

FCC CERTIFICATION TEST REPORT

REPORT NO.: FC130517C12B

MODEL NO.: F-04F

FCC ID: VQK-F04F

RECEIVED: Sep. 06, 2013

TESTED: Oct. 16 ~ Oct. 17, 2013

ISSUED: Oct. 30, 2013

APPLICANT: FUJITSU LIMITED

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ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)

Ltd., Taoyuan Branch

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Report No.: FC130517C12B 1 of 28 Report Format Version 5.0.2

Reference No. 130905C01



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RELEASE CONTROL RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|--------------|-------------------|---------------|
| FC130517C12B | Original release | Oct. 30, 2013 |



CERTIFICATION

PRODUCT: Mobile phone

MODEL: F-04F

BRAND: FUJITSU

APPLICANT: FUJITSU LIMITED

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Oct. 16 ~ Oct. 17, 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-04F) 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.

Polly Chien / Specialist Oct. 30, 2013

APPROVED BY:

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 emission test | PASS | Meet the requirement of limit. Minimum passing margin is -9.03dB at 4.34766MHz. | | | | |
| ICES-003:2012 Issue 5, Class B | Radiated emission test (30MHz~40GHz) | PASS | Meet the requirement of limit. Minimum passing margin is -7.71dB at 35.83MHz. | | | | |

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 emission | 150kHz ~ 30MHz | 2.44 dB |
| De dista de seission | 30MHz ~ 1GHz | 4.12 dB |
| Radiated emission | 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 | Mobile phone |
|-------------------|---|
| MODEL NO. | F-04F |
| POWER SUPPLY | 3.8Vdc (Battery) 5.0Vdc (Adapter, cradle or host equipment) |
| I/O PORTS | Refer to users' manual |
| ACCESSORY DEVICES | Refer to Note as below |

NOTE:

- 1. This report is issued as a supplementary report to the original BV ADT report no.: FC130517C12 (FCC ID: VQK-F08E). The differences compared with the original report are changing model, FCC ID, battery pack, model of cradle, updating versions of SW and HW, removing touch panel sensibility & receiving function for TV broadcast function and adding one fingerprint button function. Therefore, we re-tested all test items and presented in the test report.
- 2. The EUT contains the following accessories.

| No. | Product | Brand | Model | Description |
|-----|---------|-----------------|-------|---|
| 1 | Battery | Fujitsu Limited | F 31 | Rating: 3.8V, 2500mA Type: Li-ion |
| 2 | Cradle | Fujitsu Limited | F45 | Input: 5.0Vdc, 1.5A Output: 5.0Vdc, 1.5A |

3. The EUT consumes power from the following adapter (provided as support unit only).

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

- 4. SW version is R05.1e.
- 5. HW version is V3.0.0.
- 6. IMEI Code: 358679040050444
- 7. The EUT's highest operating frequency is 5GHz. Therefore the radiated emission is tested up to 40GHz.
- 8. 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

For conducted emissions test, the EUT has been pre-tested under following test modes, and test **mode 3** 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 850 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD Card) + Earphone + 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 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 + Camera (back) + Earphone + Adapter |
| 5 | GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + RFID Idle + Earphone + Battery Charging |
| 6 | GSM 1900 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD Card) + Earphone + Adapter + Cradle |
| 7 | GSM 850 Idle + WIFI Idle + BT Idle + GPS RX + MP4 (SD Card) + Earphone + 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) + Earphor 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 | HTC | NA | NA | NA | - |
| В. | UNIVERSAL RADIO COMMUNICATION TESTER | R&S | CMU200 | 122554 | NA | - |
| C. | GPS SIMULATOR | PENDULUM | GSG-54 | 191121 | NA | - |
| D. | WIRELESS N DUAL BAND ROUTER | D-LINK | DIR-815 | PVK21B5000399 | KA21R815A1 | - |
| E. | BLUETOOTH EARPHONE | ELECOM | LBT-MPHS400 | NA | NA | - |
| F. | Micro SD CARD (8G) | Transcend | NA | NA | NA | - |

