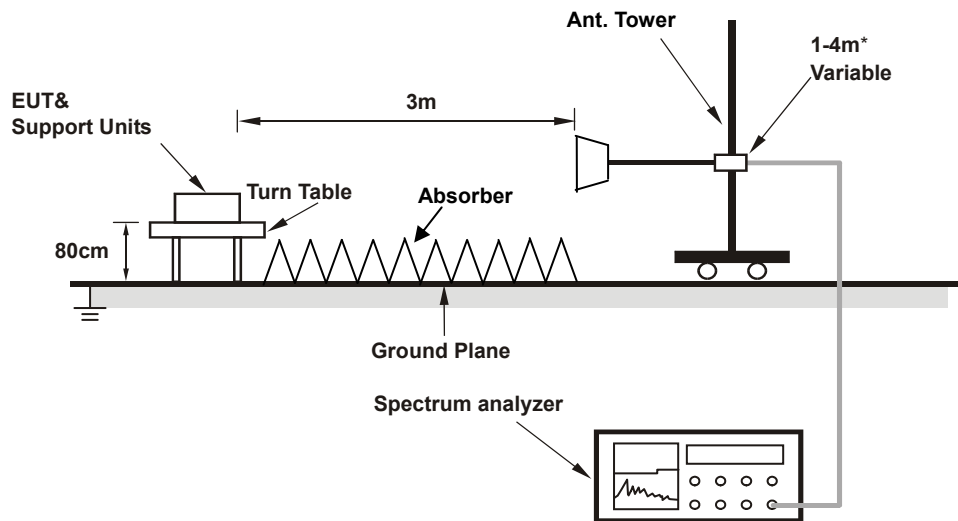
No deviation.

4.2.5 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



* : depends on the EUT height and the antenna 3dB beamwidth both.

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

4.2.6 EUT OPERATING CONDITIONS

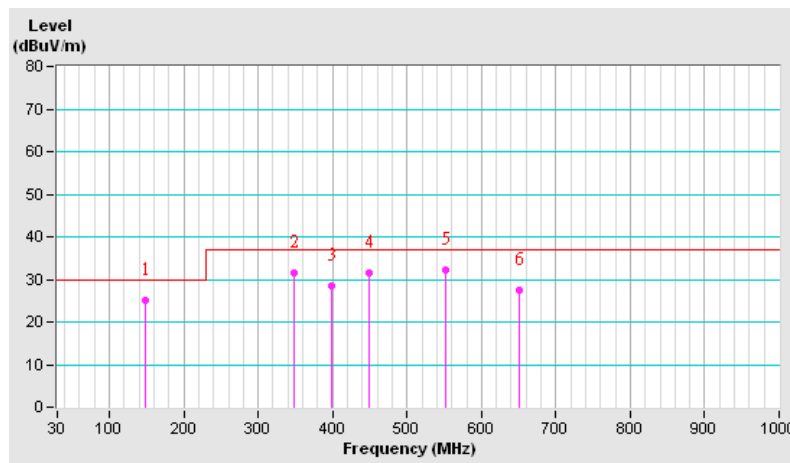
Same as 4.1.6.

4.2.7 TEST RESULTS

INPUT POWER (CRADLE)	120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 69% RH	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Scott Yang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 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	148.58	25.12 QP	30.00	-4.88	3.00 H	82	38.87	-13.75
2	348.80	31.36 QP	37.00	-5.64	1.50 H	100	41.97	-10.61
3	399.34	28.42 QP	37.00	-8.58	3.00 H	95	38.03	-9.61
4	449.88	31.62 QP	37.00	-5.38	2.50 H	169	39.77	-8.15
5	550.96	32.34 QP	37.00	-4.66	2.00 H	57	38.97	-6.63
6	650.10	27.30 QP	37.00	-9.70	2.00 H	60	31.59	-4.29

- 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



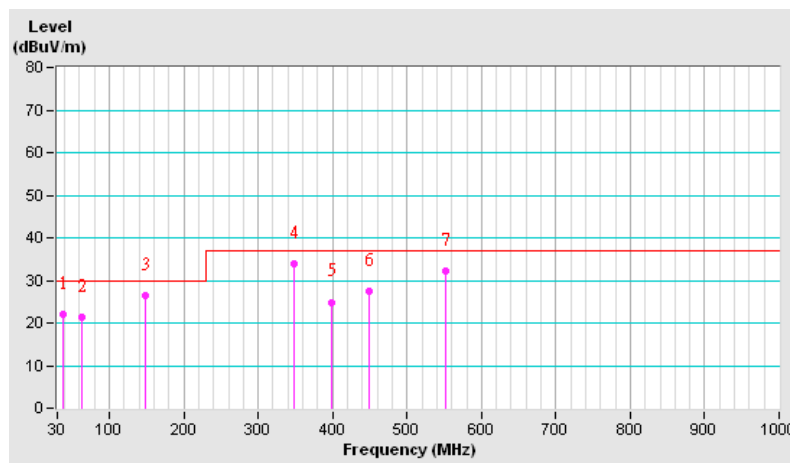


A D T

INPUT POWER (CRADLE)	120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 69% RH	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Scott Yang		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 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	37.78	22.00 QP	30.00	-8.00	1.00 V	130	36.97	-14.97
2	63.05	21.44 QP	30.00	-8.56	1.50 V	144	35.92	-14.48
3	148.58	26.58 QP	30.00	-3.42	1.00 V	216	40.08	-13.50
4	348.80	33.88 QP	37.00	-3.12	1.00 V	179	44.13	-10.25
5	399.34	24.92 QP	37.00	-12.08	1.00 V	140	34.08	-9.16
6	449.88	27.38 QP	37.00	-9.62	1.00 V	217	35.15	-7.77
7	550.96	32.22 QP	37.00	-4.78	3.50 V	136	38.22	-6.00

