FCC 15B Test Report

FCC ID	:	**VQK-F01H**
Equipment	:	**Mobile Phone**
Model No.	:	**F-01H**
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 C63.4:2009**
Received Date	:	**Jun. 03, 2015**
Tested Date	:	**Jul. 16 ~ Jul. 18, 2015**

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

Testing Laboratory
2732

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Release Record

Report No.	Version	Description	Issued Date
FD560301	Rev. 01	Initial issue	Aug. 07, 2015

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	-10.32dB QP@ 2.608MHz.	Pass
15.109	FCC Part 15, Subpart B, Class B	Radiated Emissions	-5.86dB PK@ 30.00MHz.	Pass

1 General Description

1.1 Information

1.1.1 Product Details

Product Name	Mobile Phone
Brand Name	FUJITSU
Model Name	F-01H
IMEI Code	354017060119399
H/W Version	v2.1.1
S/W Version	R019.1e

1.1.2 Specification of the Equipment under Test (EUT)

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

GPS	
Operating Frequency	1.57542 GHz
Modulaton Type	BPSK

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	5.0Vdc from AC adapter 3.8Vdc from Battery

1.1.4 Accessories

No.	Equipment	Description
1	Cradle	Brand Name: Fujitsu Limited Model Name: F51 Input rating: 5.0Vdc, 1.5A Output rating: 5.0Vdc, 1.5A
2	Battery (Unremovable)	Brand Name: NTT Docomo Model Name: CA54310-0064 Power Rating: 3.8Vdc, 2330mAh, 8.9Wh

1.2 Test Equipment and Calibration Data

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jul. 16, 2015				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
EMC Receiver	R&S	ESCS 30	100169	Oct. 17, 2014	Oct. 16, 2015
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 17, 2014	Nov. 16, 2015
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Dec. 31, 2014	Dec. 30, 2015
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission below 1GHz				
Test Site	966 chamber 2 / (03CH02-WS)				
Tested Date	Jul. 18, 2015				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Jan. 15, 2015	Jan. 14, 2016
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-524	Oct. 16, 2014	Oct. 15, 2015
Preamplifier	Burgeon	BPA-530	100218	Nov. 10, 2014	Nov. 09, 2015
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-003	Dec. 16, 2014	Dec. 15, 2015
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-004	Dec. 16, 2014	Dec. 15, 2015
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission above 1GHz				
Test Site	966 chamber 2 / (03CH02-WS)				
Tested Date	Jul. 18, 2015				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Dec. 31, 2014	Dec. 30, 2015
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Oct. 14, 2014	Oct. 13, 2015
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 10, 2014	Nov. 09, 2015
Preamplifier	Agilent	83017A	MY39501309	Sep. 29, 2014	Sep. 28, 2015
Preamplifier	EMC	EMC184045B	980192	Aug. 26, 2014	Aug. 25, 2015
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16140/4	Dec. 16, 2014	Dec. 15, 2015
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Dec. 16, 2014	Dec. 15, 2015
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16015/4	Dec. 16, 2014	Dec. 15, 2015
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 C63.4:2009

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	±2.92 dB
Radiated Emissions	30MHz ~ 1GHz	±3.62 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 / 60%	Kevin Ma
Radiated Emissions ≤1GHz	03CH02-WS	23°C / 64%	Peter Lin
Radiated Emissions >1GHz	03CH02-WS	23°C / 64%	Peter Lin

2.2 The Worst Case Measurement Configuration

The Determined Test Configurations	
Conducted Emissions	
Test Mode	**Operating Description**
1	GSM 850 idle + BT + Wifi 2.4G idle + GPS Rx + Earphone + Battery 80% + Adaptor
2	PCS 1900 idle + BT + Wifi 5G idle + Camera(Front) + Earphone + Battery 20% + Adaptor
3	WCDMA Band5 idle + BT + Wifi 2.4G idle + MPEG4 play + Earphone + Battery 20% + Adaptor
4	WCDMA Band5 idle + BT + Wifi 5G idle + SD R/W + Earphone + Battery 20% + USB cable link to NB
5	**WCDMA Band5 idle + BT + Wifi 2.4G idle + Camera(Back) + Earphone + Battery 20% + Cradle + Adaptor**
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 idle + BT + Wifi 2.4G idle + GPS Rx + Earphone + Battery 80% + Adaptor
2	PCS 1900 idle + BT + Wifi 5G idle + Camera(Front) + Earphone + Battery 20% + Adaptor
3	WCDMA Band5 idle + BT + Wifi 2.4G idle + MPEG4 play + Earphone + Battery 20% + Adaptor
4	GSM 850 idle + BT + Wifi 5G idle + SD R/W + Earphone + Battery 20% + USB cable link to NB
5	**GSM 850 idle + BT + Wifi 2.4G idle + Camera(Back) + Earphone + Battery 20% + Cradle + Adaptor**
Note: The worst case was marked in boldface, therefore, only its data was recorded in this report.	