NOTE:

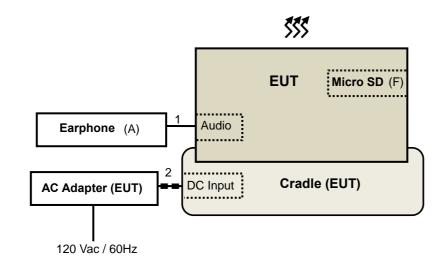
- 1. All power cords of the above support units are non-shielded (1.8 m).
- 2. Items B-E acted as communication partners to transfer data.

| No. | Cable | Qty. | Length (m) | Shielded (Yes/ No) | Cores (Number) | Remark |
|-----|----------------|------|------------|-----------------------|-------------------|---------------------|
| 1. | Earphone cable | 1 | 1.2 | N | 0 | - |
| 2. | Power cable | 1 | 1.05 | N | 2 | Attached on adapter |

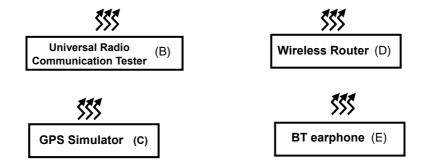
NOTE: The core(s) is(are) originally attached to the cable(s).



3.4 CONFIGURATION OF SYSTEM UNDER TEST



Remote site





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)

| , | | | | | | |
|---|------------|---------|----------------|---------|--|--|
| Francisco (MIII-) | Class A | (dBuV) | Class B (dBuV) | | | |
| Frequency (MHz) | 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

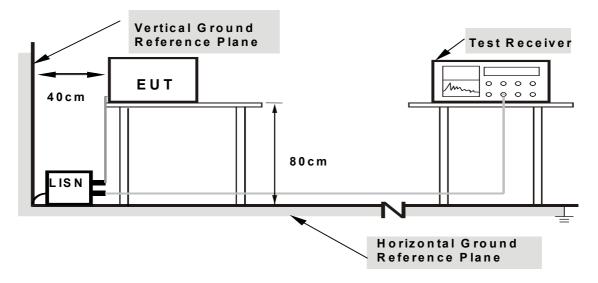
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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 | DEVIA | ATION FROM | /I TEST S | 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 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, GPS Simulator, Wireless Router and Bluetooth Earphone, which acted as communication partners, and then set the GSM, WIFI, BT function in idle condition.
- c. The EUT played MP4 function and sent audio signals to the earphone.



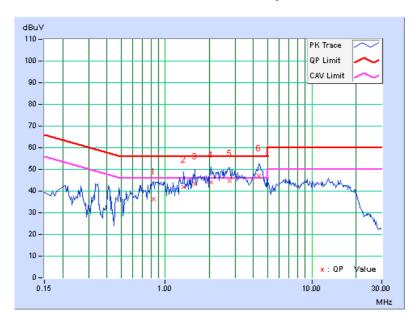
4.1.7 TEST RESULTS

| INPUT POWER (CRADLE) | 120 Vac, 60 Hz | 6dB BANDWIDTH | 9 kHz |
|--------------------------|-------------------|---------------|--------|
| ENVIRONMENTAL CONDITIONS | 22 deg. C, 66% RH | PHASE | Line 1 |
| TESTED BY | Daniel Lin | | |

