

FCC / Certification Test Report

EverPro Technologies Company Ltd.

USB3.0 Hybrid Active Optical Cable

Model: EPU3HC-NNMMXYYYL

FCC ID: 2ACI5-EPU3HC001

REPORT# 14WB1121040F Rev 0

Jan.07, 2015

Prepared for:

EverPro Technologies Company Ltd.

4# Guanshan Er Road, Wuhan 430073 P,R, China



Prepared by:

WASHINGTON TECHNOLOGY INTERNATIONAL LIMITED

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For the
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USB3.0 Hybrid Active Optical Cable
MODEL: EPU3HC-NNMMXYYL
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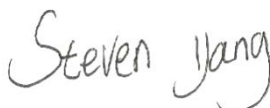
WLL REPORT# 14WB1121040F Rev 0
Jan.07, 2015

Prepared by:



Henry guo

Reviewed by:



Steven yang

Abstract

This report has been prepared on behalf of EverPro Technologies Company Ltd. to document compliance with the limits for a Class B digital device required under Part 15 (7/2008) of the FCC Rules and Regulations This Federal Communication Commission (FCC) Test Report documents the test configuration and test results for the EverPro Technologies Company Ltd. USB3.0 Hybrid Active Optical Cable. Testing was performed on Audix Technology (Shenzhen) Co., Ltd. has been accepted by the FCC, the FCC Registration Number is 90454.

The EverPro Technologies Company Ltd. USB3.0 Hybrid Active Optical Cable complies with the requirements for a Class B device.

Revision History	Reason	Date
Rev 0	Initial Release	Jan.07, 2015

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1 Introduction

1.1 Compliance Statement

After the modifications listed in Section 2.7 were installed:

The EverPro Technologies Company Ltd. USB3.0 Hybrid Active Optical Cable complied with the requirements for a Class B digital device under Part 15 (2013) of the FCC Rules and Regulations

1.2 Test Scope Summary

Tests for radiated and conducted emissions were performed. All measurements were performed according to the 2009 version of ANSI C63.4. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation.

Test Specification	Specific Description	Date Completed	Result	Test location	Modifications (Y/N)
CFR47 Part 15.107	Class B Conducted Emissions at the Mains Port	Dec.23, 2014	Complied	Audix Technology (Shenzhen) Co., Ltd.	No
CFR47 Part 15.109	Class B Radiated Emissions	Dec.13, 2014-Jan.04, 2015	Complied	Audix Technology (Shenzhen) Co., Ltd.	No

1.3 Contract Information

Customer: EverPro Technologies Company Ltd.
4# Guanshan Er Road, Wuhan 430073 P,R, China

Abbreviations

A	A mpere
ac	a lternating c urrent
AM	A mplitude M odulation
Amps	A mpere s
b/s	b its per second
BW	B and W idth
CE	C onducted E mission
cm	c entimeter
CW	C ontinuous W ave
dB	d eci B el
dc	d irect c urrent
EMI	E lectromagnetic I nterference
EUT	E quipment U nder T est
FM	F requency M odulation
G	g iga - prefix for 10^9 multiplier
Hz	H ertz
IF	I ntermediate F requency
k	k ilo - prefix for 10^3 multiplier
LISN	L ine I mpedance S tabilization N etwork
M	M ega - prefix for 10^6 multiplier
m	m eter
μ	m icro - prefix for 10^{-6} multiplier
NB	N arrow b and
QP	Q uasi- P eak
RE	R adiated E missions
RF	R adio F requency
rms	r oot- m ean- s quare
SN	S erial N umber
S/A	S pectrum A alyzer
V	V olt

2 Equipment Under Test

2.1 EUT Identification

The results obtained relate only to the item(s) tested.

Table 1: Overview of USB3.0 Hybrid Active Optical Cable, Equipment Under Test

Model(s) Tested:	EPU3HC-A1A4K050M
EUT Specifications:	5V DC from USB port
	Equipment Emissions Class: CLASS B
Test Date(s):	Dec.13, 2014-Jan.04, 2015

2.2 EUT Description

Product Name: USB3.0 Hybrid Active Optical Cable

Model No. : EPU3HC-A1A4K050M

EUT Rated Voltage: 5V DC from USB port

MODEL DESCRIPTION AND DIFFERENCE

The model of EPU3HC-NNMMXYYYL series USB3.0 Hybrid Active Optical Cable description, EPU3HC-NNMMXYYYL series USB3.0 Hybrid Active Optical Cable, they contain many models as follows. The EPU3HC-A1A4K100M as the longest length configuration in the EPU3HC series.

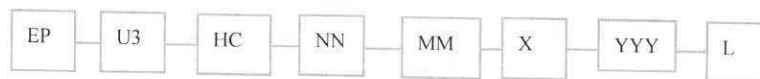
Model Name/Number(s): EPU3HC-NNMMXYYYL;

The length of others in the EPU3HC-NNMMXYYYL series is all less than EPU3HC-A1A4K100M.

We EverPro Technologies Company Ltd. hereby declare that the layout of PCB in the EPU3HC-NNMMXYYYL series are same, the only differences are the different length of optical fiber , connector type ,cable color, and software.

We'll be responsible for any consequences caused by other differences in the EPU3HC-NNMMXYYYL series.

The detail of model name to see below information:



- EP: Abbreviation of company name
- U3: USB3.0
- HC: Hybrid Active Optical Cable
- NN: Connector in Host Side, A0: Type A Plug, A1: Type A Plug with Screw;

Lewis Zhang

- MM: Connector in Device Side, A0: Type A Plug, A1: Type A Plug with Screw; A2: Type A Receptacle; A4: Type A Receptacle with Screw; B0: Type B Plug; B1: Type B Plug with Screw; B2: Micro B Plug; B3: Micro B Plug with Screw; B4: Type B Receptacle; B5: Type B Receptacle with Screw; B4: Micro B Receptacle; B5: Micro B Receptacle with Screw.
- X: Indicates different color of cable,
K-black B-blue W-white Y-yellow S-silver
- YYY= 001-100 indicates Cable length rang 1-100meters
- L: M-metal Housing,

Lewis Zhang

2.3 Test Configuration

The EverPro Technologies Company Ltd. USB3.0 Hybrid Active Optical Cable, Equipment Under Test (EUT), was operated from 5V DC from USB port.

