



FCC CERTIFICATION TEST REPORT

REPORT NO.: FC120823C14

MODEL NO.: F-03E

RECEIVED: Aug. 23, 2012

TESTED: Sep. 19 ~ Sep. 20, 2012

ISSUED: Oct. 10, 2012

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

TEST LOCATION: 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, 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



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FC120823C14	Original release	Oct. 08, 2012



1 CERTIFICATION

PRODUCT: Mobile Phone
MODEL: F-03E
BRAND: NTT DOCOMO
APPLICANT: FUJITSU LIMITED
TESTED: Sep. 19 ~ Sep. 20, 2012
TEST SAMPLE: ENGINEERING SAMPLE
STANDARD: FCC Part 15, Subpart B, Class B
ICES-003:2012, Class B
ANSI C63.4:2009

The above equipment (Model: F-03E) 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. 08, 2012
Pettie Chen / Senior Specialist

APPROVED BY :  , DATE : Oct. 08, 2012
David Liu / Senior Engineer

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 ICES-003:2012, Class B	Conducted emission test	PASS	Meet the requirement of limit. Minimum passing margin is -12.30dB at 4.22266MHz.
	Radiated emission test (30MHz~40GHz)	PASS	Meet the requirement of limit. Minimum passing margin is -3.20dB at 31.98MHz.

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 emission	150kHz ~ 30MHz	2.44 dB
Radiated emission	30MHz ~ 1GHz	4.12 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.

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	Mobile Phone
MODEL NO.	F-03E
POWER SUPPLY	5.1Vdc (adapter) 3.8Vdc (battery)
I/O PORTS	Refer to users' manual
DATA CABLE	NA
ACCESSORY DEVICES	Refer to Note as below

NOTE:

1. The EUT's highest operating frequency is 5.725GHz.
2. The EUT contains following accessory and components.

ITEM	BRAND	MODEL	SPECIFICATION
Battery	FUJITSU	F29	Rating: 3.8Vdc, 1810mAh Type: Li-ion
LCD Panel	JDI	GCX162BLP-7	--
Photo Camera	ALTEK	AOA0803	--
Video Camera	ALTEK	ASF0104	--

3. The following accessories are for support units only.

ITEM	BRAND	MODEL	SPECIFICATION
Adapter	Motorola	DC4050US0301	Input: 100-240Vac, 50/60Hz, 0.2A Output: 5.1Vdc, 850mA
USB cable	Motorola		1.0m

4. SW version is LYDV01R13Ge
5. HW version is DVT2.
6. IMEI code: 353737050011543, 353737050009323.
7. The above EUT information is declared by manufacturer and for more detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

The EUT was tested with following modes.

TEST MODE	TEST CONDITION
CONDUCTED EMISSION TEST	
1	GSM 850 Idle + BT Idle + WLAN (2.4G) Idle + USB Cable + Adapter + Earphone + MPEG4 + Battery
2	PCS 1900 Idle + BT Idle + WLAN (5G) Idle + USB Cable + Adapter + Earphone + Camera + Battery
3	WCDMA 850 Idle + BT Idle + WLAN (2.4G) Idle + GPS Rx + USB Cable + USB link + Earphone + Battery
4	GSM 850 Idle + BT Idle + WLAN (5G) Idle + USB Cable + Adapter + Earphone + NFC Rx + Battery
5	PCS 1900 Idle + BT Idle + WLAN (5G) Idle + USB Cable + Adapter + Earphone + RFID Rx + Battery
RADIATED EMISSION TEST	
1	GSM 850 Idle + BT Idle + WLAN (2.4G) Idle + USB Cable + Adapter + Earphone + MPEG4 + Battery
2	PCS 1900 Idle + BT Idle + WLAN (5G) Idle + USB Cable + Adapter + Earphone + Camera + Battery
3	WCDMA 850 Idle + BT Idle + WLAN (2.4G) Idle + GPS Rx + USB Cable + USB link + Earphone + Battery
4	GSM 850 Idle + BT Idle + WLAN (5G) Idle + Wireless cradle charger + Wireless cradle + Camera + Earphone + Battery
5	PCS 1900 Idle + BT Idle + WLAN (2.4G) Idle + NFC Rx + USB Cable + Adapter + Earphone + NFC Rx + Battery
6	GSM 850 Idle + BT Idle + WLAN (5G) Idle + USB Cable + Adapter + Earphone + RFID Rx + Battery

NOTE:

1. For conducted emission test, test mode 2 was the worst case and only this mode was presented in this report.
2. For radiated emission test, test mode 2 was the worst case and only this mode was presented in this report.



