



REPORT For

Epic Data Inc.

300 – 6300 River Road
Richmond, B.C.
V6X 1X5, Canada

Date: July 07, 2008
Report No.: 9170-1E
Revision No.: 1
Project No.: 9170
Equipment: Shop Floor Kiosk
Model No.: MPT96XXX

ONE STOP GLOBAL CERTIFICATION SOLUTIONS



3133-20800 Westminster Hwy, Richmond, BC
V6V 2W3, Canada
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**Title 47 of the CFR: 2007, Part 15. 225, 15.107, 15.109, 15.209 and
IC Standards, RSS 210:2007 and ICES-003:2004**

Report reference No.....	9170-1E
Report Revision History:	<ul style="list-style-type: none">➤ 0 – June 30, 2008➤ 1 – July 07, 2008: retesting for conducted emission and test procedures as requested by TIMCO
Tested by (printed name and signature)	Jeremy LEE 
Approved by (printed name and signature)	Kavinder Dhillon, Eng.L. 
Date of issue	July 07, 2008
Note: By signing this report, both the Testing Technician and the Reviewer hereby declare to abide by the applicable LabTest policies: 1.) Statement of Independence # 3014 (LabTest Employees), 2.) Independence, Impartiality, and Integrity #1039, clause 11 (Engineering Service Subcontractors), or 3.) Independence, Impartiality, and Integrity #1019, clause 3.5 (Testing Subcontractors).	
FCC Site Registration No.:	483525
IC Site Registration No.:	5970A
Testing Laboratory Name	LabTest Certification Inc.
Address	3133 – 20800 Westminster Hwy, Richmond, B.C. V6V 2W3, Canada
OATS Test Location Name	LabTest Certification Inc.
Address	5340 – 164 Street, Surrey, BC, Canada
Applicant's Name	Epic Data Inc.
Address	300 – 6300 River Road, Richmond, B.C. V6X 1X5, Canada
Manufacture's Name	Same as Applicant
Address	Same as Applicant
Test specification	
Standards	<ul style="list-style-type: none">➤ Title 47 of the CFR:2007, Part15➤ RSS 210:2007 and ICES-003:2004
Date Test sample received	Jun. 23, 2008
Date of Testing	Jun. 23 to July 07, 2008
Test item description	
Manufacturer	Epic Data Inc.
Model and/or type reference	MPT96XXX, where X can be any alphanumeric character or a blank

Frequency Range:	Intentional radiators: 125kHz and 13.56MHz Unintentional radiator: 500MHz
Rating(s)	100 to 240VAC, 50-60Hz, Single Phase

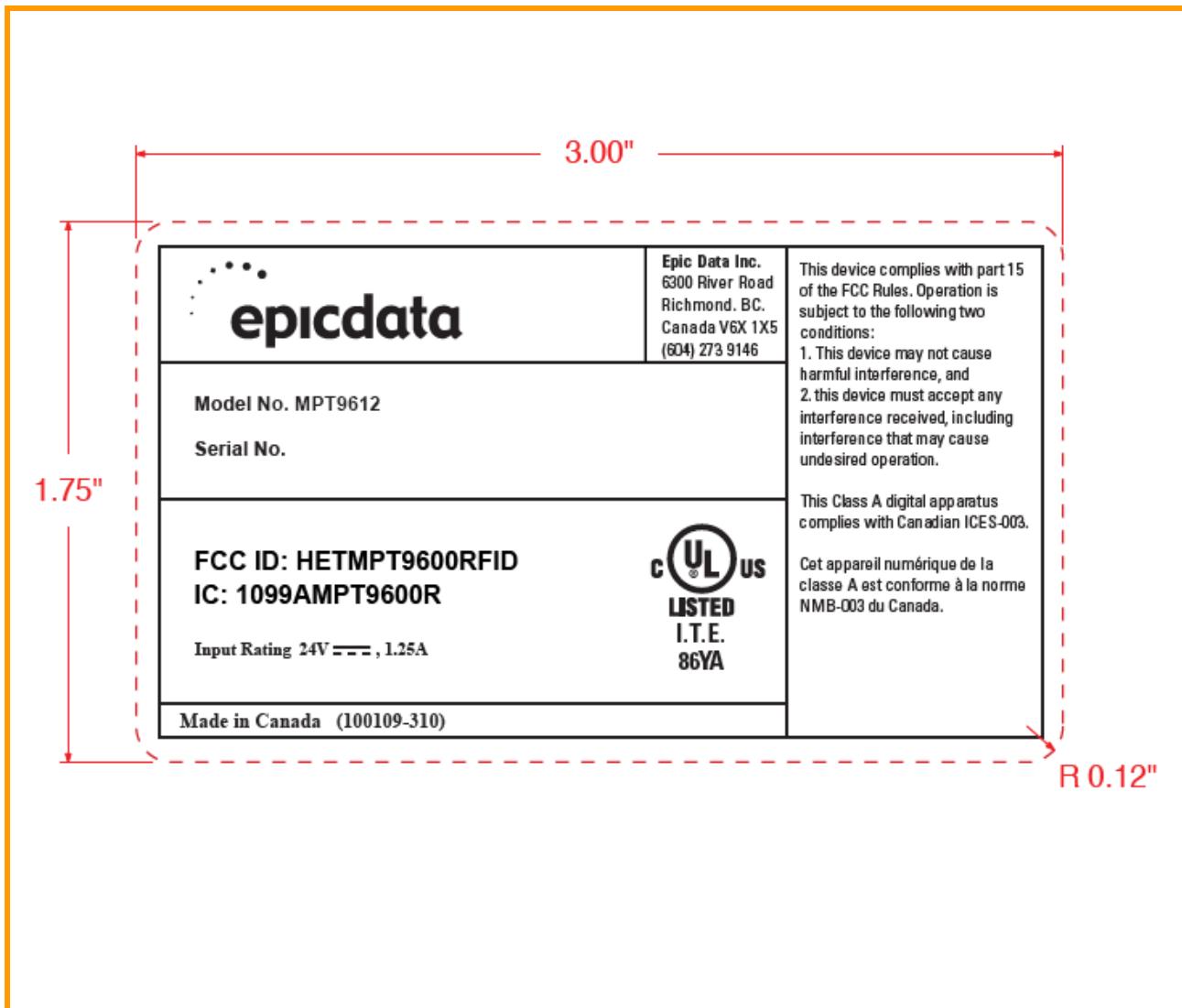
Device Under Test Description

Type of Equipment:	Shop Floor Kiosk
Operating Temperature Range:	0 °C to 35 °C
Supply Voltage:	93.5 to 126.5VAC, 60Hz, Single Phase
General Product Information:	<p>The EUT is an industrial-strength shop floor kiosk that collects, delivers and displays information to shop floor users with a large bright 12-inch display with an integrated touch screen.</p> <p>The EUT is integrated an IP53 enclosure with a rugged, fan-less, diskless computer, 12.1" LCD monitor with an integrated touch screen.</p> <p>The EUT is operated by the Microsoft Windows XP Embedded operating system.</p> <p>The EUT has offered a wide range of external connectivity; 10/100 Ethernet, four external USB ports, one RS232 serial port, stereo audio output, microphone input, General Purpose Input/Output (GPIO), Barcode Wand and external VGA output.</p>

