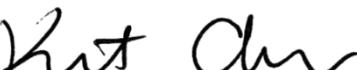


FCC 15B Test Report

FCC ID : VQK-F04G
Equipment : Mobile Phone
Model No. : F-04G
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 : Dec. 17, 2014
Tested Date : Feb. 27 ~ Mar. 28, 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



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	The Equipment and Calibration Data	7
1.3	Testing Applied Standards	8
1.4	Measurement Uncertainty	8
2	TEST CONFIGURATION.....	8
2.1	Testing Condition	9
2.2	The Worst Case Measurement Configuration.....	9
2.3	Local Support Equipment List	10
2.4	Test Setup Chart	11
2.5	Test Software and Operating Condition	11
3	EMISSION TESTS RESULTS	12
3.1	Conducted Emissions.....	12
3.2	Radiated Emissions.....	17
4	TEST LABORATORY INFORMATION	27

Release Record

Report No.	Version	Description	Issued Date
FD4D1701	Rev. 01	Initial issue	Apr. 01, 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	-4.04dB AV@ 0.558MHz.	Pass
15.109	FCC Part 15, Subpart B, Class B	Radiated Emissions	-1.30dB QP@ 71.71MHz.	Pass

1 General Description

1.1 Information

1.1.1 Product Details

Product Name	Mobile Phone
Brand Name	FUJITSU
Model Name	F-04G
IMEI Code	357241060020798 / 357241060025011
H/W Version	v2.1.0
S/W Version	R21.5e

1.1.2 Specification of the Equipment under Test (EUT)

WLAN	
Operating Frequency	802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5700 MHz
Antenna Type	$\lambda/4$ Monopole Antenna
Modulaton Type	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Bluetooth	
Operating Frequency	2402 MHz ~ 2480 MHz
Antenna Type	$\lambda/4$ Monopole Antenna
Modulaton Type	Bluetooth 4.0 LE: GFSK Bluetooth BR(1Mbps): GFSK Bluetooth EDR (2Mbps): $\pi/4$ -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	$\lambda/4$ Monopole Antenna
Modulaton Type	GSM / GPRS: GMSK WCDMA / HSDPA / HSUPA: QPSK (Uplink)
LTE	
Operating Frequency	Band 17: 706.5 MHz ~ 713.5 MHz
Antenna Type	$\lambda/4$ Monopole Antenna
Modulaton Type	QPSK, 16QAM (Uplink)

ANT+	
Operating Frequency	2402-2480 MHz
Antenna Type	$\lambda/4$ Monopole Antenna
Modulaton Type	GFSK
NFC	
Operating Frequency	13.56 MHz
Antenna Type	Loop Antenna
Modulaton Type	ASK
GPS	
Operating Frequency	1.57542 GHz
Antenna Type	Integral Antenna
Modulaton Type	BPSK

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	AC adapter: (normal output rating) 5.0Vdc, 1.8A (quick charge output rating) 9.0Vdc, 1.8A Battery: 3.75Vdc
--------------------------	---

1.1.4 Accessories

No.	Equipment	Description
1	Cradle	Brand Name: Fujitsu Limited Model Name: F50 Input rating: (quick charge) 9.0Vdc, 1.5A Output rating: (quick charge) 9.0Vdc, 1.5A
2	Battery (Unremovable)	Brand Name: NTT Docomo Model Name: CA54310-0061 Power Rating: 3.75Vdc, 3120mAh, 12Wh

1.2 The Equipment and Calibration Data

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Mar. 02 ~ Mar. 28, 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				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Feb. 27 ~ Mar. 27 , 2015				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Nov. 10, 2014	Nov. 09, 2015
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Sep. 05, 2014	Sep. 04, 2015
Preamplifier	Burgeon	BPA-530	SN:100219	Sep. 09, 2014	Sep. 08, 2015
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 15, 2014	Dec. 14, 2015
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 15, 2014	Dec. 14, 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	Mar. 03 ~ Mar. 27, 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

CISPR 16-4-2 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	±3.72 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	15°C / 79% 18°C / 69%	Peter Lin
Radiated Emissions ≤1GHz	03CH01-WS	21°C / 66% 19°C / 69%	Peter Lin
Radiated Emissions >1GHz	03CH02-WS	23°C / 65% 19°C / 66%	Peter Lin

2.2 The Worst Case Measurement Configuration

Conduction Pretest Mode	
Pretest 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 850 idle + BT/Wifi 2.4G idle + MPEG4 play + Earphone + Battery 20% + Adaptor
4	LTE B17 idle + BT/Wifi 5G idle + ANT(+) + idle + Earphone + Battery 20% + Adaptor
5	PCS 1900 idle + BT/Wifi 2.4G idle + SD R/W + Earphone + Battery 20% + USB cable link to NB
6	PCS 1900 idle + BT/Wifi 5G idle + Camera (Back) + Earphone + Battery 20% + Cradle + Adaptor

For **Pretest mode 2** is the worst case and only its data was record in this test report.

Radiation Pretest Mode	
Pretest 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 850 idle + BT/Wifi 2.4G idle + MPEG4 play + Earphone + Battery 20% + Adaptor
4	LTE B17 idle + BT/Wifi 5G idle + ANT(+) + idle + Earphone + Battery 20% + Adaptor
5	PCS 1900 idle + BT/Wifi 2.4G idle + SD R/W + Earphone + Battery 20% + USB cable link to NB
6	PCS 1900 idle + BT/Wifi 5G idle + Camera (Back) + Earphone + Battery 20% + Cradle + Adaptor