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.

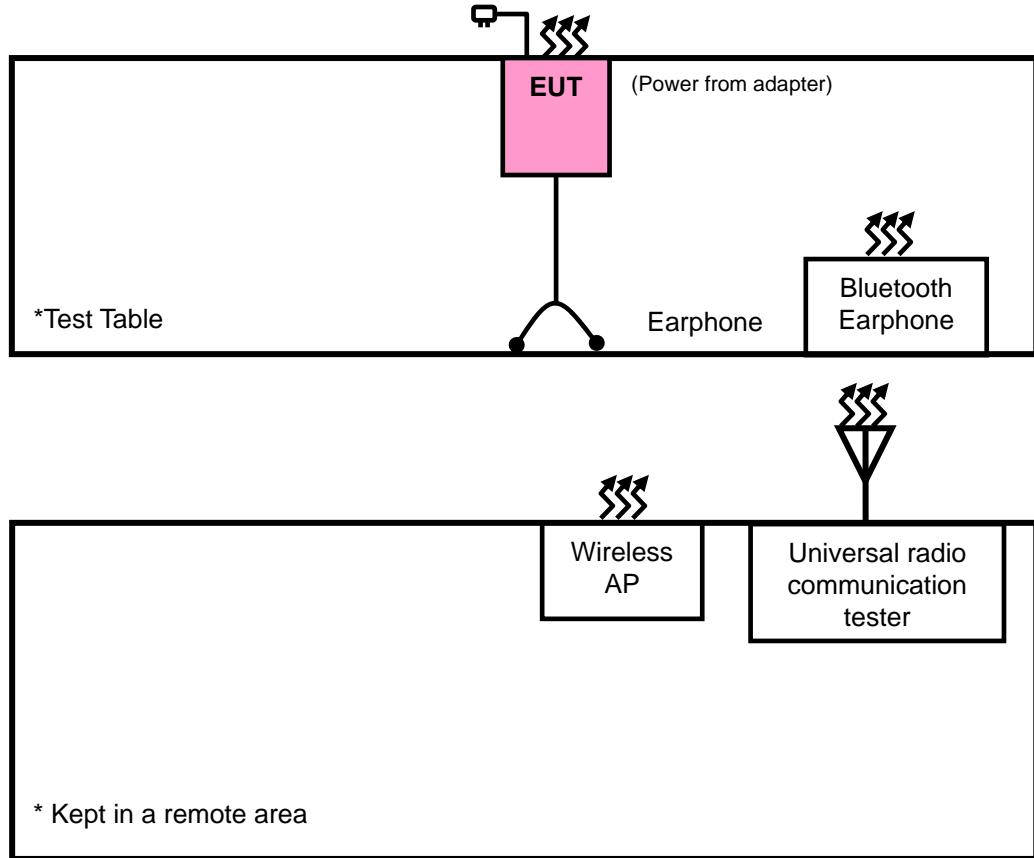
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Universal Radio Communication Tester	R&S	CMU 200	101095	NA
2	Wireless AP	D-Link	DIR-615	F3O8188007995	NA
3	Bluetooth Earphone	ELECOM	LBT-MPHS400	NA	NA
4	Earphone	Apple	MB770FE1B	NA	NA

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

NOTE:

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

3.4 CONFIGURATION OF SYSTEM UNDER TEST



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION 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	100289	Nov. 19, 2011	Nov. 18, 2012
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 29, 2011	Dec. 28, 2012
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2011	Dec. 29, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013
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.