Connection Description

Name	Manufacturer	Model	FCC	Connection Name
Monitor	-	1920A	Y	VGA
Speaker	-	1920A	Y	AUDIO OUT
Mic.	Multimedia	MIC48	N	AUDIO IN
DC Power Supply	FSP Group Inc.	FSP040	Y	14-30V DC
Barcode Wand	Opticon Inc.	MSH119/RO2DR	N	BARCODE WAND
Lantronix	E.D.P. Equipment	MSSI-T	N	SERIAL
GPIO Tester	Epic Data	-	N/A	DIGITAL I/O
Ethernet Switch	D-Link	DSS-5+	Y	10/100 NET
External Floopy Disk	-	UP-801	Y	USB 1
Keyboard	Compaq	SK-2855	Y	USB 2
Optical Wheel Mouse	Logitech	M-BJ58	Y	USB 3
Barcode Reader	IDTECH Inc.	WCR3227-600US	N	USB 4
PS/2 Keyboard	Compaq	Y-SG13	Y	KB
PS/2 Mouse	Compaq	M-S34	Y	MOUSE

Markings



Test Summary

Test Type	Regulation	Measurement standard	Result
Radiated Emission-Intentional radiators	15.225, 15.209 and RSS-210	ANSI C63.4:2003	PASS
Radiated Emission-Intentional radiators	15.209 and RSS-210	ANSI C63.4:2003	PASS
Radiated Emission-Unintentional radiators	15.109, Class A and RSS-210	ANSI C63.4:2003	PASS
Conducted Emission	15.107, Class A and ICES-003	ANSI C63.4:2003	PASS
Frequency Tolerance	15.225 and RSS-210	ANSI C63.4:2003	PASS

Radiated Emission; Operation within the band 13.553 to 13.567MHz

Regulation	FCC15.225 and 15.209
Intentional Radiating Frequency	13.56MHz
Detecting Method	Quasi Peak Detector
IF Bandwidth	9kHz and 120kHz
Temperature	18.0 °C
Relative Humidity	53 %
Barometric Pressure:	102.06 kPa
Test Date	June 24, 2008
Sample Number	616712
Calibrated Test Equipment (ID)	058, 106, 124, 225, 227-1, 233
Reference Equipment (ID) (Calibration not required)	059, 235
Electrical Rating	110VAC, 60Hz, Single Phase
Tested By	Jeremy LEE

Use the barometric pressure reported at: <http://www.theweathernetwork.com/weather/CABC0308>

Test Limits

FCC 15.225:

- The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

FCC 15.209:

- Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

Test Setup

The test was performed in accordance with **FCC 15.31, 15.33, 15.35, 15.209:2007 and ANSI C63.4, 2003.**

The test setup for Radiated emission measurements at OATS is shown in Figure - 1.

- a) The EUT was placed on a wooden table, and it was put on the turning ground plate.
- b) As the levels of ambient at 10meters are no lower than 6dB of limit values, the EUT was set up on 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna supporter.
- c) The EUT was connected all connectors as shown Appendix B: Cable configuration and was operated at "the Stress mode, the worst case of operating".
- d) It is measured with a receiver - spectrum analyzer, was software controlled.

