

APPLICATION OF VERIFICATION

For

DELL Inc.

DELL Venue Cradle

FCC ID: E2K-K01T001

Brand Name	Regulatory Model	Regulatory Type
DELL	K01T	K01T001

Prepared for : DELL Inc.

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Report Number : ACS- F14259

Date of Test : Aug. 15 ~ Sep.15, 2014

Date of Report : Dec.18, 2014

TABLE OF CONTENTS

Description	Page
Test Report Verification	
1. SUMMARY OF STANDARDS AND RESULTS	1-1
1.1. Description of Standards and Results	1-1
2. GENERAL INFORMATION	2-1
2.1. Equipment under test (EUT) FCC ID	2-1
2.2. Tested Supporting System Details	2-2
2.3. Block Diagram of Test Setup	2-2
2.4. Test Facility	2-3
2.5. Measurement Uncertainty (95% confidence levels, k=2)	2-3
3. POWER LINE CONDUCTED EMISSION MEASUREMENT	3-1
3.1. Test Equipment	3-1
3.2. Block Diagram of Test Setup	3-1
3.3. Power Line Conducted Emission Test Limits	3-1
3.4. Configuration of EUT on Test	3-1
3.5. Operating Condition of EUT	3-2
3.6. Test Procedure	3-2
3.7. Conducted Emission at Mains Terminals Test Results	3-2
4. RADIATED EMISSION TEST	4-1
4.1. Test Equipments	4-1
4.2. Block Diagram of Test Setup	4-2
4.3. Radiated Emission Limit	4-3
4.4. EUT Configuration on Test	4-3
4.5. Operating Condition of EUT	4-3
4.6. Test Procedure	4-4
4.7. Radiated Disturbance Test Results	4-5
5. DEVIATION TO TEST SPECIFICATIONS	5-1
6. PHOTOGRAPH	6-1
6.1. Photos of Power Line Conducted Emission Test	6-1
6.2. Photos of Radiated Emission Test	6-2
7. PHOTOS OF THE EUT	7-1

TEST REPORT VERIFICATION

Applicant : DELL Inc.
Manufacturer : DELL Inc.
EUT Description : DELL Venue Cradle
FCC ID : E2K-K01T001

(A) Model No. & Brand Name	Brand Name	Regulatory Model	Regulatory Type
	DELL	K01T	K01T001

(B) Serial No. : N/A
(C) Power Supply : DC 5V
(D) Test Voltage : DC 5V From Adapter Input AC 120V/60Hz

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart C: 2013

Test procedure used: ANSI C63.10:2009

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product verification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Aug. 15 ~ Sep.15, 2014 Report of date: Dec.18, 2014

Prepared by : April Tseng / Assistant Reviewed by : Sunny Lu / Assistant Manager

Approved & Authorized Signer :



信華科技(深圳)有限公司

Audix Technology (Shenzhen) Co., Ltd.

EMC 部門報告專用章

Stamp only for EMC Dept. Report

Signature: David Jin

David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10 :2009	PASS
Radiated Emission Test	FCC Part 15: 15.209 ANSI C63.10 :2009	PASS
N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Equipment under test (EUT) FCC ID

Description : DELL Venue Cradle

Model Number & : Brand Name	Brand Name	Regulatory Model	Regulatory Type
	DELL	K01T	K01T001

FCC ID : E2K-K01T001

Work Frequency : 110KHz-205KHz

Applicant : DELL Inc.
One Dell Way, Round Rock, Texas 78682, United States

Manufacturer : DELL Inc.
One Dell Way, Round Rock, Texas 78682, United States

USB Cable : Shielded, Detachable, 1.8m

Adapter#1 : DELL 10W-AC ADAPTER ; M/N:LA10USNM130
INPUT:100-240~ 50/60Hz 0.3A
OUTPUT:5V 2A

Adapter#2 : DELL 10W-AC ADAPTER ; M/N:HA10USNM130
INPUT:100-240~ 50-60Hz 0.3A
OUTPUT:5V 2A

Date of Test : Aug. 15 ~ Sep.15, 2014

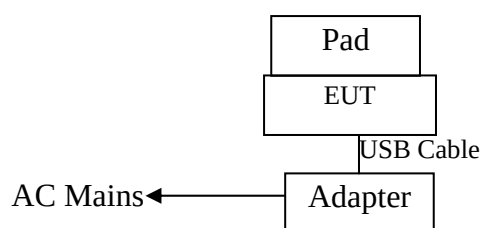
Date of Receipt : Jul.18, 2014

Sample Type : Series production

2.2. Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type
1.	Pad	---	DELL	T02D	---	☐ FCC ID
		Power Cord: Unshielded, Detachable, 1.8m				☐ BSMI ID

