

# FCC 15B Test Report

**FCC ID** : VQK-F03H  
**Equipment** : Mobile Phone  
**Model No.** : F-03H  
**Brand Name** : FUJITSU  
**Applicant** : FUJITSU LIMITED  
**Address** : 1-1, Kamikodanaka 4-chome, Nakahara-ku,  
Kawasaki 211-8588, Japan  
**Standard** : FCC Part 15, Subpart B, Class B  
ANSI C63.4:2014  
**Received Date** : Feb. 26, 2016  
**Tested Date** : Apr. 11 ~ Apr. 12, 2016

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:



Kent Chen / Assistant Manager



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## Release Record

Report No.	Version	Description	Issued Date
FD622602	Rev. 01	Initial issue	May 10, 2016

## Summary of Test Results

FCC Part 15, Subpart B Emission Tests				
Ref. Std. Clause	Test Standard	Test Items	Measured	Result
15.107	FCC Part 15, Subpart B, Class B	Conducted Emissions	-10.43dB AV@ 2.346MHz.	Pass
15.109	FCC Part 15, Subpart B, Class B	Radiated Emissions	-11.25dB PK@ 38.73MHz.	Pass

# 1 General Description

## 1.1 Information

### 1.1.1 Product Details

<b>Product Name</b>	Mobile Phone
<b>Brand Name</b>	FUJITSU
<b>Model Name</b>	F-03H
<b>IMEI Code</b>	356398070028392
<b>H/W Version</b>	V2.1.0
<b>S/W Version</b>	R012.2

### 1.1.2 Specification of the Equipment under Test (EUT)

WLAN	
<b>Operating Frequency</b>	802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5700 MHz
<b>Antenna Type</b>	$\lambda/4$ Monopole Antenna
<b>Modulaton Type</b>	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)
Bluetooth	
<b>Operating Frequency</b>	2402 MHz ~ 2480 MHz
<b>Antenna Type</b>	$\lambda/4$ Monopole Antenna
<b>Modulaton Type</b>	Bluetooth 4.1 LE: GFSK Bluetooth BR(1Mbps): GFSK Bluetooth EDR (2Mbps): $\pi/4$ -DQPSK Bluetooth EDR (3Mbps): 8-DPSK
WWAN	
<b>Operating Frequency</b>	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz
<b>Antenna Type</b>	$\lambda/4$ Monopole Antenna
<b>Modulaton Type</b>	GSM / GPRS: GMSK WCDMA / HSDPA / HSUPA: QPSK (Uplink)
NFC	
<b>Operating Frequency</b>	13.56 MHz
<b>Antenna Type</b>	Loop Antenna
<b>Modulaton Type</b>	ASK

<b>GPS</b>	
<b>Operating Frequency</b>	1.57542 GHz
<b>Modulaton Type</b>	BPSK

### 1.1.3 Power Supply Type of Equipment under Test (EUT)

<b>Power Supply Type</b>	5.0Vdc from AC adapter 3.8Vdc from Battery
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### 1.1.4 Accessories

<b>No.</b>	<b>Equipment</b>	<b>Description</b>
1	Battery	Brand Name: FUJITSU CONNECTED TECHNOLOGIES LIMITED Model Name: CA54310-0067 Power Rating: 3.8Vdc, 2,580mAh, 9.9Wh

## 1.2 Test Equipment and Calibration Data

<b>Test Item</b>	Conducted Emission				
<b>Test Site</b>	Conduction room 1 / (CO01-WS)				
<b>Tested Date</b>	Apr. 11, 2016				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
EMC Receiver	R&S	ESCS 30	100169	Oct. 21, 2015	Oct. 20, 2016
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 13, 2015	Nov. 12, 2016
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 21, 2015	Dec. 20, 2016
Measurement Software	AUDIX	e3	6.120210k	NA	NA

Note: Calibration Interval of instruments listed above is one year.

<b>Test Item</b>	Radiated Emission				
<b>Test Site</b>	966 chamber 2 / (03CH02-WS)				
<b>Tested Date</b>	Apr. 12, 2016				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101499	Dec. 17, 2015	Dec. 16, 2016
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Oct. 07, 2015	Oct. 06, 2016
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 04, 2015	Nov. 03, 2016
Preamplifier	Agilent	83017A	MY39501309	Sep. 22, 2015	Sep. 21, 2016
Preamplifier	EMC	EMC184045B	980192	Sep. 01, 2015	Aug. 31, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16140/4	Dec. 10, 2015	Dec. 09, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Dec. 10, 2015	Dec. 09, 2016
Measurement Software	AUDIX	e3	6.120210g	NA	NA

Note: Calibration Interval of instruments listed above is one year.

