47 CFR PART 15 SUBPART B

TEST REPORT

of

Orca USB Dongle Data Card

Model Name:	Orca USB Dongle
Brand Name:	/
Report No.:	SH10070018E01
FCC ID:	X2U-ORCA-USBD

prepared for

VIA Telecom, Inc.
3390 Carmel Mountain Road, San Diego, CA 92121-1002, USA

prepared by

Shenzhen Electronic Product Quality Testing Center
Morlab Laboratory
3/F, Electronic Testing Building, Shahe Road, Xili,
Nanshan District, Shenzhen, 518055 P. R. China
Tel: +86 755 86130398
Fax: +86 755 86130218

LAB CODE 20081223-00

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1 TEST CERTIFICATION

Equipment under Test:	Orca USB Dongle Data Card
Trade Name:	/
Model Name:	Orca USB Dongle
FCC ID:	X2U-ORCA-USBD
Applicant:	VIA Telecom, Inc. 3390 Carmel Mountain Road, San Diego, CA 92121-1002, USA
Manufacturer:	VIA Telecom, Inc. 3390 Carmel Mountain Road, San Diego, CA 92121-1002, USA
Test Standards:	47 CFR Part 15 Subpart B
Test Date(s):	Aug 9 ,2010 –Aug 11 , 2010
Test Result:	PASS

*** We Hereby Certify That:**

The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by: Zhang Wenjie Dated: 2010. 8. 16

Reviewed by: Zhang Jun Dated: 2010. 8. 16

Approved by: Wei Bei Dated: 2010. 8. 16.

Wei Bei

2 GENERAL INFORMATION

2.1 EUT Description

EUT Type ..... :	Orca USB Dongle Data Card
Brand Name ..... :	/
Model Name ..... :	Orca USB Dongle
Frequency Range ..... :	CDMA2000 Cellular: Tx: 824 MHz ~ 849 MHz; Rx: 869 MHz ~ 894 MHz CDMA2000 PCS: Tx: 1850 MHz ~1910 MHz;Rx: 1930 MHz ~ 1990 MHz
Modulation Type ..... :	OQPSK
Emission Designators ..... :	1M25F9W
Hardware Version..... :	P3
Software Version ..... :	8.5.16.35
Manufacturer..... :	VIA Telecom, Inc. 3390 Carmel Mountain Road, San Diego, CA 92121-1002, USA
Factory ..... :	Hangzhou Manko Technology CO.,LTD. No. 77 ChunChao Road, XiaoShan Economic Development Zone, Hangzhou, Zhejiang

Note 1: The EUT is a CDMA2000 1x RTT USB Dongle operating in Cellular 800MHz band and PCS1900MHz band.

Note 2: The normal configuration for the EUT is connected with the PC via the USB port.

Note 3: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices
2	ANSI/TIA/EIA-603-C (2004)	Land Mobile FM or PM - Communications Equipment - Measurement and Performance Standards
3	ANSI C63.4-2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.107	Conducted Emission	PASS
2	15.109	Radiated Emission	PASS

2.3 Facilities and Accreditations

2.3.1 Facilities

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Laboratories (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 CHINA. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

2.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	20 – 25
Relative Humidity (%):	40 – 60
Atmospheric Pressure (kPa):	96

3 TEST CONDITIONS SETTING

3.1 Test Mode

1. The test modes of the EUT are showed as below:
   a) The first test mode (CDMA 1x RTT)
   The EUT configuration of the emission tests is EUT + PC.
   During the measurement, the EUT was connected with the PC via the USB port and a communication link was established between the EUT and a System Simulator (SS).
   b) The second test mode (IDEL)
   The EUT configuration of the emission test is EUT + PC.
   During the measurement, the EUT was connected with the PC via the USB port.