The USB3.0 Hybrid Active Optical Cable was configured as below:

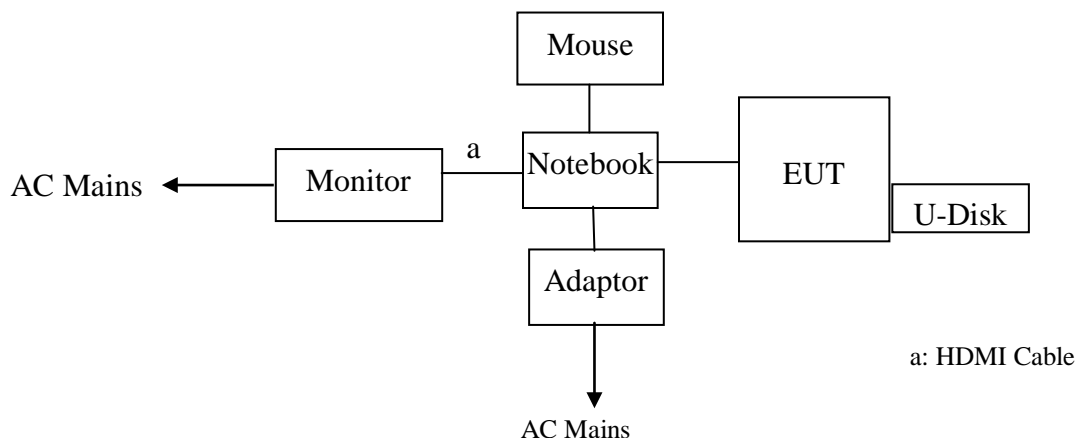


Figure 1: Test Configuration

2.4 Equipment Configuration

The EUT was set up as outlined in Figure 1. The EUT was comprised of the following equipment. (All Modules, PCBs, etc. listed were considered as part of the EUT, as tested.)

Table 2: Equipment Configuration

Slot #	Name / Description	Model Number	Part Number	Serial Number	Revision
1.	USB3.0 Hybrid Active Optical Cable	EPU3HC-A1A4K050M	/	/	/

2.5 Tested Supporting System Details

Table 3: Tested Supporting System Details

Slot #	Port Identification	Connector Type	Cable Length	Shielded (Y/N)	Termination Point
1.	HDMI Cable	Shielded; Detachable	1.5m	Y	AE

2.6 Support Equipment

The following support equipment was used during testing:

No.	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type
1	U-Disk1	--	Kingston	DT100G3/16G	--	--
2	U-Disk2(Test For RE)	--	Sandisk	SDCZ43/16G	--	--
3	Monitor	ACS-EMC-LM10R	DELL	U3011t	--	<input type="checkbox"/> FCC DOC
4	Notebook	--	LENOVO	Lenovo B490	--	--
		Power Adapter: Manufacturer: LENOVO, M/N: ADLX90NCT3A Power Cord: Unshielded, Detachable, 1.8m				
5	USB Mouse	ACS-EMC-M11R	FUJITSU	M-U0002-FSC1	S26381-K426-V102	<input type="checkbox"/> FCC ID <input type="checkbox"/> BSMI ID
		USB Cord: shielded, Undetectable, 2.0m				

2.7 EUT Modifications

None

2.8 Testing Algorithm

The USB3.0 Hybrid Active Optical Cable was operated continuously by normal operating conditions. During the test, there has a software to control the USB disk continuously communicate with Notebook via the USB3.0 Hybrid Active Optical Cable.

2.9 Test Location

NAME: Audix Technology (Shenzhen) Co., Ltd. by CNAS. The FCC Registration Number is 90454

Address: No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China

2.10 Measurements

2.10.1 Measurement Method

All measurements herein were performed according to the 2009 version of ANSI C63.4. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation. Calibration checks are made periodically to verify proper performance of the measuring instrumentation.

2.10.2 Measurement Uncertainty

All results reported herein relate only to the equipment tested. The basis for uncertainty calculation uses ANSI/NCSL Z540-2-1997 with a type B evaluation of the standard uncertainty.

Elements contributing to the standard uncertainty are combined using the method described in Equation 1 to arrive at the total standard uncertainty. The standard uncertainty is multiplied by the coverage factor to determine the expanded uncertainty which is generally accepted for use in commercial, industrial, and regulatory applications and when health and safety are concerned (see Equation 2). A coverage factor was selected to yield a 95% confidence in the uncertainty estimation.

Equation 1: Standard Uncertainty

$$u_c = \pm \sqrt{\frac{a^2}{div_a^2} + \frac{b^2}{div_b^2} + \frac{c^2}{div_c^2} + \dots}$$

where u_c = standard uncertainty

a, b, c, \dots = individual uncertainty elements

$div_{a, b, c}$ = the individual uncertainty element divisor based on the probability distribution

divisor = 1.732 for rectangular distribution

divisor = 2 for normal distribution

divisor = 1.414 for trapezoid distribution

Equation 2: Expanded Uncertainty

$$U = ku_c$$

where U = expanded uncertainty

k = coverage factor

$k \leq 2$ for 95% coverage (ANSI/NCSL Z540-2 Annex G)

u_c = standard uncertainty

The measurement uncertainty complies with the maximum allowed uncertainty from CISPR 16-4-2. Measurement uncertainty is not used to adjust the measurements to determine compliance. The expanded uncertainty values for the various scopes in the WLL accreditation are provided in Table 4 below.

Table 4: Expanded Uncertainty List

Scope	Standard(s)	Expanded Uncertainty
-------	-------------	----------------------

Conducted Emissions	FCC Part 15	3.08 dB
Radiated Emissions (30MHz-1GHz)	FCC Part 15	3.22 dB
		3.23 dB
		3.49 dB
		3.39 dB
Radiated Emissions (1GHz-18GHz)	FCC Part 15	4.97 dB
		4.99 dB

3 Test Results

3.1 Conducted Emissions

3.1.1 Requirements

Test Arrangement: Table Top

Compliance Standard: FCC Part 15 (2013), Class B

FCC Compliance Limits		
Frequency	Quasi-peak	Average
0.15-0.5MHz	66 to 56dB μ V	56 to 46dB μ V
0.5 to 5MHz	56dB μ V	46dB μ V
0.5-30MHz	60dB μ V	50dB μ V

3.1.2 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	Apr.17,14	1 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Oct.29, 14	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	100429	Oct.29, 14	1 Year
4.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	Apr.28,14	1 Year
5.	Terminator	Hubersuhner	50 Ω	No. 1	Apr.28,14	1 Year
6.	Terminator	Hubersuhner	50 Ω	No. 2	Apr.28,14	1 Year
7.	RF Cable	Hubersuhner	RG58	0100.6954.20#	Jan.22,14	1 Year
8.	Coaxial Switch	Anritsu	MP59B	6200298346	Apr.28,14	1 Year
9.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101838	Oct.29, 14	1 Year

3.1.3 Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). This provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4: 2009 on conducted Emission test.

