

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





Report No.: FD622602 Report Version: Rev. 01 Page : 1 of 21



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information	
1.2	Test Equipment and Calibration Data	
1.3	Testing Applied Standards	
1.4	Measurement Uncertainty	
2	TEST CONFIGURATION	9
2.1	Testing Condition	g
2.2	The Worst Case Measurement Configuration	
2.3	Local Support Equipment List	10
2.4	Test Setup Chart	
2.5	Test Software and Operating Condition	
3	EMISSION TESTS RESULTS	11
3.1	Conducted Emissions	11
3.2	Radiated Emissions	15
4	TEST LABORATORY INFORMATION	21



Release Record

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

Report No.: FD622602 Page : 3 of 21



Summary of Test Results

	FCC Part 15, Subpart B Emission Tests							
Ref. Std. Clause	Test Standard	Test Standard Test Items		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				

Report No.: FD622602 Page : 4 of 21



1 General Description

1.1 Information

1.1.1 Product Details

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

1.1.2 Specification of the Equipment under Test (EUT)

WLAN						
VVLAIN						
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					

Report No.: FD622602 Page : 5 of 21



GPS	
Operating Frequency	1.57542 GHz
Modulaton Type	BPSK

1.1.3 Power Supply Type of Equipment under Test (EUT)

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

1.1.4 Accessories

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

Report No.: FD622602 Page : 6 of 21



1.2 Test Equipment and Calibration Data

Test Item	Conducted Emission					
Test Site	Conduction room 1 /	Conduction room 1 / (CO01-WS)				
Tested Date	Apr. 11, 2016	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.						

Test Item	Radiated Emission					
Test Site	966 chamber 2 / (03CH02-WS)					
Tested Date	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

Report No.: FD622602 Page : 7 of 21



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			
Dedicted Emissions	30MHz ~ 1GHz	±3.87 dB			
Radiated Emissions	Above 1GHz	±5.60 dB			

Report No.: FD622602 Page : 8 of 21



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 Emis	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 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.				

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	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	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.			

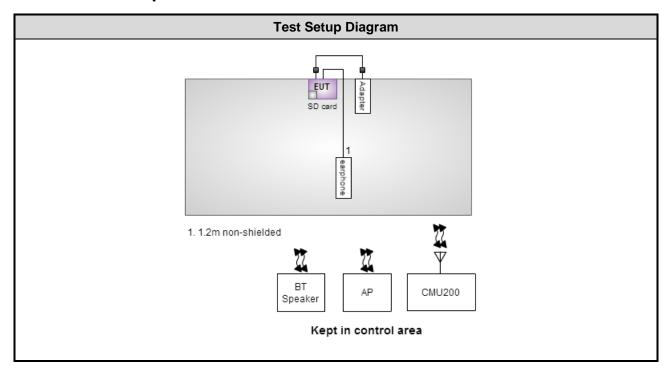


2.3 Local Support Equipment List

	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

- a. The EUT was in WCDMA idle or GSM link 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.

Report No.: FD622602 Page : 10 of 21



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						
_	Class A	λ (dBμV)	Class B (dBµV)			
Frequency Range (MHz)		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.

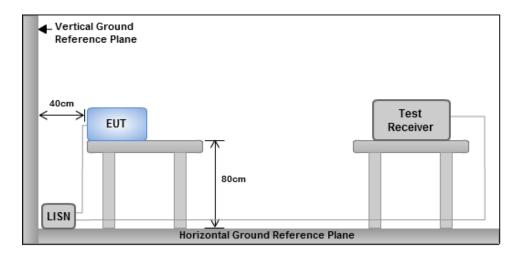
3.1.2 Test Procedures

- 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.