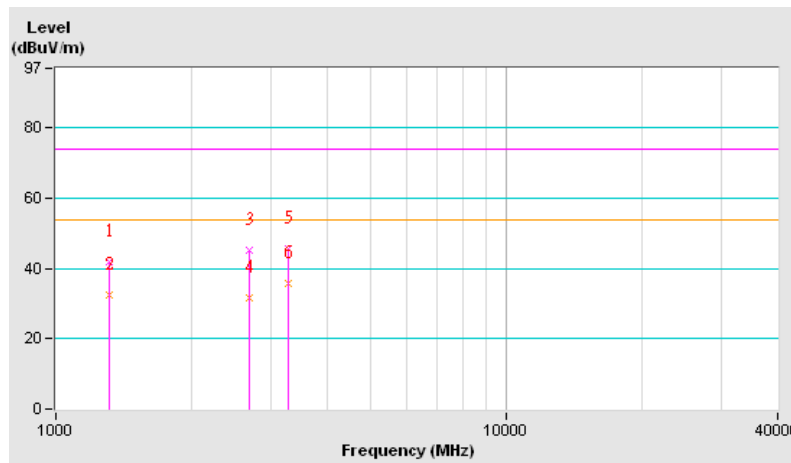
- REMARKS:**
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission Level – Limit value



INPUT POWER (CRADLE)	120 Vac, 60 Hz	FREQUENCY RANGE	1-40GHz
ENVIRONMENTAL CONDITIONS	23 deg. C, 62% RH	DETECTOR FUNCTION & BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Mick Chou		

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	1312.01	42.01 PK	74.00	-31.99	1.00 H	135	49.70	-7.69
2	1312.01	32.33 AV	54.00	-21.67	1.00 H	135	40.02	-7.69
3	2691.55	45.21 PK	74.00	-28.79	1.27 H	193	48.08	-2.87
4	2691.55	31.58 AV	54.00	-22.42	1.27 H	193	34.45	-2.87
5	3275.15	45.62 PK	74.00	-28.38	1.15 H	203	47.26	-1.64
6	3275.15	35.83 AV	54.00	-18.17	1.15 H	203	37.47	-1.64

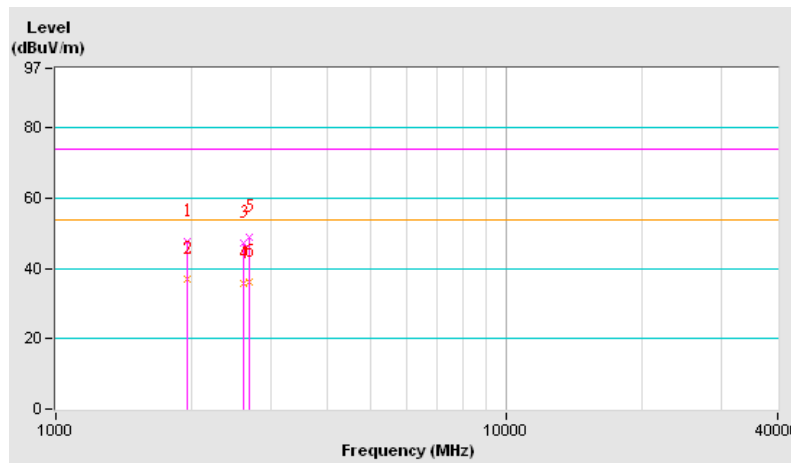
- REMARKS:**
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission Level – Limit value



INPUT POWER (CRADLE)	120 Vac, 60 Hz	FREQUENCY RANGE	1-40GHz
ENVIRONMENTAL CONDITIONS	23 deg. C, 62% RH	DETECTOR FUNCTION & BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Mick Chou		

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	1963.06	47.55 PK	74.00	-26.45	1.50 V	169	52.93	-5.38
2	1963.06	36.79 AV	54.00	-17.21	1.50 V	169	42.17	-5.38
3	2614.88	47.11 PK	74.00	-26.89	1.22 V	157	50.23	-3.12
4	2614.88	35.63 AV	54.00	-18.37	1.22 V	157	38.75	-3.12
5	2684.90	48.75 PK	74.00	-25.25	1.16 V	190	51.64	-2.89
6	2684.90	36.30 AV	54.00	-17.70	1.16 V	190	39.19	-2.89

- 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 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.



7 APPENDIX A – MODIFICATION RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

--- END ---