FCC TEST REPORT

(PART 24)

REPORT NO.:	RF110127C15-3
MODEL NO.:	F-10C
FCC ID:	VQK-F10C
RECEIVED:	Jan. 27, 2011
TESTED:	Feb. 22 ~ Feb. 23, 2011
ISSUED:	Mar. 01, 2011

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. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Mar. 01, 2011

1 CERTIFICATION

PRODUCT:	Mobile phone
MODEL NO.:	F-10C
BRAND:	FOMA
APPLICANT:	FUJITSU LIMITED
TESTED:	Feb. 22 ~ Feb. 23, 2011
TEST SAMPLE:	ENGINEERING SAMPLE
TEST STANDARDS:	**FCC Part 24, Subpart E**
	ANSI C63.4-2003
TEST ITEM:	**Maximum Peak Output Power (Section 2.1046 24.232)**
	Radiated Spurious Emissions (Section 2.1053 24.238)
	AC Power Conducted Emission (Section 15.207)

The above equipment (model: F-10C) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**. 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 : Mar. 01, 2011
Joanna Wang / Senior Specialist

APPROVED BY : _____ , DATE : Mar. 01, 2011
Gary Chang / Assistant Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2 / IC RSS-133			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
2.1046 24.232	Maximum Peak Output Power Limit: max. 2 watts e.i.r.p peak power	PASS	Meet the requirement of limit. Minimum passing margin is 32.3dBm at 1850.2MHz.
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -8.3dB at 5729.4MHz.
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -19.36dB at 0.197MHz.

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	2.44dB
Radiated emissions	30MHz ~ 200MHz	3.19dB
	200MHz ~1000MHz	3.21dB
	1GHz ~ 18GHz	2.26dB
	18GHz ~ 40GHz	1.94dB

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Mobile phone
MODEL NO.	F-10C
FCC ID	VQK-F10C
POWER SUPPLY	3.7Vdc (Li-ion battery) 5.4Vdc (Adapter)
MODULATION TYPE	GMSK
OPERATING FREQUENCY	1850.2MHz ~ 1909.8MHz
NUMBER OF CHANNEL	299
ANTENNA TYPE	**TX:** Integral antenna / Monopole antenna with 0dBi gain (EUT open) Integral antenna / Monopole antenna with -2dBi gain (EUT close) **RX:** Integral antenna / Monopole antenna with -1dBi gain (EUT open) Integral antenna / Monopole antenna with -2dBi gain (EUT close)
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Battery

NOTE:

1. The EUT is a Mobile phone. The test data are separated into following test reports.

	TEST STANDARD	REFERENCE REPORT
Bluetooth	FCC Part 15, Subpart C (Section 15.247)	RF110127C15
RFID	FCC Part 15, Subpart C (Section 15.225, 15.215)	RF110127C15-1
WCDMA 850	FCC Part 22	RF110127C15-2
PCS 1900	FCC Part 24	RF110127C15-3

2. The EUT uses the following Li-ion battery:

BRAND	Fujitsu Limited
MODEL	F19
RATING	3.7Vdc, 830mAh

3. The following accessories are for support units only.

PRODUCT	BRAND	DESCRIPTION
Adapter	SMK	I/P: 100-240Vac, 50-60Hz, 0.12A O/P: 5.4Vdc, 700mA
USB cable	NA	0.8m non-shielded cable without core

4. The following summary may be used to identify the samples referenced in the test summary and any declared hardware or software modifications. Where modifications have been made, conformance has been demonstrated by regression testing declared by the manufacturer.