## 1.3 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

FCC Part 15, Subpart B, Class B  
ANSI C63.4:2014

## 1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty		
Test Item	Frequency	Uncertainty
Conducted Emissions	150kHz ~ 30MHz	±2.90 dB
Radiated Emissions	30MHz ~ 1GHz	±3.87 dB
	Above 1GHz	±5.60 dB

## 2 Test Configuration

### 2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	20°C / 63%	Alex Tsai
Radiated Emissions	03CH02-WS	20°C / 61%	Howard Huang

### 2.2 The Worst Case Measurement Configuration

The Determined Test Configurations	
Conducted Emissions	
Test Mode	Operating Description
1	GSM 850 link, BT/Wifi 2.4G idle, GPS Rx, with earphone, Battery 80%, with adapter
2	PCS 1900 link, BT/Wifi 5G idle, Camera(Front), with earphone, Battery 20%, with adapter
3	WCDMA Band5 link, BT/Wifi 2.4G idle, MPEG4 play, with earphone, Battery 20%, with adapter
4	PCS 1900 idle, BT/Wifi 5G idle, SD R/W, with earphone, Battery 20%, USB cable link to NB
5	<b>WCDMA Band5 idle, BT/Wifi 2.4G idle, Camera(Back), with earphone, Battery 20%, with adapter</b>

Note: The worst case was marked in boldface, therefore, only its data was recorded in this report.

The Determined Test Configurations	
Radiated Emissions	
Test Mode	Operating Description
1	GSM 850 link, BT/Wifi 2.4G idle, GPS Rx, with earphone, Battery 80%, with adapter
2	<b>PCS 1900 link, BT/Wifi 5G idle, Camera(Front), with earphone, Battery 20%, with adapter</b>
3	WCDMA Band5 link, BT/Wifi 2.4G idle, MPEG4 play, with earphone, Battery 20%, with adapter
4	PCS 1900 idle, BT/Wifi 5G idle, SD R/W, with earphone, Battery 20%, USB cable link to NB
5	WCDMA Band5 idle, BT/Wifi 2.4G idle, Camera(Back), with earphone, Battery 20%, with adapter

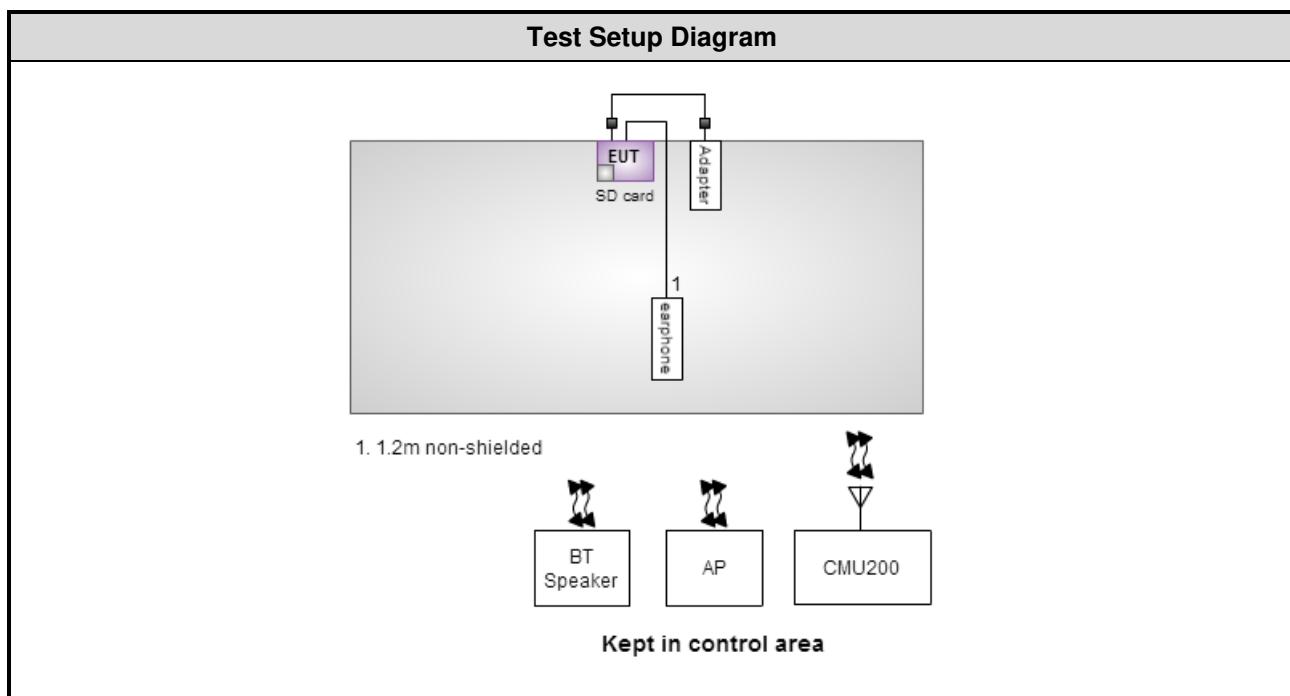
Note: The worst case was marked in boldface, therefore, only its data was recorded in this report.