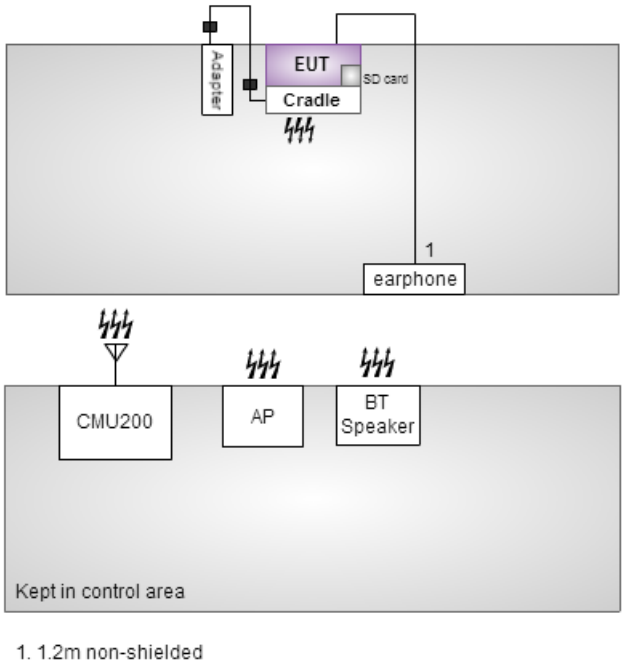
2.3 Local Support Equipment List

Support Equipment List (EMI)					
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	BT speaker	Nokia	HF-34W	---	---
4	SD Card	SanDisk	Micro SDHC 8GB	---	---
5	Universal Radio Communication Tester	R&S	CMU200	108087	---
6	Adapter	NTT docomo	AC Adaptor 04	---	---

Note: Item 6 was provided by applicant.

2.4 Test Setup Chart

Test Setup Diagram



1. 1.2m non-shielded

2.5 Test Software and Operating Condition

a. The EUT was in WCDMA or GSM idle mode during the testing.
b. The EUT was attached to the support BT speaker and WLAN AP in idle mode.

c. 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 (dBµV)		Class B (dBµV)	
	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.

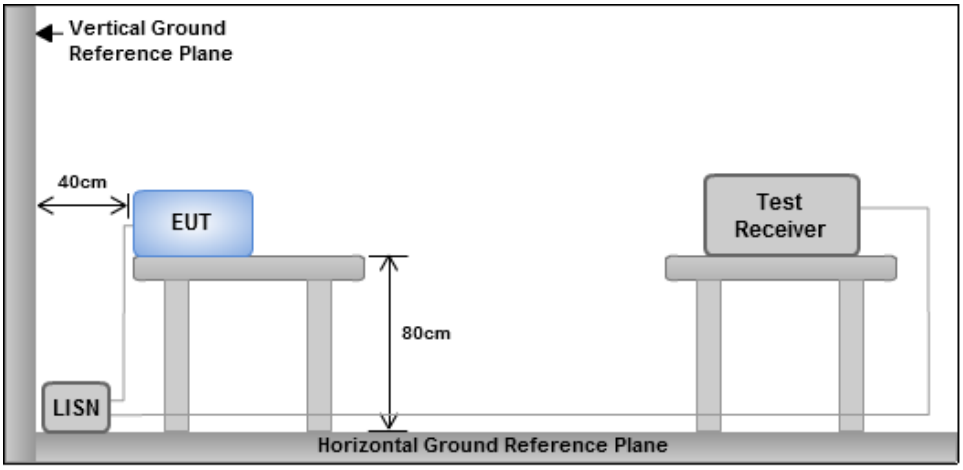
e. The CISPR states that a 50 ohm, 50 microhenry LISN should be used.