2.3. Block Diagram of Test Setup



(EUT: DELL Venue Cradle)

2.4. Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 90454 Valid Date: Feb.22, 2015
3m & 10m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 794232 Valid Date: Oct.31, 2015
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: May.14, 2017
	:	Certificated by DAkkS, Germany Registration No: D-PL-12151-01-00 Valid Date: Dec.15, 2016
	:	Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2015

2.5. Measurement Uncertainty (95% confidence levels, k=2)

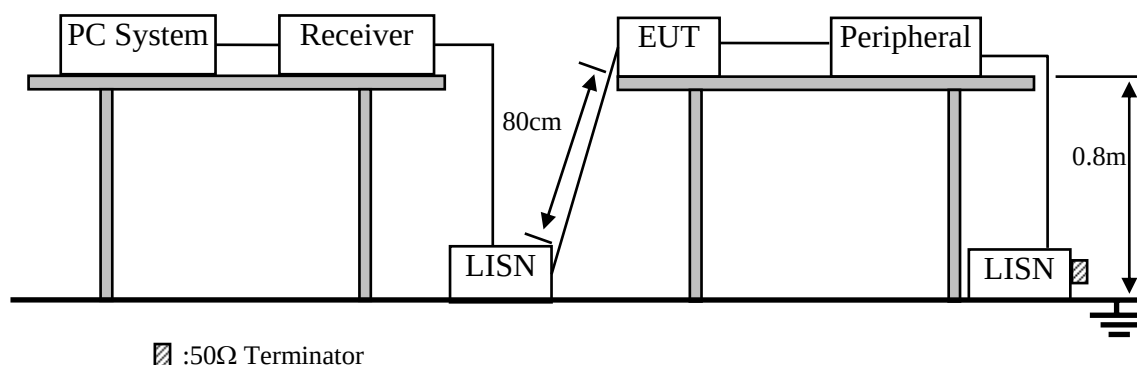
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	3.08dB (9kHz~150kHz)
	3.10dB (150kHz~30MHz)
Uncertainty for Radiation Emission test in 10m chamber (Distance: 3m)	3.45 dB (30~200MHz, Polarize: H)
	3.47 dB (30~200MHz, Polarize: V)
	3.62 dB (200M~1GHz, Polarize: H)
	3.52 dB (200M~1GHz, Polarize: V)
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1. 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.31, 13	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	100429	Jan.22, 14	1 Year
4.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	Apr. 28,14	1 Year
5.	Terminator	Hubersuhner	50Ω	No. 1	Apr. 28,14	1 Year
6.	Terminator	Hubersuhner	50Ω	No. 2	Apr. 28,14	1 Year
7.	RF Cable	Hubersuhner	RG58	0100.6954.20#	Jan.22, 14	1Year
8.	Coaxial Switch	Anritsu	MP59B	6200298346	Apr. 28,14	1 Year
9.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101838	Jan.22, 14	1 Year

3.2. Block Diagram of Test Setup



▨ :50Ω Terminator

3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. DELL Venue Cradle (EUT)

Model Number : K01T

Serial Number : N/A

3.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.2.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipment..