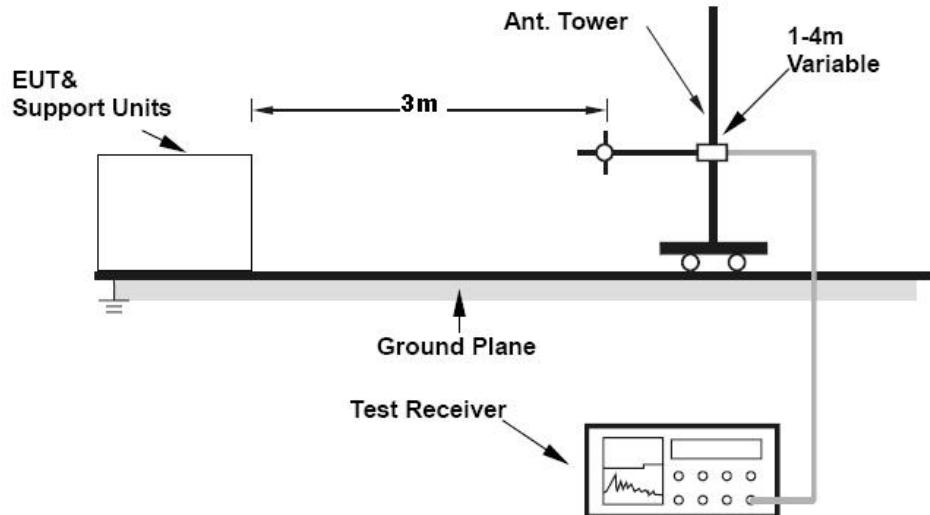


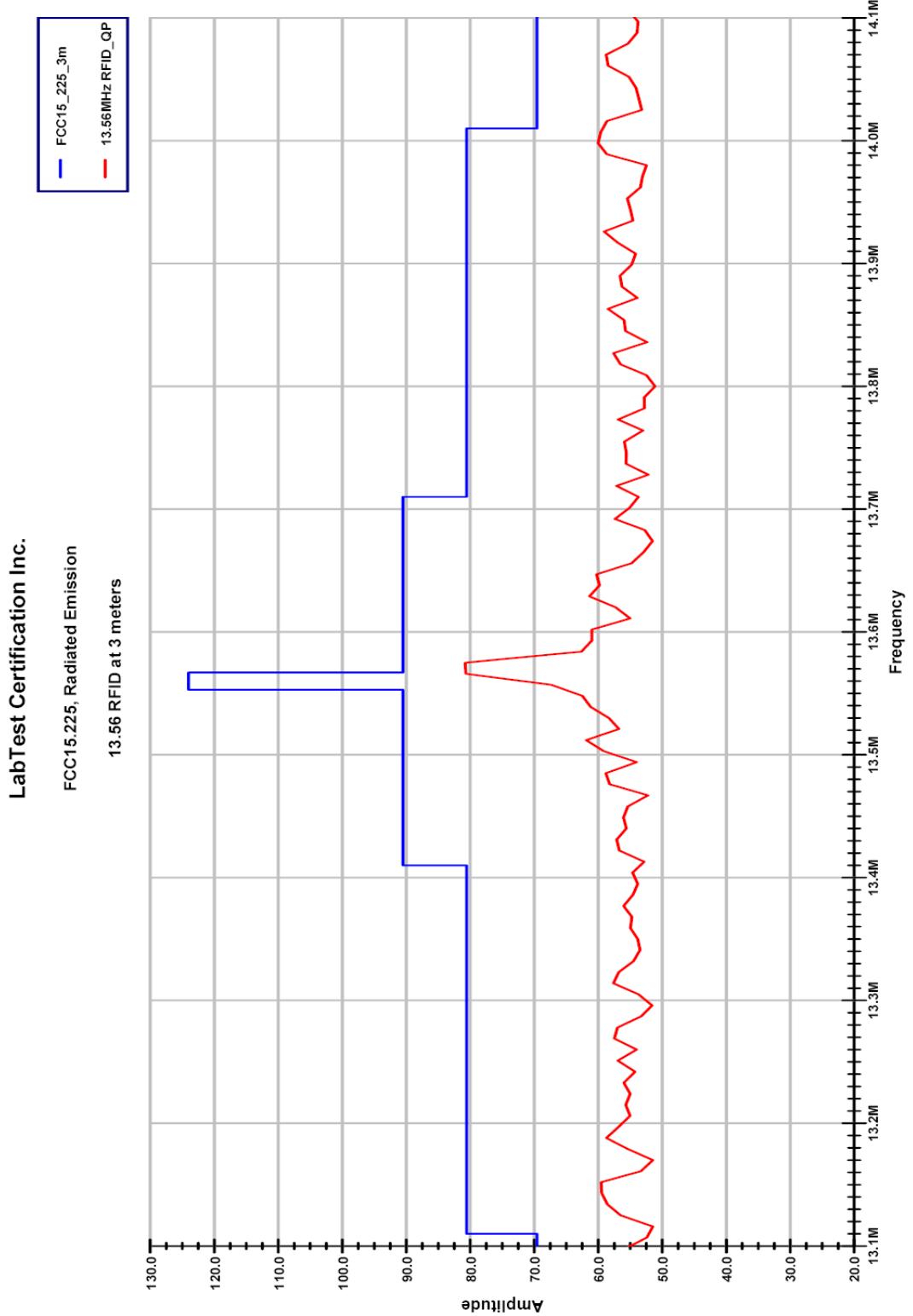
Figure – 1 Test setup for radiated emission at OATS

Test Results:

Emission level (dB_{uV/m}) = Quasi-Peak detected level (dB_{uV}) + Cable Loss(dB) + Antenna Factor (dB/m) - Pre-amplifier's Gain (dB)

There was no signal over limit.

- Graph of Radiated Emission, FCC15.225, Antenna was used a SAS550-1B



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- Table of Radiated Emission under 30MHz, Antenna was used a SAS-550-1B

LabTest Certification Inc. FCC15.225, Radiated Emissions 13.56 RFID at 3 meters (under 30MHz)			
Operator: Jeremy Lee	Proj #: 9170	Contact: Mark Havlasek	Company: Epic Data Inc.
11:07:37 AM, Wednesday, June 25, 2008			
Frequency	LIMIT	QP_RESULTS	MARGIN
MHz			
1.705 MHz	69.54		
13.110 MHz	80.51		
13.110 MHz	80.51		
13.410 MHz	90.47		
13.410 MHz	90.47		
13.553 MHz	124.00		
13.553 MHz	124.00		
13.564 MHz	124.00	82.72	41.28
13.567 MHz	90.47		
13.567 MHz	90.47		
13.710 MHz	80.51		
13.710 MHz	80.51		
14.010 MHz	69.54		
14.010 MHz	69.54		
27.125 MHz	69.54	45.31	24.23
30.000 MHz	40.00		
30.000 MHz	40.00		
88.000 MHz	40.00		
88.000 MHz	40.00		
216.000 MHz	43.52		
Sample #: 616712			
Temp.: 18.0 C, Hum.: 53 %			
Barometer Pres.: 102.06 kPa			

- Radiated Emission over 30MHz, Antenna was used a 3110B

: There were no harmonics over limit levels.

Radiated Emission; Intentional Radiator; 125kHz.

Regulation	FCC15.209: 2007
Intentional Radiating Frequency	125kHz
Detecting Method	Average and Quasi-Peak Detector
IF Bandwidth	200Hz and 9kHz
Temperature	16.3 - 24 °C
Relative Humidity	61 - 66 %
Barometric Pressure:	101.39 – 101.96 kPa
Test Date	June 24 and 30, 2008
Sample Number	616712
Calibrated Test Equipment (ID)	058, 106, 227-1, 233
Reference Equipment (ID) (Calibration not required)	059, 235
Electrical Rating	110VAC, 60Hz, Single Phase
Tested By	Jeremy LEE

Use the barometric pressure reported at: <http://www.theweathernetwork.com/weather/CABC0308>

Test Limits

FCC 15.209:

(a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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
30 – 88	100 **	3
88 – 216	150 **	3
216 – 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

Test Setup

The test was performed in accordance with **FCC 15.31, 15.33, 15.35, 15.209:2007 and ANSI C63.4, 2003.**

The setup for Radiated emission measurements at OATS is shown in Figure - 1.

- a) The EUT was placed on a wooden table, and it was put on the turning ground plate.
- b) The EUT was set up on 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna supporter.
- c) The EUT was connected all connectors as shown Appendix B: Cable configuration and was operated at "the Stress mode, the worst case of operating".
- d) It is measured with a receiver - spectrum analyzer, was software controlled.