| | Freq. | Corr. | Readin | g Value | Emissio | n Level | Lir | nit | Maı | rgin |
|----|---------|--------|--------|---------|---------|---------|-------|-------|--------|--------|
| No | | Factor | [dB | (uV)] | [dB | (uV)] | [dB | (uV)] | (d | B) |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.83359 | 0.27 | 35.89 | 24.90 | 36.16 | 25.17 | 56.00 | 46.00 | -19.84 | -20.83 |
| 2 | 1.33984 | 0.30 | 41.54 | 32.03 | 41.84 | 32.33 | 56.00 | 46.00 | -14.16 | -13.67 |
| 3 | 1.59766 | 0.31 | 42.89 | 33.73 | 43.20 | 34.04 | 56.00 | 46.00 | -12.80 | -11.96 |
| 4 | 2.05469 | 0.32 | 43.68 | 35.15 | 44.00 | 35.47 | 56.00 | 46.00 | -12.00 | -10.53 |
| 5 | 2.75000 | 0.35 | 44.36 | 35.16 | 44.71 | 35.51 | 56.00 | 46.00 | -11.29 | -10.49 |
| 6 | 4.34766 | 0.41 | 46.56 | 32.41 | 46.97 | 32.82 | 56.00 | 46.00 | -9.03 | -13.18 |

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



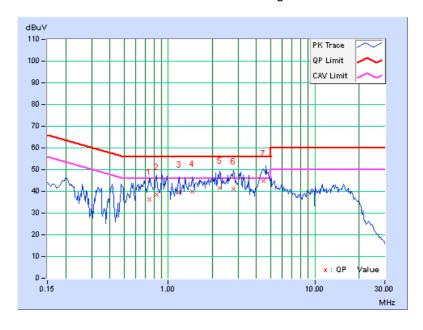
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| INPUT POWER (CRADLE) | 120 Vac, 60 Hz | 6dB BANDWIDTH | 9 kHz |
|--------------------------|-------------------|---------------|--------|
| ENVIRONMENTAL CONDITIONS | 22 deg. C, 66% RH | PHASE | Line 2 |
| TESTED BY | Daniel Lin | | |

| | Freq. | Corr. | Readin | g Value | Emissio | n Level | Lir | nit | Mai | gin |
|----|---------|--------|--------|---------|---------|---------|-------|-------|--------|--------|
| No | | Factor | [dB | (uV)] | [dB | (uV)] | [dB | (uV)] | (d | B) |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.74375 | 0.26 | 35.90 | 28.31 | 36.16 | 28.57 | 56.00 | 46.00 | -19.84 | -17.43 |
| 2 | 0.83368 | 0.26 | 38.10 | 26.58 | 38.36 | 26.84 | 56.00 | 46.00 | -17.64 | -19.16 |
| 3 | 1.18359 | 0.27 | 39.49 | 29.76 | 39.76 | 30.03 | 56.00 | 46.00 | -16.24 | -15.97 |
| 4 | 1.45703 | 0.29 | 39.86 | 32.68 | 40.15 | 32.97 | 56.00 | 46.00 | -15.85 | -13.03 |
| 5 | 2.24219 | 0.34 | 41.08 | 32.70 | 41.42 | 33.04 | 56.00 | 46.00 | -14.58 | -12.96 |
| 6 | 2.78125 | 0.37 | 40.87 | 34.07 | 41.24 | 34.44 | 56.00 | 46.00 | -14.76 | -11.56 |
| 7 | 4.46484 | 0.46 | 44.43 | 31.31 | 44.89 | 31.77 | 56.00 | 46.00 | -11.11 | -14.23 |

- 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



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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 (dBμV/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 | 46.4 | 35.6 | | | | | |
| 230-960 | 40.4 | 33.6 | 47 | 37 | | | |
| 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 (dBμV/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 | 56.9 | 46 | | | | |
| 230-960 | 50.9 | 40 | 57.5 | 47.5 | | |
| 960-1000 | 60 | 54 | 57.5 | 47.5 | | |
| 1000-3000 | Avg: 60 | Avg: 54 | Avg: 56 Peak: 76 | Avg: 50 Peak: 70 | | |
| 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 $(dBuV/m) = 20 \log Emission level (uV/m)$.
- 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.



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 | 100186 | Nov. 28, 2012 | Nov. 27, 2013 |
| 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 |
|---|---------------------------------|-----------------------|---------------------|-------------------------|
| Test Receiver ROHDE & SCHWARZ | ESIB7 | 100188 | May 20, 2013 | May 19, 2014 |
| 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+SUHNNER | 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.