3.5.3. PC run test software to control EUT work in Tx mode.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 9kHz.

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

3.7. Conducted Emission at Mains Terminals Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

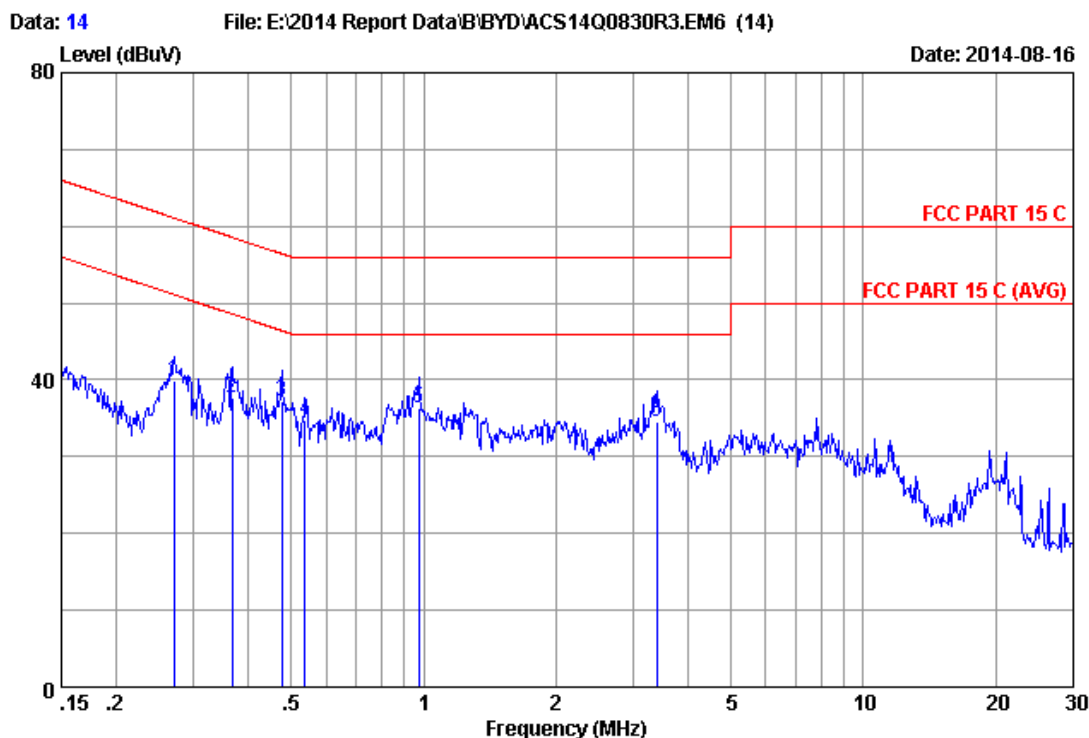
The EUT with the following test modes were tested and selected to read Q.P values and average values, all the test results are listed in next pages.

EUT: DELL Venue Cradle Model No. : K01T

Test Date: Aug.16, 2014 Temperature: 24.3°C Humidity: 42%

The details of test mode are as follows :

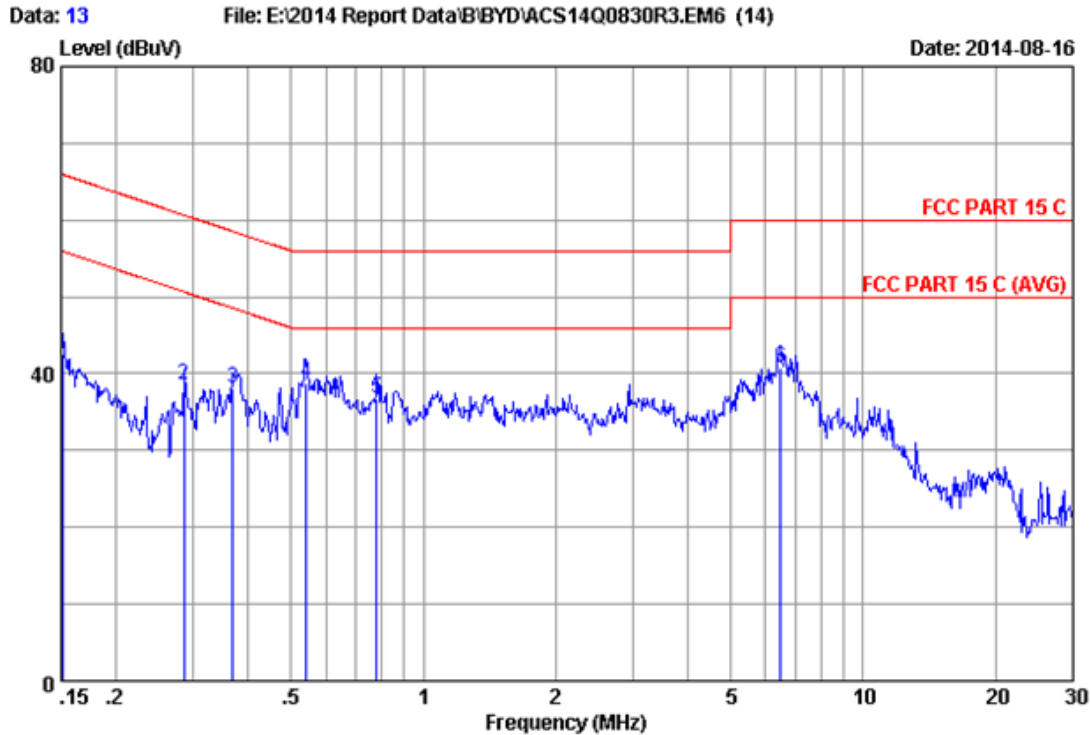
No.	Test Mode	Reference Test Data No.	
		Line	Neutral
1.	Tx Mode	# 14	# 13