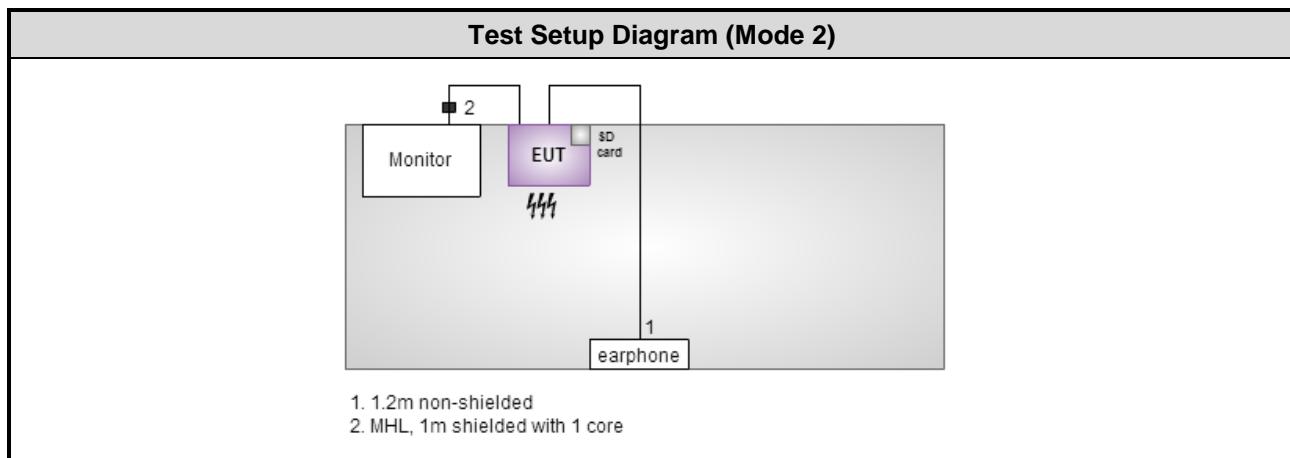
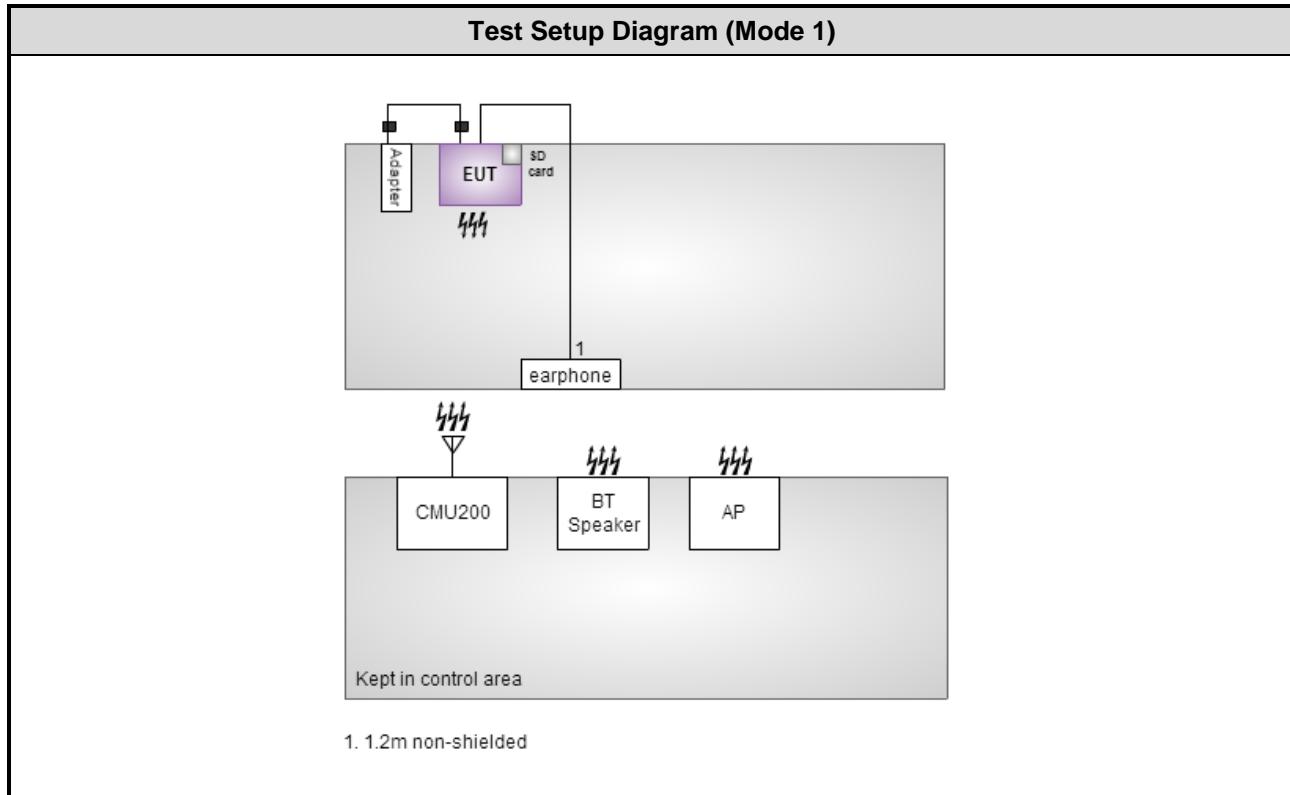
For **Pretest mode 2** is the worst case and only its data was record in this test report.

The Determined Worst Case Configurations	
Conducted Emissions	
Test Mode	Operating Description
1	PCS 1900 idle + BT/Wifi 5G idle + Camera (Front) + Earphone + Battery 20% + Adaptor
2	MHL mode + Earphone + MPEG4 play
Radiated Emissions	
Test Mode	Operating Description
1	PCS 1900 idle + BT/Wifi 5G idle + Camera (Front) + Earphone + Battery 20% + Adaptor
2	MHL mode + Earphone + MPEG4 play

2.3 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	S/N	Signal cable / Length (m)
1	Earphone	APPLE	MD827FE/A	---	1.2m non-shielded.
2	Wireless AP	D-LINK	DIR-815	3000228	---
3	SD Card	SanDisk	Micro SDHC 8GB	---	---
4	Universal Radio Communication Tester	R&S	CMU200	108087	---
5	BT speaker	Nokia	HF-34W	---	---
6	LCD Monitor	ACER	H226HQ6	9342	MHL, 1m shielded with 1 core.

2.4 Test Setup Chart



2.5 Test Software and Operating Condition

Mode 1

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

Mode 2

- Connected the EUT to monitor via MHL cable.
- Executed "MPEG4" program to play colorbar movie from micro SD card.

3 Emission Tests Results

3.1 Conducted Emissions

3.1.1 Limit of Conducted Emissions

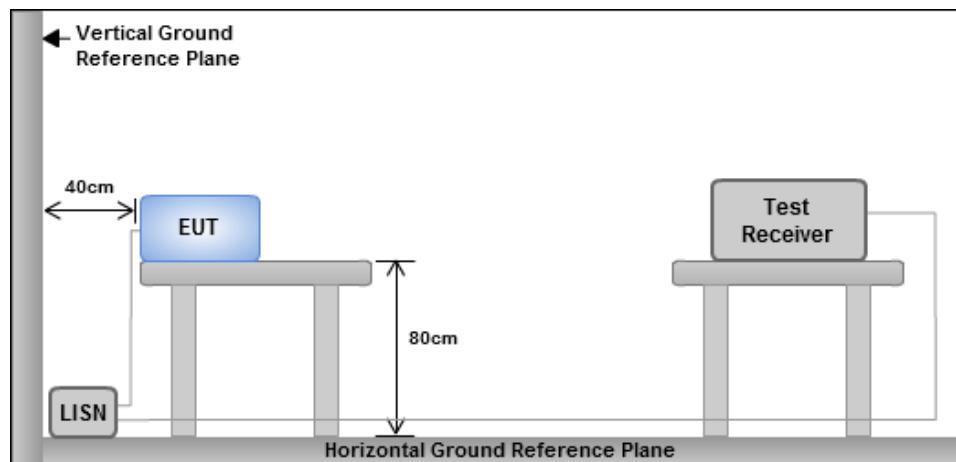
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