## 2.3 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	S/N	Signal cable / Length (m)
1	Earphone	APPLE	MD827FE/A	6	1.2m non-shielded.
2	Wireless AP	D-LINK	DIR-815	3000228	---
3	Universal Radio Communication Tester	R&S	CMU200	108087	---
4	BT speaker	Nokia	HF-34W	---	---
5	Adapter	NTT docomo	AC Adaptor 04	---	---
6	SD Card	SanDisk	Micro SDHC 8GB	---	---

Note: Item 5 was provided by applicant.

## 2.4 Test Setup Chart



## 2.5 Test Software and Operating Condition

- The EUT was in WCDMA idle or GSM link mode during the testing.
- The EUT was attached to the support BT speaker and WLAN AP in idle mode.
- Executed "Camera" application during the test.

## 3 Emission Tests Results

### 3.1 Conducted Emissions

#### 3.1.1 Limit of Conducted Emissions

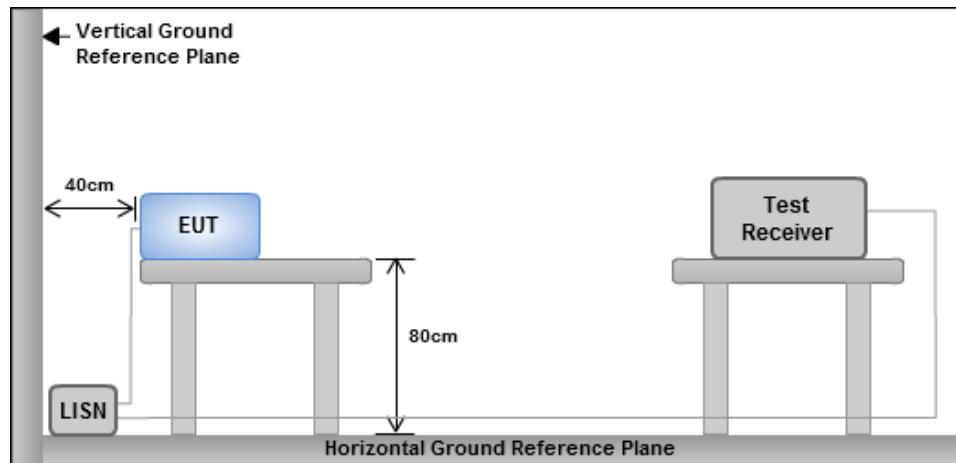
Applicable Standard: FCC Part 15, Subpart B §15.107, ICES-003 §6.1				
Frequency Range (MHz)	Class A (dB $\mu$ V)		Class B (dB $\mu$ V)	
	Limits			
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0.50	79	66	66 to 56	56 to 46
0.50 to 5	73	60	56	46
5 to 30	73	60	60	50

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

#### 3.1.2 Test Procedures

- a. The EUT was placed on a table with a height of 0.8 meters from the metal ground plane and 0.4 meters from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
- b. The test equipment EUT installed received DC power through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- c. All the support units were connected to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The CISPR states that a 50 ohm, 50 microhenry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The measurement frequency range extends from 150 kHz to 30 MHz.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