Test Results:

Emission level (dB_{UV}/m) = Quasi-Peak detected level (dB_{UV}) + Cable Loss(dB)
+ Antenna Factor (dB/m)

There was no signal over limit.

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- Radiated Emission; harmonics of 125kHz, Average Detecting, Antenna was used a SAS-550-1B.

LabTest Certification Inc. FCC15.209, Radiated Emissions 125kHz RFID at 10 meters			
Operator:	Jeremy Lee		
12:59:04 PM, Monday, July 07, 2008			
Frequency	LIMIT	AVG_RESULTS	Margin_AVG
MHz			
9.000 KHz	107.60		
125.450 KHz	99.19	82.60	16.59
250.090 KHz	90.20	78.26	11.94
370.815 KHz	81.48	79.93	1.56
490.000 KHz	72.88		
490.000 KHz	72.88		
1.705 MHz	42.05		
Sample #:	616712		
Temp.:	16.3 C	Hum.:	66 %
Barometer Pres.:	101.96 kPa		

- Radiated Emission; harmonics of 125kHz, Quasi-Peak Detecting, Antenna was used a SAS-550-1B .

: The ambient level of each harmonic was over the limit values at 10m and 3m. The emissions were detected at 1m.

LabTest Certification Inc. FCC15.209, Radiated Emissions 125kHz RFID at 1 meter			
Operator:	Jeremy Lee		
01:09:29 PM, Monday, July 07, 2008			
Frequency	LIMIT	QP_RESULTS	Margin_QP
MHz			
9.000 KHz	147.60		
490.000 KHz	112.88		
490.000 KHz	112.88		
491.563 KHz	92.87	50.47	42.40
634.000 KHz	91.60	42.13	49.47
741.135 KHz	90.64	39.47	51.17
883.010 KHz	89.38	45.37	44.01
1.008 MHz	88.26	35.85	52.41
1.129 MHz	87.19	43.72	43.46
1.257 MHz	86.04	32.56	53.48
1.705 MHz	82.05		
Sample #:	616712		
Temp.:	16.3 C	Hum.:	66 %
Barometer Pres.:	101.96 kPa		

Radiated Emission; Unintentional Radiators

Regulation	FCC15.109:2007, Class A
Highest Unintentional Radiating Frequency	500MHz
Detecting Method	Quasi Peak Detector: 30 to 1,000MHz Average Detector: 1 to 5Ghz
IF Bandwidth	120kHz; 30 to 1,000MHz, 1MHz: 1 to 5GHz
Temperature	16.7 – 18.3°C
Relative Humidity	54 - 61%
Barometric Pressure:	102.11 – 102.28 kPa
Test Date	June 24 – 25, 2008
Sample Number	616712
Calibrated Test Equipment (ID)	058, 106, 112, 124, 141, 225, 227-2, 227-3, 233
Reference Equipment (ID) (Calibration not required)	059, 235
Electrical Rating	110VAC, 60Hz, Single Phase
Tested By	Jeremy LEE

Use the barometric pressure reported at: <http://www.theweathernetwork.com/weather/CABC0308>

Test Limits

FCC 15.109:

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

Frequency of Emission (MHz) Field Strength (microvolts/meter)

30 – 88	90
88 – 216	150
216 – 960	210
Above 960	300

Test Setup for Pre-scan

The test was performed in accordance with **FCC 15.31, 15.33, 15.35, 15.109:2007 and ANSI C63.4, 2003.**

The setup for pre-scan the radiated emissions in a GTEM cell is shown in Figure - 2. The EUT is placed inside the GTEM and its radiation is measured with a receiver - spectrum analyzer. The receiver was software controlled. Pre-scan tests were occurred at three different modes; Simple, Typical and Stress.

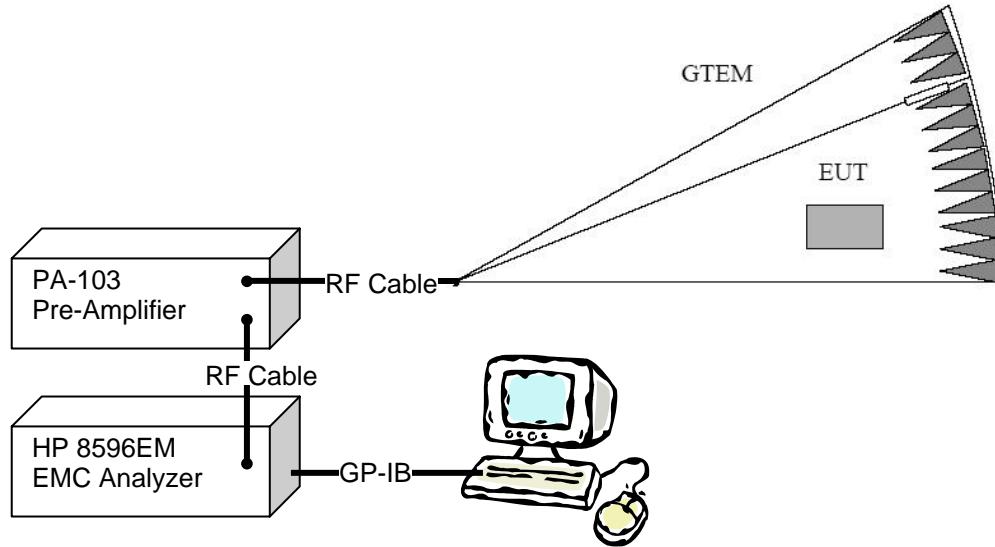


Figure – 2 The setup for Radiated emission test in GTEM

Test Setup for Open Area Test Site(OATS)

The setup for Radiated emission measurements at OATS is shown in Figure - 1.

- a) The EUT was placed on a wooden table, and it was put on the turning ground plate.
- b) The EUT was set up on 1 or 3 meter(s) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna supporter.
- c) The EUT was connected all connectors as shown Appendix B: Cable configuration and was operated at "the Stress mode, the worst case of operating".
- d) It is measured with a receiver - spectrum analyzer, was software controlled.
- e) Test frequencies under 1GHz were detected by the results of pre-scan at Stree mode.
- f) Test frequencies over 1GHz were selected up to 10th harmonics of the highest frequency, 500MHz.