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

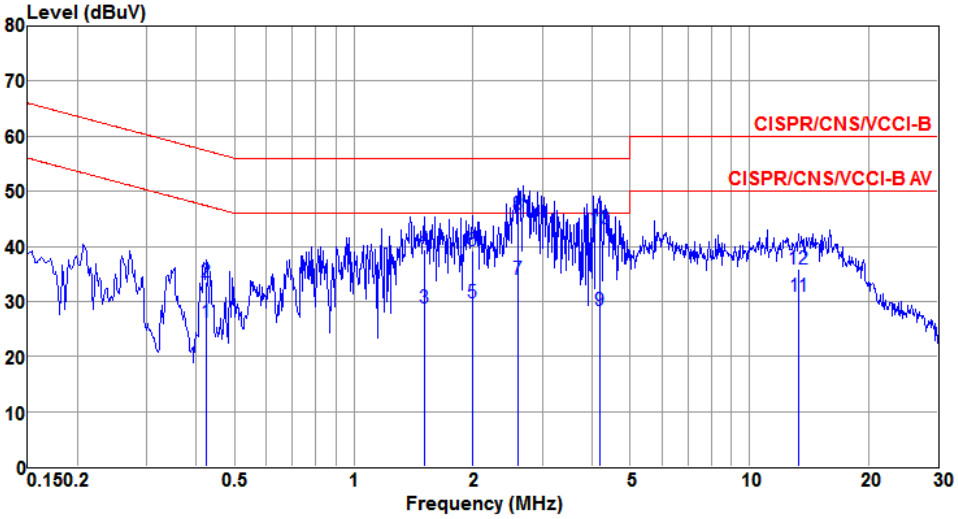


Note: 1. Support units were connected to second LISN.

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

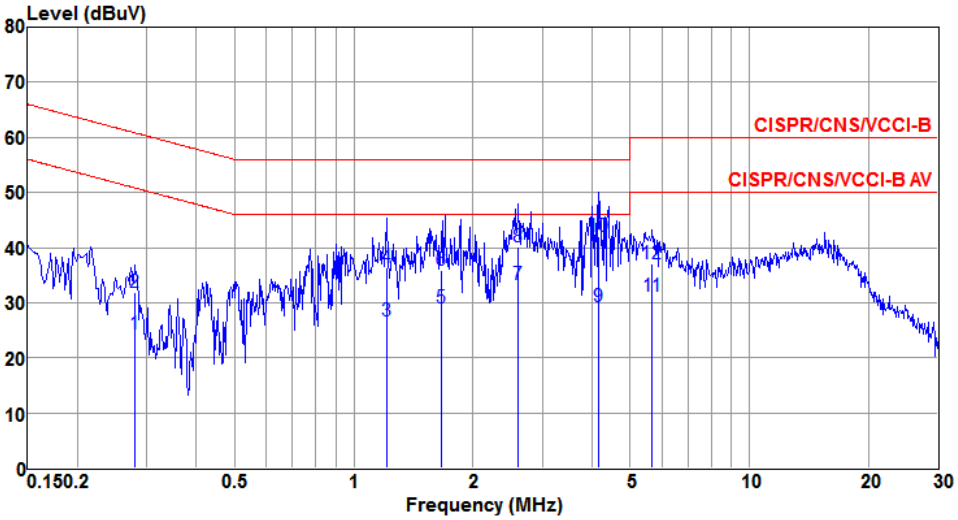
Power Phase	Line	Test Mode	5



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.424	26.17	47.37	-21.20	25.89	0.17	0.11	Average
2	0.424	33.63	57.37	-23.74	33.35	0.17	0.11	QP
3	1.503	28.70	46.00	-17.30	28.08	0.41	0.21	Average
4	1.503	39.51	56.00	-16.49	38.89	0.41	0.21	QP
5	1.991	29.75	46.00	-16.25	28.88	0.63	0.24	Average
6	1.991	39.20	56.00	-16.80	38.33	0.63	0.24	QP
7	2.608	33.95	46.00	-12.05	33.19	0.49	0.27	Average
8*	2.608	45.68	56.00	-10.32	44.92	0.49	0.27	QP
9	4.180	28.40	46.00	-17.60	27.81	0.28	0.31	Average
10	4.180	43.20	56.00	-12.80	42.61	0.28	0.31	QP
11	13.337	30.84	50.00	-19.16	29.90	0.71	0.23	Average
12	13.337	35.98	60.00	-24.02	35.04	0.71	0.23	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Power Phase	Neutral	Test Mode	5