A D T

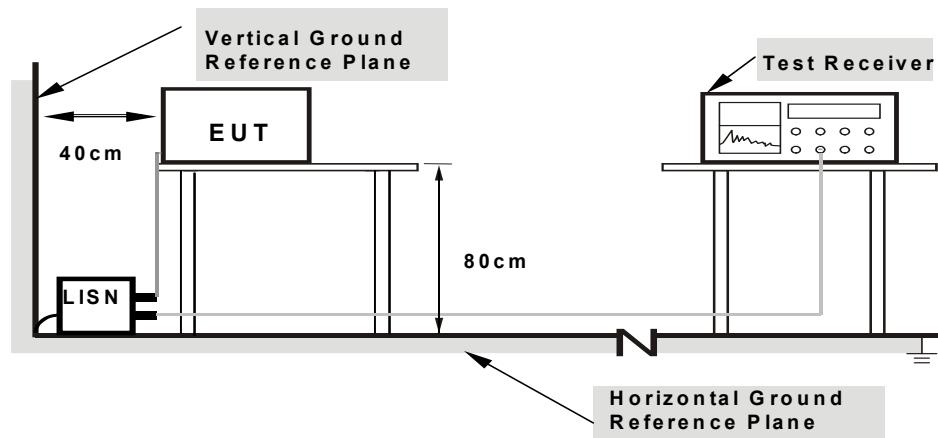
4.1.3 TEST PROCEDURES

- 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 testing table.
- b. The EUT sent audio signal to Bluetooth earphone via Bluetooth function.
- c. CCD function of EUT was enabled during testing.
- d. The EUT communicated data with the wireless AP and universal radio communication tester, which acted as communication partners.
- e. The communication partners connected with EUT via GSM, WLAN function and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- f. The necessary accessories enable the system in full functions.

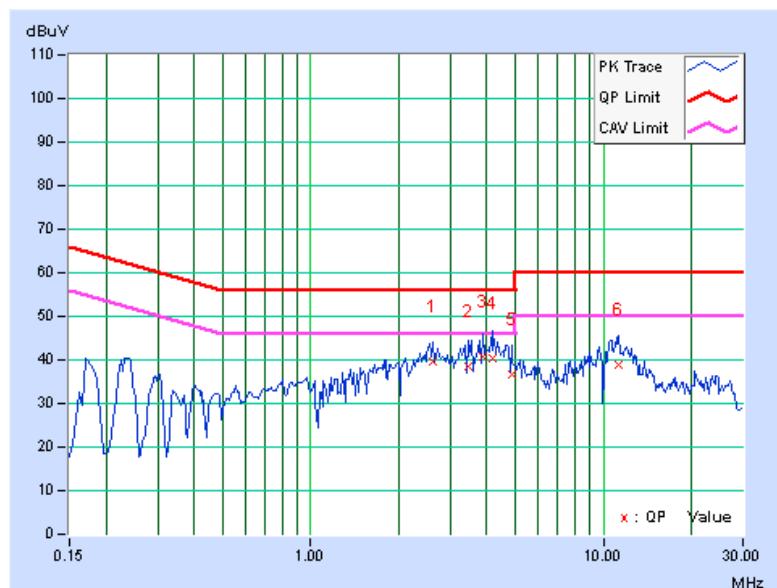
4.1.7 TEST RESULTS

INPUT POWER	120 Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 60% RH	PHASE	Line 1
TESTED BY	Daniel Lin		

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	2.62500	0.32	39.44	27.64	39.76	27.96	56.00	46.00	-16.24	-18.04
2	3.44922	0.35	38.13	25.09	38.48	25.44	56.00	46.00	-17.52	-20.56
3	3.87500	0.37	40.45	27.11	40.82	27.48	56.00	46.00	-15.18	-18.52
4	4.16797	0.37	39.86	29.31	40.23	29.68	56.00	46.00	-15.77	-16.32
5	4.84766	0.39	36.37	24.19	36.76	24.58	56.00	46.00	-19.24	-21.42
6	11.30469	0.52	38.51	29.64	39.03	30.16	60.00	50.00	-20.97	-19.84

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.