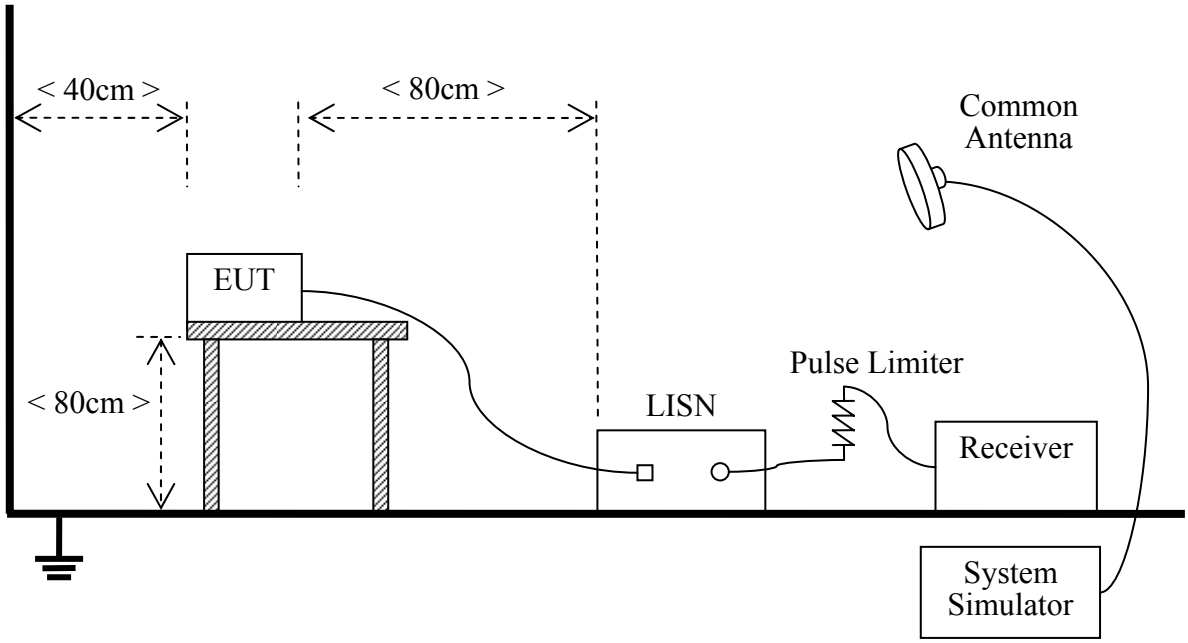
NOTE:

All test modes are performed, only the worst cases are recorded in this report.

3.2 Test Setup and Equipments List

3.2.1 Conducted Emission

A. Test Setup:



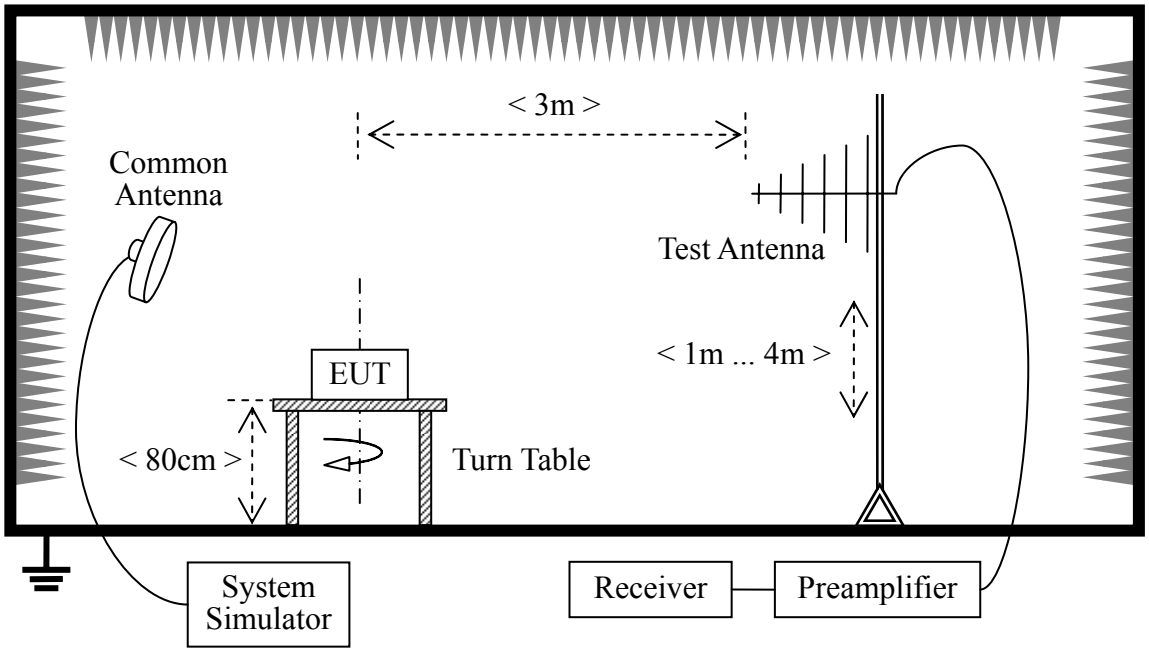
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. The Common Antenna is used for the call between the EUT and the System Simulator (SS). A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2009.10	1year
LISN	Rohde&Schwarz	ENV216	812744	2009.10	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2009.10	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

3.2.2 Radiated Emission

C. Test Setup:



The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower. The Common Antenna is used for the call between the EUT and the System Simulator (SS).

D. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2009.10	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2009.10	1year
Test Antenna - Bi-Log	Rohde&Schwarz	HL562	100385	2009.10	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2009.10	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

47 CFR PART 15B REQUIREMENTS

4 Conducted Emission

4.1 Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5- 30	60	50

NOTE:

a) The limit subjects to the Class B digital device.

b) The lower limit shall apply at the band edges.

c) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

4.2 Test Description

See section 3.2.1 of this report.

4.3 Test Result

The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

4.3.1.1 Test Mode

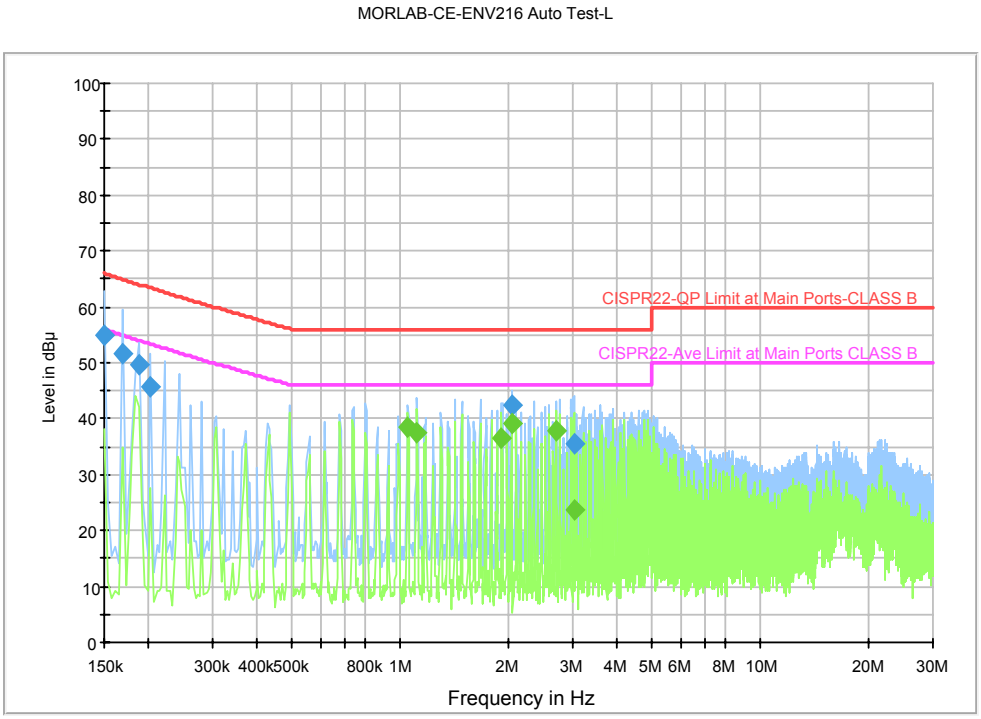
The EUT configuration of the emission tests is EUT + PC.

