

# **FCC Test Report**

Report No.: RF150612C01-6

FCC ID: VQK-F02H

Test Model: F-02H

Received Date: Jun. 12, 2015

Test Date: Jul. 15 ~ Jul. 20, 2015

**Issued Date:** Jul. 27, 2015

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. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan,

R.O.C.

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City

33383, TAIWAN (R.O.C.)





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.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.



# **Table of Contents**

R	eleas	elease Control Record3		
1		Certificate of Conformity	. 4	
2		Summary of Test Results	. 5	
	2.1 2.2	Measurement Uncertainty		
3		General Information	. 6	
	3.1 3.2 3.2.1 3.3 3.3.1 3.4	Description of Support Units	. 6 . 7 . 8 . 8	
4		Test Types and Results	. 9	
	4.1.2 4.1.3 4.1.4 4.1.5 4.1.7 4.2.1 4.2.2 4.2.3 4.2.4 4.2.5 4.2.5 4.3.1 4.3.3 4.3.4 4.3.5 4.3.5 4.3.6	Radiated Emission Measurement Limits of Radiated Emission Measurement Test Instruments Test Procedures Deviation from Test Standard Test Set Up EUT Operating Conditions Test Results Frequency Stability Limits of Frequency Stability Measurement Test Setup Test Instruments Test Procedure Deviation from Test Standard EUT Operating Conditions Test Result 20dB bandwidth Limits of 20dB Bandwidth Measurement Test Setup Test Instruments Test Setup Test Instruments Test Procedure Deviation from Test Standard EUT Operating Conditions Test Result 20dB bandwidth Limits of 20dB Bandwidth Measurement Test Setup Test Instruments Test Procedures Deviation from Test Standard EUT Operating Conditions Test Results	. 9 10 11 12 12 13 18 18 18 18 18 19 20 20 20 20 20	
5		Pictures of Test Arrangements	22	
Α	ppen	dix – Information on the Testing Laboratories	23	



# **Release Control Record**

Issue No.	Description	Date Issued
RF150612C01-6	Original release	Jul. 27, 2015



# 1 Certificate of Conformity

**Product:** Smart Phone

Brand: FUJITSU

Test Model: F-02H

Sample Status: Engineering sample

Applicant: FUJITSU LIMITED

**Test Date:** Jul. 15 ~ Jul. 20, 2015

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.225)

47 CFR FCC Part 15, Subpart C (Section 15.215)

ANSI C63.10:2013

The above equipment 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: Quil. 27, 2015

Celine Chou / Specialist

Ken Liu / Senior Manager



# 2 Summary of Test Results

	47 CFR FCC Part 15, Subpart C (Section 15.225, 15.215)					
FCC Clause	Test Item	Result	Remarks			
15.207	Conducted emission test	NA	Power supply is 4.2Vdc from battery			
15.225 (a)	The field strength of any emissions within the band 13.553-13.567 MHz	Pass	Meet the requirement of limit. Minimum passing margin is -66.10dB at 13.56MHz.			
15.225 (b)	The field strength of any emissions within the bands 13.410-13.553 MHz and 13.567-13.710 MHz	Pass	Meet the requirement of limit.			
15.225 (c)	The field strength of any emissions within the bands 13.110-13.410 MHz and 13.710-14.010 MHz	Pass	Meet the requirement of limit.			
15.225 (d)	The field strength of any emissions appearing outside of the 13.110-14.010 MHz band	Pass	Meet the requirement of limit. Minimum passing margin is -9.1dB at 66.84MHz.			
15.225 (e)	The frequency tolerance	Pass	Meet the requirement of limit.			
15.215 (c)	20dB Bandwidth	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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Dadiated Emissions up to 1 CHz	30MHz ~ 200MHz	3.63 dB
Radiated Emissions up to 1 GHz	200MHz ~1000MHz	3.64 dB
Dedicted Emissions above 1 CHz	1GHz ~ 18GHz	2.29 dB
Radiated Emissions above 1 GHz	18GHz ~ 40GHz	2.29 dB

# 2.2 Modification Record

There were no modifications required for compliance.