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.279	24.28	50.85	-26.57	23.99	0.19	0.10	Average
2	0.279	31.85	60.85	-29.00	31.56	0.19	0.10	QP
3	1.210	26.71	46.00	-19.29	26.27	0.26	0.18	Average
4	1.210	36.30	56.00	-19.70	35.86	0.26	0.18	QP
5	1.667	29.05	46.00	-16.95	28.60	0.23	0.22	Average
6	1.667	35.92	56.00	-20.08	35.47	0.23	0.22	QP
7*	2.607	33.23	46.00	-12.77	32.54	0.42	0.27	Average
8	2.607	40.13	56.00	-15.87	39.44	0.42	0.27	QP
9	4.158	29.33	46.00	-16.67	28.29	0.73	0.31	Average
10	4.158	41.95	56.00	-14.05	40.91	0.73	0.31	QP
11	5.683	31.11	50.00	-18.89	30.14	0.66	0.31	Average
12	5.683	37.17	60.00	-22.83	36.20	0.66	0.31	QP

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

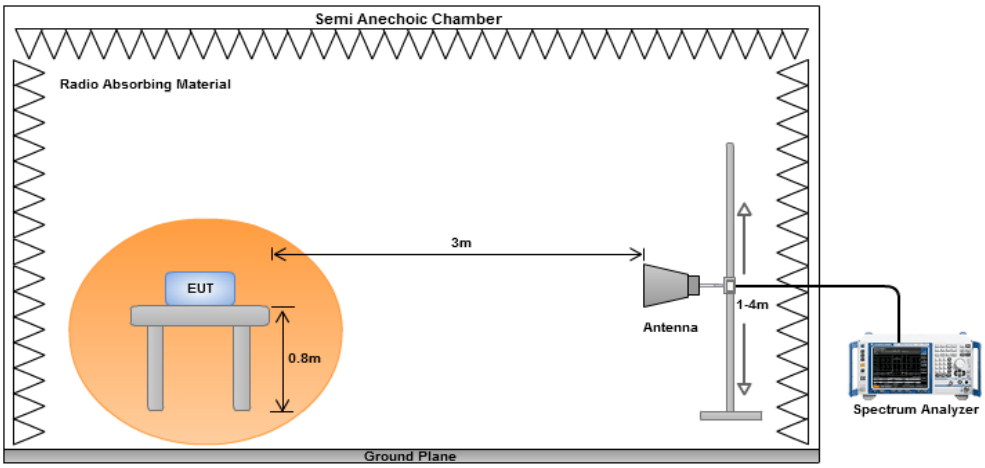
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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:

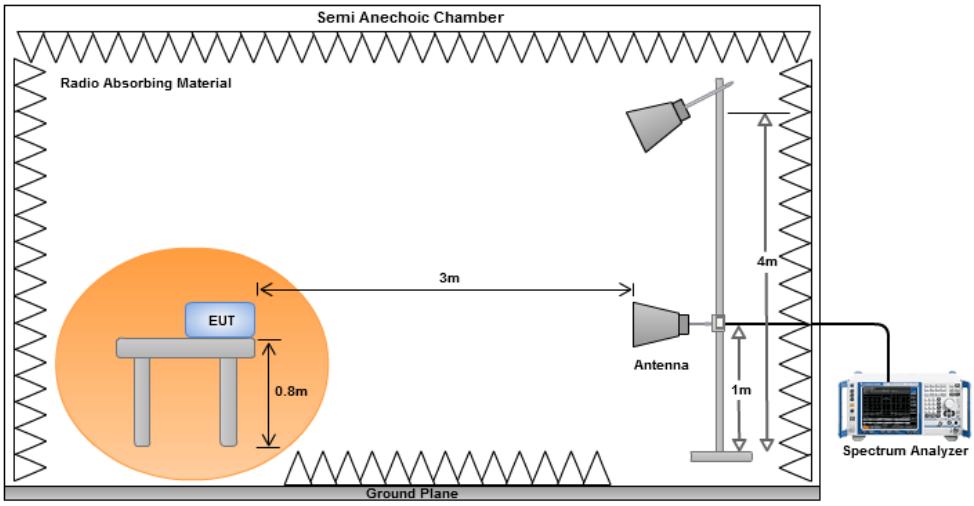
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=3MHz and RMS detector is for average measured value of radiated emission above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