A. Test Verdict Recorded for Suspicious Points:

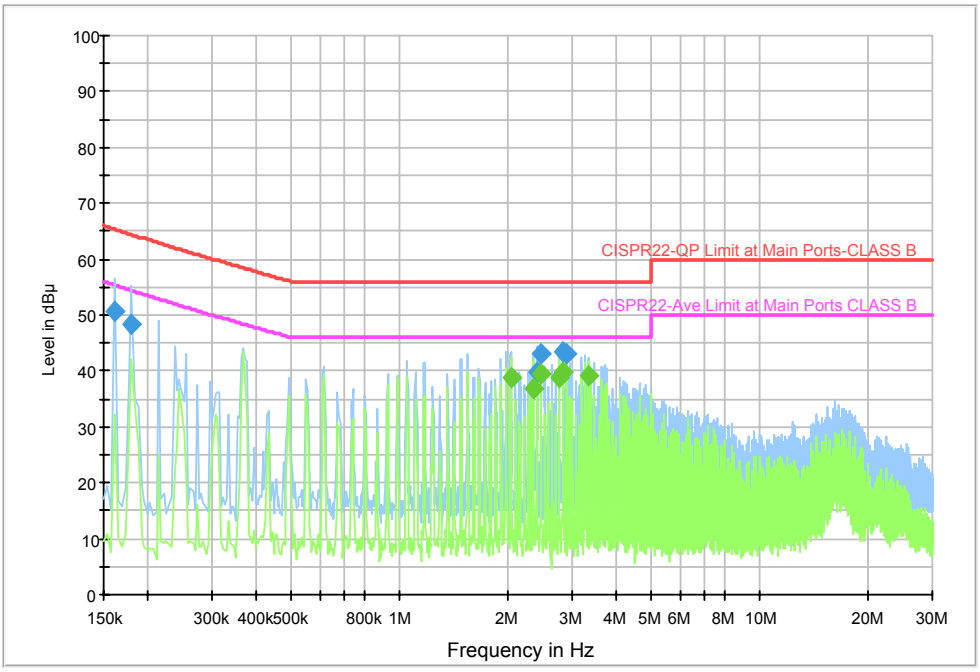
Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.161194	50.6	1000.000	9.000	N	9.7	14.8	65.4	PASS
0.179850	48.4	1000.000	9.000	N	9.6	16.0	64.4	PASS
2.392481	39.9	1000.000	9.000	N	9.8	16.1	56.0	PASS
2.459644	43.0	1000.000	9.000	N	9.8	13.0	56.0	PASS
2.825306	43.4	1000.000	9.000	N	9.8	12.6	56.0	PASS
2.888738	43.1	1000.000	9.000	N	9.8	12.9	56.0	PASS
0.150000	54.8	1000.000	9.000	L1	9.5	11.2	66.0	PASS
0.168656	51.8	1000.000	9.000	L1	9.5	13.2	65.0	PASS
0.187312	49.6	1000.000	9.000	L1	9.6	14.4	64.0	PASS
0.202238	45.6	1000.000	9.000	L1	9.7	17.8	63.4	PASS
2.030550	42.6	1000.000	9.000	L1	9.8	13.4	56.0	PASS
3.019331	35.4	1000.000	9.000	L1	9.8	20.6	56.0	PASS

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
2.026819	38.8	1000.000	9.000	N	9.8	7.2	46.0	PASS
2.332781	36.9	1000.000	9.000	N	9.8	9.1	46.0	PASS
2.459644	39.5	1000.000	9.000	N	9.8	6.5	46.0	PASS
2.765606	38.8	1000.000	9.000	N	9.8	7.2	46.0	PASS
2.825306	39.8	1000.000	9.000	N	9.8	6.2	46.0	PASS
3.317831	39.0	1000.000	9.000	N	9.8	7.0	46.0	PASS
1.045500	38.5	1000.000	9.000	L1	9.7	7.5	46.0	PASS
1.108931	37.5	1000.000	9.000	L1	9.7	8.5	46.0	PASS
1.907419	36.5	1000.000	9.000	L1	9.7	9.5	46.0	PASS
2.030550	39.1	1000.000	9.000	L1	9.8	6.9	46.0	PASS
2.705906	37.7	1000.000	9.000	L1	9.8	8.3	46.0	PASS
3.019331	23.8	1000.000	9.000	L1	9.8	22.2	46.0	PASS

B. Test Plot:



(Plot: L Phase)



(Plot: N Phase)

5 Radiated Emission

5.1 Requirement

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

Frequency range (MHz)	Field Strength	
	μV/m	dBμV/m
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

NOTE:

a) Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].

b) In the emission tables above, the tighter limit applies at the band edges.

5.2 Test Description

See section 3.2.2 of this report.