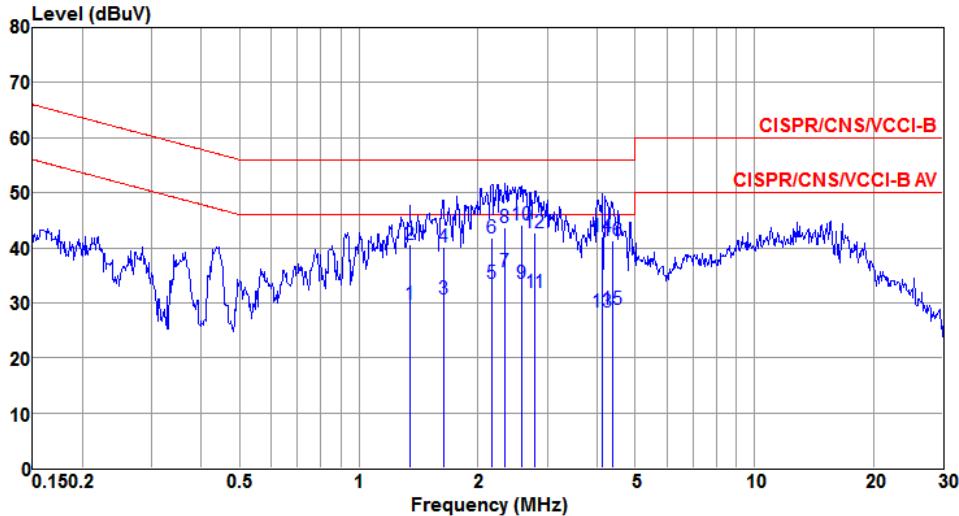
### 3.1.3 Test Setup

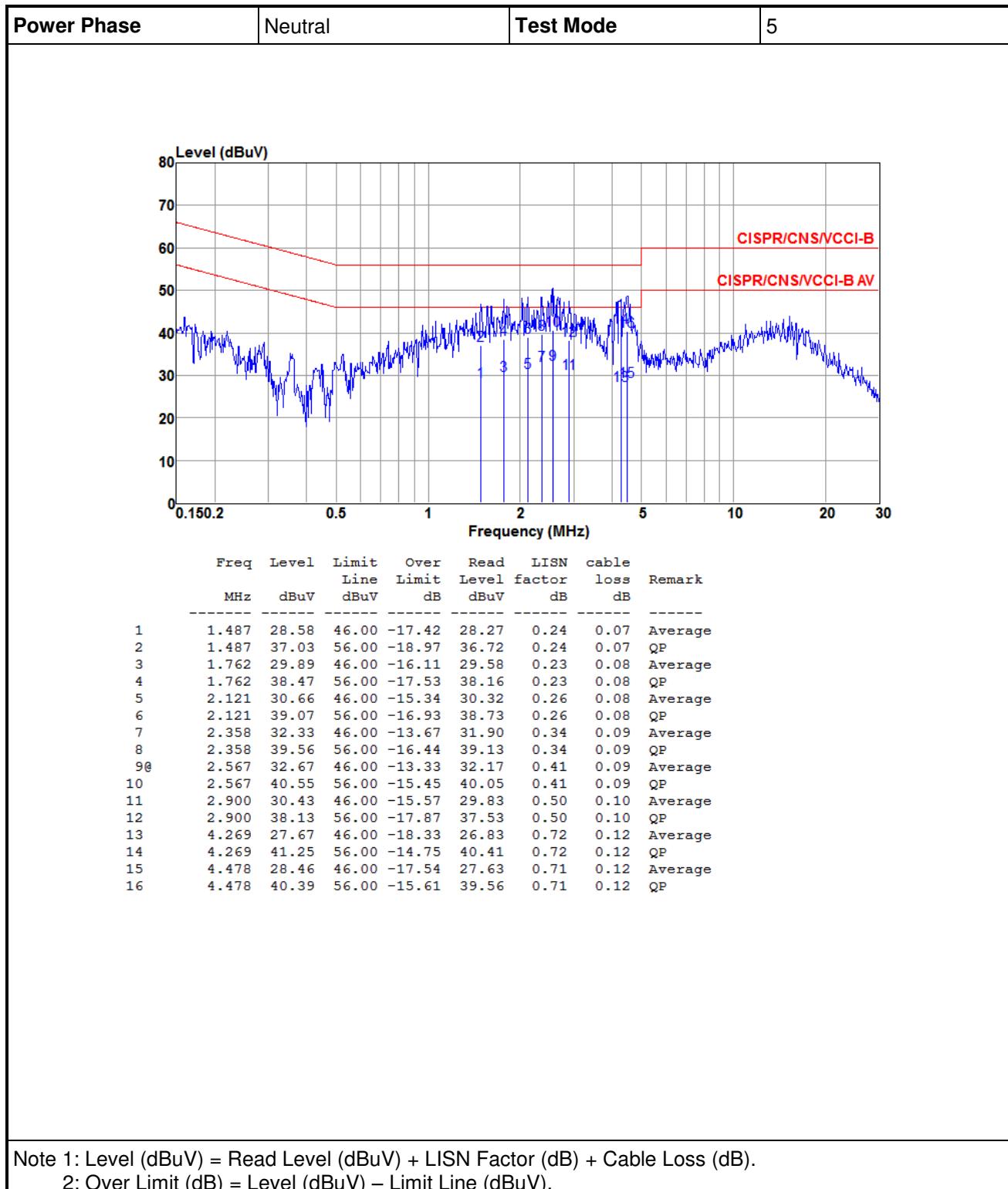


**Note:**

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

### 3.1.4 Test Result of Conducted Emissions

Power Phase	Line	Test Mode	5																																																																																																																																																
																																																																																																																																																			
<table border="1"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Limit</th> <th>Over</th> <th>Read</th> <th>LISN</th> <th>cable</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV</th> <th>Line</th> <th>Limit</th> <th>Level</th> <th>factor</th> <th>loss</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>1.352</td><td>29.79</td><td>46.00</td><td>-16.21</td><td>29.39</td><td>0.33</td><td>0.07 Average</td></tr> <tr><td>2</td><td>1.352</td><td>40.68</td><td>56.00</td><td>-15.32</td><td>40.28</td><td>0.33</td><td>0.07 QP</td></tr> <tr><td>3</td><td>1.636</td><td>30.64</td><td>46.00</td><td>-15.36</td><td>30.10</td><td>0.47</td><td>0.07 Average</td></tr> <tr><td>4</td><td>1.636</td><td>40.20</td><td>56.00</td><td>-15.80</td><td>39.66</td><td>0.47</td><td>0.07 QP</td></tr> <tr><td>5</td><td>2.167</td><td>33.43</td><td>46.00</td><td>-12.57</td><td>32.76</td><td>0.59</td><td>0.08 Average</td></tr> <tr><td>6</td><td>2.167</td><td>41.67</td><td>56.00</td><td>-14.33</td><td>41.00</td><td>0.59</td><td>0.08 QP</td></tr> <tr><td>7@</td><td>2.346</td><td>35.57</td><td>46.00</td><td>-10.43</td><td>34.94</td><td>0.54</td><td>0.09 Average</td></tr> <tr><td>8</td><td>2.346</td><td>43.72</td><td>56.00</td><td>-12.28</td><td>43.09</td><td>0.54</td><td>0.09 QP</td></tr> <tr><td>9</td><td>2.581</td><td>33.63</td><td>46.00</td><td>-12.37</td><td>33.05</td><td>0.49</td><td>0.09 Average</td></tr> <tr><td>10</td><td>2.581</td><td>44.20</td><td>56.00</td><td>-11.80</td><td>43.62</td><td>0.49</td><td>0.09 QP</td></tr> <tr><td>11</td><td>2.794</td><td>31.82</td><td>46.00</td><td>-14.18</td><td>31.27</td><td>0.45</td><td>0.10 