Site no :1#conduction Data No :14
 Dis./Ant. :2014 ESH2-Z5 LINE
 Limit :FCC PART 15 C
 Env./Ins. :24.3°C/42% Engineer :Kevin_Hu
 EUT :DELL Venue Cradle
 Power Rating :DC 5V From Adapter Input AC 120V/60Hz
 Test Mode :TX Mode
 M/N:K01T

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.27009	0.14	9.88	29.94	39.96	61.12	21.16	QP
2	0.36725	0.14	9.88	27.66	37.68	58.56	20.88	QP
3	0.47612	0.15	9.88	27.10	37.13	56.41	19.28	QP
4	0.53782	0.15	9.88	24.62	34.65	56.00	21.35	QP
5	0.97354	0.17	9.89	26.29	36.35	56.00	19.65	QP
6	3.381	0.23	9.93	24.31	34.47	56.00	21.53	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.



Site no :1#conduction Data No :13
 Dis./Ant. :2014 ESH2-Z5 NEUTRAL
 Limit :FCC PART 15 C
 Env./Ins. :24.3°C/42% Engineer :Kevin_Hu
 EUT :DELL Venue Cradle
 Power Rating :DC 5V From Adapter Input AC 120V/60Hz
 Test Mode :TX Mode
 M/N:K01T

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15160	0.13	9.87	32.64	42.64	65.91	23.27	QP
2	0.28478	0.14	9.88	28.46	38.48	60.68	22.20	QP
3	0.36920	0.14	9.88	28.05	38.07	58.52	20.45	QP
4	0.54068	0.15	9.88	28.84	38.87	56.00	17.13	QP
5	0.78345	0.16	9.89	26.73	36.78	56.00	19.22	QP
6	6.488	0.35	9.97	30.45	40.77	60.00	19.23	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.

4. RADIATED EMISSION TEST

4.1. Test Equipments

4.1.1. For frequency range 30MHz~1000MHz (In 10m Anechoic Chamber)

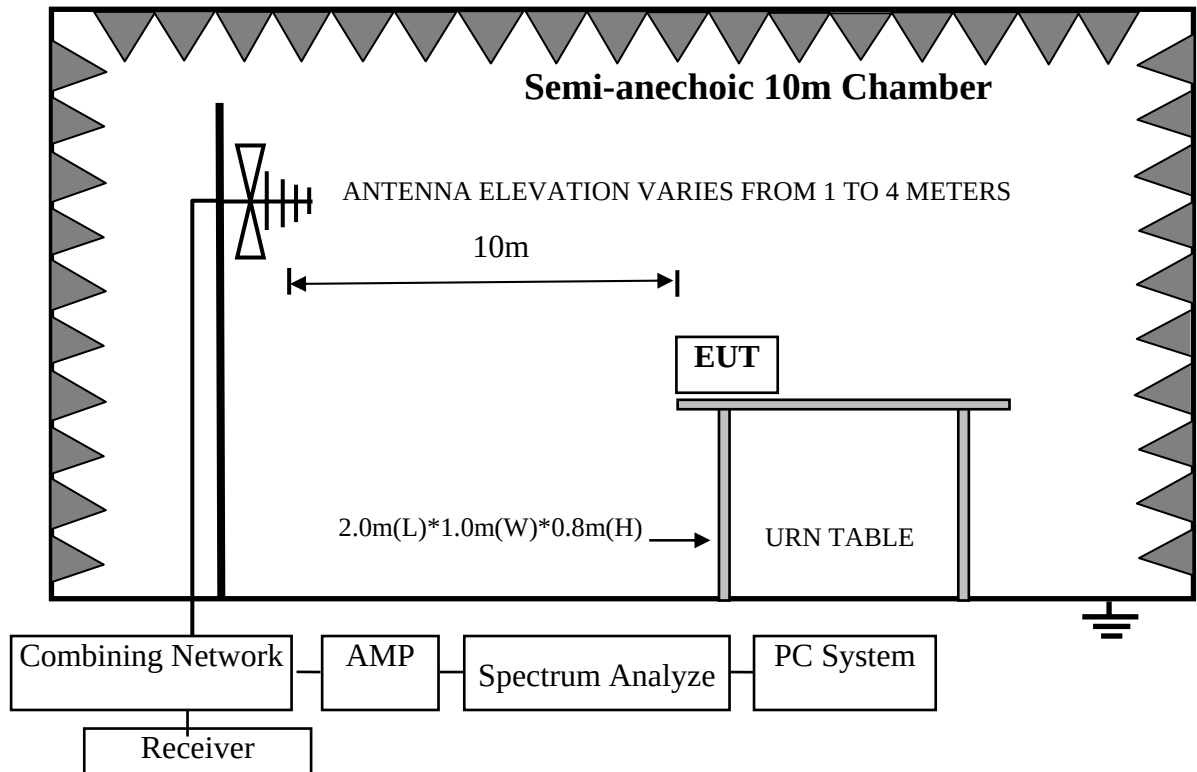
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	10m Chamber	AUDIX	N/A	N/A	Nov.25,13	1 Year
2.	EMC Analyzer	Agilent	E7405A	MY42000131	Oct.31, 13	1 Year
3.	EMC Analyzer	Agilent	E7405A	MY45116588	Oct.31, 13	1 Year
4.	Test Receiver	Rohde & Schwarz	ESCI	100842	Apr. 28,14	1 Year
5.	Amplifier	Agilent	8447D	2944A10684	Apr. 28,14	1Year
6.	Amplifier	Agilent	8447D	2944A11140	Apr. 28,14	1 Year
7.	Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-493	Apr. 08,14	1 Year
8.	Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-429	Dec.03, 13	1 Year
9.	RF Cable	MIYAZAKI	CFD400-NL	10m Chamber No.1	Apr. 28,14	1 Year
10.	RF Cable	MIYAZAKI	CFD400-NL	10m Chamber No.2	Apr. 28,14	1 Year
11.	Coaxial Switch	Anritsu	MP59B	6201397220	May. 16,14	1 Year
12.	Coaxial Switch	Anritsu	MP59B	6201397221	May. 16,14	1 Year
13.	Coaxial Switch	Anritsu	MP59B	6201397222	May. 16,14	1 Year