3.1.2 Test Procedures

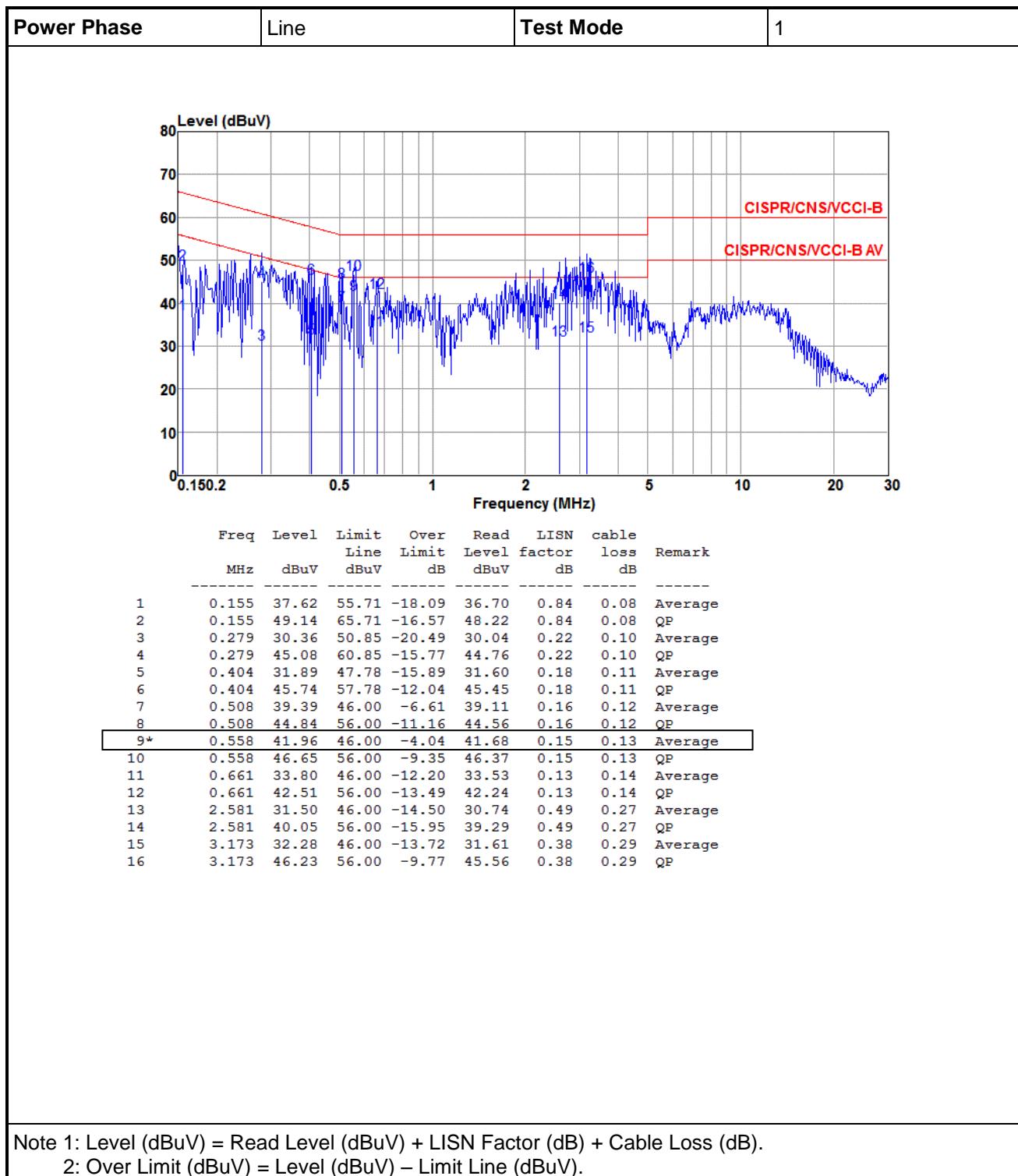
- The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
- AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.