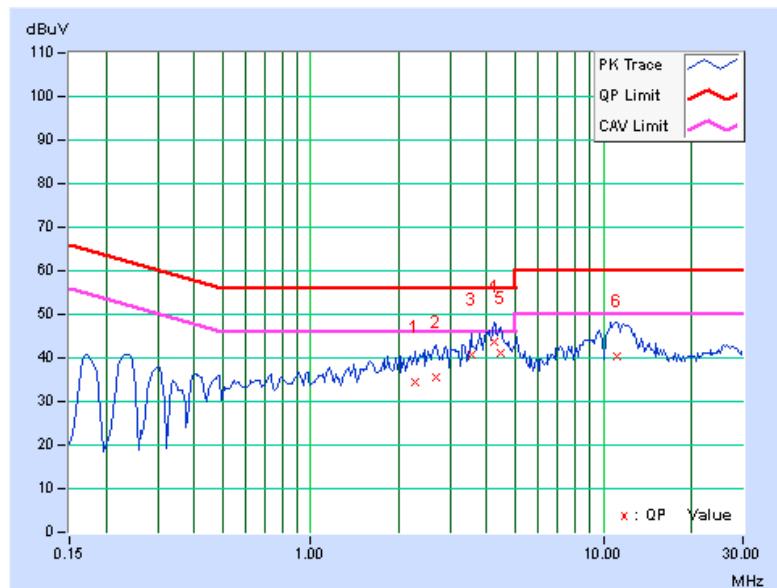


INPUT POWER	120 Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 60% RH	PHASE	Line 2
TESTED BY	Daniel Lin		

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	2.26953	0.31	34.08	18.67	34.39	18.98	56.00	46.00	-21.61	-27.02
2	2.69141	0.34	35.19	19.88	35.53	20.22	56.00	46.00	-20.47	-25.78
3	3.55469	0.39	40.23	24.08	40.62	24.47	56.00	46.00	-15.38	-21.53
4	4.22266	0.42	43.28	28.95	43.70	29.37	56.00	46.00	-12.30	-16.63
5	4.46875	0.42	40.75	27.55	41.17	27.97	56.00	46.00	-14.83	-18.03
6	11.17188	0.60	39.91	30.58	40.51	31.18	60.00	50.00	-19.49	-18.82

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.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION 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		
88-216	43.5	33.1	40	30
216-230				
230-960	46.4	35.6		
960-1000	49.5	43.5	47	37
1000-3000	Avg: 49.5	Avg: 43.5	Not defined	Not defined
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		
88-216	54	43.5	50.5	40.5
216-230				
230-960	56.9	46		
960-1000	60	54	57.5	47.5
1000-3000	Avg: 60	Avg: 54	Avg: 56	Avg: 50
Above 3000	Peak: 80	Peak: 74	Peak: 76	Peak: 70
			Avg: 60	Avg: 54
			Peak: 80	Peak: 74

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB μ V/m) = 20 log Emission level (uV/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.



A D T

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 40GHz, 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	Jan. 30, 2012	Jan. 29, 2013
Test Receiver ROHDE & SCHWARZ (H)	ESIB7	100186	Nov. 29, 2011	Nov. 28, 2012
Spectrum Analyzer Agilent	E4446A	MY48250266	Aug. 29, 2012	Aug. 28, 2013
BILOG Antenna SCHWARZBECK (V)	VULB9168	9168-148	Apr. 02, 2012	Apr. 01, 2013
BILOG Antenna SCHWARZBECK (H)	VULB9168	9168-149	Apr. 06, 2012	Apr. 05, 2013
HORN Antenna EMCO	3115	5623	Jul. 05, 2012	Jul. 04, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent (V)	8447D	2944A10636	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent (H)	8447D	2944A10637	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8449B	3008A01959	Oct. 29, 2011	Oct. 28, 2012
RF signal cable Woken (V)	8D-FB	Cable-Hych1-01	Oct. 29, 2011	Oct. 28, 2012
RF signal cable Woken (H)	8D-FB	Cable-Hych1-02	Oct. 29, 2011	Oct. 28, 2012
Software ADT	BV ADT_Radiated_V 7.7.03.7	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
Fix tool for Boresight antenna tower	BAF-01	1	NA	NA
RF signal cable EAST COST Microwave	HP 160S-29	NA	Oct. 29, 2011	Oct. 28, 2012

