

# FCC TEST REPORT (RFID)

**REPORT NO.:** RF90129L09-1

**MODEL NO.:** F-07B

**RECEIVED:** Feb. 01, 2010 **TESTED:** Feb. 22, 2010 **ISSUED:** Feb. 23, 2010

**APPLICANT: FUJITSU LIMITED** 

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

Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang,

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**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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#### 1. CERTIFICATION

**PRODUCT:** Mobile phone

MODEL: F-07B

**BRAND:** FOMA

**APPLICANT: FUJITSU LIMITED** 

**TESTED:** Feb. 22, 2010

**TEST SAMPLE: ENGINEERING SAMPLE** 

STANDARDS: FCC Part 15, Subpart C (Section 15.225),

ANSI C63.4-2003

The above equipment (model: F-07B) 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: James 15 mg, DATE: Feb. 22, 2010

Rennie Wang / Super@sor

**TECHNICAL** 

ACCEPTANCE: Long Chen, DATE: Feb. 22, 2010

Responsible for RF Long Chen / Senior Engineer

APPROVED BY: Jay Charg , DATE: Feb. 22, 2010

Gary Chang / Assistant Manager



# 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.225)					
STANDARD SECTION TEST TYPE AND LIMIT RESULT REMARK					
15.225 (a)	The field strength of any emissions within the band 13.553-13.567 MHz				
15.225 (d)	pearing outside of the 13.110-14.010 PASS Minimum passing ma		Meet the requirement of limit. Minimum passing margin is -2.2dB at 121.28MHz.		
15.225 (e)	The frequency tolerance	PASS	Meet the requirement of limit.		

#### 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
Radiated emissions	30MHz ~ 200MHz	3.34 dB
Nadiated emissions	200MHz ~1000MHz	3.35 dB

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-07B
FCC ID	VQK-F07B
POWER SUPPLY	3.7Vdc (Li-ion battery)
TOWER GOLLET	5.4Vdc (Adapter)
MODULATION TYPE	ASK
OPERATING FREQUENCY	13.56MHz
ANTENNA TYPE	Loop antenna
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Battery

#### NOTE:

- 1. The EUT is a Mobile phone with RFID and Bluetooth functions.
- 2. In addition to normal use, the screen of EUT can be rotated to left or right. The worst test result of pre-test was found in normal use condition. Therefore the entire test came out with this one.
- 3. The EUT is a Mobile phone. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
BLUETOOTH	FCC Part 15	RF990129L09
RFID	FCC Part 15	RF990129L09-1
WCDMA 850	FCC Part 22	RF990129L09-2
GSM 1900	FCC Part 24	RF990129L09-3

4. The EUT is powered by the following adapter and battery.

	· · · · · · · · · · · · · · · · · · ·				
ADAPTER (NOT FOR SALE)					
<b>BRAND</b> SMK					
INPUT POWER 100-240Vac, 0.12A, 50-60Hz					
OUTPUT POWER	5.4Vdc, 700mA				

BATTERY	
BRAND	Fujitsu Limited
MODEL	CA54310-0005
RATING	3.7Vdc, 770mAh

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

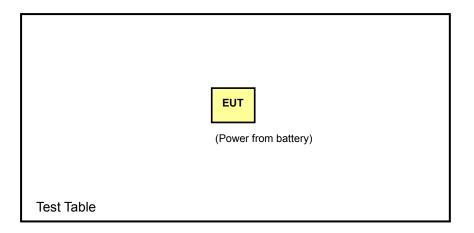


#### 3.2 DESCRIPTION OF TEST MODES

The EUT only have one channel.