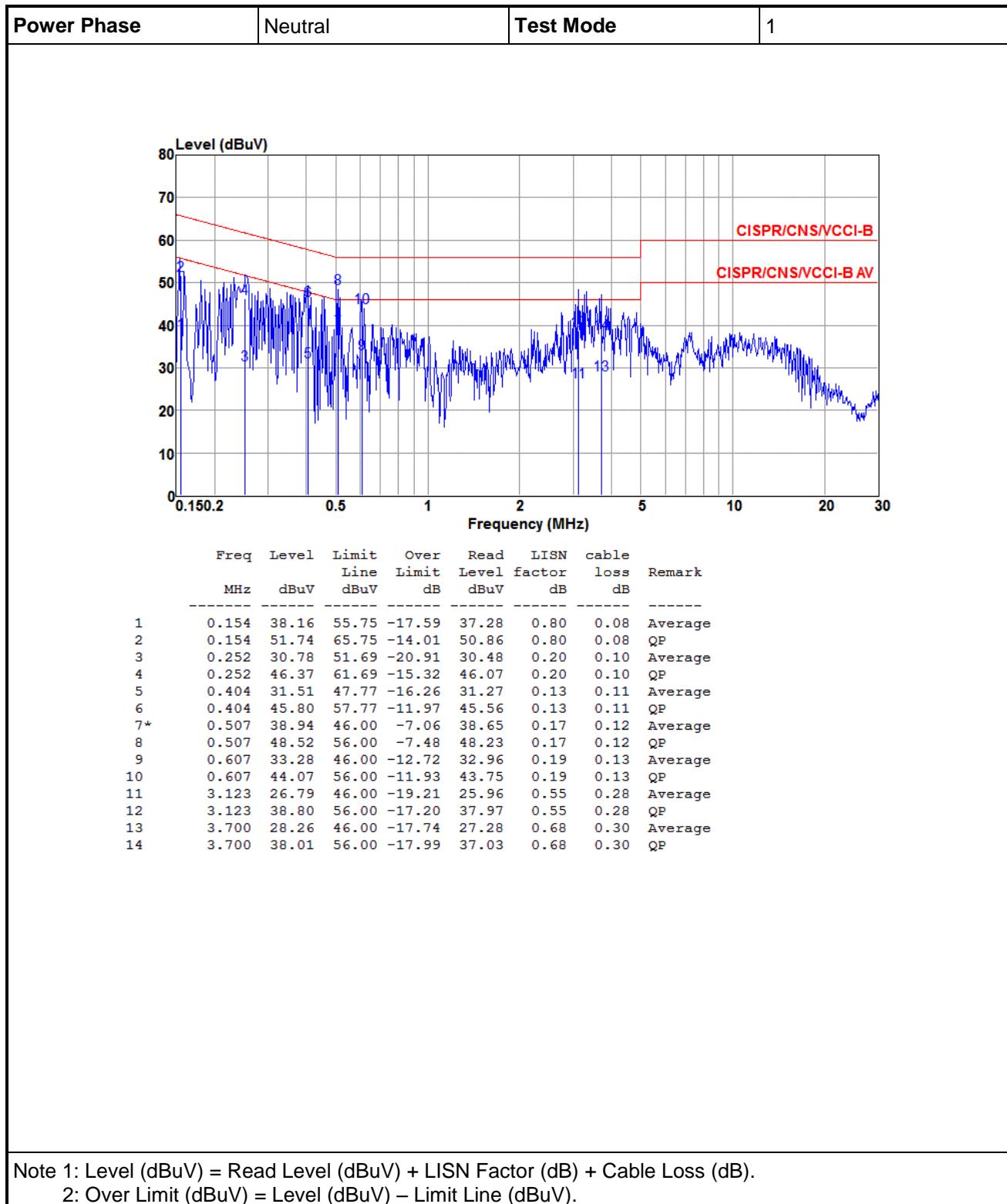
3.1.3 Test Setup

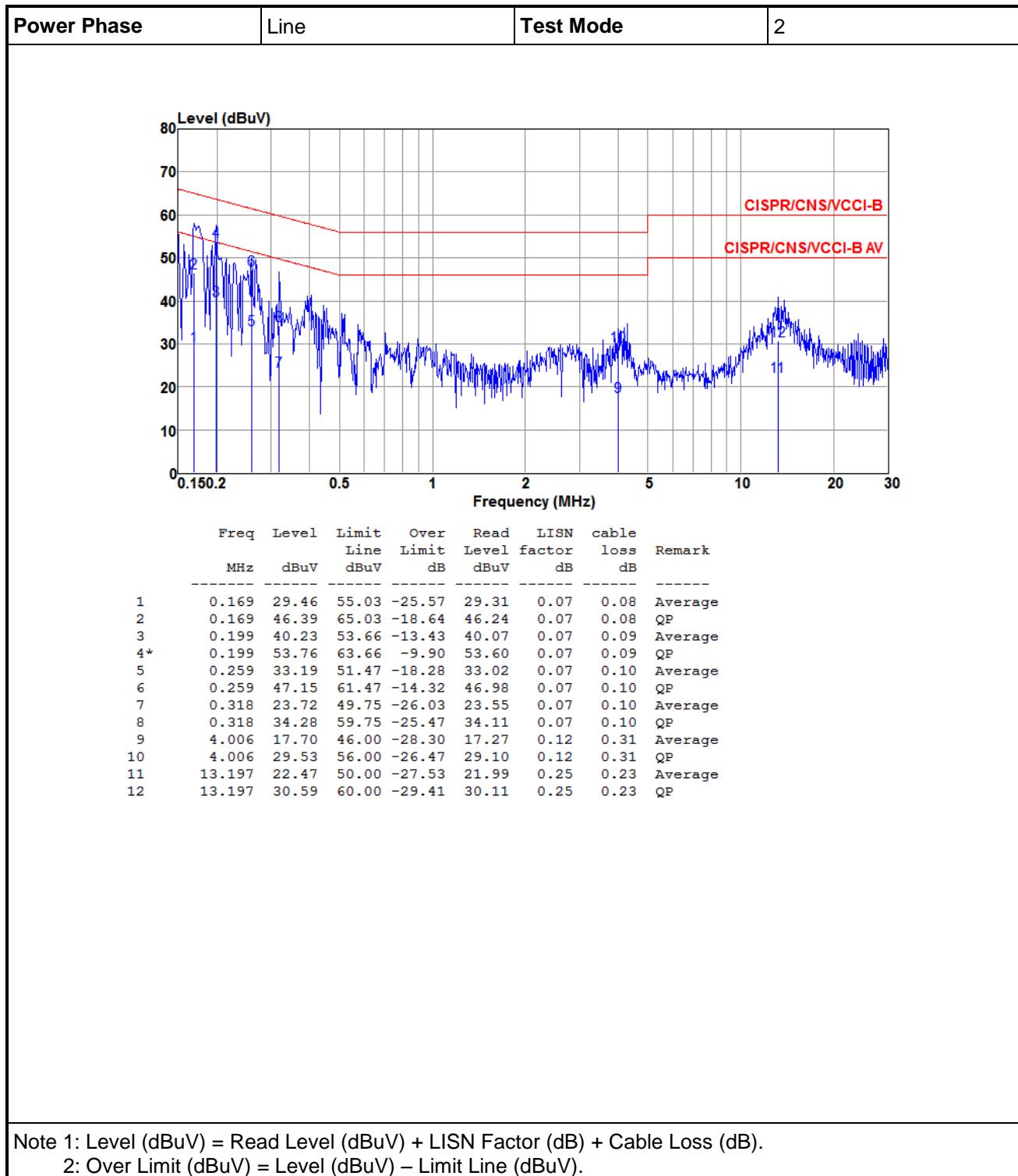


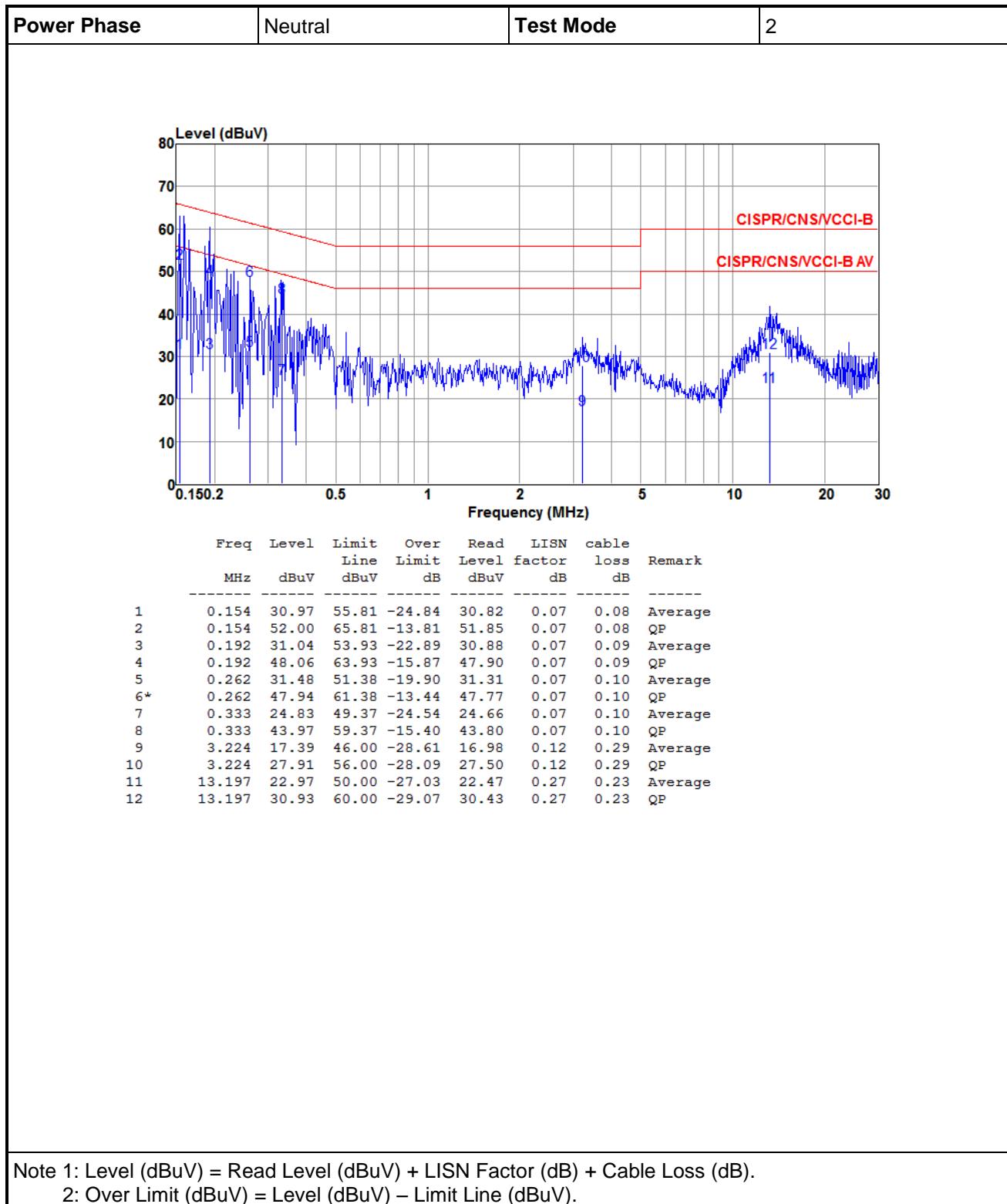
Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions









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.

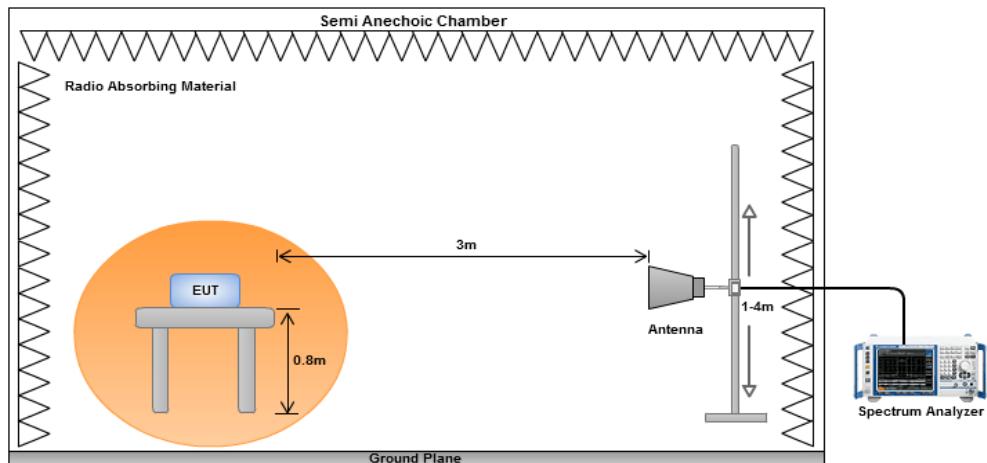
3.2.2 Test Procedures

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.