### 3 General Information

# 3.1 General Description of EUT

Product	Smart Phone
Brand	FUJITSU
Test Model	F-02H
Status of EUT	Engineering sample
Dower Cumply Dating	3.8Vdc (Battery)
Power Supply Rating	5Vdc (Adapter or cradle)
Modulation Type	ASK
Operating Frequency	13.56MHz
Antenna Type	Loop antenna
Accessory Device	Refer to Note as below
Data Cable Supplied	NA

### Note:

1. The EUT contains the following accessories.

Product	Brand	Model	Description
Dotton	NTT docomo	N/A	3.8Vdc, 3390mAh, 12.8Wh
Battery	NTT docomo		(Built-in battery)
Cradia	adle NTT docomo	F50	Input: 5.0Vdc, 1.5A
Cradie		F52	Output: 5.0Vdc, 1.5A

2. The following adapter is support unit only.

Product	Brand	Model	Description
Adapter	NTT docomo	AC Adapter 04	Input: 100-240Vac, 50-60Hz, 0.22A Output: 5.0Vdc, 1.8A
7.00.010.		•	Power line:
			1.05m cable with two cores attached on adapter

- 3. SW version is R021.1e
- 4. HW version is v2.1.0.
- 5. IMEI Code: 351914070004988.
- 6. 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

1 channel is provided to this EUT

Channel	FREQ. (MHz)	
1	13.56	



### 3.2.1 Test Mode Applicability and Tested Channel Deta

EUT CONFIGURE		APPLICA	DESCRIPTION		
MODE	RE	PLC	FS	ЕВ	DESCRIPTION
-	√	Note 2	√	√	

Where RE: Radiated Emission

PLC: Power Line Conducted Emission EB: 20dB Bandwidth measurement

FS: Frequency Stability

#### Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Y-plane.

2. No need to concern of Conducted Emission due to the EUT is powered by battery.

### **Radiated Emission Test:**

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

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

EUT CONFIGUURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
-	1	1	ASK

### **Frequency Stability:**

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

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

EUT CONFIGUURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
-	1	1	ASK

### 20dB Bandwidth:

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

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

EUT CONFIGUURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
-	1	1	ASK

# **Test Condition:**

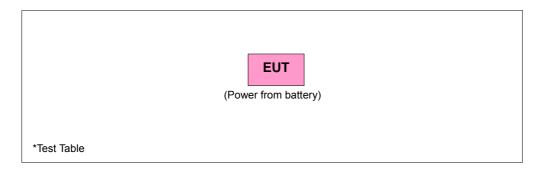
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE	18deg. C, 70%RH	3.9Vdc	Jones Chang
FS	25deg. C, 66%RH	3.9Vdc	Bard Tung
BW	25deg. C, 66%RH	3.9Vdc	Bard Tung



# 3.3 Description of Support Units

The EUT has been tested as an independent unit.

### 3.3.1 Configuration of System under Test



# 3.4 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 Part 15, Subpart C (15.225) FCC Part 15, Subpart C (15.215) ANSI C63.10-2013

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.



# 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. 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.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 01, 2014	Nov. 30, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Mar. 30, 2015	Mar. 29, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Feb. 06, 2015	Feb. 05, 2016
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Feb. 09, 2015	Feb. 08, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2015	Feb. 08, 2016
Loop Antenna R&S	HFH2-Z2	100070	Mar. 06, 2014	Mar. 05, 2016
Preamplifier Agilent	8449B	3008A01911	Aug. 09, 2014	Aug. 08, 2015
Preamplifier Agilent	8447D	2944A10638	Aug. 09, 2014	Aug. 08, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	248780/4 309222/4 274092/4	Aug. 09, 2014	Aug. 08, 2015
RF signal cable Worken	8D-FB	Cable-CH9-01	Aug. 11, 2014	Aug. 10, 2015
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 3. The test was performed in HwaYa Chamber 9.
- 4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 5. The FCC Site Registration No. is 215374.
- 6. The IC Site Registration No. is IC 7450F-9.