Report No.: FD622602 Page : 11 of 21



3.1.3 Test Setup



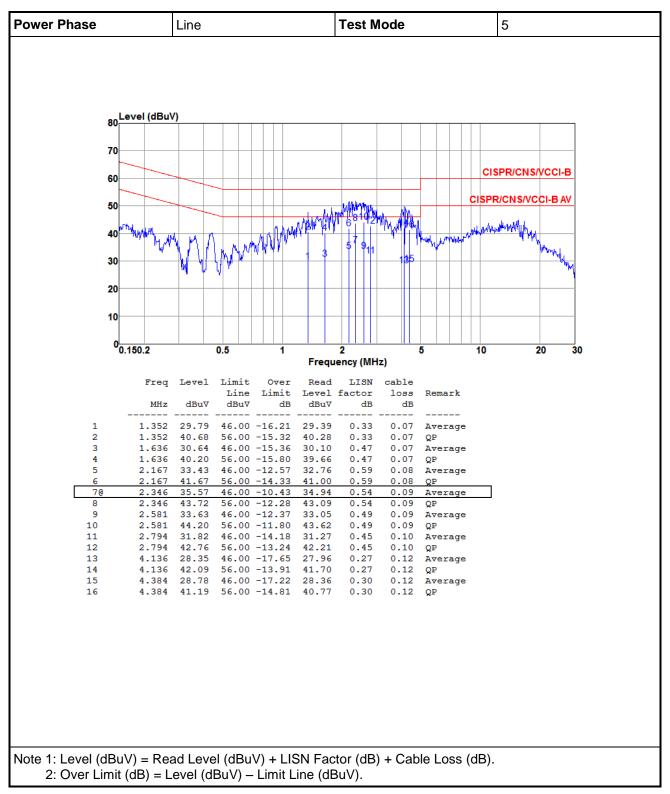
Note: 1. Support units were connected to second LISN.

Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

Report No.: FD622602 Page : 12 of 21

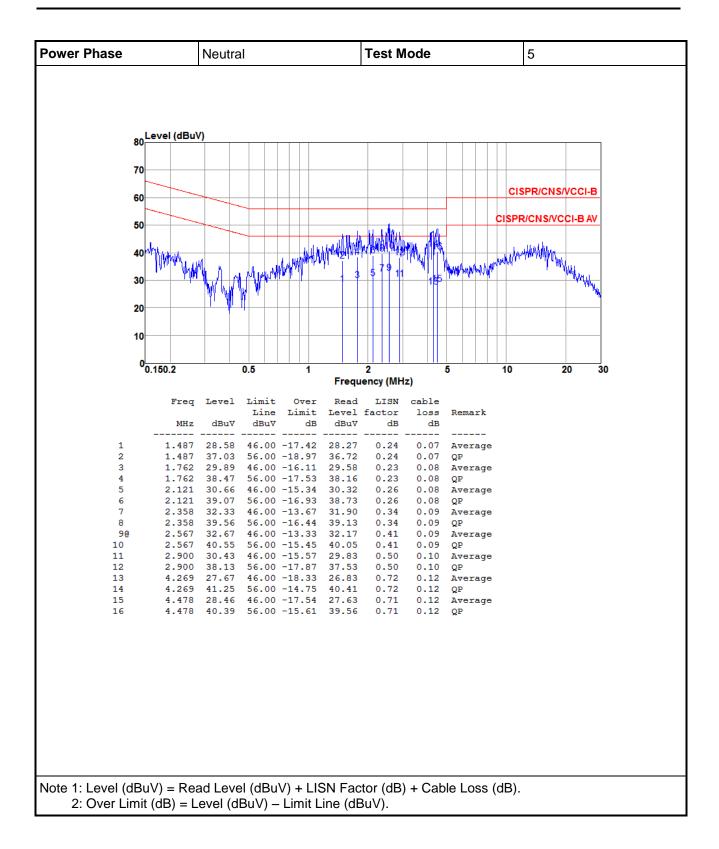


3.1.4 Test Result of Conducted Emissions



Report No.: FD622602 Page : 13 of 21





Report No.: FD622602 Page : 14 of 21



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.