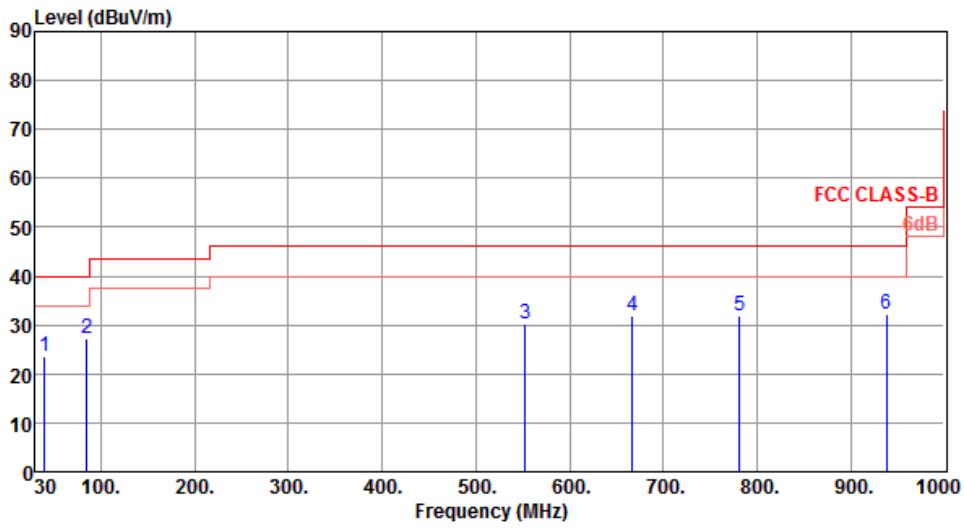
Note:

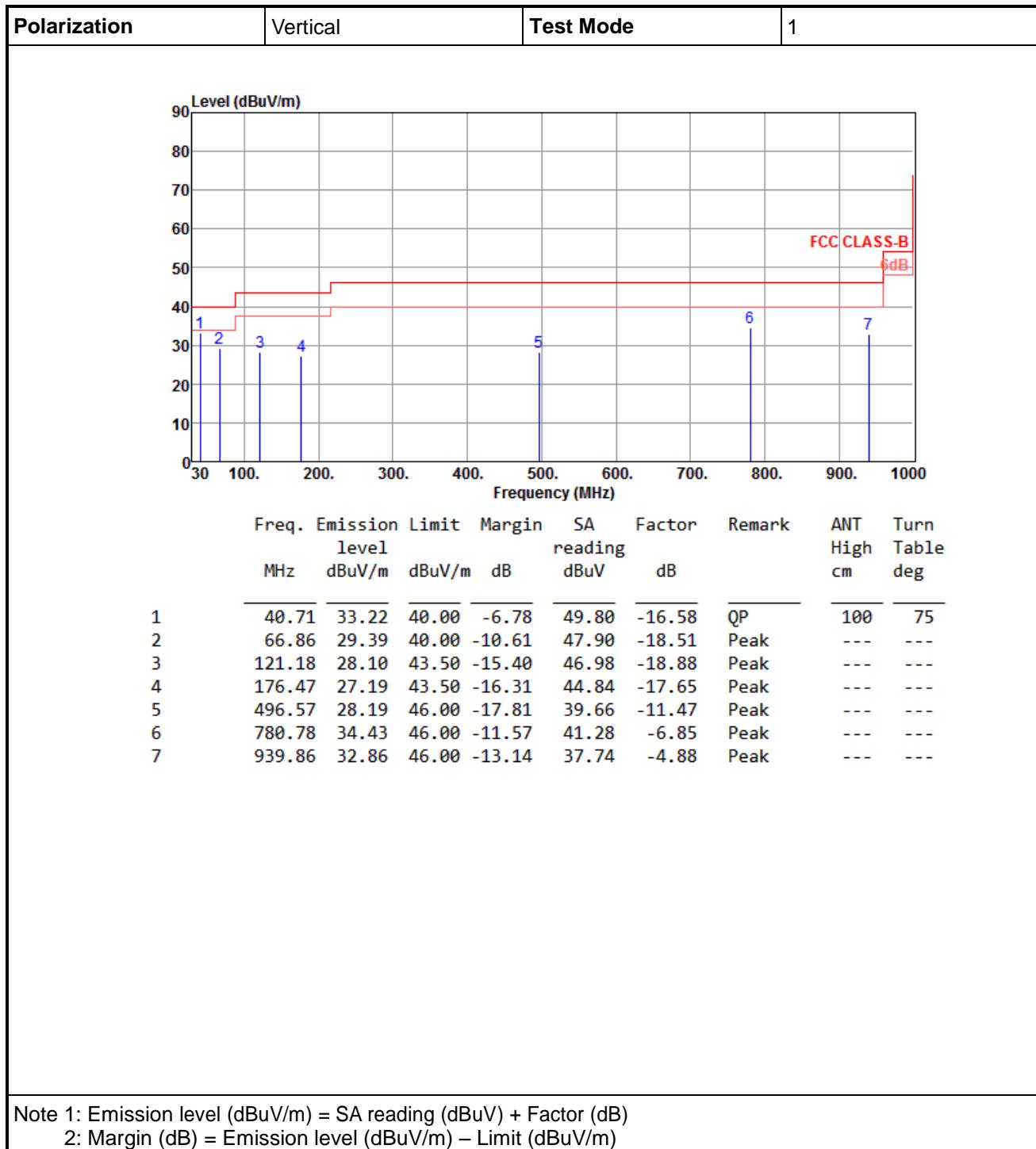
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=3MHz and RMS detector is for average measured value of radiated emission above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