5.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

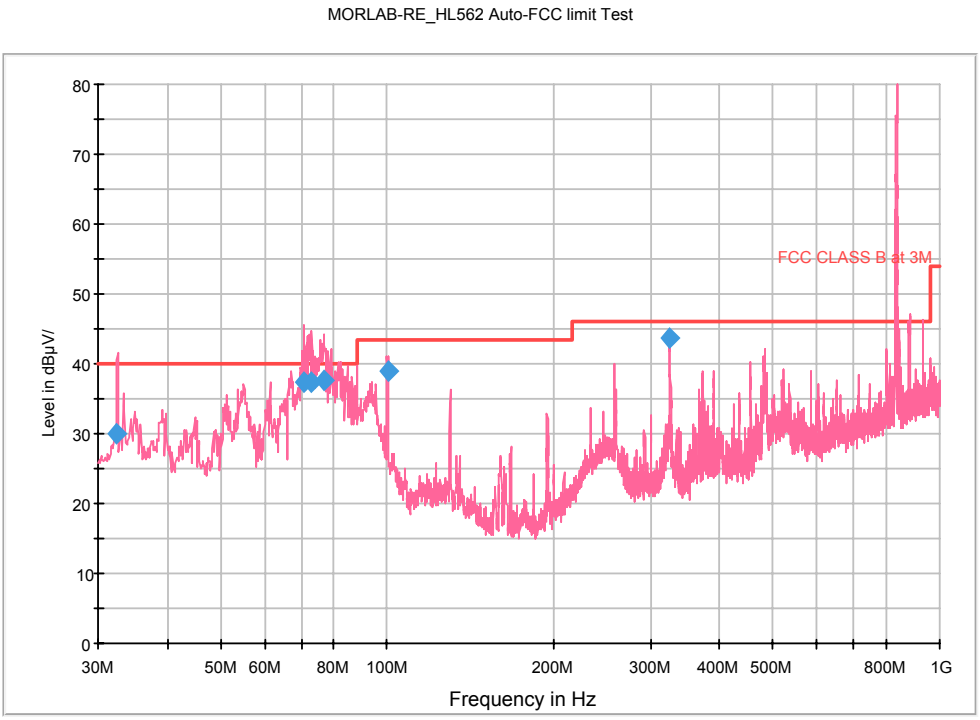
5.3.1.1 test mode

The EUT configuration of the emission tests is EUT + PC.

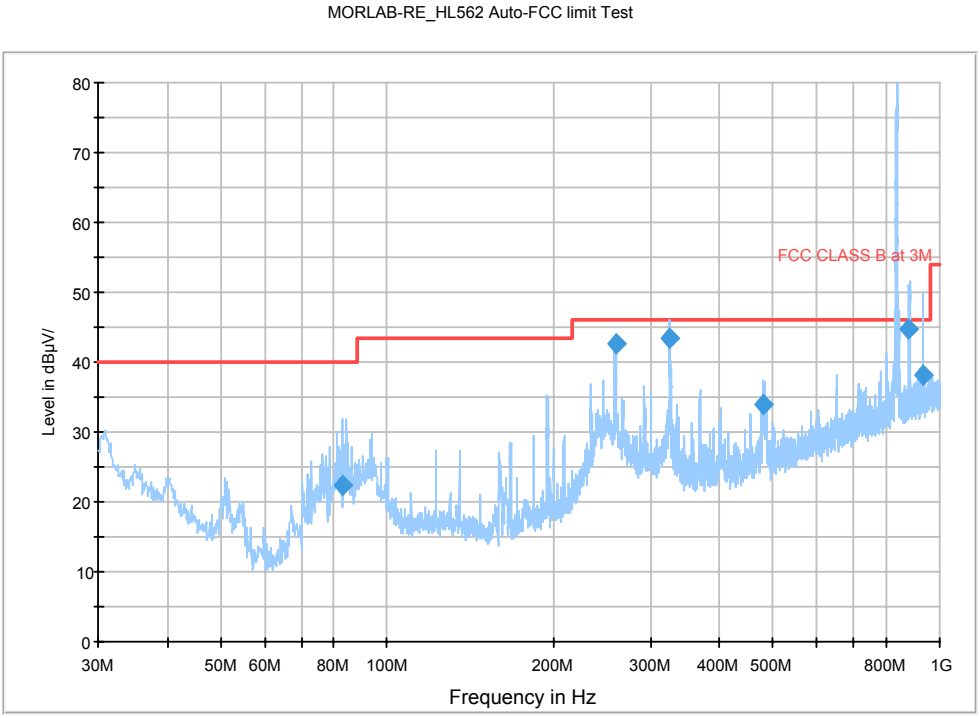
A. Test Verdict Recorded:

No.	@Frequency (MHz)	Emission Level (dBμV/m)		Quasi-Peak Limit (dBμV/m)	Margin (dBμV/m)	Result
		QP (dBμV/m)	Antenna Polarization			
1	32.425000	30.1	V	40.0	9.9	PASS
2	70.861250	37.4	V	40.0	2.6	PASS
3	73.165000	37.3	V	40.0	2.7	PASS
4	76.923750	37.7	V	40.0	2.3	PASS
5	100.446250	38.9	V	43.5	4.6	PASS
6	324.880000	43.7	V	46.0	2.3	PASS
7	82.865000	22.4	H	40.0	17.6	PASS
8	260.132500	42.8	H	46.0	3.2	PASS
9	325.122500	43.3	H	46.0	2.7	PASS
10	480.201250	33.9	H	46.0	12.1	PASS
11	881.296250	44.7	H	46.0	1.3	PASS
12	935.737500	38.2	H	46.0	7.8	PASS

B. Test Plot:



(Plot: Test Antenna Vertical)



(Plot: Test Antenna Horizontal)

**** END OF REPORT ****