CHANNEL	FREQUENCY (MHz)	
1	13.56	

# 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





#### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT	APPLICABLE TO		DESCRIPTION
CONFIGURE MODE	RE	FT	DESCRIPTION
-	V	V	-

Where **RE**: Radiated Emission **FT**: Frequency Tolerance

#### **RADIATED EMISSION TEST:**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture).

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

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	AXIS OF EUT	AXIS OF EUT'S SCREEN
-	1	1	ASK	Z	Normal

#### **FREQUENCY TOLERANCE:**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture).

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

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	AXIS OF EUT	AXIS OF EUT'S SCREEN
-	1	1	ASK	Z	Normal

#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE	25deg. C, 65%RH, 1012 hPa	3.7Vdc	Lori Chiu
FT	20deg. C, 65%RH, 1011 hPa	3.7Vdc	Long Chen



#### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.225) ANSI C63.4-2003

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

**NOTE:** The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

#### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.



#### 4. TEST TYPES AND RESULTS

#### 4.1 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

#### 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.



#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jul. 06, 2009	Jul. 05, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May 26, 2009	May 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2009	Apr. 26, 2010
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jul. 01, 2009	Jun. 30, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2009	Dec. 24, 2010
Loop Antenna	HFH2-Z2	100070	Jan. 14, 2009	Jan. 13, 2011
Preamplifier Agilent	8449B	3008A01964	Nov. 09, 2009	Nov. 08, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 13, 2009	May 12, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 13, 2009	May 12, 2010
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 3.
- 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 IC 7450F-3.



#### 4.1.3 TEST PROCEDURES

- 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. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### NOTE:

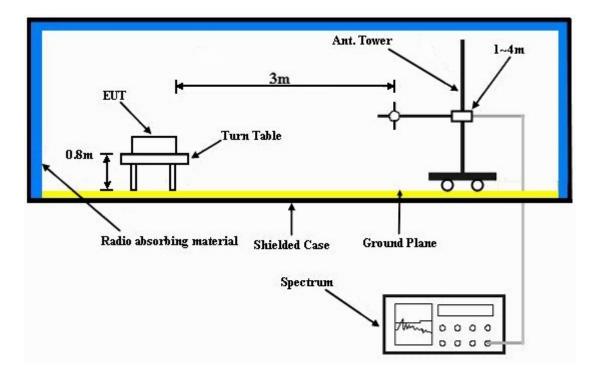
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation



#### 4.1.5 TEST SETUP



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

#### 4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.



#### 4.1.7 TEST RESULTS

<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
Channel 1		FREQUENCY RANGE	13.553 ~ 13.567MHz	
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1012 hPa	TESTED BY	Lori Chiu	

	ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA OPEN AT 3m									
N	lo.	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	13.56	48.3	124.0	-75.7	1.00	289	28.5	19.8	

#### **REMARKS:**

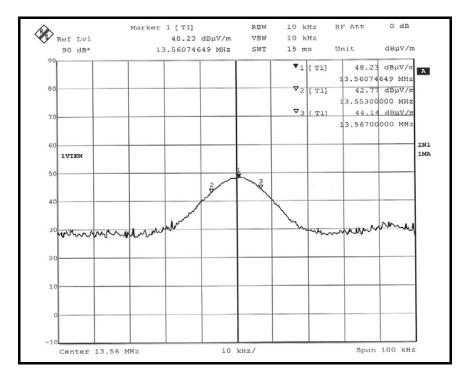
- 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance) Example:

13.56MHz

= 15848uV/m 30m = 84dBuV/m 30m =  $84+20log(30/3)^2$  3m

= 124dBuV/m





EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 1		FREQUENCY RANGE	13.553 ~ 13.567MHz	
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1012 hPa	TESTED BY	Lori Chiu	

	ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA CLOSE AT 3m									
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	13.56	45.0 PK	124.0	-79.0	1.00	85	25.2	19.8		

#### **REMARKS:**

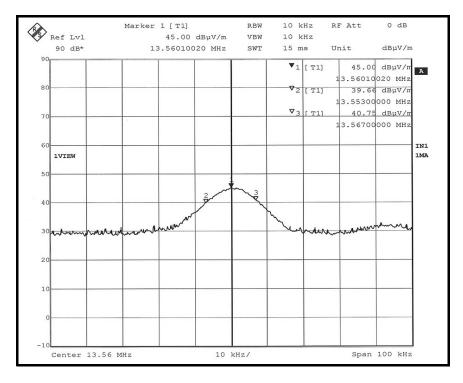
- 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance) Example:

13.56MHz = 15848uV/m

30m 30m = 84dBuV/m  $= 84 + 20 \log(30/3)^2$ 3m

124dBuV/m





EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 1		FREQUENCY RANGE	Below 30MHz	
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1012 hPa	TESTED BY	Lori Chiu	

	ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA OPEN AT 3m										
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	13.553	42.8	69.5	-26.8	1.00	289	23.0	19.8			
2	13.567	44.2	69.5	-25.4	1.00	289	24.4	19.8			
3	14.380	37.9	69.5	-31.7	1.00	237	18.0	19.9			
4	27.120	27.3	69.5	-42.3	1.00	18	7.1	20.2			
	ANT	ENNA POLA	ARITY & TES	ST DISTANC	CE: LOOP A	NTENNA CL	OSE AT 3n	n			
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	13.553	39.7	69.5	-29.9	1.00	85	19.9	19.8			
				20.0	1.00	85	21.0	19.8			
2	13.567	40.8	69.5	-28.8	1.00	65	21.0	19.0			
3	13.567 14.370	40.8 36.3	69.5 69.5	-28.8	1.00	217	16.4	19.8			

#### **REMARKS:**

- Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
   Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
   The other emission levels were very low against the limit.
   Margin value = Emission level Limit value.



<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL Channel 1		FREQUENCY RANGE	30 ~ 1000MHz	
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1012 hPa	TESTED BY	Lori Chiu	

	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	94.06	39.5 QP	43.5	-4.0	2.00 H	85	30.00	9.50			
2	121.28	41.3 QP	43.5	-2.2	1.50 H	55	29.80	11.50			
3	148.50	29.1 QP	43.5	-14.4	2.00 H	103	15.20	13.90			
4	366.26	24.9 QP	46.0	-21.1	1.00 H	244	8.20	16.70			
5	393.48	24.1 QP	46.0	-21.9	2.00 H	256	6.30	17.80			
6	638.46	27.4 QP	46.0	-18.6	1.00 H	82	3.90	23.50			
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M				
		EMISSION			TABLE		CORRECTION				
NO.	FREQ. (MHz)	LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m)			
<b>NO</b> .	<b>FREQ. (MHz)</b> 39.62			<b>MARGIN (dB)</b> -7.9		ANGLE		FACTOR			
	` ,	(dBuV/m)	(dBuV/m)	` ′	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)			
1	39.62	(dBuV/m) 32.1 QP	(dBuV/m) 40.0	-7.9	<b>HEIGHT (m)</b> 1.50 V	ANGLE (Degree)	(dBuV)	<b>FACTOR</b> (dB/m) 15.10			
1 2	39.62 94.06	(dBuV/m) 32.1 QP 32.6 QP	(dBuV/m) 40.0 43.5	-7.9 -10.9	1.50 V 1.00 V	ANGLE (Degree)  55 328	(dBuV) 17.00 23.10	FACTOR (dB/m) 15.10 9.50			
1 2 3	39.62 94.06 121.28	(dBuV/m) 32.1 QP 32.6 QP 34.7 QP	(dBuV/m) 40.0 43.5 43.5	-7.9 -10.9 -8.8	1.50 V 1.00 V 1.00 V	ANGLE (Degree)  55  328  64	(dBuV) 17.00 23.10 23.20	FACTOR (dB/m)  15.10  9.50  11.50			
1 2 3 4	39.62 94.06 121.28 366.26	(dBuV/m) 32.1 QP 32.6 QP 34.7 QP 35.2 QP	(dBuV/m) 40.0 43.5 43.5 46.0	-7.9 -10.9 -8.8 -10.8	1.50 V 1.00 V 1.00 V 1.50 V	ANGLE (Degree)  55  328  64  112	(dBuV) 17.00 23.10 23.20 18.50	FACTOR (dB/m)  15.10  9.50  11.50  16.70			
1 2 3 4 5	39.62 94.06 121.28 366.26 393.48	(dBuV/m) 32.1 QP 32.6 QP 34.7 QP 35.2 QP 34.3 QP	(dBuV/m)  40.0  43.5  43.5  46.0  46.0	-7.9 -10.9 -8.8 -10.8	1.50 V 1.00 V 1.00 V 1.50 V 1.50 V	ANGLE (Degree)  55  328  64  112  70	(dBuV)  17.00  23.10  23.20  18.50  16.50	FACTOR (dB/m)  15.10  9.50  11.50  16.70  17.80			