#### 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 meters 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. Height of receiving antenna 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.
- 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.

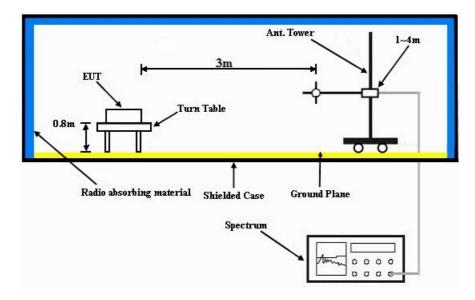
### Note:

- 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 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4	<b>Deviation</b>	from	Test	Standard



# 4.1.5 Test Set Up



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

# 4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.



#### 4.1.7 **Test Results**

EUT Test Condition		Measurement Detail		
Channel	Channel 1	Frequency Range 13.553 ~ 13.567MHz		
Input Power	3.9Vdc	Detector Function	Quasi-Peak	
<b>Environmental Conditions</b>	Environmental Conditions 18deg. C, 70%RH		Jones Chang	

	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	13.56	57.90	124.00	-66.10	1.00	346	38.00	19.90

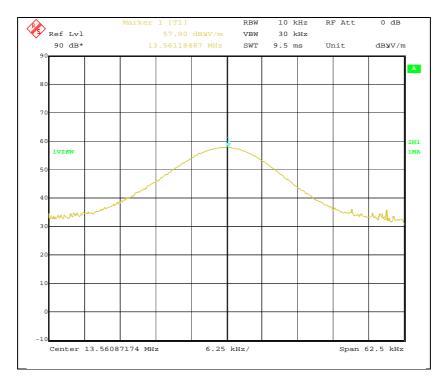
### Remarks:

- 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  - Pre-Amplifier Factor(dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. 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/m30m = 84dBuV/m 30m  $= 84 + 20 \log(30/3)^2$ 3m

= 124dBuV/m





EUT Test Condition		Measurement Detail		
Channel	Channel 1	Frequency Range 13.553 ~ 13.567MHz		
Input Power	3.9Vdc	Detector Function	Quasi-Peak	
<b>Environmental Conditions</b>	18deg. C, 70%RH	Tested By	Jones Chang	

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	53.94	124.00	-70.06	1.00	277	34.04	19.90

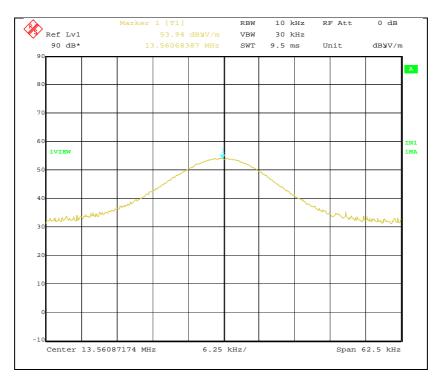
- 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  - Pre-Amplifier Factor(dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. Above limits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

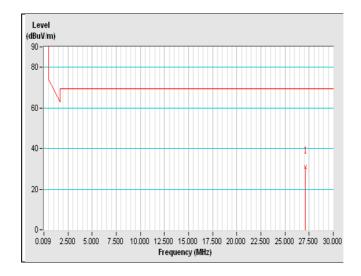




EUT Test Condition		Measurement Detail		
Channel	Channel 1	Frequency Range Below 30MHz		
Input Power	3.9Vdc	Detector Function	Quasi-Peak	
Environmental Conditions	18deg. C, 70%RH	Tested By	Jones Chang	

	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	27.12	30.07	69.50	-39.43	1.00	233	10.07	20.00