4.1.2. Frequency Range: 9kHz -30MHz (In 10m Anechoic Chamber)

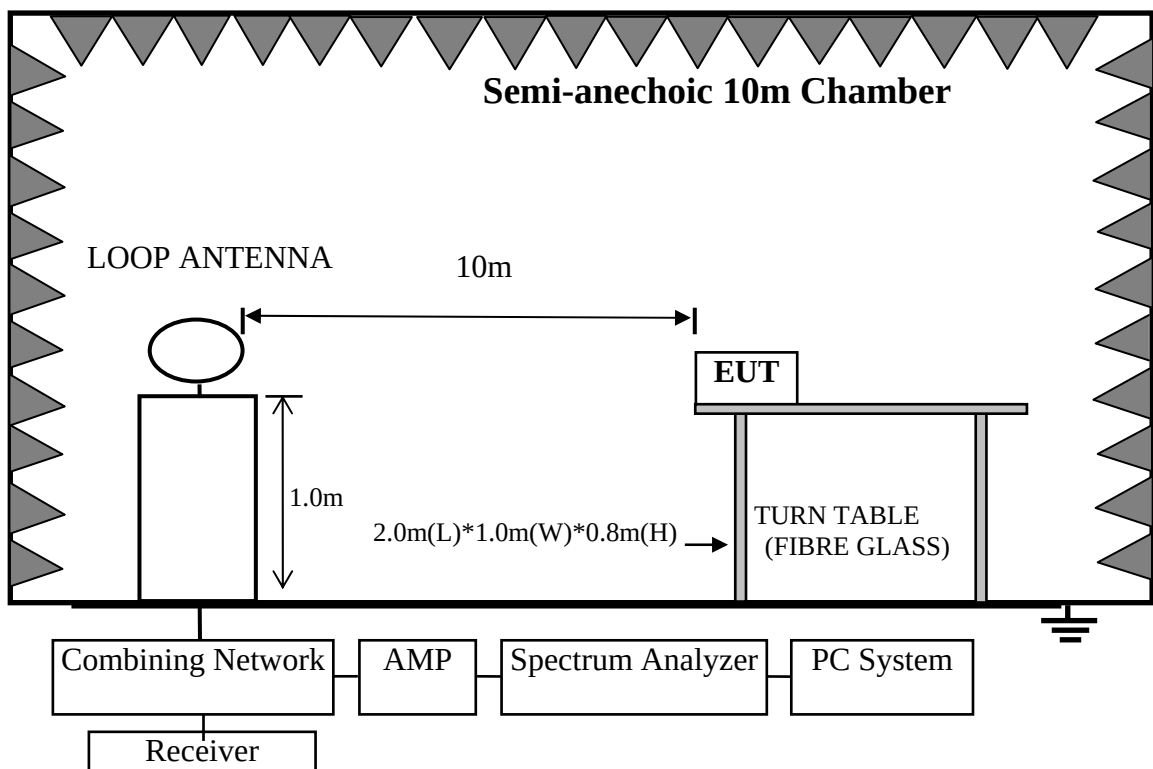
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Loop Antenna	Chase	HLA6120	1062	May.09, 14	1 Year
2	Test Receiver	Rohde & Schwarz	ESCI	100842	Apr. 28,14	1 Year
3	RF Cable	/	RG400	No.1	Apr. 28,14	1 Year