The bandwidth of the R&S Test Receiver ESHS20 was set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.1.4 Conducted Data Reduction and Reporting

At frequencies where quasi-peak or peak measurements comply with the average limit, no average measurements need be performed. The Conducted emissions level to be compared to the FCC limit is calculated as shown in the following example.

Example:

Spectrum Analyzer Voltage: $V_{dB\mu V}$

LISN Correction Factor: LISN dB

Cable Correction Factor: CF dB

Electric Field: $Ed_{dB\mu V} = V_{dB\mu V} + LISN\ dB + CF\ dB$

3.1.5 Test Data

The EUT USB3.0 Hybrid Active Optical Cable complied with the Class B Conducted Emissions requirements.

Table 5 provides the test results for conducted emissions.

Photograph 1 and Photograph 2 show the conducted emission test configuration.

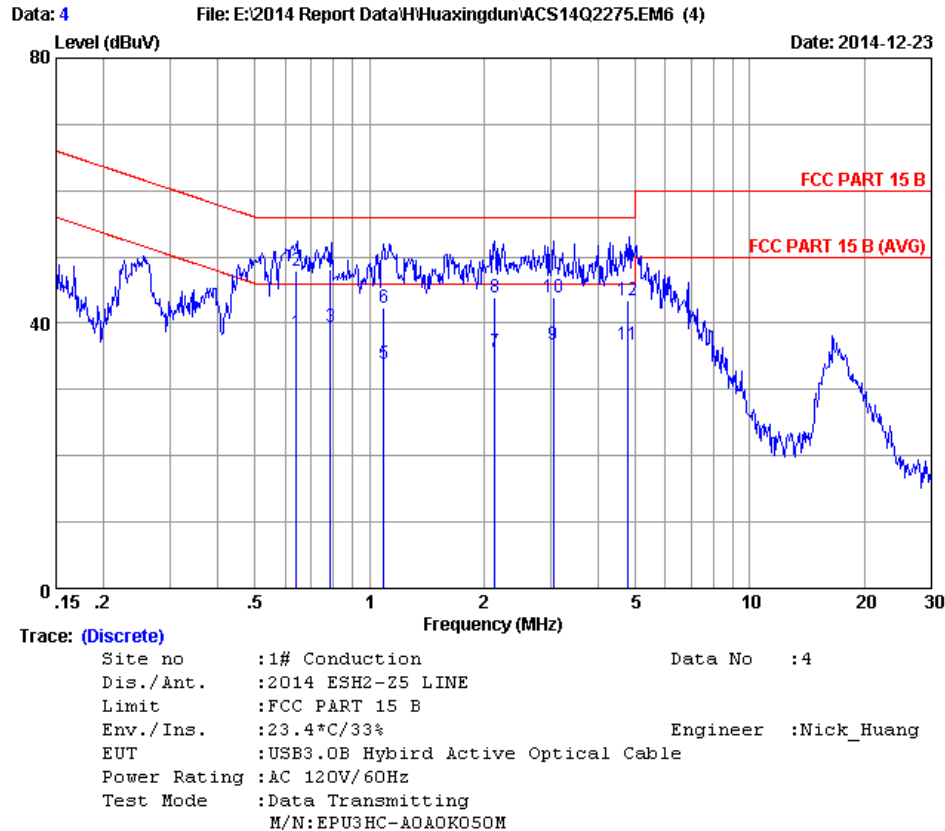
3.1.6 Areas of Concern

None.

Table 5: Conducted Emissions Test Data



Shenzhen Science&Industry Park
Nantou Shenzhen, Guangdong, China
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Fax: +86-755-26632877
Postcode: 518057