IMEI	SOFTWARE REVISION	HARDWARE REVISION	DATE OF RECEIPT
354690040004467	R08.1	V2.0.0	2011/02/21

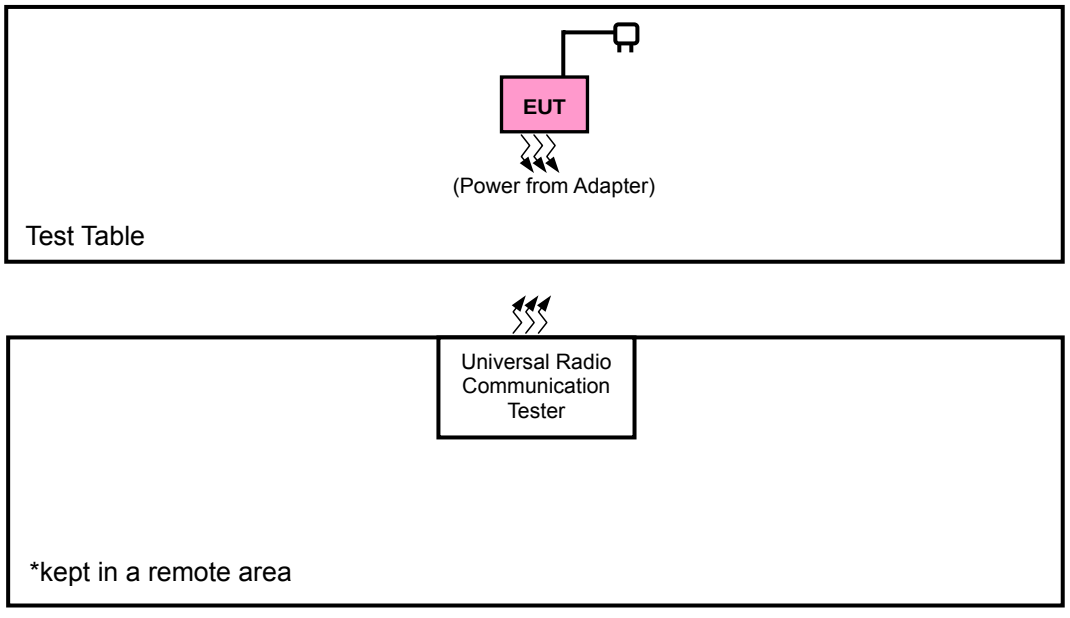
5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

299 channels are provided to this EUT. Therefore, the low, middle and high channels are chosen for testing.

	CHANNEL	FREQUENCY	TX MODE
LOW	512	1850.2 MHz	GSM, GPRS
MIDDLE	661	1880.0 MHz	GSM, GPRS
HIGH	810	1909.8 MHz	GSM, GPRS

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	OP	RE<1G	RE≥1G	PLC	
-	√	√	√	√	-

Where **OP:** Output Power Measurement **RE<1G:** Radiated emission below 1GHz
RE≥1G: Radiated emission above 1GHz **PLC:** Power Line Conducted Emission

OUTPUT POWER MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	AXIS
512 to 810	512, 661, 810	GSM, GPRS	X, Y, Z

RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	AXIS
512 to 810	661	GSM	X, Y, Z

RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	AXIS
512 to 810	512, 661, 810	GSM	X, Y, Z

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	661	GSM

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
OP	25deg. C, 65%RH, 1020hPa	120Vac, 60Hz	David Huang
RE≥1G	25deg. C, 65%RH, 1020hPa	120Vac, 60Hz	Match Tsui
RE<1G	25deg. C, 65%RH, 1020hPa	120Vac, 60Hz	David Huang
PLC	20deg. C, 60%RH, 1017 hPa	120Vac, 60Hz	Match Tsui

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2
FCC 47 CFR Part 24
IC RSS-133
ANSI C63.4-2003
ANSI/TIA/EIA-603-C 2004

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

3.4 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	2/3G Acoustic test (Audio conformance test-CMU 200)	R&S	CMU 200	118914	NA
2	ADAPTER	SMK	NA	NA	NA

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

NOTE:
1. All power cords of the above support units are non shielded (1.8m).
2. Item 2 was supplied from the client.

4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 24.232(b) that “Mobile / Portable station are limited to 2 watts e.i.r.p” and 24.232(c) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 27, 2010	Dec. 26, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	100115	Aug. 02, 2010	Aug. 01, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 28, 2010	Apr. 27, 2011
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 06, 2011	Jan. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01961	Nov. 02, 2010	Nov. 01, 2011
Preamplifier Agilent	8447D	2944A10738	Nov. 02, 2010	Nov. 01, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2010	Aug. 20, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2010	Aug. 20, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 4.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC7450F-4.

4.1.3 TEST PROCEDURES

a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 512, 661 and 810 (GSM) (low, middle and high operational frequency range.)

b. The conducted peak output power used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The path loss included the splitter loss, cable loss and 20dB pad loss. The spectrum set RB/VB 1MHz (GSM), then read peak power value and record to the test. (All transmitted path loss shall be considered in the test report data.)