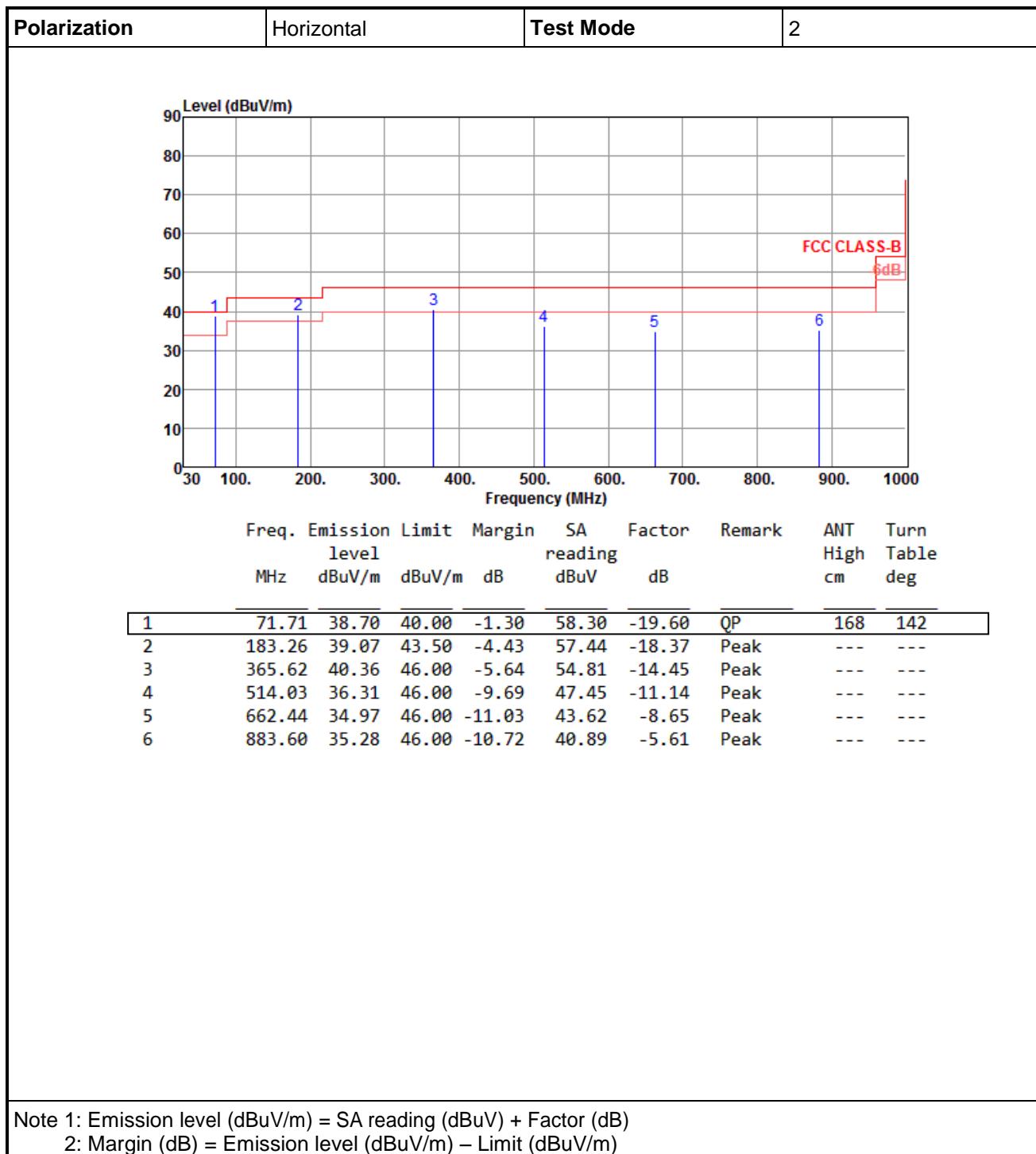
3.2.3 Test Setup

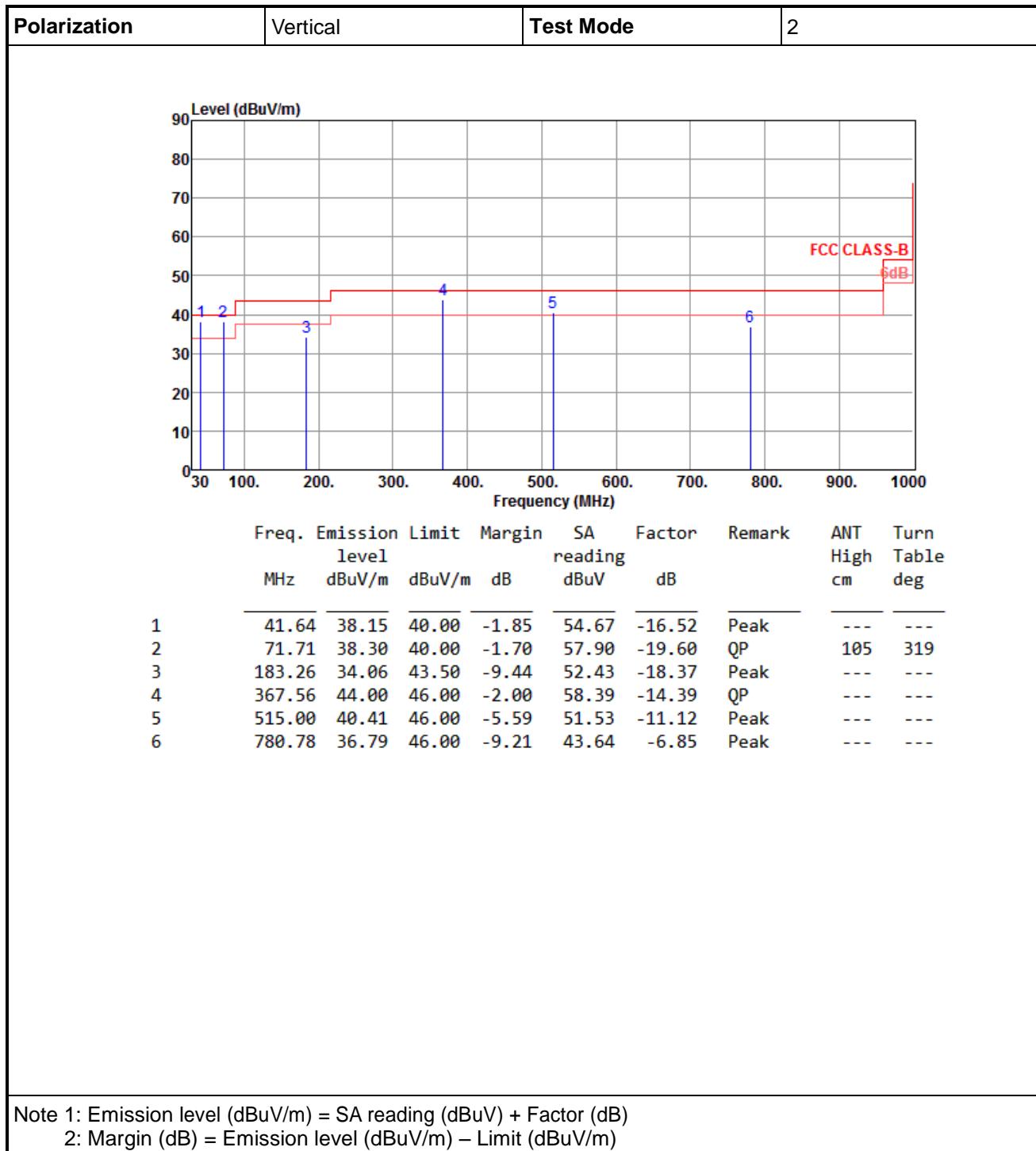


3.2.4 Radiated Emissions (Below 1GHz)

Polarization	Horizontal	Test Mode	1																																																															
 <p>The graph plots Emission Level (dBuV/m) on the Y-axis (0 to 90) against Frequency (MHz) on the X-axis (30 to 1000). A red stepped line represents the measured emission levels. Two horizontal red lines indicate the FCC CLASS-B limits: a lower limit at approximately 40 dBuV/m and an upper limit at approximately 54 dBuV/m. Blue vertical lines labeled 1 through 6 mark specific measurement points along the emission curve. The text 'FCC CLASS-B' and '6dB' are also present on the graph.</p>																																																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Freq. MHz</th> <th style="text-align: left;">Emission level dBuV/m</th> <th style="text-align: left;">Limit dBuV/m</th> <th style="text-align: left;">Margin dB</th> <th style="text-align: left;">SA reading dBuV</th> <th style="text-align: left;">Factor dB</th> <th style="text-align: left;">Remark</th> <th style="text-align: left;">ANT High cm</th> <th style="text-align: left;">Turn Table deg</th> </tr> </thead> <tbody> <tr> <td>1</td><td>39.70</td><td>23.68</td><td>40.00</td><td>-16.32</td><td>40.33</td><td>-16.65</td><td>Peak</td><td>---</td></tr> <tr> <td>2</td><td>85.29</td><td>27.38</td><td>40.00</td><td>-12.62</td><td>49.61</td><td>-22.23</td><td>Peak</td><td>---</td></tr> <tr> <td>3</td><td>552.83</td><td>30.16</td><td>46.00</td><td>-15.84</td><td>40.54</td><td>-10.38</td><td>Peak</td><td>---</td></tr> <tr> <td>4</td><td>667.29</td><td>31.73</td><td>46.00</td><td>-14.27</td><td>40.30</td><td>-8.57</td><td>Peak</td><td>---</td></tr> <tr> <td>5</td><td>781.75</td><td>32.04</td><td>46.00</td><td>-13.96</td><td>38.88</td><td>-6.84</td><td>Peak</td><td>---</td></tr> <tr> <td>6</td><td>937.92</td><td>32.14</td><td>46.00</td><td>-13.86</td><td>37.04</td><td>-4.90</td><td>Peak</td><td>---</td></tr> </tbody> </table>				Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	39.70	23.68	40.00	-16.32	40.33	-16.65	Peak	---	2	85.29	27.38	40.00	-12.62	49.61	-22.23	Peak	---	3	552.83	30.16	46.00	-15.84	40.54	-10.38	Peak	---	4	667.29	31.73	46.00	-14.27	40.30	-8.57	Peak	---	5	781.75	32.04	46.00	-13.96	38.88	-6.84	Peak	---	6	937.92	32.14	46.00	-13.86	37.04	-4.90	Peak	---
Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																																																										
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6	937.92	32.14	46.00	-13.86	37.04	-4.90	Peak	---																																																										
Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB) 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)																																																																		