- 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

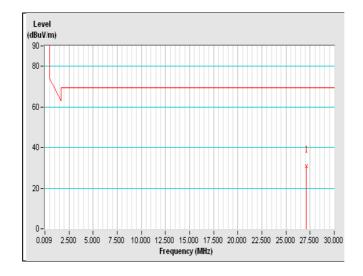




EUT Test Condition		Measurement Detail		
Channel	Channel 1	Frequency Range Below 30MHz		
Input Power	3.9Vdc	Detector Function	Quasi-Peak	
<b>Environmental Conditions</b>	18deg. C, 70%RH	Tested By	Jones Chang	

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	27.12	30.93	69.50	-38.57	1.00	233	10.93	20.00	

- 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





EUT Test Condition		Measurement Detail		
Channel	Channel 1	Frequency Range	Below 1000MHz	
Input Power	3.9Vdc	Detector Function	Quasi-Peak	
<b>Environmental Conditions</b>	18deg. C, 70%RH	Tested By	Jones Chang	

Antenna Polarity & Test Distance: Horizontal 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	57.12	30.3 QP	40.0	-9.7	2.00 H	21	45.10	-14.80
2	121.28	25.2 QP	43.5	-18.3	1.50 H	285	41.40	-16.20
3	175.72	27.4 QP	43.5	-16.1	1.50 H	310	42.20	-14.80
4	543.19	32.4 QP	46.0	-13.6	1.50 H	172	40.20	-7.80
5	722.07	38.1 QP	46.0	-7.9	1.01 H	113	42.10	-4.00
6	786.23	35.7 QP	46.0	-10.3	1.01 H	153	38.10	-2.40
		,	Antenna Pola	rity & Test Di	stance: Vertic	cal 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	29.90	28.0 QP	40.0	-12.0	1.00 V	219	44.10	-16.10
2	39.62	30.0 QP	40.0	-10.0	1.00 V	46	45.20	-15.20
3	66.84	30.9 QP	40.0	-9.1	1.00 V	258	46.60	-15.70
4	148.50	21.0 QP	43.5	-22.5	1.99 V	4	35.00	-14.00
5	175.72	21.7 QP	43.5	-21.8	1.00 V	230	36.50	-14.80
6	257.38	20.8 QP	46.0	-25.2	1.99 V	62	34.90	-14.10

- 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

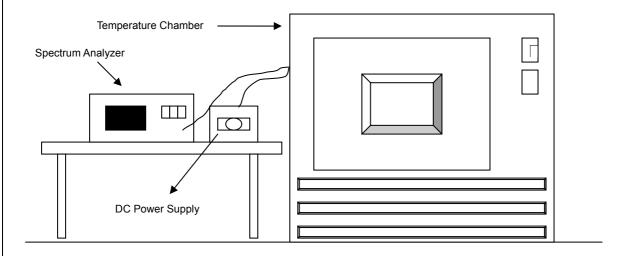


### 4.2 Frequency Stability

# 4.2.1 Limits of Frequency Stability Measurement

The frequency tolerance of the carrier signal shall be maintained within  $\pm$ 0.01% of the operating frequency over a temperature variation of  $\pm$ 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 Setup



### 4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.2.4 Test Procedure

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- b. Turned the EUT on and coupled its output to a spectrum analyzer.
- c. Turned the EUT off and set the chamber to the highest temperature specified.
- d. Allowed sufficient time (approximately 30 min) for the temperature of the chamber to stabilize then turned the EUT on and measured the operating frequency after 2, 5, and 10 minutes.
- e. Repeated 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.

# 4.2.5 Deviation fromTest Standard

No deviation.

# 4.2.6 EUT Operating Conditions

Same as Item 4.1.6.