Test Results:

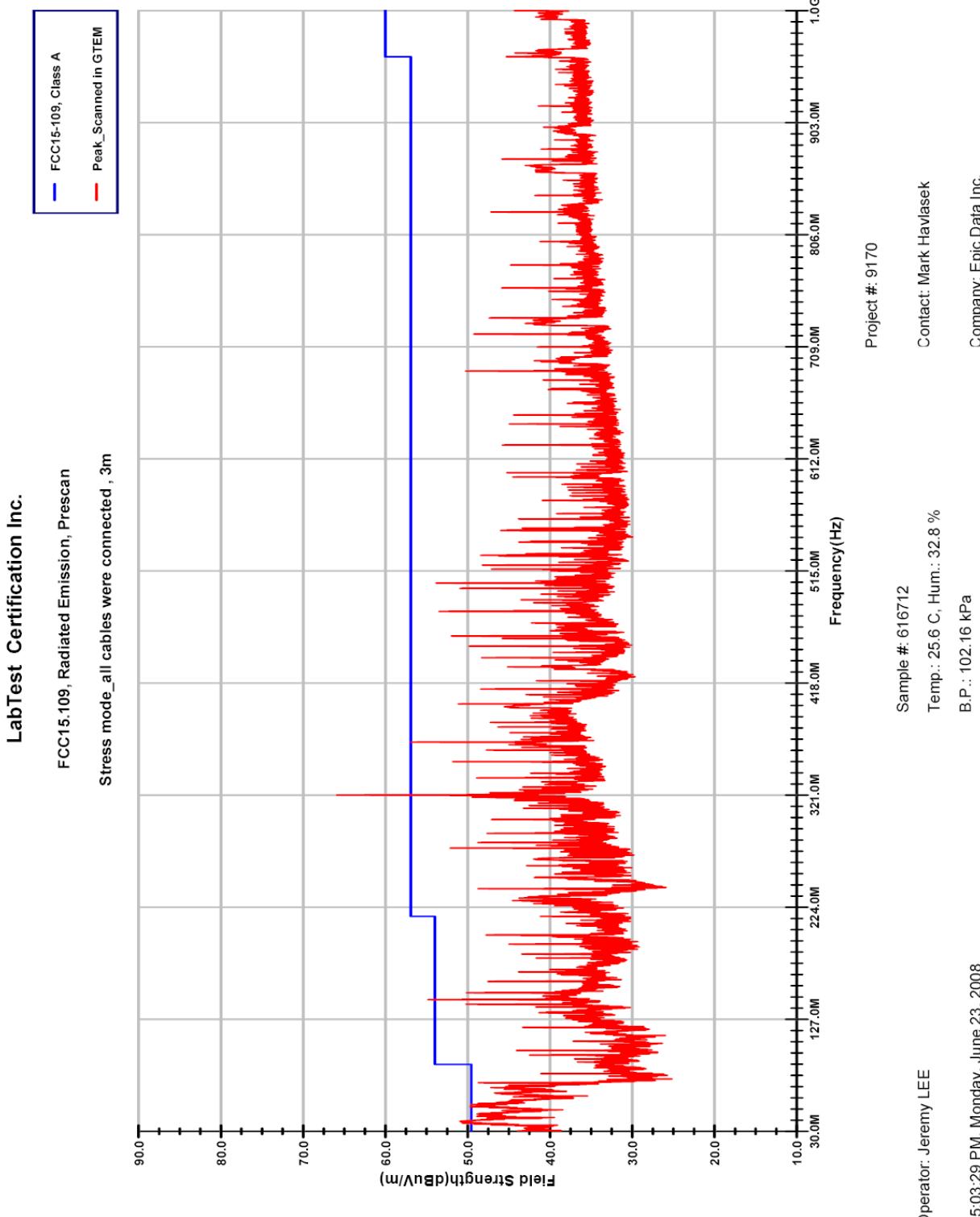
Emission level (dBuV/m) = Quasi-Peak detected level (dBuV) + Cable Loss (dB)
+ Antenna Factor (dB/m) - Pre-amplifier's Gain (dB)

There was no signal over limit.

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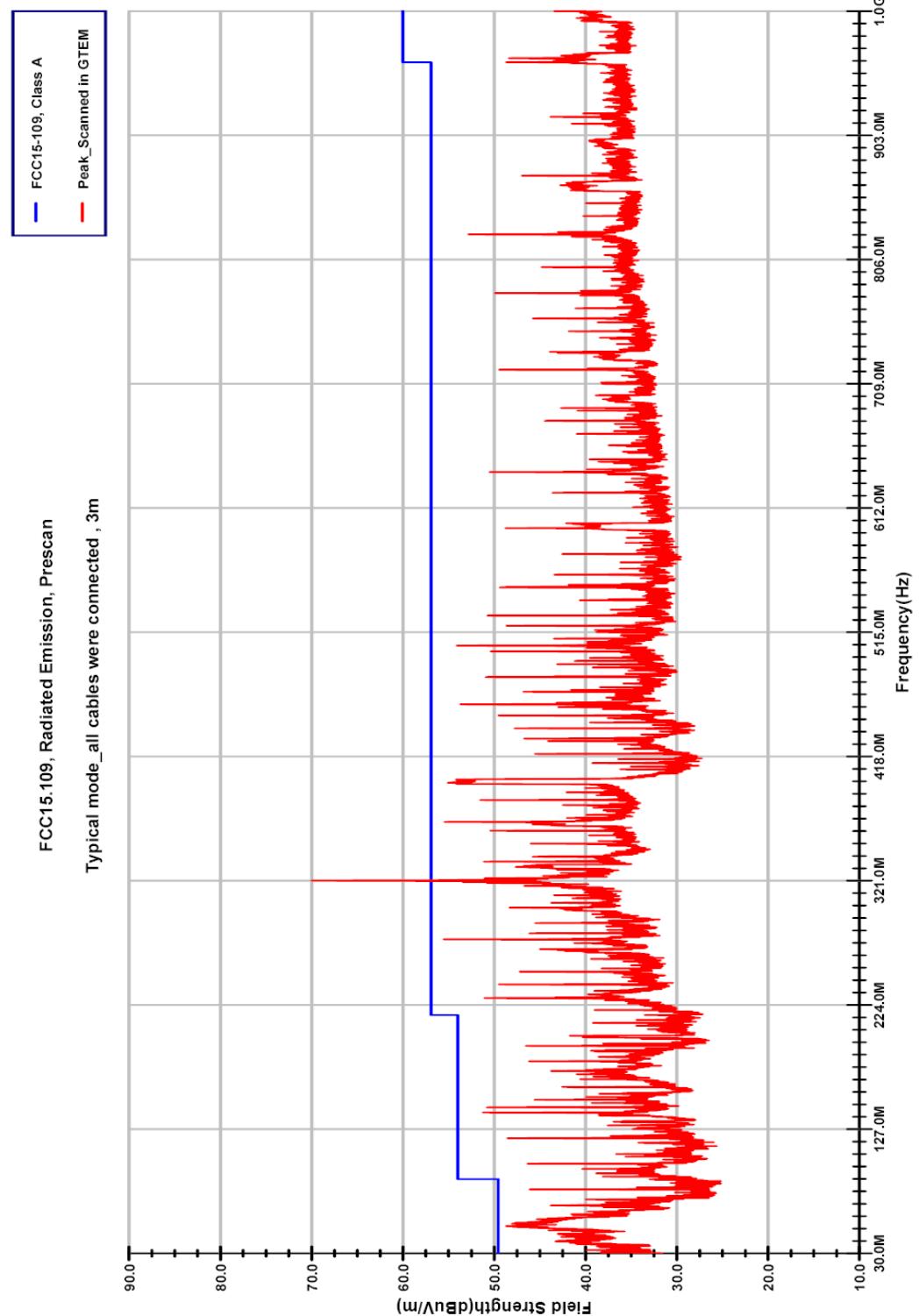
- Pre-scan test results of Radiated Emission; Stress Mode