4.2. Block Diagram of Test Setup

4.2.1. In 10m Anechoic Chamber Test Setup Diagram for 30MHz~1000MHz



4.2.2. In 10m Anechoic Chamber Test Setup Diagram for Frequency Range: 0.009-30MHz



4.3. Radiated Emission Limit

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μV)/m
30 ~ 88	10	29
88 ~ 216	10	33.5
216 ~ 960	10	36.4
960 ~ 1000	10	39.5

- Remark: (1) Emission level = Antenna Factor + Cable Loss + Reading
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

Radiated emission Limit(Below 30MHz)

Frequency (MHz)	Field strength (microvolts/meter)	Measurement Distance(meters)
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/f(KHz)	30
1.705-30.0	30	30

- Remark: (1) Emission level dBμV = 20 log Emission level μV/m
(2) In the emission table above, the tighter limit applies at the band edges.
(3) The limit 1.705MHz to 30MHz in clause 4.3 are specified at 30 meters, and measurements were made at 10 meters, the limit is translated to 10 meters by using a formula as follows: $\text{Limit}_{10\text{m}} = \text{Limit}_{30\text{m}} + 40\log(30\text{m}/10\text{m})$ or $\text{Limit}_{10\text{m}} = \text{Limit}_{300\text{m}} + 40\log(300\text{m}/10\text{m})$

4.4. EUT Configuration on Test

The configurations of EUT are listed in Section 3.4

4.5. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.5. except the test set up replaced by Section 4.2.

4.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10-2009 on radiated emission Test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as the test photo indicated.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

For emissions below 30MHz:

This test was performed on anechoic chamber with a conductive ground plane, EUT was put to 0.8m high turn table and at a distance of 10m from test antenna.

Note: The emission from 110kHz to 205kHz is 40dB below the FCC Limit.

4.7. Radiated Disturbance Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

EUT: DELL Venue Cradle Model No. : K01T

For frequency range 30MHz~1000MHz

The EUT with the following test modes were tested and selected to read Q.P values, all the test results are listed in next pages.

Test Date: Aug.16, 2014 Temperature: 24℃ Humidity: 56%

The details of test mode are as follows :

No.	Test Mode	Reference Test Data No.	
		Horizontal	Vertical
1.	Tx Mode	# 23	# 22

For above 1GHz frequency

Due to the EUT's highest frequency generated and the highest frequency below 108MHz, therefore the above 1GHz frequency is no need to measurement.