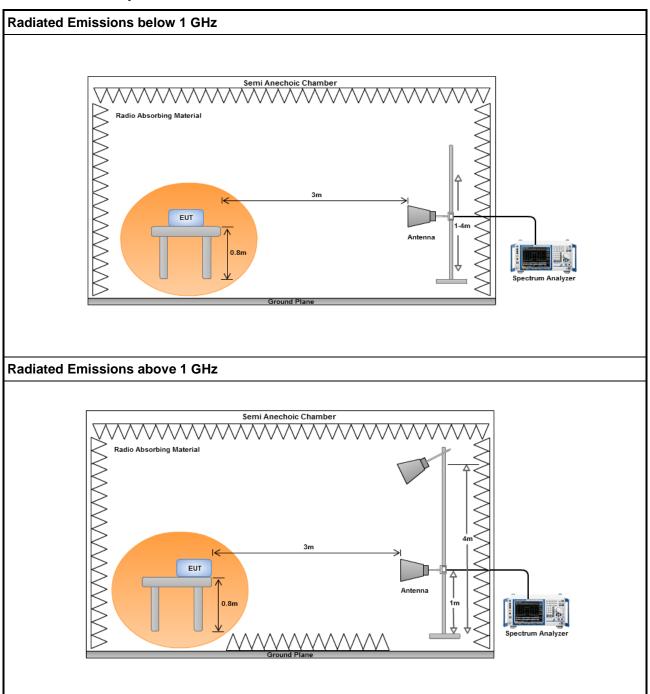
Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 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.