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- Pre-scan test results of Radiated Emission; Typical Mode



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FCC15.109, Radiated Emission, Prescan

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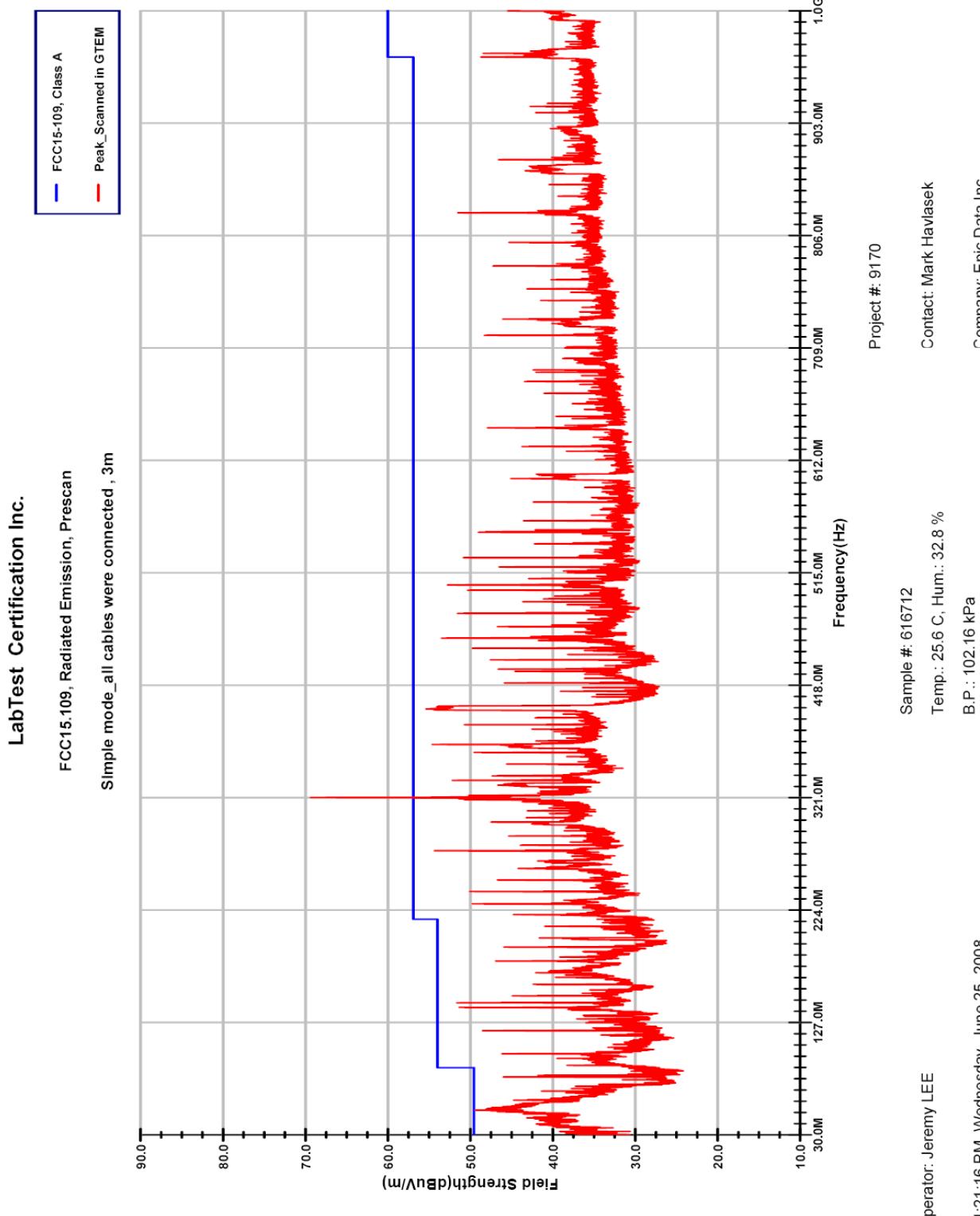
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- Pre-scan test results of Radiated Emission; Simple Mode



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- Table of Radiated Emission-Horizontal: 30-300MHz, Antenna was used a 3110B.

LabTest Certification Inc.
FCC15.109, Radiated Emissions
Horizontal at 1 meter, Class A

Operator: Jeremy Lee

04:17:02 PM, Tuesday, June 24, 2008

Proj #: 9170
Contact: Mark Havlasek
Company: Epic Data Inc.