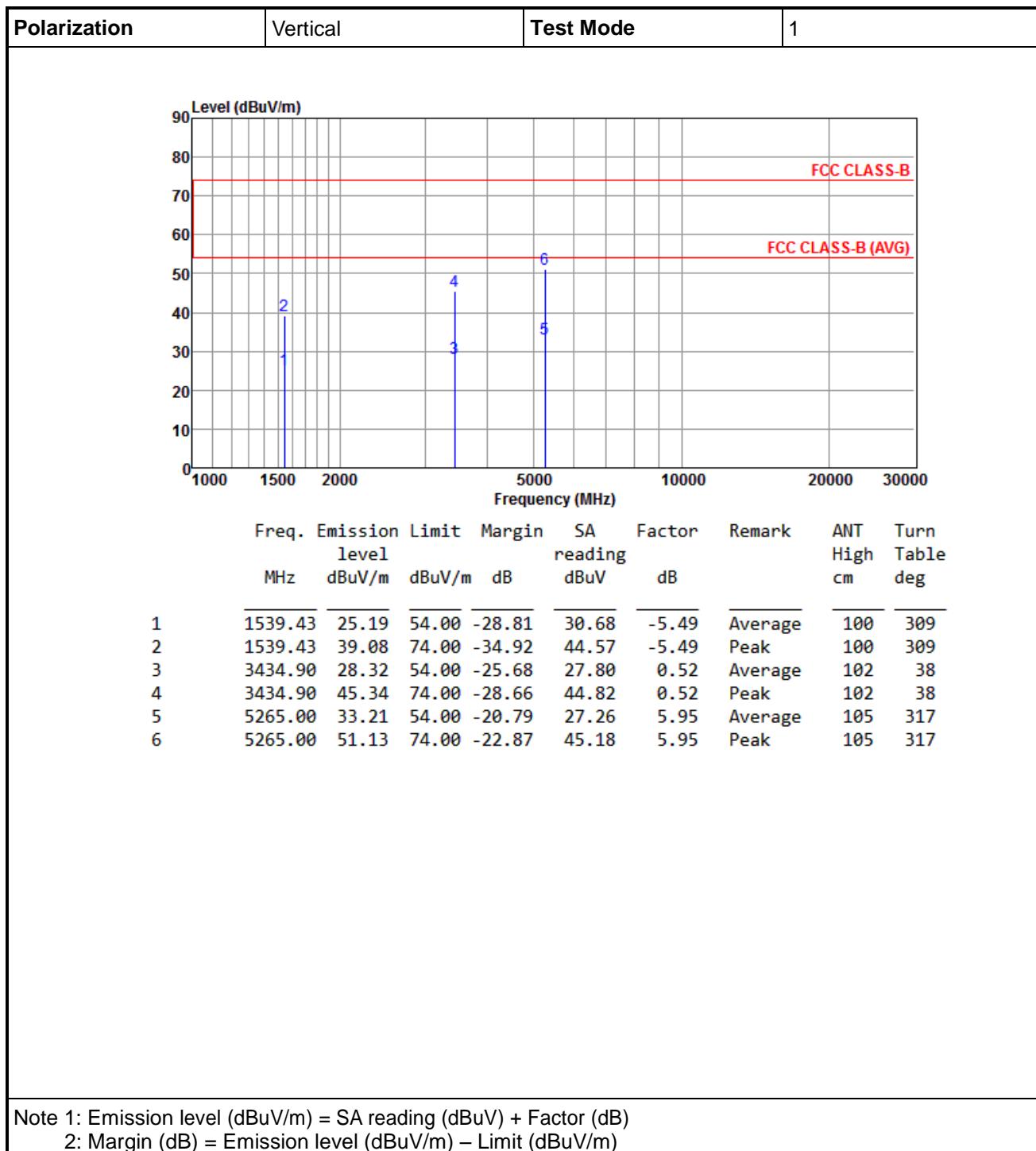


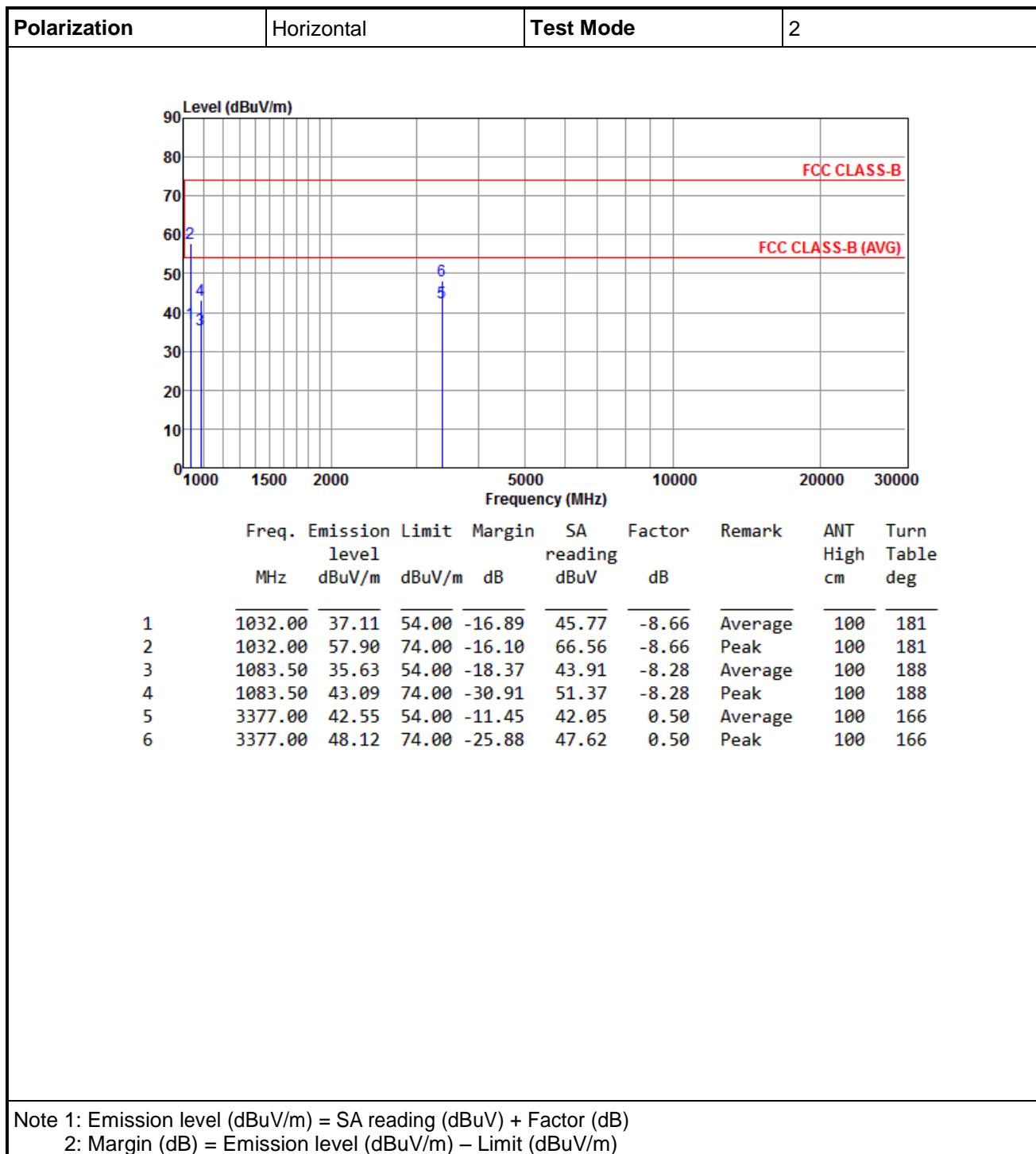




3.2.5 Radiated Emissions (Above 1GHz)

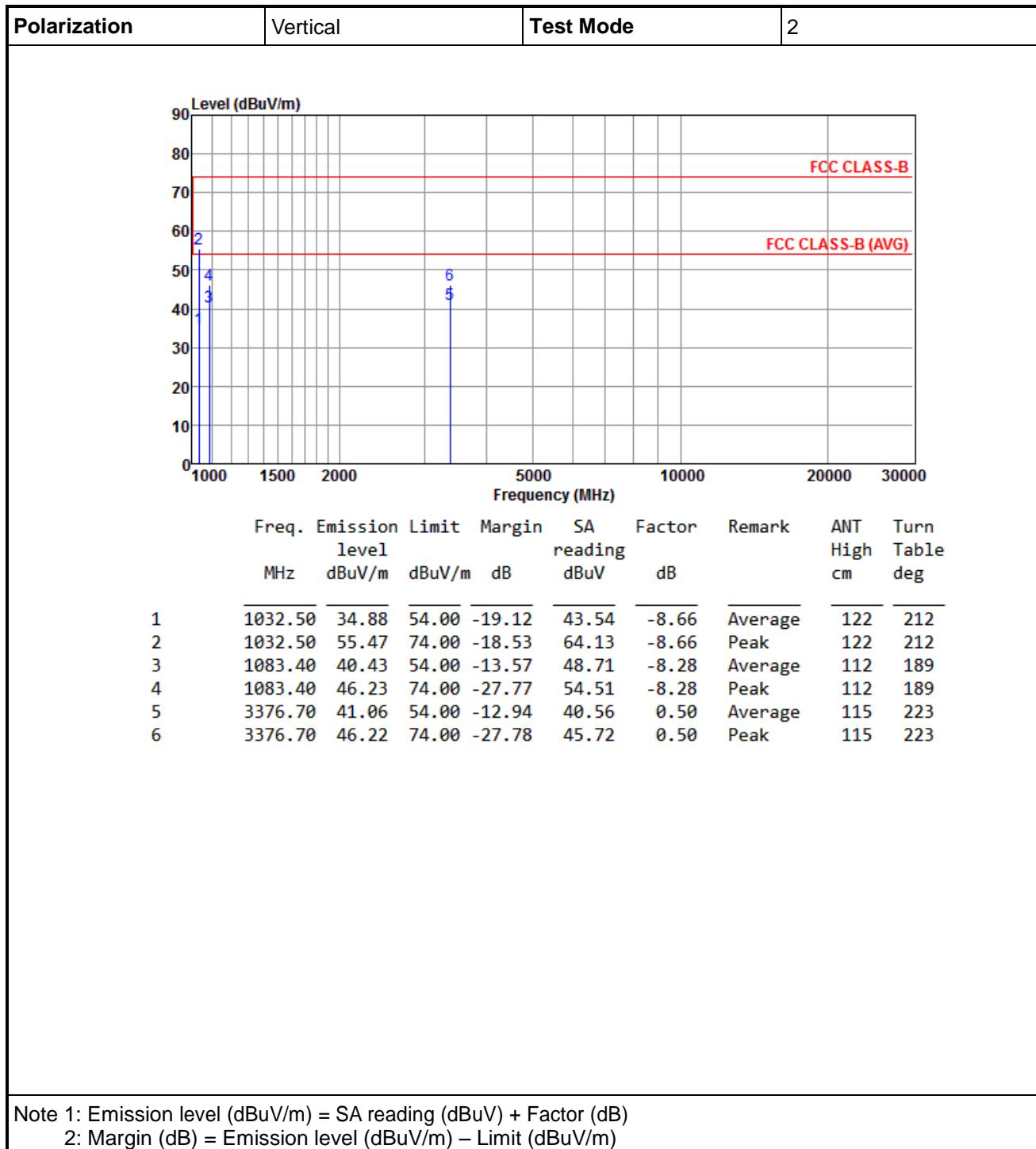
Polarization	Horizontal	Test Mode	1																																																								
<p>Graph showing Radiated Emissions (Above 1GHz) Level (dBuV/m) vs Frequency (MHz). The graph shows six data points (2, 3, 4, 5, 6) and two horizontal lines: FCC CLASS-B (70 dB) and FCC CLASS-B (AVG) (54 dB).</p> <table border="1"> <thead> <tr> <th>Frequency (MHz)</th> <th>Emission Level (dBuV/m)</th> <th>Margin (dB)</th> <th>SA reading (dBuV)</th> <th>Factor (dB)</th> <th>Remark</th> <th>ANT High (cm)</th> <th>Turn Table deg</th> </tr> </thead> <tbody> <tr> <td>1517.23</td> <td>24.78</td> <td>54.00</td> <td>-29.22</td> <td>30.31</td> <td>Average</td> <td>100</td> <td>250</td> </tr> <tr> <td>1517.23</td> <td>38.28</td> <td>74.00</td> <td>-35.72</td> <td>43.81</td> <td>Peak</td> <td>100</td> <td>250</td> </tr> <tr> <td>3547.44</td> <td>28.38</td> <td>54.00</td> <td>-25.62</td> <td>27.84</td> <td>Average</td> <td>100</td> <td>142</td> </tr> <tr> <td>3547.44</td> <td>43.47</td> <td>74.00</td> <td>-30.53</td> <td>42.93</td> <td>Peak</td> <td>100</td> <td>142</td> </tr> <tr> <td>5258.43</td> <td>33.11</td> <td>54.00</td> <td>-20.89</td> <td>27.16</td> <td>Average</td> <td>100</td> <td>165</td> </tr> <tr> <td>5258.43</td> <td>49.67</td> <td>74.00</td> <td>-24.33</td> <td>43.72</td> <td>Peak</td> <td>100</td> <td>165</td> </tr> </tbody> </table>				Frequency (MHz)	Emission Level (dBuV/m)	Margin (dB)	SA reading (dBuV)	Factor (dB)	Remark	ANT High (cm)	Turn Table deg	1517.23	24.78	54.00	-29.22	30.31	Average	100	250	1517.23	38.28	74.00	-35.72	43.81	Peak	100	250	3547.44	28.38	54.00	-25.62	27.84	Average	100	142	3547.44	43.47	74.00	-30.53	42.93	Peak	100	142	5258.43	33.11	54.00	-20.89	27.16	Average	100	165	5258.43	49.67	74.00	-24.33	43.72	Peak	100	165
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3547.44	28.38	54.00	-25.62	27.84	Average	100	142																																																				
3547.44	43.47	74.00	-30.53	42.93	Peak	100	142																																																				
5258.43	33.11	54.00	-20.89	27.16	Average	100	165																																																				
5258.43	49.67	74.00	-24.33	43.72	Peak	100	165																																																				
Note 1: Emission level (dBuV/m) = SA reading (dBuV) + Factor (dB) 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m)																																																											





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

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

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Email: ICC_Service@icertifi.com.tw

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