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
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	May 11, 2012	May 10, 2013
Spectrum Analyzer Agilent	E4446A	MY48250266	Aug. 29, 2012	Aug. 28, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Apr. 02, 2012	Apr. 01, 2013
RF signal cable Woken	8D-FB	NA	Mar. 24, 2012	Mar. 23, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-405	Feb. 03, 2012	Feb. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Jan. 03, 2012	Jan. 02, 2013
Preamplifier Agilent (Below 1GHz)	8447D	2944A10629	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent (Above 1GHz)	8449B	3008A01959	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNER	SUCOFLEX 104	230132/4	Nov. 03, 2011	Nov. 02, 2012
RF signal cable HUBER+SUHNER	SUCOFLEX 104	309223/4+309 218/4	Nov. 03, 2011	Nov. 02, 2012
Software ADT	BV ADT_Radiated_ V7.6.15.9.3	NA	NA	NA
Antenna Tower ADT	AT100	AT93021702	NA	NA
Turn Table ADT	TT100	TT93021702	NA	NA
Controller ADT	SC100	SC93021702	NA	NA
Fix tool for Boresight antenna tower	BAF-01	2	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 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.



A D T

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 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 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:

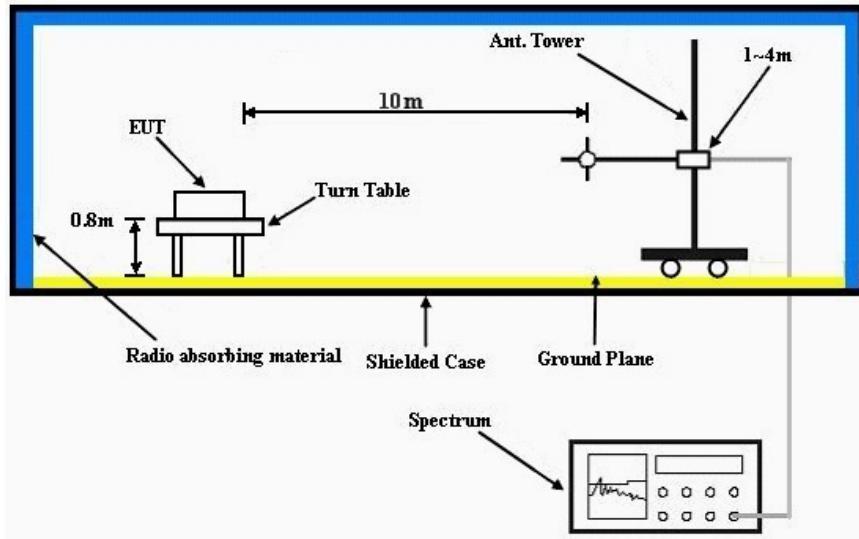
1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak (PK) detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz for Average (AV) detection at frequency above 1GHz.
2. For measurement of frequency above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

4.2.4 DEVIATION FROM TEST STANDARD

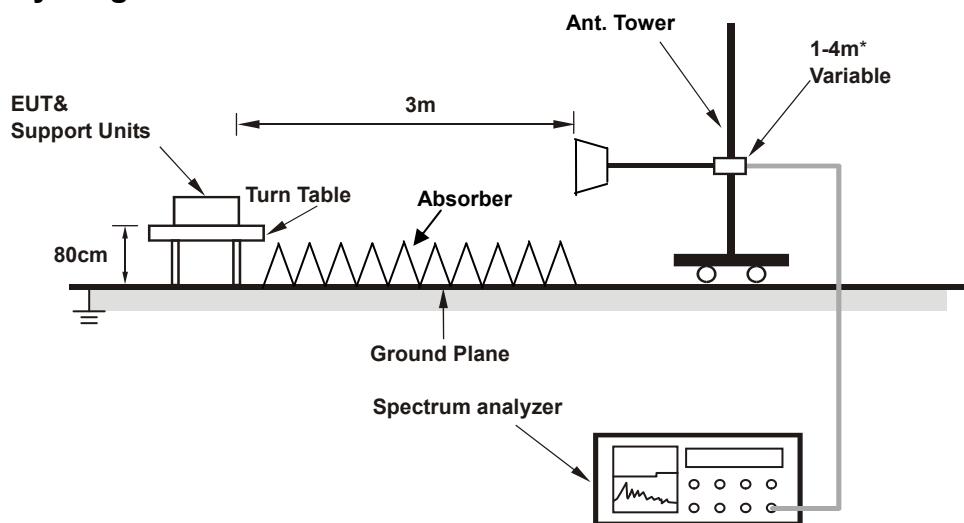
No deviation.