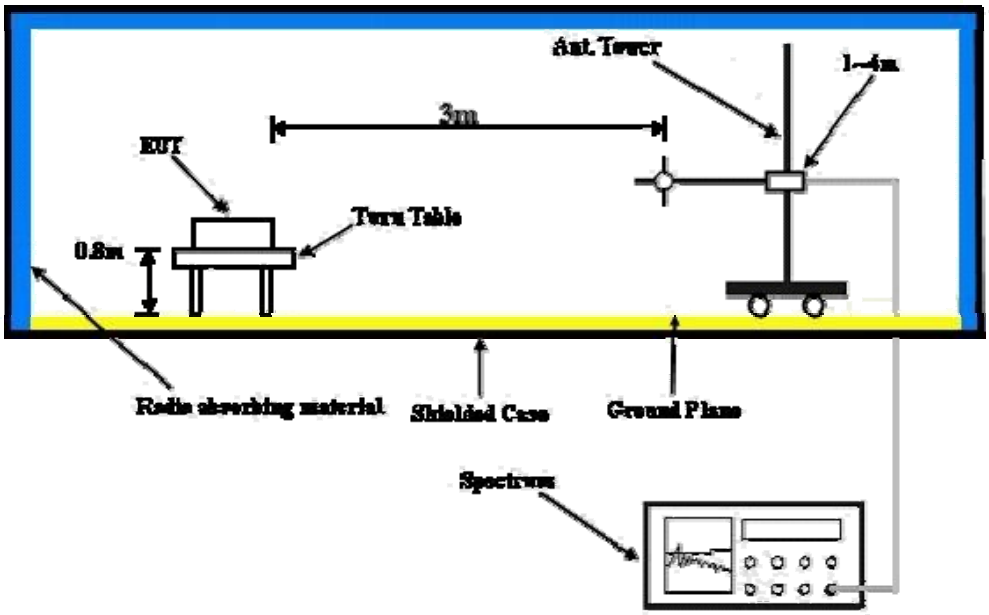
c. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

d. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step c. Record the power level of S.G

e. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

4.1.4 TEST SETUP

EIRP POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.5 EUT OPERATING CONDITIONS

a. The EUT makes a phone call to the communication simulator.

b. The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.

4.1.6 TEST RESULTS

X-AXIS

FOR GSM

EIRP					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	23.4	8.4	31.8	1513.6
661	1880.0	23.0	8.6	31.6	1445.4
810	1909.8	22.7	8.5	31.2	1318.3

FOR GPRS-T1

EIRP					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	**1850.2**	**23.9**	**8.4**	**32.3**	**1698.2**
661	1880.0	23.6	8.6	32.2	1659.6
810	1909.8	23.4	8.5	31.9	1548.8

Y-AXIS

FOR GSM

EIRP					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	22.0	8.4	30.4	1096.5
661	1880.0	22.0	8.6	30.6	1148.2
810	1909.8	22.2	8.5	30.7	1174.9

FOR GPRS-T1

EIRP					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	22.5	8.4	30.9	1230.3
661	1880.0	22.6	8.6	31.2	1318.3
810	1909.8	22.8	8.5	31.3	1349.0

REMARKS: 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = Substitution Antenna Gain (dBi) + Cable Loss (dB)

Z-AXIS

FOR GSM

EIRP					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	20.4	8.4	28.8	758.6
661	1880.0	19.8	8.6	28.4	691.8
810	1909.8	19.4	8.5	27.9	616.6

FOR GPRS-T1

EIRP					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	20.9	8.4	29.3	851.1
661	1880.0	20.4	8.6	29.0	794.3
810	1909.8	20.1	8.5	28.6	724.4

REMARKS: 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = Substitution Antenna Gain (dBi) + Cable Loss (dB)

4.2 RADIATED EMISSION MEASUREMENT (BELOW 1GHz)

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 24.238(a), On any frequency outside a licensee's frequency block within USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The specified minimum attenuation becomes 43dB and the limit of emission equal to –13dBm.

4.2.2 TEST INSTRUMENTS

Same as 4.1.2.