Report No.: FD622602 Page : 15 of 21



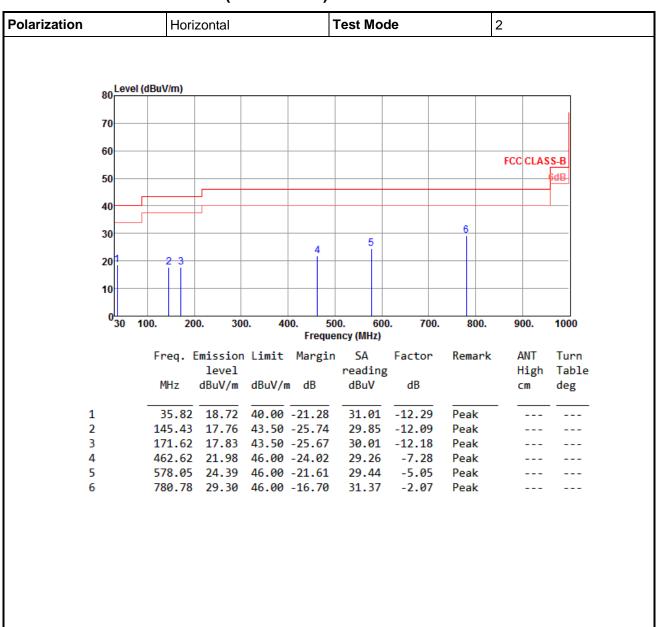
3.2.3 Test Setup



Report No.: FD622602 Page : 16 of 21



3.2.4 Radiated Emissions (Below 1GHz)

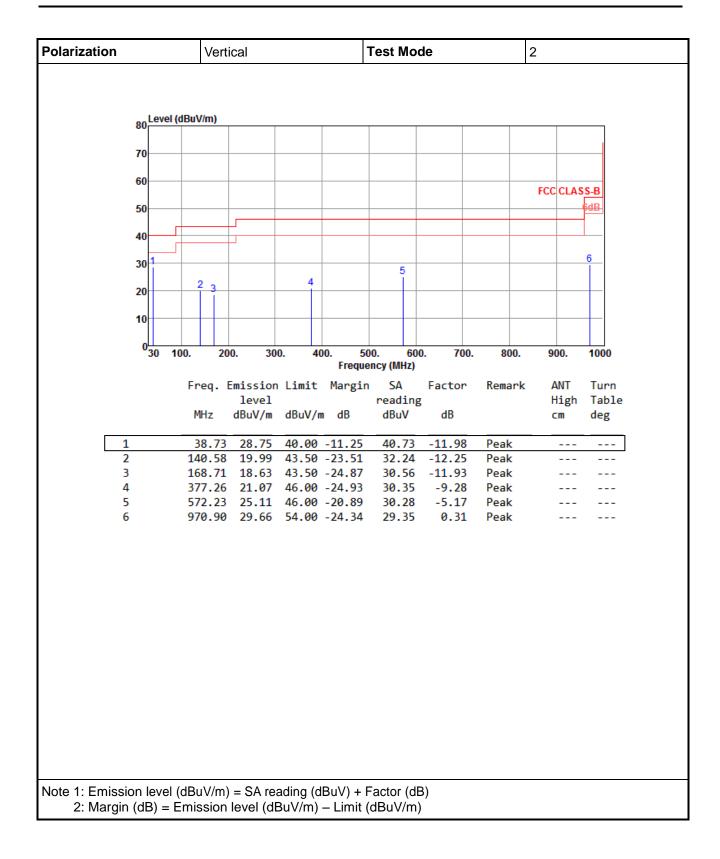


Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB)

2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m)

Report No.: FD622602 Page : 17 of 21

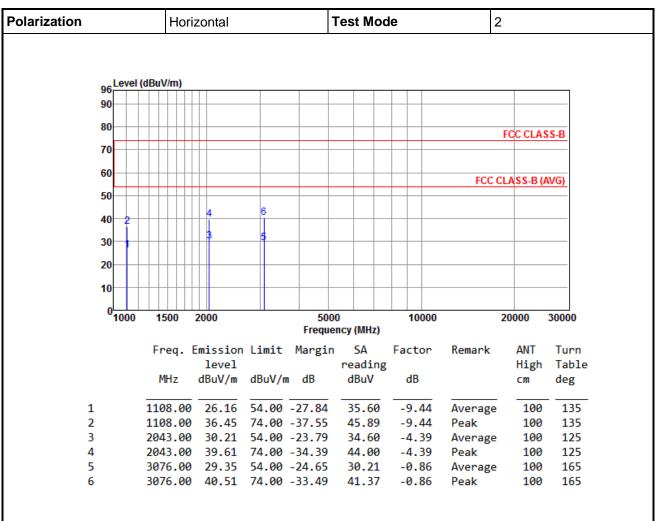




Report No.: FD622602 Page : 18 of 21



3.2.5 Radiated Emissions (Above 1GHz)

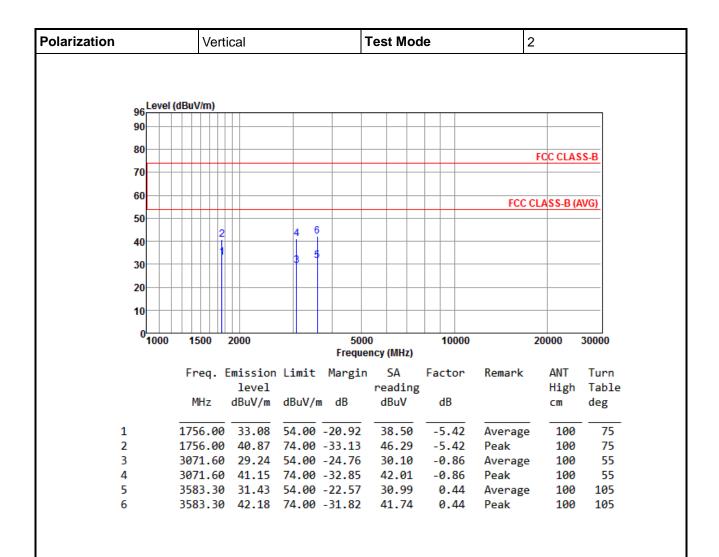


Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB)

2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)

Report No.: FD622602 Page : 19 of 21





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

2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)

Report No.: FD622602 Page : 20 of 21



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

<u>==END</u>==

Report No.: FD622602 Page : 21 of 21