3.2.3 Test Setup

Radiated Emissions below 1 GHz

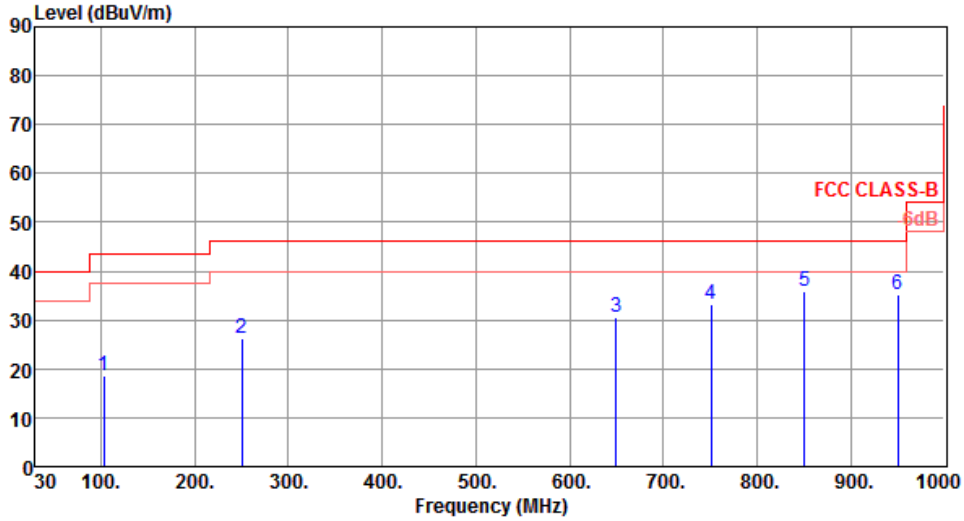


Radiated Emissions above 1 GHz



3.2.4 Radiated Emissions (Below 1GHz)

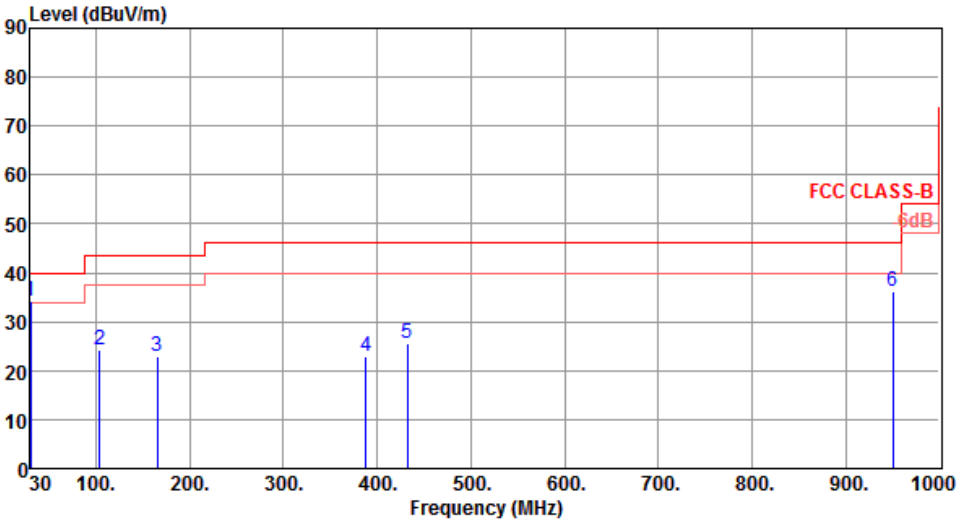
Polarization	Horizontal	Test Mode	5



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	102.75	18.69	43.50	-24.81	40.20	-21.51	Peak	---	---
2	250.19	26.11	46.00	-19.89	43.97	-17.86	Peak	---	---
3	649.83	30.53	46.00	-15.47	39.57	-9.04	Peak	---	---
4	750.71	33.37	46.00	-12.63	40.66	-7.29	Peak	---	---
5	850.62	35.81	46.00	-10.19	41.84	-6.03	Peak	---	---
6	950.53	35.27	46.00	-10.73	40.03	-4.76	Peak	---	---

Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB)
2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)