4.2.3 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to ”Read Value” of step a. Record the power level of S.G

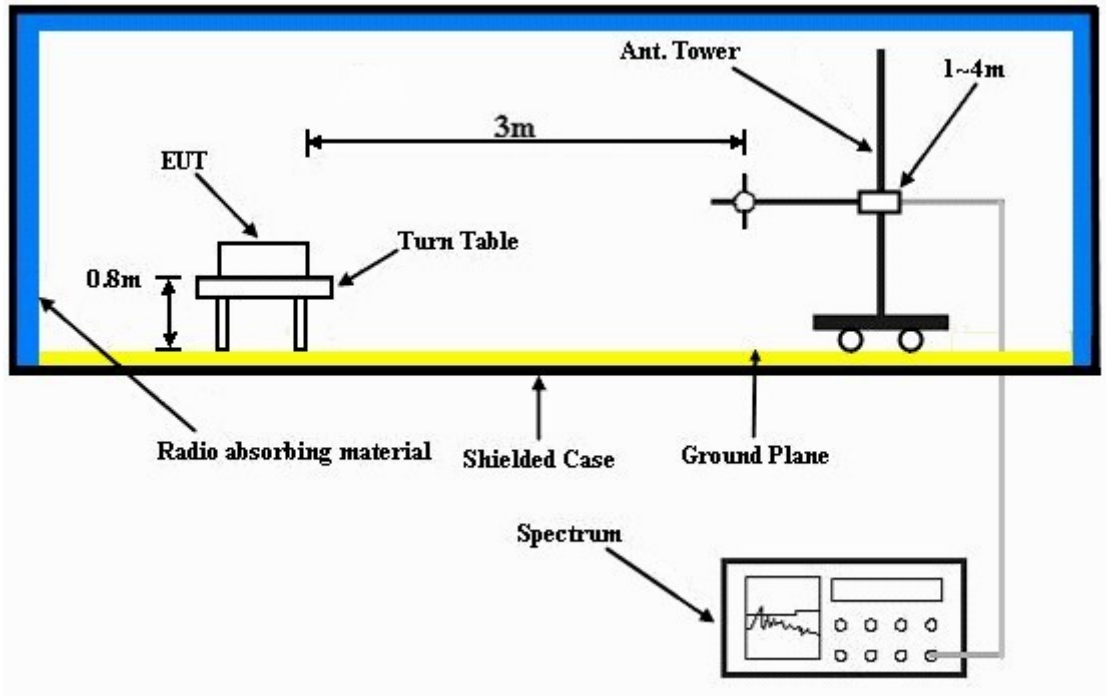
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

a. The EUT makes a phone call to the communication simulator.

b. The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.

4.2.7 TEST RESULTS

X-AXIS

MODE		TX channel 661				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	37.78	33.5	-13.0	-53.3	-7.7	-61.0
2	136.91	34.7	-13.0	-51.7	-7.7	-59.4
3	193.29	38.6	-13.0	-48.2	-7.7	-55.9
4	344.91	33.8	-13.0	-53.0	-7.8	-60.8
5	407.11	36.7	-13.0	-50.3	-7.8	-58.1
6	578.18	32.8	-13.0	-54.0	-7.8	-61.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	47.49	46.3	-13.0	-40.7	-7.7	-48.4
2	68.88	44.2	-13.0	-42.7	-7.7	-50.4
3	187.45	37.3	-13.0	-49.7	-7.7	-57.4
4	243.83	39.8	-13.0	-46.8	-7.7	-54.5
5	459.6	47.8	-13.0	-39.0	-7.8	-46.8
6	578.18	38.3	-13.0	-48.6	-7.8	-56.4

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

Y-AXIS

MODE		TX channel 661				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	55.27	38.2	-13.0	-48.9	-7.7	-56.6
2	138.86	39.1	-13.0	-47.7	-7.7	-55.4
3	181.62	40.5	-13.0	-46.5	-7.7	-54.2
4	214.67	42.0	-13.0	-45.0	-7.7	-52.7
5	315.75	36.5	-13.0	-49.8	-7.8	-57.6
6	350.74	35.3	-13.0	-51.0	-7.8	-58.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	61.1	46.1	-13.0	-40.9	-7.7	-48.6
2	70.82	45.2	-13.0	-41.8	-7.7	-49.5
3	226.33	34.2	-13.0	-52.8	-7.7	-60.5
4	354.63	38.4	-13.0	-47.7	-7.8	-55.5
5	482.93	38.5	-13.0	-47.9	-7.8	-55.7
6	655.93	40.7	-13.0	-46.3	-7.8	-54.1