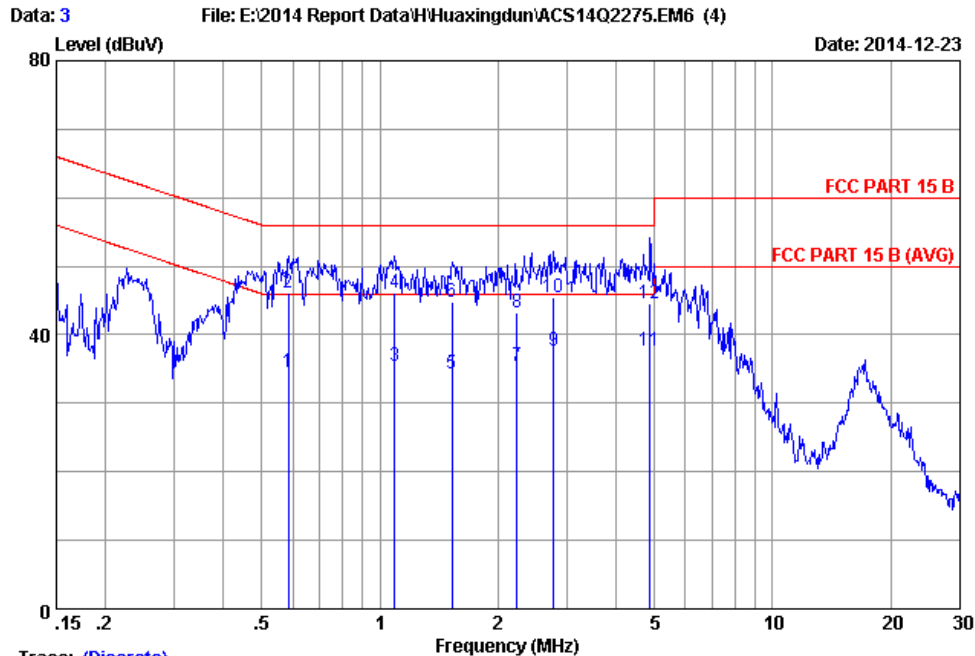


No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV)	Limits (dBUV)	Margin (dB)	Remark
1	0.64300	0.15	9.91	28.49	38.55	46.00	7.45	Average
2	0.64300	0.15	9.91	37.79	47.85	56.00	8.15	QP
3	0.79100	0.15	9.91	29.40	39.46	46.00	6.54	Average
4	0.79100	0.15	9.91	38.10	48.16	56.00	7.84	QP
5	1.088	0.16	9.91	23.90	33.97	46.00	12.03	Average
6	1.088	0.16	9.91	32.20	42.27	56.00	13.73	QP
7	2.132	0.19	9.93	25.50	35.62	46.00	10.38	Average
8	2.132	0.19	9.93	33.80	43.92	56.00	12.08	QP
9	3.041	0.20	9.94	26.60	36.74	46.00	9.26	Average
10	3.041	0.20	9.94	33.80	43.94	56.00	12.06	QP
11	4.796	0.24	9.97	26.60	36.81	46.00	9.19	Average
12	4.796	0.24	9.97	33.20	43.41	56.00	12.59	QP

Remarks: 1. Emission Level = LISN Factor + Cable Loss (Include 10dB pulse limit) + Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Shenzhen Science&Industry Park
Nantou Shenzhen, Guangdong, China
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Fax: +86-755-26632877
Postcode: 518057



Trace: (Discrete)

Site no : 1# Conduction Data No : 3
Dis./Ant. : 2014 ESH2-25 NEUTRAL
Limit : FCC PART 15 B
Env./Ins. : 23.4°C/33% Engineer : Nick_Huang
EUT : USB3.0B Hybrid Active Optical Cable
Power Rating : AC 120V/60Hz
Test Mode : Data Transmitting
M/N: EPU3HC-A0AOK050M

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.58500	0.16	9.90	24.50	34.56	46.00	11.44	Average
2	0.58500	0.16	9.90	36.10	46.16	56.00	9.84	QP
3	1.088	0.18	9.91	25.40	35.49	46.00	10.51	Average
4	1.088	0.18	9.91	36.10	46.19	56.00	9.81	QP
5	1.527	0.18	9.92	24.20	34.30	46.00	11.70	Average
6	1.527	0.18	9.92	34.70	44.80	56.00	11.20	QP
7	2.231	0.21	9.93	25.40	35.54	46.00	10.46	Average
8	2.231	0.21	9.93	33.20	43.34	56.00	12.66	QP
9	2.764	0.22	9.94	27.50	37.66	46.00	8.34	Average
10	2.764	0.22	9.94	35.20	45.36	56.00	10.64	QP
11	4.873	0.27	9.97	27.50	37.74	46.00	8.26	Average
12	4.873	0.27	9.97	34.40	44.64	56.00	11.36	QP

Remarks: 1. Emission Level = LISN Factor + Cable Loss (Include 10dB pulse limit) + Reading.

2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

Photograph 1: Conducted Emissions Front



Photograph 2: Conducted Emissions Back



3.2 Radiated Emissions

3.2.1 Requirements

Test Arrangement: Table Top

Compliance Standard: FCC Part 15 (2013), Class B (3 meter)

FCC Compliance Limits	
Frequency	Limits
30-88 MHz	40dBuV
88-216 MHz	43.5dBuV
216-960 MHz	46dBuV
>960MHz (3 meters)	54dBuV

3.2.2 Test Equipment

For frequency range 30MHz~1000MHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Nov.23, 14	1 Year
2.	EMI Spectrum	Agilent	E4407B	MY41440292	Apr. 28,14	1 Year
3.	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	Apr. 28,14	1 Year
4.	Amplifier	HP	8447D	2648A04738	Apr. 28,14	1 Year
5.	Bilog Antenna	TESEQ	CBL6112D	35375	Jun. 18, 14	1 Year
6.	RF Cable	MIYAZAKI	CFD400-NL	3# Chamber No.1	Apr. 28,14	1 Year
7.	Coaxial Switch	Anritsu	MP59B	6200313662	Apr. 28,14	1 Year

For frequency range 1GHz~6GHz (In Anechoic 3m Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Nov.02,14	1 Year
2.	Spectrum Analyzer	Agilent	E4407B	MY41440292	Apr.28,14	1 Year
3.	Horn Antenna	ETS	3115	9607-4877	Sep.20,14	1 Year
4.	Amplifier	Agilent	8449B	3008A00863	Apr.28,14	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	Apr.28,14	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX106	28616/2	Apr.28,14	1 Year

3.2.3 Test Procedure

The requirements of FCC Part 15 (7/2012) call for the EUT to be placed on an 80 cm high 1 X 1.5 meters non-conductive motorized turntable for radiated testing on a 10-meter open field test site. The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Bi-conical and log periodic broadband antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The output of the antenna was connected to the input of the spectrum analyzer and the emissions in the frequency range of 30 MHz to 1 GHz were measured. The peripherals were placed on the table in accordance with ANSI C63.4-2009. Cables were varied in position to produce maximum emissions. Both the horizontal and vertical field components were measured.

The output from the antenna was connected, via a preamplifier, to the input of the spectrum analyzer. The detector function was set to quasi-peak or peak, as appropriate. Above 1GHz average measurement are recorded. The measurement bandwidth of the spectrum analyzer system was set to at least 120 kHz, with all post-detector filtering no less than 10 times the measurement bandwidth. Frequencies above 1GHz were performed using a measurement bandwidth of 1MHz with a video bandwidth setting of 10 Hz for the average measurement.

3.2.4 Radiated Data Reduction and Reporting

To convert the raw spectrum analyzer radiated data into a form that can be compared with the FCC limits, it is necessary to account for various calibration factors that are supplied with the antennas and other measurement accessories. These factors are included into the antenna factor (AF) column of the table and in the cable factor (CF) column of the table. The AF (in dB/m) and the CF (in dB) is algebraically added to the raw Spectrum Analyzer Voltage in dBμV to obtain the Radiated Electric Field in dBμV/m. This logarithm amplitude is converted to a linear amplitude, then compared to the FCC limit. Example:

Spectrum Analyzer Voltage: VdBμV

Antenna Correction Factor: dB/m

Electric Field: EdBμV/m = V dBμV + AFdB/m + CFdB - GdB

To convert to linear units of measure: EdBV/m/20 Inv log

3.2.5 Test Data

The EUT USB3.0 Hybrid Active Optical Cable complied with the Class B Radiated Emissions requirements.