**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.



#### 4.2 FREQUENCY STABILITY

#### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

#### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jul. 07, 2009	Jul. 06, 2010
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 24, 2009	Jun. 23, 2010

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

#### 4.2.3 TEST PROCEDURE

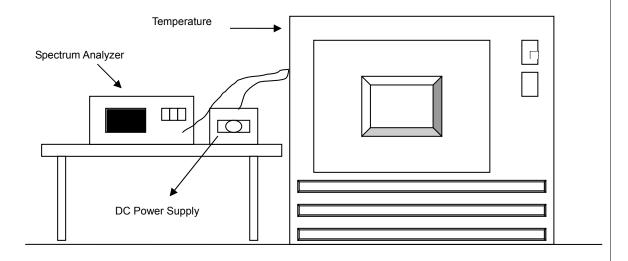
- a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.



### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

# 4.2.5 TEST SETUP



#### 4.2.6 EUT OPERATING CONDITION

Same as Item 4.1.6



# 4.2.7 TEST RESULTS

	FREQUEMCY STABILITY VERSUS TEMP.										
		0 MIN	NUTE	2 MIN	2 MINUTE		NUTE	10 MI	10 MINUTE		
<b>TEMP</b> . (℃)	POWER SUPPLY (Vdc)	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift		
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%		
50	3.7	13.560664	0.0048968	13.560628	0.0046313	13.560640	0.0047198	13.560640	0.0047198		
40	3.7	13.560679	0.0050074	13.560628	0.0046313	13.560649	0.0047861	13.560662	0.0048820		
30	3.7	13.560647	0.0047714	13.560607	0.0044764	13.560646	0.0047640	13.560615	0.0045354		
20	3.7	13.560632	0.0046608	13.560614	0.0045280	13.560584	0.0043068	13.560594	0.0043805		
10	3.7	13.560679	0.0050074	13.560684	0.0050442	13.560638	0.0047050	13.560672	0.0049558		
0	3.7	13.560678	0.0050000	13.560670	0.0049410	13.560646	0.0047640	13.560646	0.0047640		
-10	3.7	13.560681	0.0050221	13.560659	0.0048599	13.560657	0.0048451	13.560662	0.0048820		
-20	3.7	13.560680	0.0050147	13.560647	0.0047714	13.560661	0.0048746	13.560658	0.0048525		

FREQUEMCY STABILITY VERSUS VOLTAGE										
<b>TEMP.</b> (°C)		POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
	νη. s		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
			(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20		3.1	13.560632	0.0046608	13.560633	0.0046681	13.560581	0.0042847	13.560623	0.0045944
	0	3.7	13.560632	0.0046608	13.560614	0.0045280	13.560584	0.0043068	13.560594	0.0043805
		4.3	13.560678	0.0050000	13.560649	0.0047861	13.560639	0.0047124	13.560633	0.0046681



# 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: <a href="https://www.adt.com.tw/index.5/phtml">www.adt.com.tw/index.5/phtml</a>. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:Hsin Chu EMC/RF Lab:Tel: 886-2-26052180Tel: 886-3-5935343Fax: 886-2-26051924Fax: 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 ---