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

Z-AXIS

MODE		TX channel 661				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	55.27	38.6	-13.0	-48.2	-7.7	-55.9
2	101.92	32.0	-13.0	-54.9	-7.7	-62.6
3	138.86	37.5	-13.0	-49.7	-7.7	-57.4
4	169.96	34.4	-13.0	-52.5	-7.7	-60.2
5	226.33	39.1	-13.0	-47.6	-7.7	-55.3
6	366.29	28.3	-13.0	-58.0	-7.8	-65.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	39.72	45.6	-13.0	-40.7	-7.7	-48.4
2	72.77	41.8	-13.0	-45.2	-7.7	-52.9
3	187.45	37.3	-13.0	-49.2	-7.7	-56.9
4	424.61	48.5	-13.0	-38.4	-7.8	-46.2
5	477.09	45.1	-13.0	-41.7	-7.8	-49.5
6	572.34	43.4	-13.0	-43.3	-7.8	-51.1

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

4.3 RADIATED EMISSION MEASUREMENT (ABOVE 1GHz)

4.3.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Same as 4.2.1.

4.3.2 TEST INSTRUMENTS

Same as 4.2.2.

4.3.3 TEST PROCEDURES

Same as 4.2.3.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP

Same as 4.2.5.

4.3.6 EUT OPERATING CONDITIONS

Same as 4.2.6.

4.3.7 TEST RESULTS

X-AXIS

MODE		TX channel 512				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3700.4	44.5	-13.0	-59.6	9.9	-49.7
2	5550.6	47.5	-13.0	-57.1	9.7	-47.4
3	7400.8	60.6	-13.0	-41.8	7.9	-33.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3700.4	43.3	-13.0	-60.8	9.9	-50.9
2	5550.6	47.8	-13.0	-56.2	9.7	-46.5
3	7400.8	63.4	-13.0	-39.0	7.9	-31.1
MODE		TX channel 661				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3760	45.8	-13.0	-58.1	9.9	-48.2
2	5640	47.5	-13.0	-56.0	9.6	-46.4
3	7520	60.1	-13.0	-42.6	7.9	-34.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3760	44.2	-13.0	-60.0	9.9	-50.1
2	5640	48.2	-13.0	-55.8	9.6	-46.2
3	7520	63.5	-13.0	-39.2	7.9	-31.3
MODE		TX channel 810				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3819.6	47.6	-13.0	-57.1	9.9	-47.2
2	5729.4	47.2	-13.0	-57.1	9.6	-47.5
3	7639.2	59.8	-13.0	-42.4	7.9	-34.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3819.6	44.9	-13.0	-59.9	9.9	-50.0
2	5729.4	48.7	-13.0	-55.7	9.6	-46.1
3	7639.2	63.6	-13.0	-38.7	7.9	-30.8

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

Y-AXIS

MODE		TX channel 512				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	3700.4	50.2	-13.0	-54.4	9.9	-44.5
2	5550.6	50.9	-13.0	-53.3	9.7	-43.6
3	7400.8	64.5	-13.0	-37.6	7.9	-29.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	3700.4	48.1	-13.0	-56.1	9.9	-46.2
2	5550.6	49.5	-13.0	-54.5	9.7	-44.8
3	7400.8	64.0	-13.0	-38.6	7.9	-30.7
MODE		TX channel 661				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	3760	50.5	-13.0	-53.6	9.9	-43.7
2	5640	50.7	-13.0	-53.1	9.6	-43.5
3	7520	65.1	-13.0	-36.9	7.9	-29.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	3760	48.8	-13.0	-55.9	9.9	-46.0
2	5640	49.9	-13.0	-53.8	9.6	-44.2
3	7520	63.0	-13.0	-39.3	7.9	-31.4
MODE		TX channel 810				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	3819.6	50.9	-13.0	-53.4	9.9	-43.5
2	5729.4	51.0	-13.0	-53.3	9.6	-43.7
3	7639.2	64.9	-13.0	-37.3	7.9	-29.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	3819.6	49.6	-13.0	-55.2	9.9	-45.3
2	5729.4	49.7	-13.0	-54.6	9.6	-45.0
3	7639.2	62.4	-13.0	-40.3	7.9	-32.4