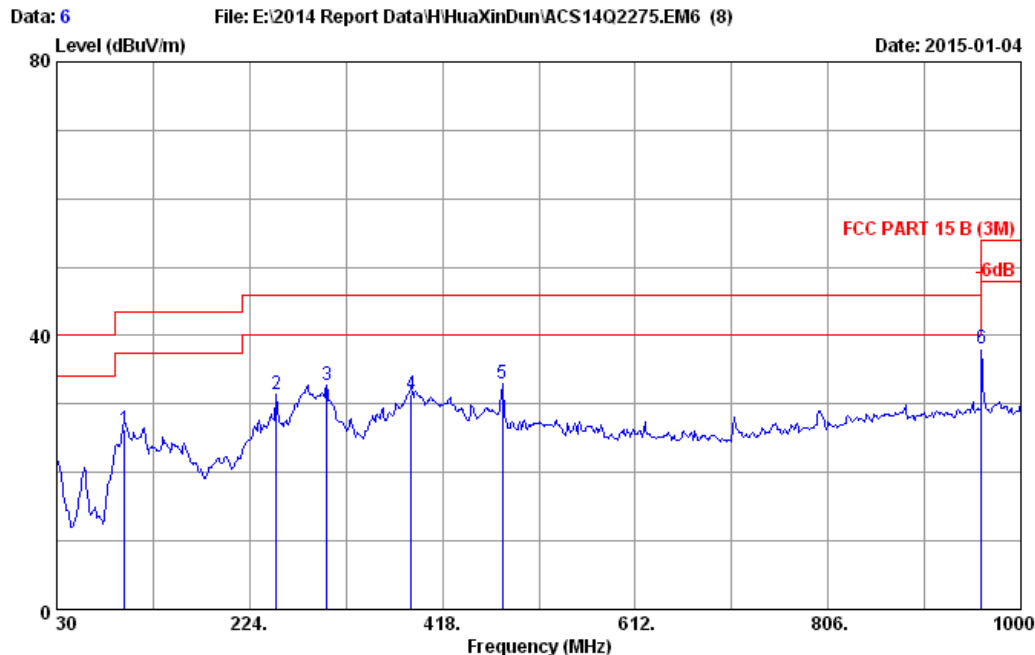
Table 6 provides the test results for radiated conducted emissions.

Photograph 3 -5 shows the radiated emission test configuration.

Table 6: Radiated Emission Test Data



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057



Site no. : 3m Chamber Data no. : 6
Dis. / Ant. : 3m 2014 CBL6112D 35375 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B (3M)
Env. / Ins. : 26°C/58% Engineer : ANDY
EUT : USB3.0 Hybrid Active Optical Cable
Power rating : AC 120V/60Hz
Test Mode : Data Transmitting
M/N:EPU3HC-AQAK050M

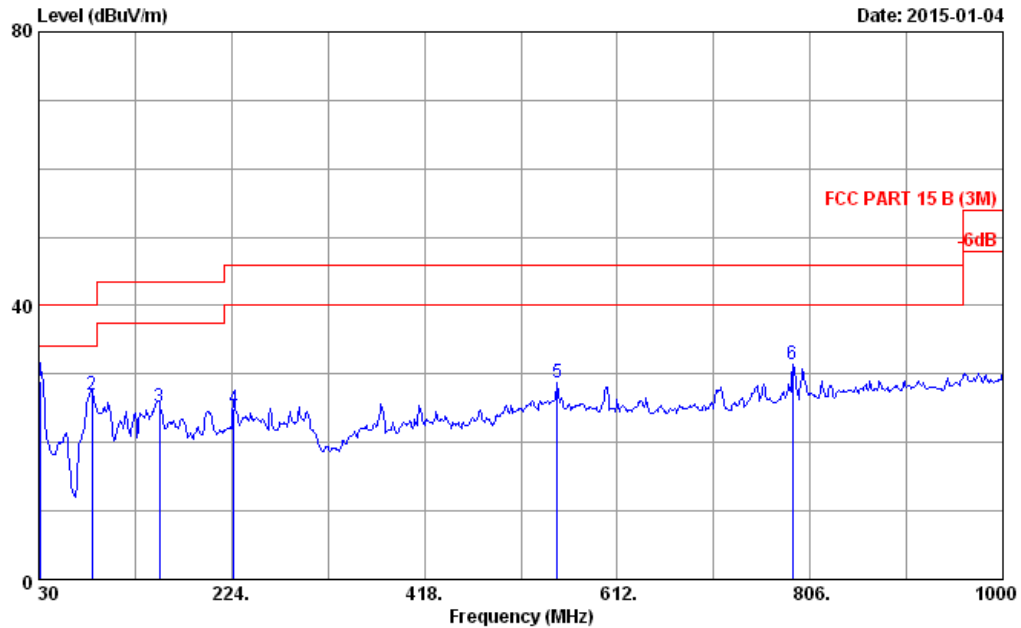
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	97.900	10.88	1.10	14.29	26.27	43.50	17.23	QP
2	251.160	13.06	2.08	16.23	31.37	46.00	14.63	QP
3	301.600	14.03	2.28	16.52	32.83	46.00	13.17	QP
4	386.960	16.14	2.74	12.56	31.44	46.00	14.56	QP
5	478.140	17.74	3.14	12.20	33.08	46.00	12.92	QP
6	960.000	22.60	5.08	10.50	38.18	46.00	7.82	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong, China
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Fax:+86-755-26632877
Postcode:518057

Data: 5 File: E:\2014 Report Data\H\HuaXinDun\ACS14Q2275.EM6 (8) Date: 2015-01-04



Site no. : 3m Chamber Data no. : 5
Dis. / Ant. : 3m 2014 CBL6112D 35375 Ant. pol. : VERTICAL
Limit : FCC PART 15 B (3M)
Env. / Ins. : 26°C/58% Engineer : ANDY
EUT : USB3.0 Hybrid Active Optical Cable
Power rating : AC 120V/60Hz
Test Mode : Data Transmitting
M/N:EPU3HC-AOAKO50M

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.940	18.82	0.62	9.50	28.94	40.00	11.06	QP
2	83.350	7.97	1.02	17.88	26.87	40.00	13.13	QP
3	151.250	11.24	1.55	12.35	25.14	43.50	18.36	QP
4	225.940	11.00	1.97	12.00	24.97	46.00	21.03	QP
5	551.860	18.84	3.48	6.32	28.64	46.00	17.36	QP
6	788.540	20.90	4.44	6.10	31.44	46.00	14.56	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