# 4.2.7 Test Result

Frequemcy Stability Versus Temp.									
		0 Minute		2 Minute		5 Minute		10 Minute	
TEMP.	Power Supply (Vdc)	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.9	13.560019	0.00014	13.560025	0.00018	13.560031	0.00023	13.560014	0.00010
40	3.9	13.56001	0.00007	13.560005	0.00004	13.560013	0.00010	13.56	0.00000
30	3.9	13.559967	-0.00024	13.559968	-0.00024	13.559967	-0.00024	13.559964	-0.00027
20	3.9	13.559964	-0.00027	13.559981	-0.00014	13.559962	-0.00028	13.559969	-0.00023
10	3.9	13.55996	-0.00029	13.55998	-0.00015	13.559966	-0.00025	13.559959	-0.00030
0	3.9	13.559978	-0.00016	13.559967	-0.00024	13.559979	-0.00015	13.559975	-0.00018
-10	3.9	13.56004	0.00029	13.560039	0.00029	13.560052	0.00038	13.560048	0.00035
-20	3.9	13.560045	0.00033	13.560042	0.00031	13.560031	0.00023	13.56005	0.00037

Frequemcy Stability Versus Voltage									
		0 Minute		2 Mi	2 Minute 5 M		nute	10 Minute	
TEMP. (°C)	Power Supply (Vdc)	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
	4.29	13.559965	-0.00026	13.559978	-0.00016	13.559961	-0.00029	13.559969	-0.00023
20	3.9	13.559964	-0.00027	13.559981	-0.00014	13.559962	-0.00028	13.559969	-0.00023
	3.51	13.559965	-0.00026	13.559977	-0.00017	13.559963	-0.00027	13.55997	-0.00022



# 4.3 20dB bandwidth

### 4.3.1 Limits of 20dB Bandwidth Measurement

The 20dB bandwidth shall be specified in operating frequency band.

# 4.3.2 Test Setup

Same as Item 4.1.5.

### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.3.4 Test Procedures

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 1kHz RBW and 3kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

# 4.3.5 Deviation from Test Standard

No deviation.

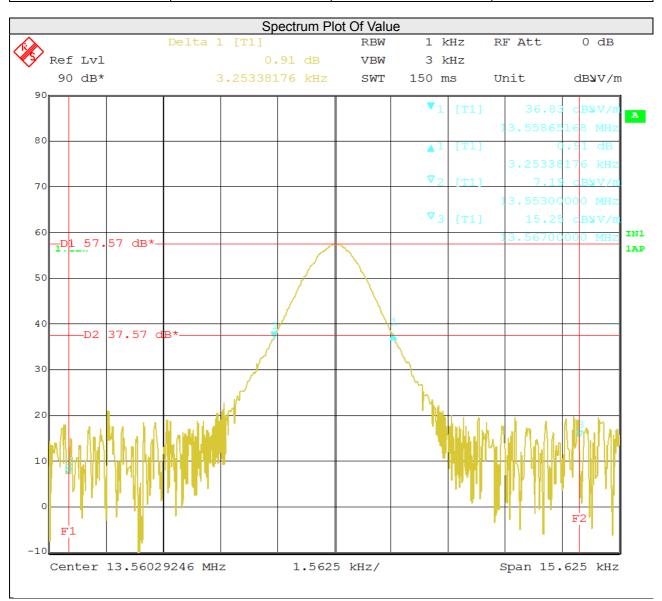
# 4.3.6 EUT Operating Conditions

Same as Item 4.1.6.



### 4.3.7 Test Results

20dBc point (Low)	20dBc point (Low) 20dBc point (High)		Pass / Fail	
13.55865168	13.56190506	13.553~13.567	Pass	





5 Pictures of Test Arrangements							
Please refer to the attached file (Test Setup Photo).							



# Appendix - 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/Telecom Lab

Tel: 886-3-5935343 Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232 Fax: 886-3-3270892

Email: <a href="mailto:service.adt@tw.bureauveritas.com">service.adt@tw.bureauveritas.com</a>
Web Site: <a href="mailto:www.bureauveritas-adt.com">www.bureauveritas-adt.com</a>

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

--- END ---