4.2.5 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 8.3.1.2 of ANSI C63.4:2009.

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.

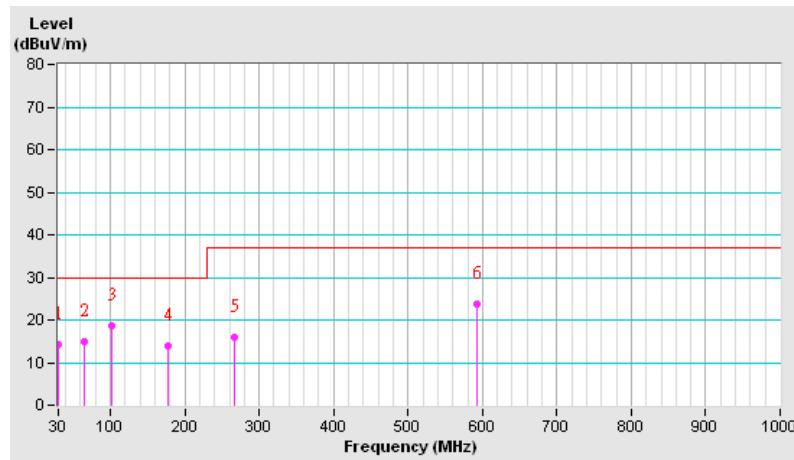
4.2.7 TEST RESULTS

INPUT POWER	120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 68% RH	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak , 120 kHz
TESTED BY	Daniel Lin		

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	30.00	14.14 QP	30.00	-15.86	4.00 H	192	1.81	12.33
2	64.99	15.08 QP	30.00	-14.92	2.00 H	113	1.89	13.19
3	101.92	18.59 QP	30.00	-11.41	4.00 H	103	8.70	9.89
4	177.74	13.84 QP	30.00	-16.16	3.00 H	249	0.33	13.51
5	267.15	15.80 QP	37.00	-21.20	3.00 H	77	1.30	14.50
6	591.78	23.60 QP	37.00	-13.40	1.00 H	0	0.23	23.37

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.





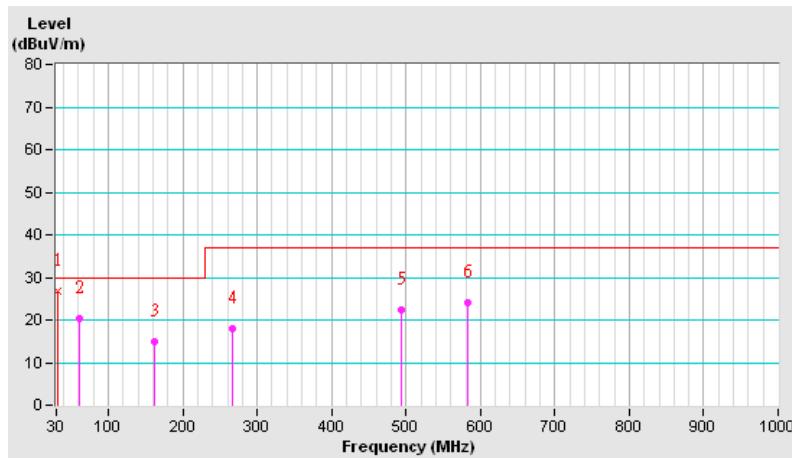
A D T

INPUT POWER	120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 68% RH	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak , 120 kHz
TESTED BY	Daniel Lin		

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	31.98	26.80 QP	30.00	-3.20	1.00 V	0	14.34	12.46
2	61.10	20.44 QP	30.00	-9.56	2.00 V	206	6.94	13.50
3	162.18	14.95 QP	30.00	-15.05	1.00 V	76	0.50	14.45
4	267.15	17.95 QP	37.00	-19.05	1.00 V	0	3.39	14.56
5	494.59	22.52 QP	37.00	-14.48	1.00 V	163	1.45	21.07
6	582.06	23.92 QP	37.00	-13.08	2.50 V	0	0.77	23.15

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.