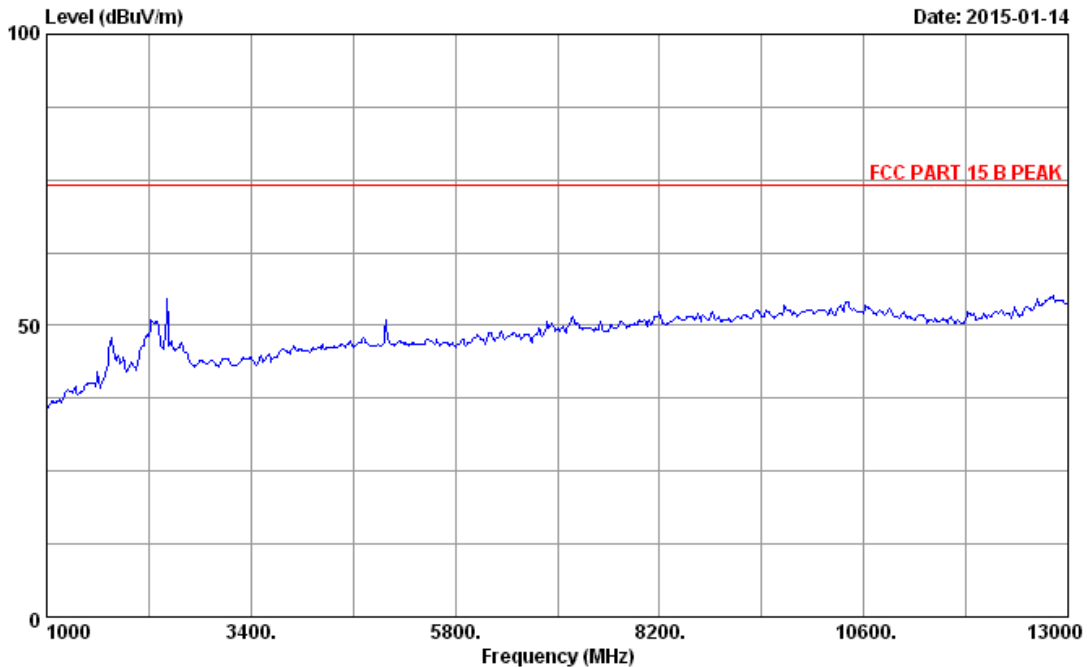


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Data: 7

File: E:\2014 Report Data\H\HuaXinDun\ACS14Q2275.EM6 (10)

Date: 2015-01-14



Site no.	: 3m Chamber	Data no.	: 7
Dis. / Ant.	: 3m 2014 3115 9607-4877	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 B PEAK		
Env. / Ins.	: 26°C/58%	Engineer	: ANDY
EUT	: USB3.0 Hybrid Active Optical Cable		
Power rating	: AC 120V/60Hz		
Test Mode	: Data Transmitting		
	M/N:EPU3HC-A0AOK050M		

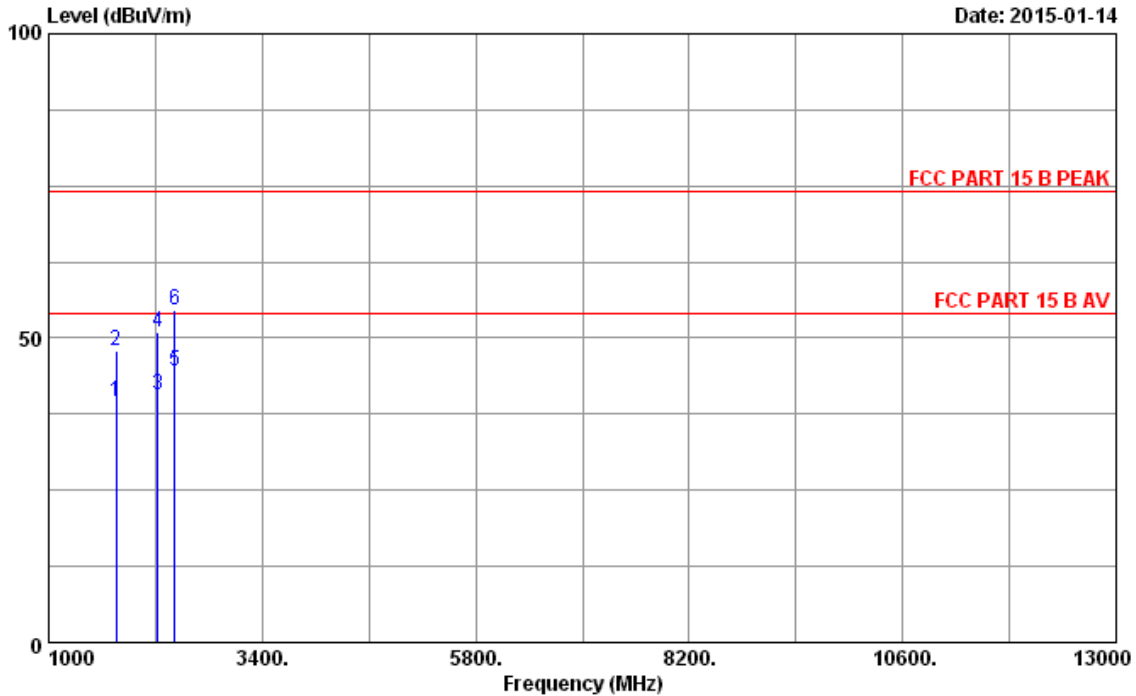


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Data: 8

File: E:\2014 Report Data\H\HuaXinDun\ACS14Q2275.EM6 (10)

Date: 2015-01-14



Site no. : 3m Chamber Data no. : 8
Dis. / Ant. : 3m 2014 3115 9607-4877 Ant. pol. : VERTICAL
Limit : FCC PART 15 B PEAK
Env. / Ins. : 26°C/58% Engineer : ANDY
EUT : USB3.0 Hybrid Active Optical Cable
Power rating : AC 120V/60Hz
Test Mode : Data Transmitting
M/N: EPU3HC-AOAOK050M

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1756.45	26.88	2.87	35.10	44.89	39.54	54.00	14.46	Average
2	1756.85	26.88	2.87	35.10	53.28	47.93	74.00	26.07	Peak
3	2224.56	27.98	3.43	34.90	44.24	40.75	54.00	13.25	Average
4	2224.57	27.98	3.43	34.90	54.40	50.91	74.00	23.09	Peak
5	2416.78	28.28	3.46	34.84	47.56	44.46	54.00	9.54	Average
6	2416.90	28.28	3.46	34.84	57.63	54.53	74.00	19.47	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp factor.
2. The emission levels that are 20dB below the official
limit are not reported.