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- 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.

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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.
- 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.

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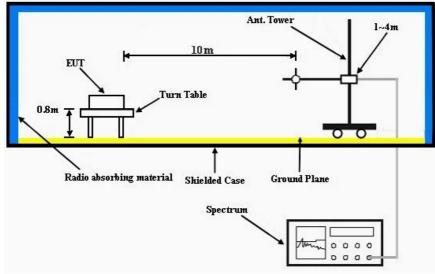
4.2.4 DEVIATION FROM TEST STANDARD

| No | AD | /12 | \tir | ۱n |
|-----|-----|-----|------|-----|
| 110 | ue' | vic | uu | ΛI. |

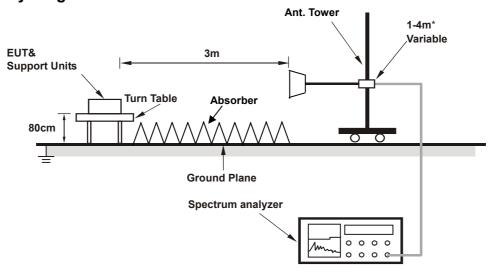


4.2.5 TEST SETUP

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.



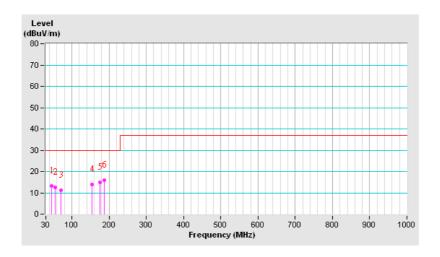
4.2.7 TEST RESULTS

| INPUT POWER (CRADLE) | 120 Vac, 60 Hz | FREQUENCY RANGE | 30-1000 MHz |
|--------------------------|------------------|-------------------------------------|---------------------|
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66% 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 | 45.55 | 13.31 QP | 30.00 | -16.69 | 2.50 H | 105 | 27.36 | -14.05 | |
| 2 | 55.27 | 12.45 QP | 30.00 | -17.55 | 1.50 H | 83 | 26.81 | -14.36 | |
| 3 | 70.82 | 11.35 QP | 30.00 | -18.65 | 2.00 H | 144 | 27.11 | -15.76 | |
| 4 | 154.41 | 13.75 QP | 30.00 | -16.25 | 3.00 H | 0 | 26.94 | -13.19 | |
| 5 | 175.79 | 15.06 QP | 30.00 | -14.94 | 2.00 H | 15 | 29.32 | -14.26 | |
| 6 | 187.45 | 15.83 QP | 30.00 | -14.17 | 1.00 H | 175 | 30.98 | -15.15 | |

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)
 - Pre-Amplifier Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission Level Limit value

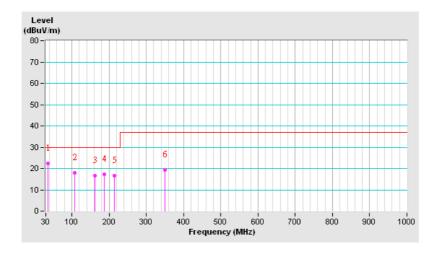




| INPUT POWER (CRADLE) | 120 Vac, 60 Hz | FREQUENCY RANGE | 30-1000 MHz |
|--------------------------|------------------|-------------------------------------|---------------------|
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66% RH | DETECTOR FUNCTION & BANDWIDTH | Quasi-Peak, 120 kHz |
| TESTED BY | Scott 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 | 35.83 | 22.29 QP | 30.00 | -7.71 | 2.00 V | 176 | 36.90 | -14.61 | |
| 2 | 107.76 | 18.11 QP | 30.00 | -11.89 | 3.00 V | 0 | 35.13 | -17.02 | |
| 3 | 162.18 | 16.64 QP | 30.00 | -13.36 | 1.00 V | 224 | 29.58 | -12.94 | |
| 4 | 187.45 | 17.19 QP | 30.00 | -12.81 | 2.50 V | 20 | 32.01 | -14.82 | |
| 5 | 214.67 | 16.61 QP | 30.00 | -13.39 | 1.50 V | 313 | 32.22 | -15.61 | |
| 6 | 350.74 | 19.31 QP | 37.00 | -17.69 | 1.00 V | 144 | 29.51 | -10.20 | |