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

Z-AXIS

MODE		TX channel 512				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3700.4	52.0	-13.0	-52.7	9.9	-42.8
2	5550.6	61.8	-13.0	-42.8	9.7	-33.1
3	7400.8	64.9	-13.0	-37.5	7.9	-29.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3700.4	53.5	-13.0	-51.2	9.9	-41.3
2	5550.6	52.6	-13.0	-52.0	9.7	-42.3
3	7400.8	62.5	-13.0	-39.5	7.9	-31.6
MODE		TX channel 661				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3760	47.9	-13.0	-56.5	9.9	-46.6
2	5640	69.9	-13.0	-34.0	9.6	-24.4
3	7520	64.1	-13.0	-37.9	7.9	-30.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3760	49.4	-13.0	-54.6	9.9	-44.7
2	5640	70.7	-13.0	-33.1	9.6	-23.5
3	7520	61.8	-13.0	-40.5	7.9	-32.6
MODE		TX channel 810				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3819.6	46.5	-13.0	-57.9	9.9	-48.0
2	**5729.4**	**73.0**	**-13.0**	**-30.9**	**9.6**	**-21.3**
3	7639.2	63.4	-13.0	-38.7	7.9	-30.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	3819.6	46.5	-13.0	-57.6	9.9	-47.7
2	5729.4	54.8	-13.0	-49.6	9.6	-40.0
3	7639.2	61.0	-13.0	-41.7	7.9	-33.8

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

4.4 CONDUCTED EMISSION MEASUREMENT

4.4.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 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.

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 23, 2010	Nov. 22, 2011
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 06, 2011	Jan. 05, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 08, 2010	Jul. 07, 2011
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jul. 12, 2010	Jul. 11, 2011
LISN ROHDE & SCHWARZ	ENV216	100072	Jun. 11, 2010	Jun. 10, 2011
Software ADT	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 HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.

4.4.3 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.

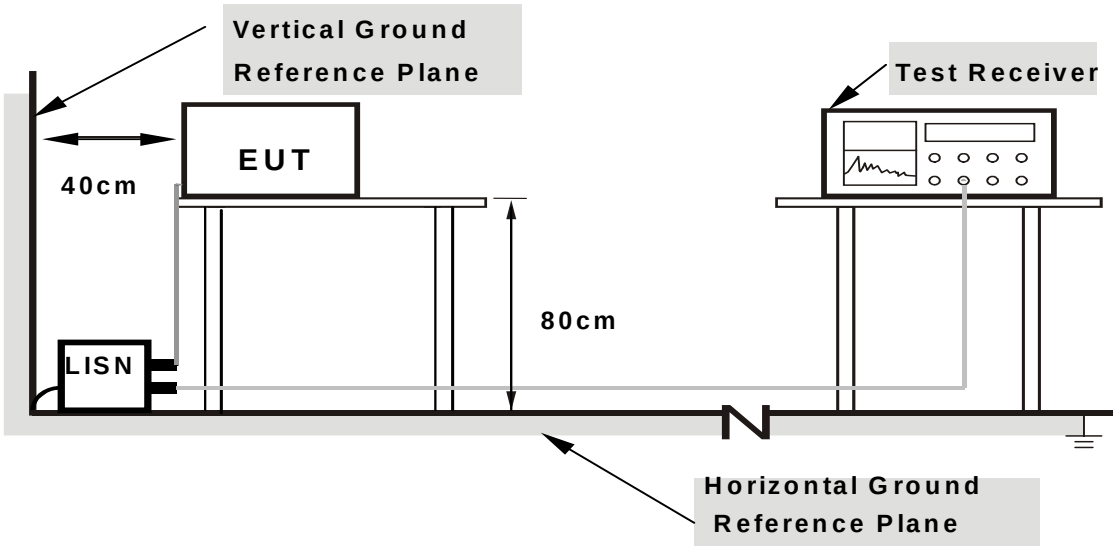
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 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 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.4.6 EUT OPERATING CONDITIONS

Set the EUT under transmitting condition.