Average</td></tr> <tr><td>12</td><td>2.794</td><td>42.76</td><td>56.00</td><td>-13.24</td><td>42.21</td><td>0.45</td><td>0.10 QP</td></tr> <tr><td>13</td><td>4.136</td><td>28.35</td><td>46.00</td><td>-17.65</td><td>27.96</td><td>0.27</td><td>0.12 Average</td></tr> <tr><td>14</td><td>4.136</td><td>42.09</td><td>56.00</td><td>-13.91</td><td>41.70</td><td>0.27</td><td>0.12 QP</td></tr> <tr><td>15</td><td>4.384</td><td>28.78</td><td>46.00</td><td>-17.22</td><td>28.36</td><td>0.30</td><td>0.12 Average</td></tr> <tr><td>16</td><td>4.384</td><td>41.19</td><td>56.00</td><td>-14.81</td><td>40.77</td><td>0.30</td><td>0.12 QP</td></tr> </tbody> </table>				Freq	Level	Limit	Over	Read	LISN	cable	Remark	MHz	dBuV	Line	Limit	Level	factor	loss		1	1.352	29.79	46.00	-16.21	29.39	0.33	0.07 Average	2	1.352	40.68	56.00	-15.32	40.28	0.33	0.07 QP	3	1.636	30.64	46.00	-15.36	30.10	0.47	0.07 Average	4	1.636	40.20	56.00	-15.80	39.66	0.47	0.07 QP	5	2.167	33.43	46.00	-12.57	32.76	0.59	0.08 Average	6	2.167	41.67	56.00	-14.33	41.00	0.59	0.08 QP	7@	2.346	35.57	46.00	-10.43	34.94	0.54	0.09 Average	8	2.346	43.72	56.00	-12.28	43.09	0.54	0.09 QP	9	2.581	33.63	46.00	-12.37	33.05	0.49	0.09 Average	10	2.581	44.20	56.00	-11.80	43.62	0.49	0.09 QP	11	2.794	31.82	46.00	-14.18	31.27	0.45	0.10 Average	12	2.794	42.76	56.00	-13.24	42.21	0.45	0.10 QP	13	4.136	28.35	46.00	-17.65	27.96	0.27	0.12 Average	14	4.136	42.09	56.00	-13.91	41.70	0.27	0.12 QP	15	4.384	28.78	46.00	-17.22	28.36	0.30	0.12 Average	16	4.384	41.19	56.00	-14.81	40.77	0.30	0.12 QP
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Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB). 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).																																																																																																																																																			



## 3.2 Radiated Emissions

### 3.2.1 Limit of Radiated Emissions

According to FCC Part 15, Subpart B §15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

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

Note: According to FCC Part 15, Subpart B §15.33: For an unintentional radiator is shown in the table above.