Frequency	FCC15.109_A	QP_RESULTS	MARGIN	POL	TOWER	T/T
MHz						
30.000 MHz	49.54					
38.826 MHz	49.54	25.40	33.60	H	1.50	174.20
88.000 MHz	49.54					
88.000 MHz	53.98					
140.028 MHz	53.98	38.09	25.41	H	1.50	248.40
144.015 MHz	53.98	36.98	26.52	H	1.50	294.60
150.003 MHz	53.98	29.53	33.97	H	1.50	21.20
216.000 MHz	53.98					
216.000 MHz	56.90					
275.248 MHz	56.90	29.25	37.15	H	1.50	75.90
960.000 MHz	56.90					
960.000 MHz	60.00					
5.000 GHz	60.00					
Sample #:	616712					
Temp.:	18.3 C	Hum.:	54 %			
Barometer Pres.:	102.11 kPa					

- Table of Radiated Emission-Vertical: 30-300MHz, Antenna was used a 3110B.

LabTest Certification Inc.
FCC15.109, Radiated Emissions
Vertical at 1 meter, Class A

Operator: Jeremy Lee

04:17:02 PM, Tuesday, June 24, 2008

Proj #: 9170
Contact: Mark Havlasek
Company: Epic Data Inc.

Frequency	FCC15.109_A	QP_RESULTS	MARGIN	POL	TOWER	T/T
MHz						
30.000 MHz	49.54					
38.798 MHz	49.54	24.66	34.34	V	1.50	149.80
88.000 MHz	49.54					
88.000 MHz	53.98					
140.028 MHz	53.98	27.16	36.34	V	1.50	308.00
144.010 MHz	53.98	37.71	25.79	V	1.50	185.40
150.012 MHz	53.98	30.25	33.25	V	1.50	52.50
216.000 MHz	53.98					
216.000 MHz	56.90					
275.234 MHz	56.90	33.41	32.99	V	1.50	11.60
960.000 MHz	56.90					
960.000 MHz	60.00					
5.000 GHz	60.00					
Sample #:	616712					
Temp.:	18.3 C	Hum.:	54 %			
Barometer Pres.:	102.11 kPa					

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- Table of Radiated Emission-Horizontal: 300-1,000MHz, Antenna was used a SAS-510-2.

Frequency	FCC15.109_A	QP_RESULTS	MARGIN	POL	TOWER	T/T
MHz						
30.000 MHz	49.54					
88.000 MHz	49.54					
88.000 MHz	53.98					
216.000 MHz	53.98					
216.000 MHz	56.90					
321.100 MHz	56.90	35.81	10.59	H	1.50	255.60
350.012 MHz	56.90	32.74	13.66	H	1.50	151.20
366.976 MHz	56.90	30.64	15.76	H	1.50	120.60
400.017 MHz	56.90	34.33	12.07	H	1.50	102.90
450.023 MHz	56.90	32.38	14.02	H	1.50	296.50
458.704 MHz	56.90	29.16	17.24	H	1.50	38.10
480.025 MHz	56.90	37.77	8.63	H	1.50	276.20
500.022 MHz	56.90	32.79	13.61	H	1.50	31.60
504.566 MHz	56.90	41.22	5.18	H	1.50	253.80
688.052 MHz	56.90	29.21	17.19	H	1.50	82.60
960.000 MHz	56.90					
960.000 MHz	60.00					
5.000 GHz	60.00					
Sample #:	616712					
Temp.:	16.7 C	Hum.:	61 %			
Barometer Pres.:	102.28 kPa					

- Table of Radiated Emission-Vertical: 300-1,000MHz , Antenna was used a SAS-510-2.

Frequency	FCC15.109_A	QP_RESULTS	MARGIN	POL	TOWER	T/T
MHz						
30.000 MHz	49.54					
88.000 MHz	49.54					
88.000 MHz	53.98					
216.000 MHz	53.98					
216.000 MHz	56.90					
321.104 MHz	56.90	42.39	4.01	V	1.50	201.20
350.017 MHz	56.90	33.54	12.86	V	1.50	336.30
366.957 MHz	56.90	32.49	13.91	V	1.50	141.90
400.031 MHz	56.90	34.29	12.11	V	1.50	278.90
450.014 MHz	56.90	33.70	12.70	V	1.50	149.00
458.707 MHz	56.90	33.39	13.01	V	1.50	10.00
480.004 MHz	56.90	36.09	10.31	V	1.50	163.20
500.028 MHz	56.90	32.31	14.09	V	1.50	52.00
504.569 MHz	56.90	35.85	10.55	V	1.50	49.60
688.050 MHz	56.90	32.34	14.06	V	1.50	350.70
960.000 MHz	56.90					
960.000 MHz	60.00					
5.000 GHz	60.00					
Sample #:	616712					
Temp.:	16.7 C	Hum.:	61 %			
Barometer Pres.:	102.28 kPa					

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- Table of Radiated Emission-Horizontal: 1 – 5GHz, Antenna was used a SAS-571.

LabTest Certification Inc. FCC15.109, Radiated Emissions Horizontal at 3 meters(over 1GHz), Class A						
Operator: Jeremy Lee	Proj #: 9170	Contact: Mark Havlasek	Company: Epic Data Inc.			
11:48:09 AM, Wednesday, June 25, 2008						
Frequency	FCC15.109_A	AVG_RESULTS	MARGIN	POL	TOWER	T/T
MHz						
30.000 MHz	49.54					
88.000 MHz	49.54					
88.000 MHz	53.98					
216.000 MHz	53.98					
216.000 MHz	56.90					
960.000 MHz	56.90					
960.000 MHz	60.00					
1.500 GHz	60.00	27.51	22.03	H	1.50	78.20
2.000 GHz	60.00	30.19	19.35	H	1.50	144.40
2.500 GHz	60.00	34.94	14.60	H	1.50	177.40
3.000 GHz	60.00	41.87	7.67	H	1.50	214.30
3.501 GHz	60.00	40.00	9.54	H	1.50	123.90
4.000 GHz	60.00	41.46	8.08	H	1.50	173.50
4.500 GHz	60.00	42.91	6.63	H	1.50	54.90
5.000 GHz	60.00	45.11		H	1.50	63.30
40.000 GHz	60.00					
Sample #:	616712					
Temp.:	16.7 C	Hum.:	61 %			
Barometer Pres.:	102.28 kPa					

- Table of Radiated Emission-Vertical: 1 – 5GHz , Antenna was used a SAS-571.