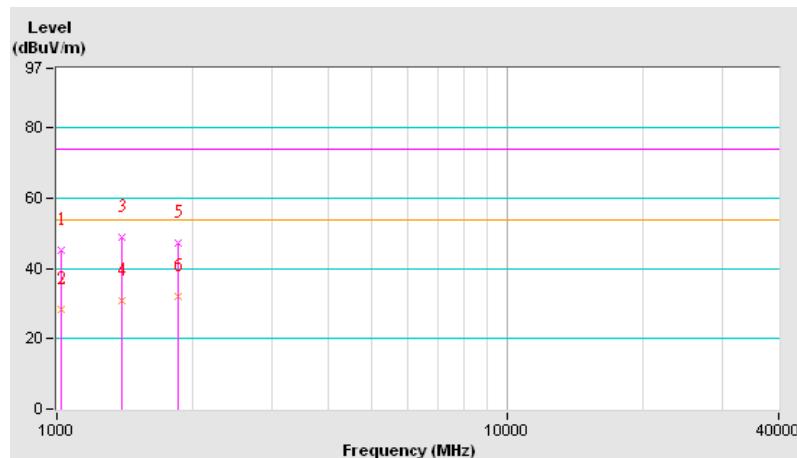
A D T

INPUT POWER	120 Vac, 60 Hz	FREQUENCY RANGE	1-40GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 63% RH	DETECTOR FUNCTION & BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Felix Chen		

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	1020.26	45.07 PK	74.00	-28.93	1.00 H	197	17.20	27.87
2	1020.26	28.50 AV	54.00	-25.50	1.00 H	197	0.63	27.87
3	1391.02	49.06 PK	74.00	-24.94	1.16 H	163	19.98	29.08
4	1391.02	31.03 AV	54.00	-22.97	1.16 H	163	1.95	29.08
5	1861.72	47.20 PK	74.00	-26.80	1.00 H	351	16.89	30.31
6	1861.72	32.04 AV	54.00	-21.96	1.00 H	351	1.73	30.31

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.





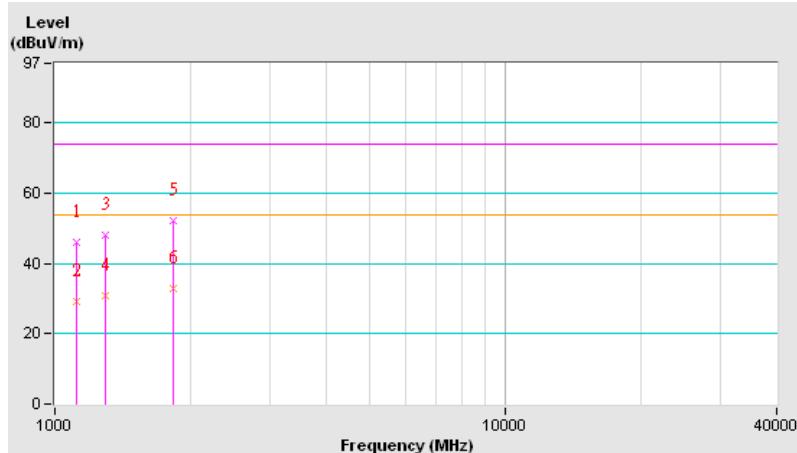
A D T

INPUT POWER	120 Vac, 60 Hz	FREQUENCY RANGE	1-40GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 63% RH	DETECTOR FUNCTION & BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Felix Chen		

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	1120.24	46.21 PK	74.00	-27.79	1.00 V	127	18.01	28.20
2	1120.24	29.34 AV	54.00	-24.66	1.00 V	127	1.14	28.20
3	1290.58	47.91 PK	74.00	-26.09	1.50 V	264	19.13	28.78
4	1290.58	30.76 AV	54.00	-23.24	1.50 V	264	1.98	28.78
5	1831.64	52.09 PK	74.00	-21.91	1.06 V	112	21.85	30.24
6	1831.64	33.00 AV	54.00	-21.00	1.06 V	112	2.76	30.24

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.





A D T

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.



A D T

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 ---