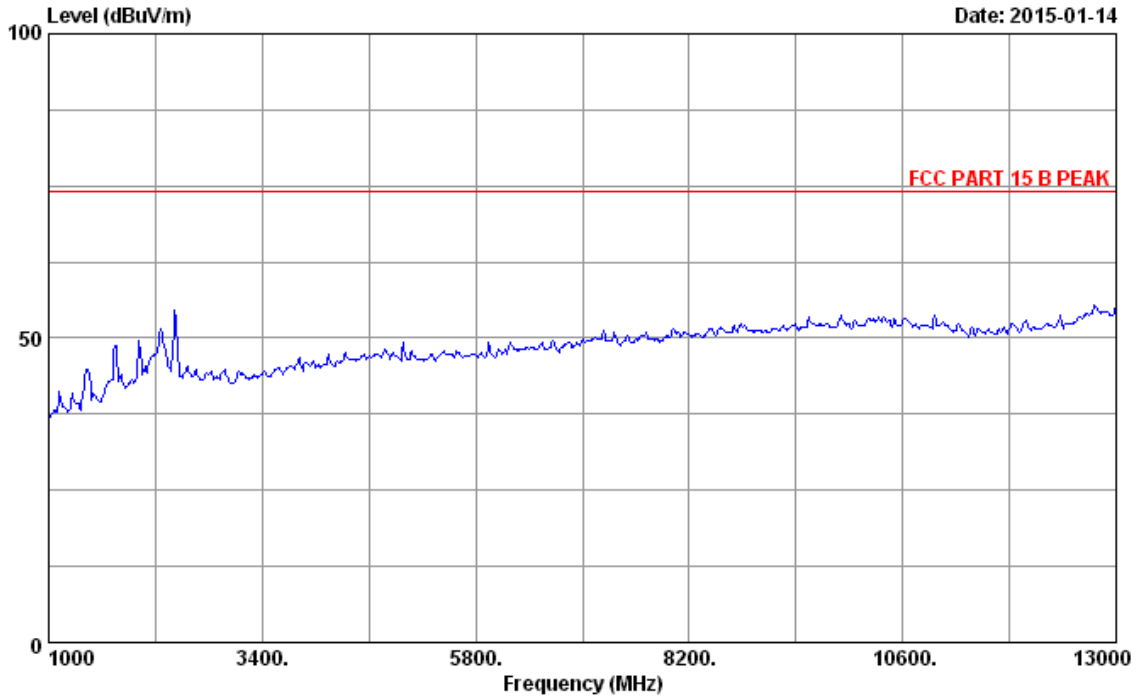


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Data: 9

File: E:\2014 Report Data\H\HuaXinDun\ACS14Q2275.EM6 (10)

Date: 2015-01-14



Site no.	: 3m Chamber	Data no.	: 9
Dis. / Ant.	: 3m 2014 3115 9607-4877	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15 B PEAK		
Env. / Ins.	: 26°C/58%	Engineer	: ANDY
EUT	: USB3.0 Hybrid Active Optical Cable		
Power rating	: AC 120V/60Hz		
Test Mode	: Data Transmitting		
	M/N: EPU3HC-A0AOK050M		

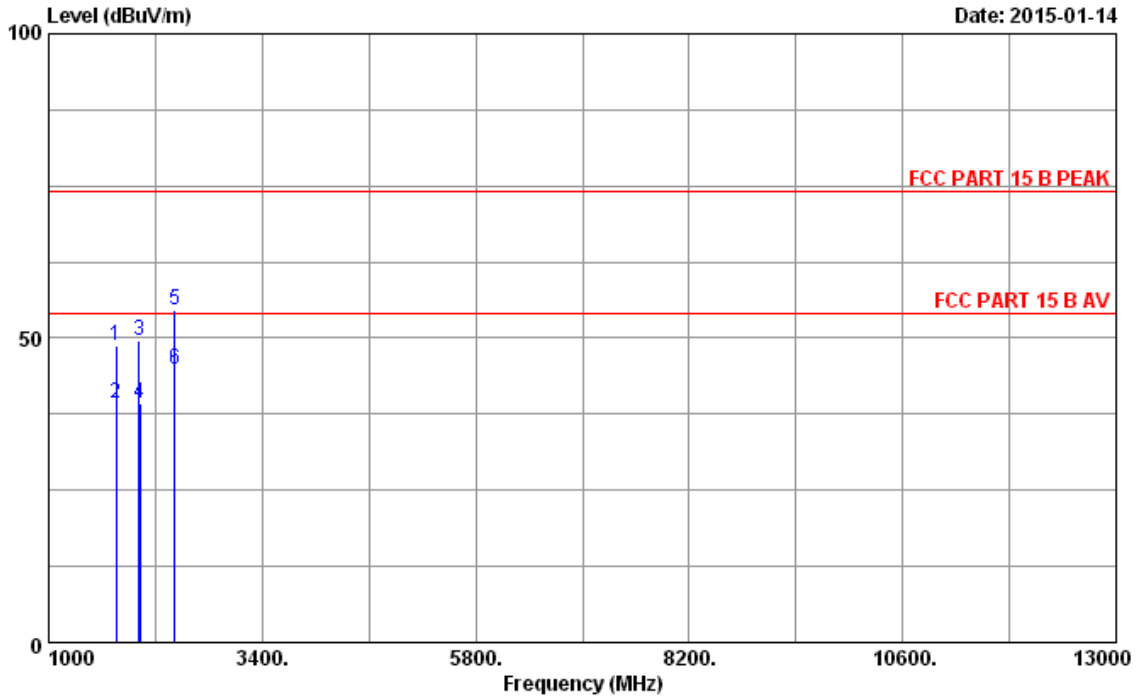


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Data: 10

File: E:\2014 Report Data\H\HuaXinDun\ACS14Q2275.EM6 (10)