Frequency Range: 0.009-30MHz

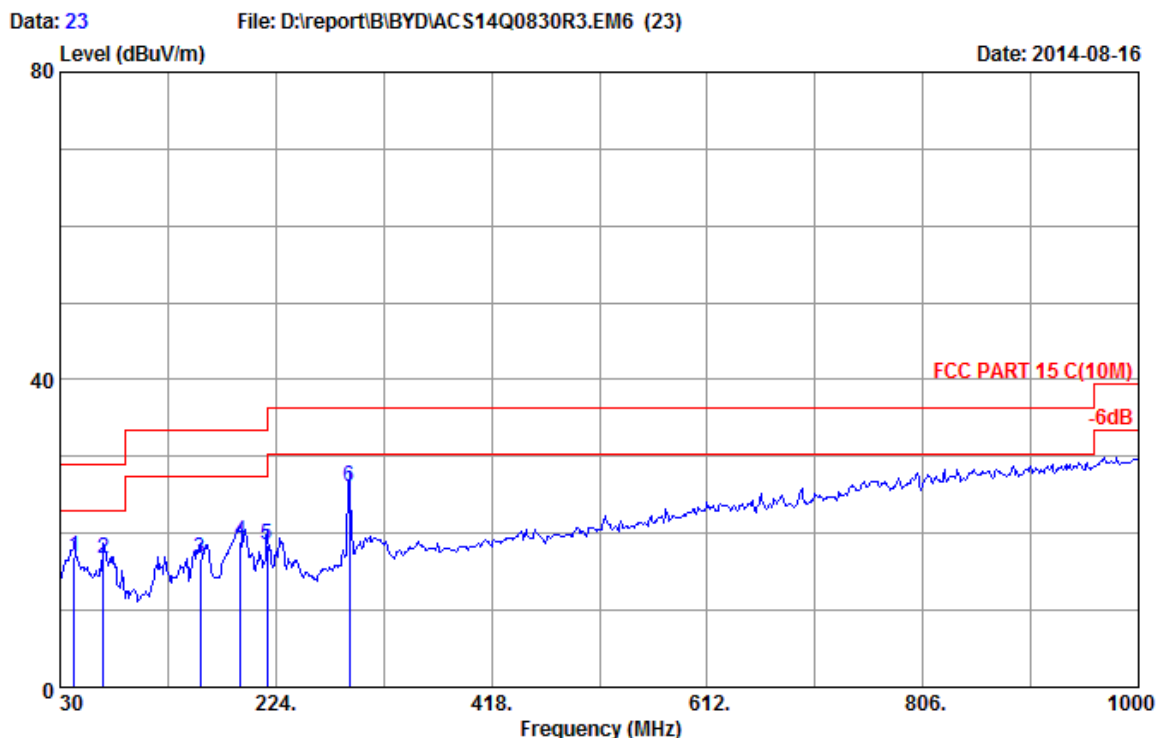
EUT: DELL Venue Cradle Model No. : K01T

Test Date: Aug.15, 2014 Temperature: 24.6℃ Humidity: 50%

The details of test modes are as follows :

No.	Test Mode	Reference Test Data No
1.	Tx Mode	#20

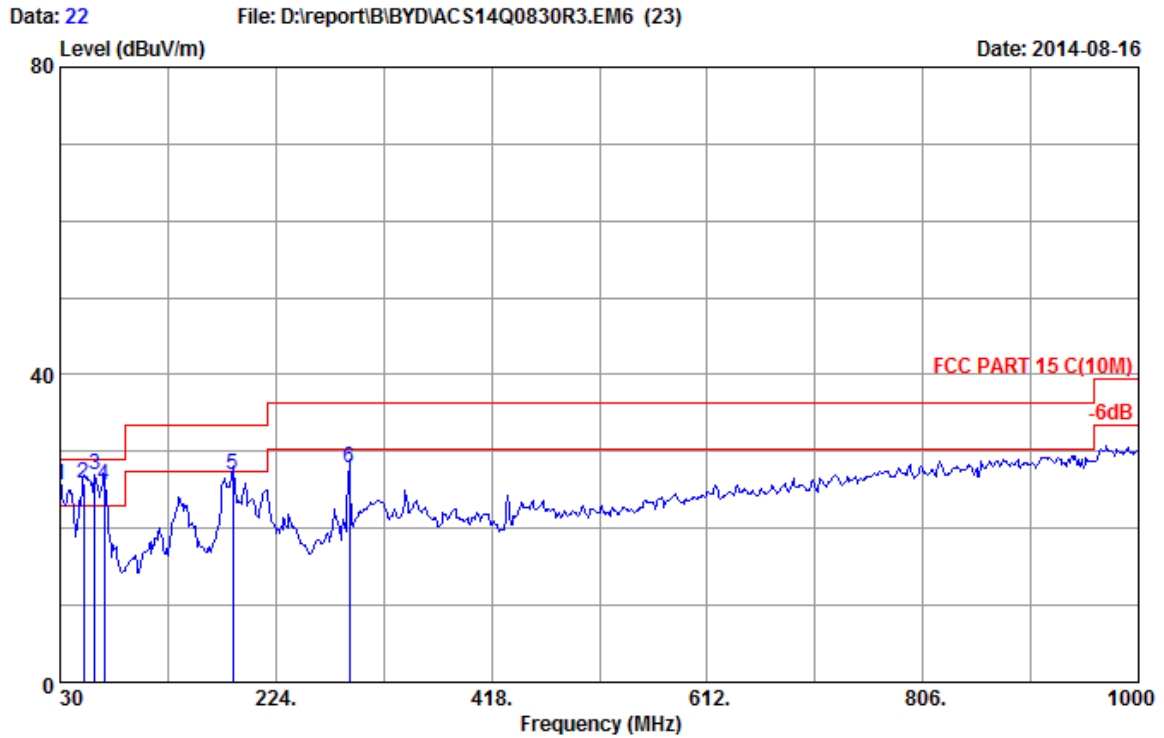
30MHz~1000MHz



Site no :10m Chamber Data No :23
 Dis./Ant. :10m 2013 9168-429 Ant.pol :HORIZONTAL
 Limit :FCC PART 15 C(10M)
 Env./Ins. :24*C/56% Engineer :JERRY
 EUT :DELL Venue Cradle
 Power Rating :DC 5V From Adapter Input AC 120V/60Hz
 Test Mode :TX Mode
 M/N:K01T