- 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

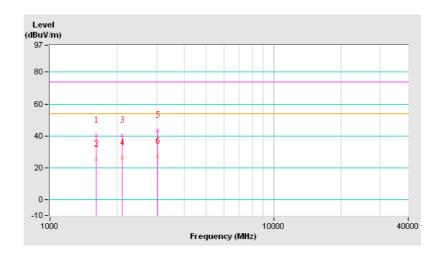




| INPUT POWER (CRADLE) | 120 Vac, 60 Hz | FREQUENCY RANGE | 1-40GHz |
|--------------------------|-------------------|-------------------------------------|---------------------|
| ENVIRONMENTAL CONDITIONS | 22 deg. C, 62% RH | DETECTOR FUNCTION & BANDWIDTH | Peak/Average, 1 MHz |
| TESTED BY | Rolan Zheng | | |

| | 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 | 1608.35 | 40.14 PK | 74.00 | -33.86 | 1.50 H | 174 | 46.66 | -6.52 | |
| 2 | 1608.35 | 25.15 AV | 54.00 | -28.85 | 1.50 H | 174 | 31.67 | -6.52 | |
| 3 | 2098.26 | 40.27 PK | 74.00 | -33.73 | 1.00 H | 317 | 45.19 | -4.92 | |
| 4 | 2098.26 | 26.18 AV | 54.00 | -27.82 | 1.00 H | 317 | 31.10 | -4.92 | |
| 5 | 3031.18 | 43.58 PK | 74.00 | -30.42 | 1.00 H | 12 | 45.59 | -2.01 | |
| 6 | 3031.18 | 27.19 AV | 54.00 | -26.81 | 1.00 H | 12 | 29.20 | -2.01 | |

- 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

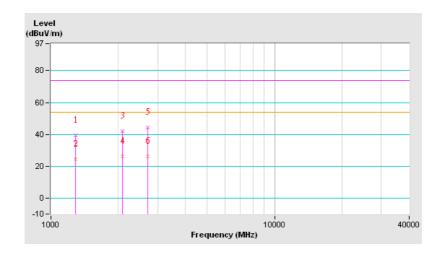




| INPUT POWER (CRADLE) | 120 Vac, 60 Hz | FREQUENCY RANGE | 1-40GHz |
|--------------------------|-------------------|-------------------------------------|---------------------|
| ENVIRONMENTAL CONDITIONS | 22 deg. C, 62% RH | DETECTOR FUNCTION & BANDWIDTH | Peak/Average, 1 MHz |
| TESTED BY | Rolan Zheng | | |

| | 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 | 1290.55 | 39.57 PK | 74.00 | -34.43 | 1.00 V | 283 | 47.37 | -7.80 | |
| 2 | 1290.55 | 24.37 AV | 54.00 | -29.63 | 1.00 V | 283 | 32.17 | -7.80 | |
| 3 | 2093.78 | 42.22 PK | 74.00 | -31.78 | 1.50 V | 7 | 47.17 | -4.95 | |
| 4 | 2093.78 | 26.31 AV | 54.00 | -27.69 | 1.50 V | 7 | 31.26 | -4.95 | |
| 5 | 2707.89 | 44.61 PK | 74.00 | -29.39 | 1.25 V | 82 | 47.44 | -2.83 | |
| 6 | 2707.89 | 26.44 AV | 54.00 | -27.56 | 1.25 V | 82 | 29.27 | -2.83 | |

- 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



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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.

Hsin Chu EMC/RF Lab

If you have any comments, please feel free to contact us at the following:

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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 ---