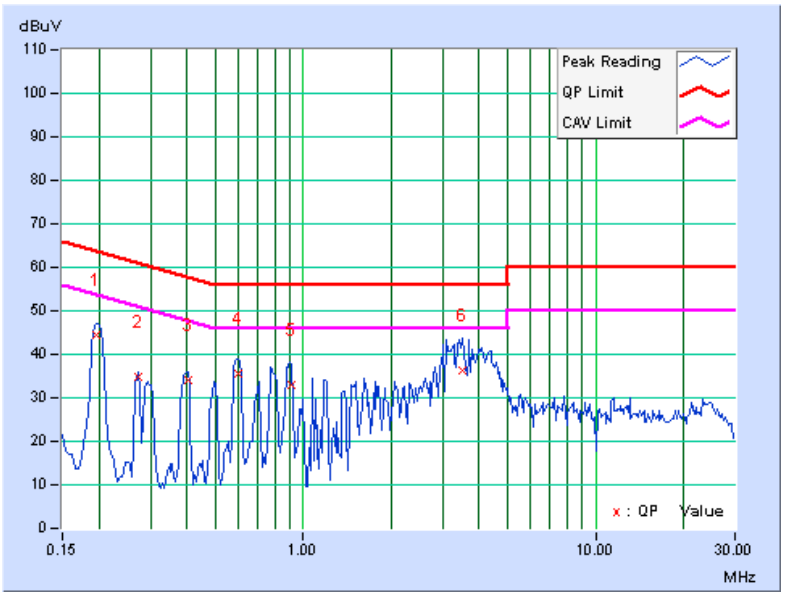
4.4.7 TEST RESULTS

CONDUCTED WORST CASE DATA:

PHASE	Line 1	6dB BANDWIDTH	9kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.197**	**0.15**	**44.23**	**-**	**44.38**	**-**	**63.74**	**53.74**	**-19.36**	**-**
2	0.271	0.16	34.64	-	34.80	-	61.08	51.08	-26.29	-
3	0.404	0.17	33.77	-	33.94	-	57.77	47.77	-23.83	-
4	0.599	0.18	35.24	-	35.42	-	56.00	46.00	-20.58	-
5	0.913	0.19	32.70	-	32.89	-	56.00	46.00	-23.11	-
6	3.520	0.30	35.85	-	36.15	-	56.00	46.00	-19.85	-

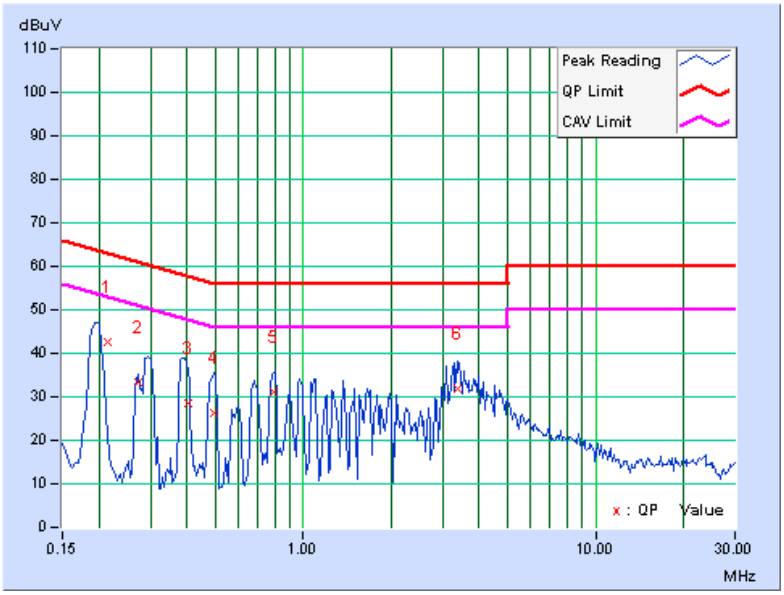
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Line 2	6dB BANDWIDTH	9kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.213	0.17	42.41	-	42.58	-	63.07	53.07	-20.49	-
2	0.273	0.18	33.12	-	33.30	-	61.03	51.03	-27.73	-
3	0.406	0.19	28.39	-	28.58	-	57.73	47.73	-29.15	-
4	0.498	0.19	25.94	-	26.13	-	56.04	46.04	-29.91	-
5	0.791	0.20	30.89	-	31.09	-	56.00	46.00	-24.91	-
6	3.363	0.29	31.38	-	31.67	-	56.00	46.00	-24.33	-

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.



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.

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:
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: 886-3-3185050

Web Site: www.adt.com.tw

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

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

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

---END---