No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	42.610	13.79	0.79	2.44	17.02	29.00	11.98	QP
2	68.800	11.92	0.95	3.90	16.77	29.00	12.23	QP
3	156.100	13.40	1.36	1.97	16.73	33.50	16.77	QP
4	191.990	10.50	1.49	6.98	18.97	33.50	14.53	QP
5	216.240	9.82	1.56	7.22	18.60	36.40	17.80	QP
6	289.960	13.40	1.75	10.88	26.03	36.40	10.37	QP

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

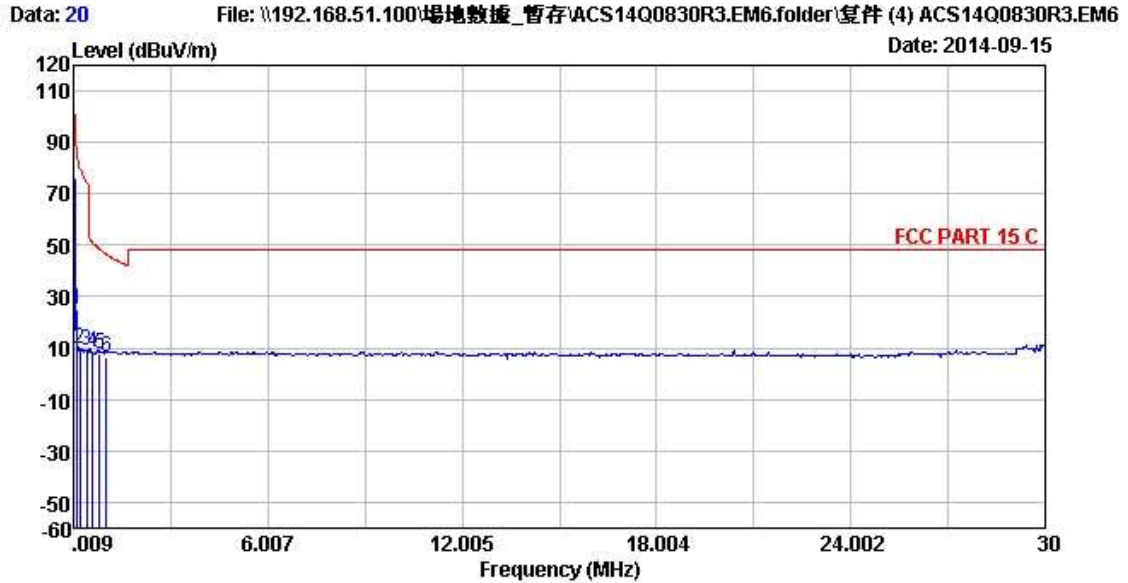


Site no :10m Chamber Data No :22
 Dis./Ant. :10m 2014 9168-493 Ant.pol :VERTICAL
 Limit :FCC PART 15 C(10M)
 Env./Ins. :24°C/56% Engineer :JERRY
 EUT :DELL Venue Cradle
 Power Rating :DC 5V From Adapter Input AC 120V/60Hz
 Test Mode :TX Mode
 M/N:K01T

No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.000	12.10	0.83	12.59	25.52	29.00	3.48	QP
2	51.340	13.97	0.96	11.01	25.94	29.00	3.06	QP
3	61.040	13.25	1.06	12.71	27.02	29.00	1.98	QP
4	69.770	11.93	1.13	12.63	25.69	29.00	3.31	QP
5	185.200	11.28	1.67	14.11	27.06	33.50	6.44	QP
6	289.960	13.20	1.90	12.81	27.91	36.40	8.49	QP

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

Below 30MHz



Site no. : 10m Chamber Data no. : 20
 Dis. / Ant. : 10m 2014 LOOP HLA6120 Ant. pol. :
 Limit : FCC PART 15 C
 Env. / Ins. : 24.6°C/50% Engineer : Alex
 EUT : DELL Venue Cradle
 Power rating : DC 5V From Adapter Input AC 120V/60Hz
 Test Mode : Tx Mode
 M/N:K01T

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	0.13	19.34	0.07	5.80	25.21	84.39	59.18	QP
2	0.21	19.19	0.08	-9.80	9.47	80.36	70.89	QP
3	0.41	19.61	0.10	-10.47	9.24	74.35	65.11	QP
4	0.62	19.95	0.12	-11.88	8.19	50.83	42.64	QP
5	0.82	19.97	0.13	-12.46	7.64	48.34	40.70	QP
6	1.03	19.89	0.15	-13.81	6.23	46.41	40.18	QP

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

5. DEVIATION TO TEST SPECIFICATIONS

[NONE]