Polarization	Vertical	Test Mode	5

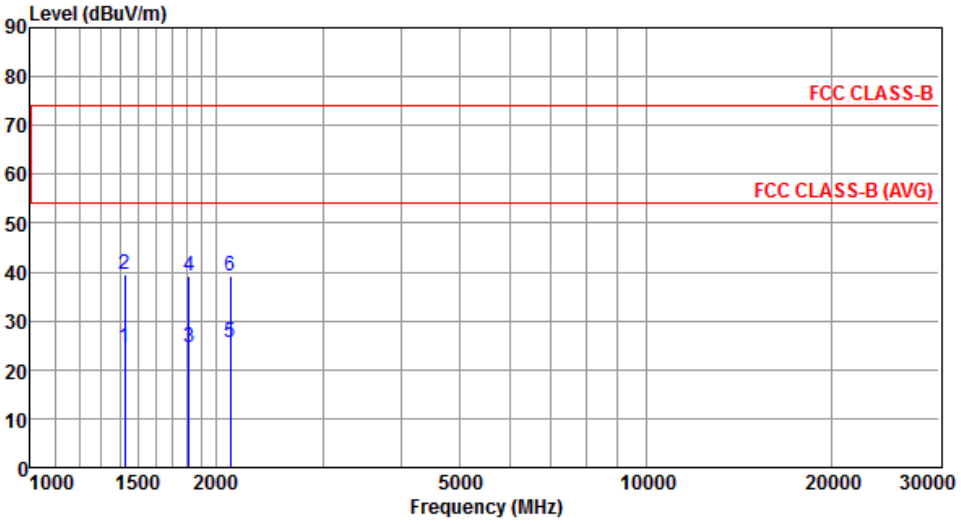


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	30.00	34.14	40.00	-5.86	51.95	-17.81	Peak	---	---
2	103.72	24.14	43.50	-19.36	45.52	-21.38	Peak	---	---
3	165.80	23.07	43.50	-20.43	40.35	-17.28	Peak	---	---
4	387.93	22.84	46.00	-23.16	36.82	-13.98	Peak	---	---
5	432.55	25.60	46.00	-20.40	38.50	-12.90	Peak	---	---
6	950.53	36.22	46.00	-9.78	40.98	-4.76	Peak	---	---

Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB)
2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)

3.2.5 Radiated Emissions (Above 1GHz)

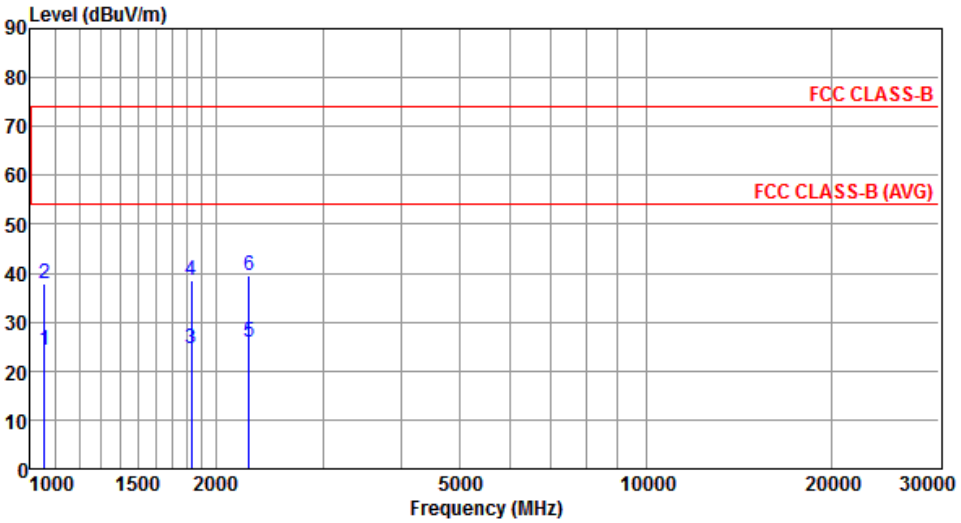
Polarization	Horizontal	Test Mode	5



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1425.12	24.67	54.00	-29.33	30.66	-5.99	Average	115	20
2	1425.12	39.58	74.00	-34.42	45.57	-5.99	Peak	115	20
3	1812.94	24.60	54.00	-29.40	29.30	-4.70	Average	100	150
4	1812.94	39.06	74.00	-34.94	43.76	-4.70	Peak	100	150
5	2115.19	25.47	54.00	-28.53	29.19	-3.72	Average	110	240
6	2115.19	39.26	74.00	-34.74	42.98	-3.72	Peak	110	240

Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB)
2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)

Polarization	Vertical	Test Mode	5



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1053.48	24.14	54.00	-29.86	32.64	-8.50	Average	100	150
2	1053.48	37.92	74.00	-36.08	46.42	-8.50	Peak	100	150
3	1826.34	24.67	54.00	-29.33	29.33	-4.66	Average	100	115
4	1826.34	38.54	74.00	-35.46	43.20	-4.66	Peak	100	115
5	2269.42	26.02	54.00	-27.98	29.13	-3.11	Average	100	25
6	2269.42	39.62	74.00	-34.38	42.73	-3.11	Peak	100	25

Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB)
2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)

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	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.	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

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