### 3.2.2 Test Procedures

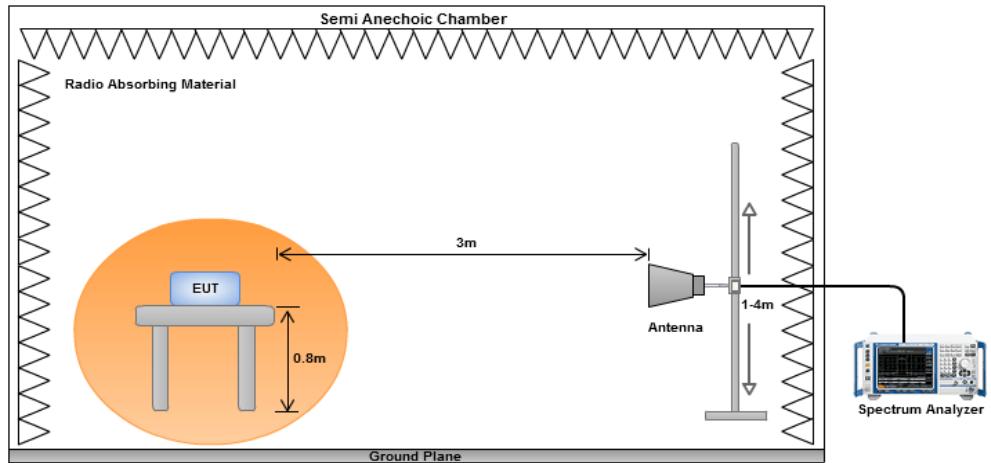
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

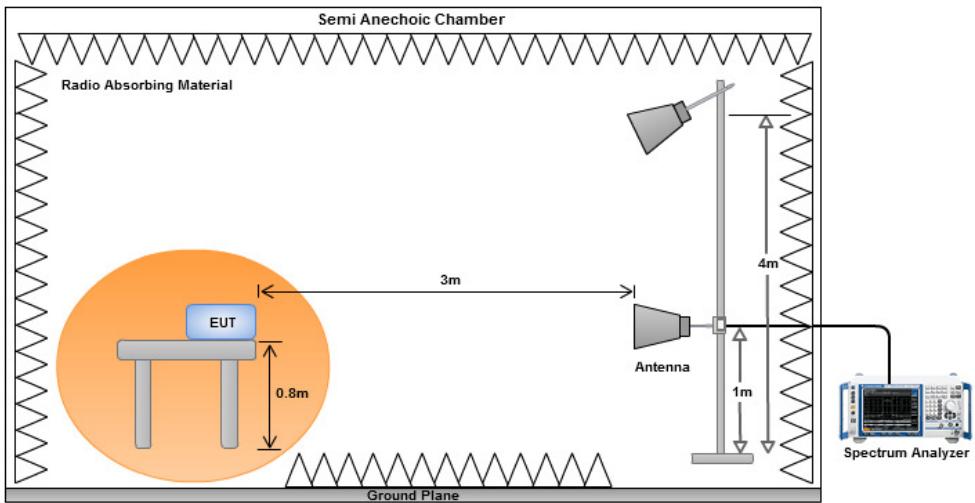
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=3MHz and RMS detector is for average measured value of radiated emission above 1GHz.