Date: 2015-01-14

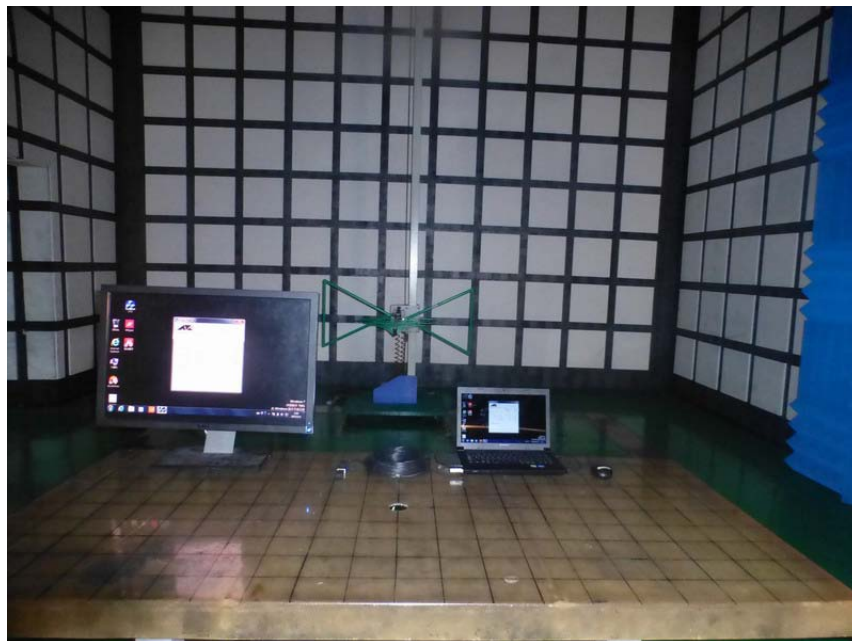


Site no. : 3m Chamber Data no. : 10
Dis. / Ant. : 3m 2014 3115 9607-4877 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B PEAK
Env. / Ins. : 26°C/58% Engineer : ANDY
EUT : USB3.0 Hybrid Active Optical Cable
Power rating : AC 120V/60Hz
Test Mode : Data Transmitting
M/N: EPU3HC-A0AOK050M

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1756.46	26.88	2.87	35.10	54.19	48.84	74.00	25.16	Peak
2	1756.75	26.88	2.87	35.10	44.56	39.21	54.00	14.79	Average
3	2020.57	27.64	3.40	34.96	53.51	49.59	74.00	24.41	Peak
4	2020.85	27.64	3.40	34.96	43.26	39.34	54.00	14.66	Average
5	2416.22	28.28	3.46	34.84	57.80	54.70	74.00	19.30	Peak
6	2416.97	28.28	3.46	34.84	47.89	44.79	54.00	9.21	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp factor.
2. The emission levels that are 20dB below the official
limit are not reported.

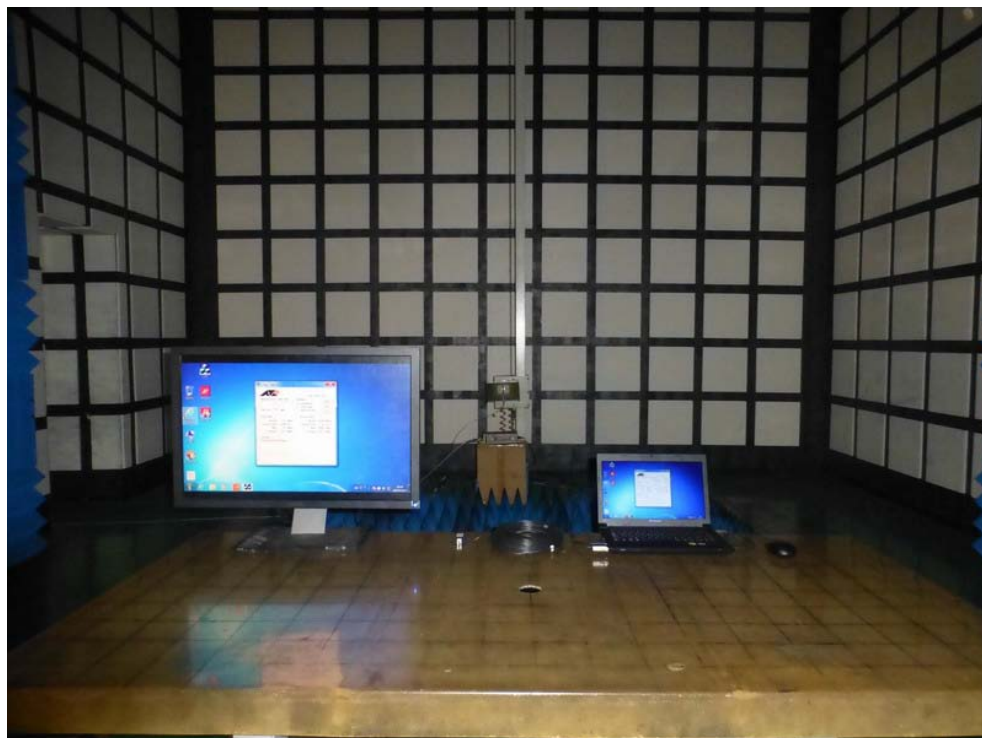
Photograph 3: Radiated Emission Test Configuration, (Below 1GHz) Front



Photograph 4: Radiated Emission Test Configuration, (Below 1GHz) Back



Photograph 5: Radiated Emission Test Configuration, (Above 1GHz) Front



4 Information to User

The following warning or similar statement shall be provided in a conspicuous location in the operator's manual so that the user of a Class B digital device is aware of its interference potential. Additional information about corrective measures may also be provided to the user at the manufacturer's option.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- o Reorient or relocate the receiving antenna
- o Increase the separation between the equipment and receiver
- o Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- o Consult the dealer or an experienced radio/TV technician for help

The instruction manual for a Class B digital device that is separately marketed shall also include sufficient information to insure that the complete system is capable of complying with the requirements for a Class B digital device. The manual should also caution the user that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Finally, the manual should instruct the user to use any special accessories, i.e. shielded cables, necessary for compliance with the standards.

In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required above may be included in the manual in that alternative form, provided that the user can be reasonably expected to have the capability to access information in that form.

-----The End-----