### 3.2.3 Test Setup

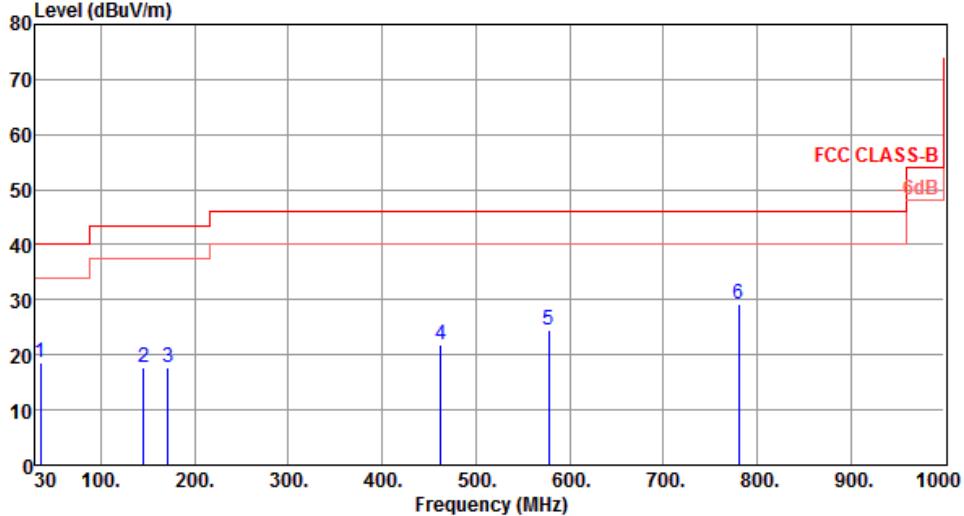
#### Radiated Emissions below 1 GHz

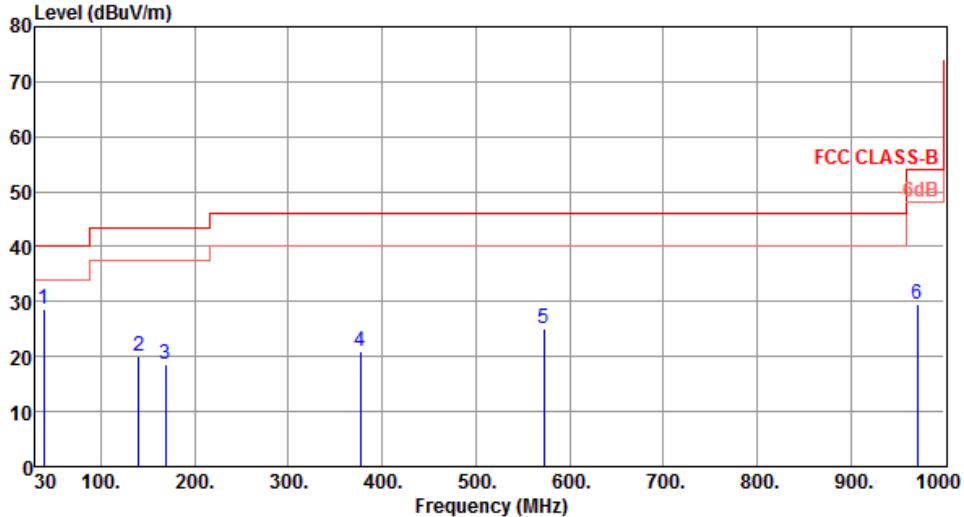


#### Radiated Emissions above 1 GHz

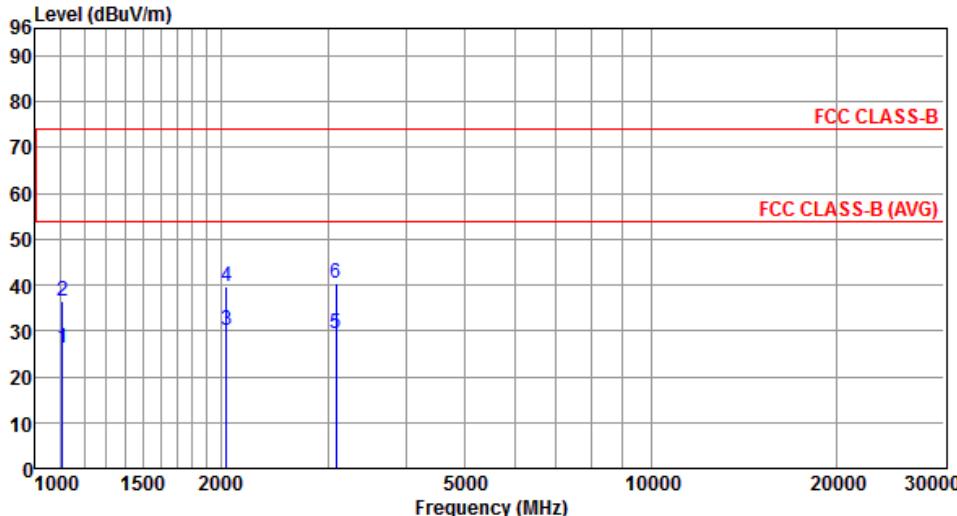


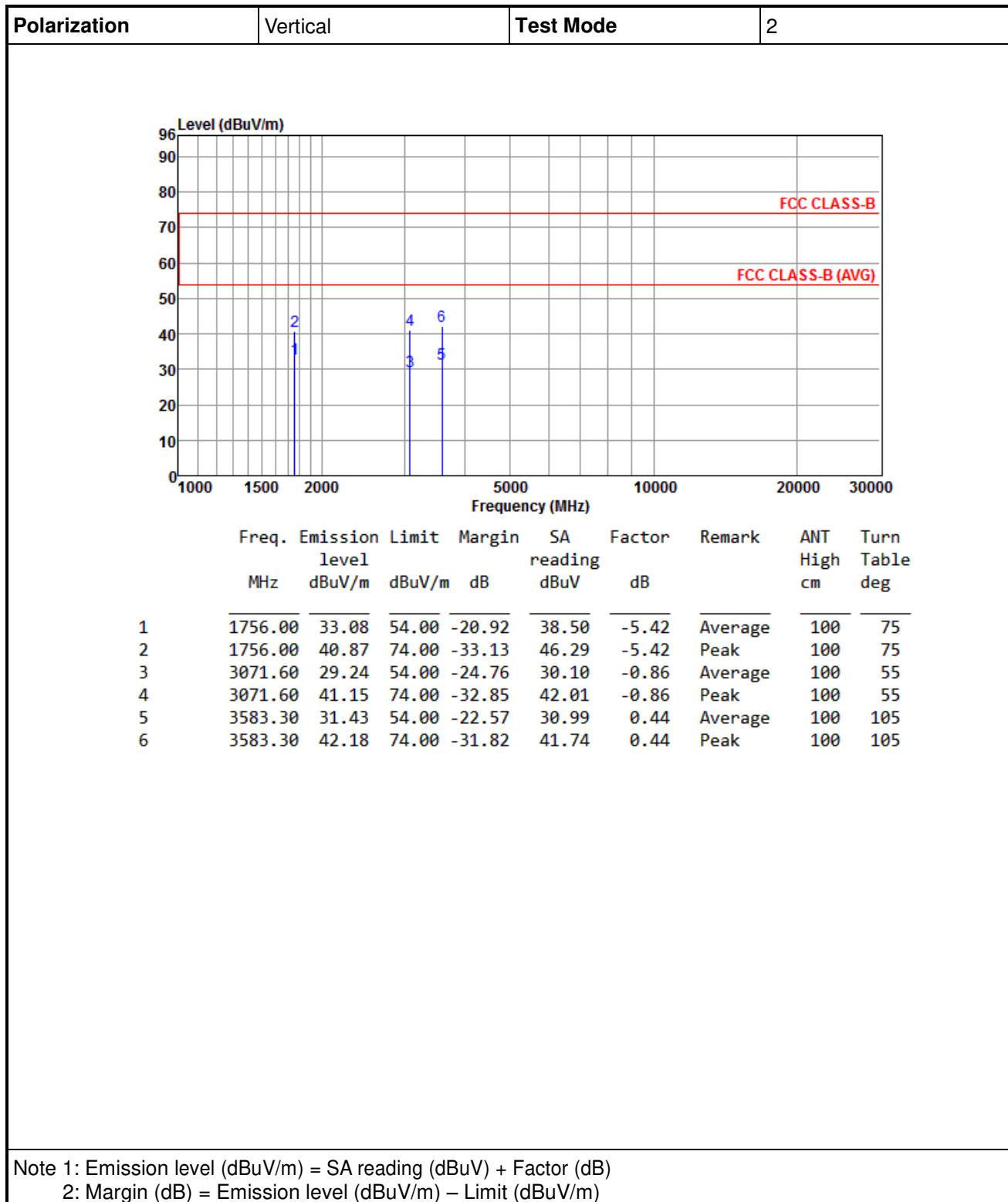
### 3.2.4 Radiated Emissions (Below 1GHz)

Polarization	Horizontal	Test Mode	2																																																																								
																																																																											
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### 3.2.5 Radiated Emissions (Above 1GHz)

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## 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan Hsiang. Location map can be found on our website <http://www.icertifi.com.tw>.

### Linkou

Tel: 886-2-2601-1640

No. 30-2, Ding Fwu Tsuen, Lin Kou  
District, New Taipei City, Taiwan,  
R.O.C.

### Kwei Shan

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd  
St., Kwei Shan Hsiang, Tao Yuan  
Hsien 333, Taiwan, R.O.C.

### Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd  
St., Kwei Shan Hsiang, Tao Yuan  
Hsien 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666

Fax: 886-3-318-0155

Email: [ICC\\_Service@icertifi.com.tw](mailto:ICC_Service@icertifi.com.tw)

—END—