LabTest Certification Inc. FCC15.109, Radiated Emissions Vertical at 3 meters(over 1GHz), Class A						
Operator: Jeremy Lee	Proj #: 9170	Contact: Mark Havlasek	Company: Epic Data Inc.			
11:48:09 AM, Wednesday, June 25, 2008						
Frequency	FCC15.109_A	AVG_RESULTS	MARGIN	POL	TOWER	T/T
MHz						
30.000 MHz	49.54					
88.000 MHz	49.54					
88.000 MHz	53.98					
216.000 MHz	53.98					
216.000 MHz	56.90					
960.000 MHz	56.90					
960.000 MHz	60.00					
1.500 GHz	60.00	27.61	21.93	V	1.50	41.70
2.000 GHz	60.00	30.21	19.33	V	1.50	143.70
2.500 GHz	60.00	35.46	14.08	V	1.50	320.90
3.001 GHz	60.00	42.20	7.34	V	1.50	100.90
3.500 GHz	60.00	40.00	9.54	V	1.50	54.40
4.000 GHz	60.00	41.47	8.07	V	1.50	219.80
4.501 GHz	60.00	42.91	6.63	V	1.50	213.90
5.000 GHz	60.00	45.10		V	1.50	121.00
40.000 GHz	60.00					
Sample #:	616712					
Temp.:	16.7 C	Hum.:	61 %			
Barometer Pres.:	102.28 kPa					

Conducted Emission

Regulation	FCC15.107:2007, Class A
Detecting Method	Quasi Peak and Average Detector
IF Bandwidth	9 kHz
Temperature	18 °C
Relative Humidity	60 %
Barometric Pressure:	102.26 kPa
Test Date	July 07, 2008
Sample Number	616712
Calibrated Test Equipment (ID)	058, 106, 112, 127, 128
Reference Equipment (ID) (Calibration not required)	059
Electrical Rating-Nominal	110VAC, 60Hz, Single Phase
Tested By	Jeremy LEE

Use the barometric pressure reported at: <http://www.theweathernetwork.com/weather/CABC0308>

Test Limits

FCC 15.107:

(b) For a Class A digital device that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms LISN. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	79	66
0.5-30	73	60

Test Setup

The test was performed in accordance with **FCC 15.31, 15.33, 15.35, 15.107:2007 and ANSI C63.4, 2003**.

The EUT was placed on the table shown in Figure-3, and 0.4 meters from the vertical conducting plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

The EUT was connected all connectors as shown Appendix B: Cable configuration. Both lines of the power mains connected to the EUT were checked for maximum conducted interference, at the Stress mode.

Initially a scan was made with a Spectrum Analyzer from 150 kHz to 30 MHz on each phase with the receiver in the peak mode. The receiver IF bandwidth was 9 kHz and scan step was about 9 kHz. Measurements were then made using CISPR quasi peak and average detectors when the peak readings were within 10dB of the lower average limit line.

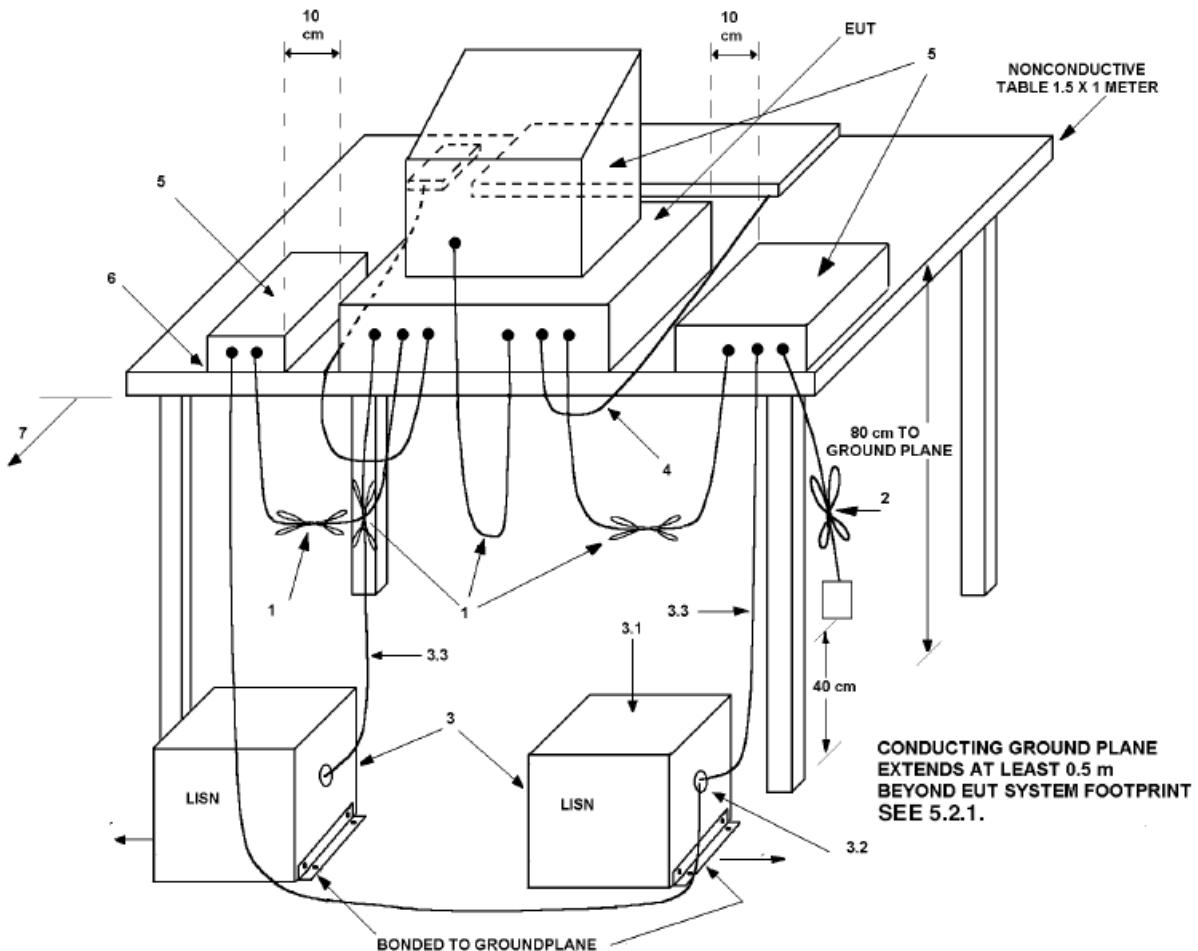


Figure 3-The conducted emission test setup

Test Results

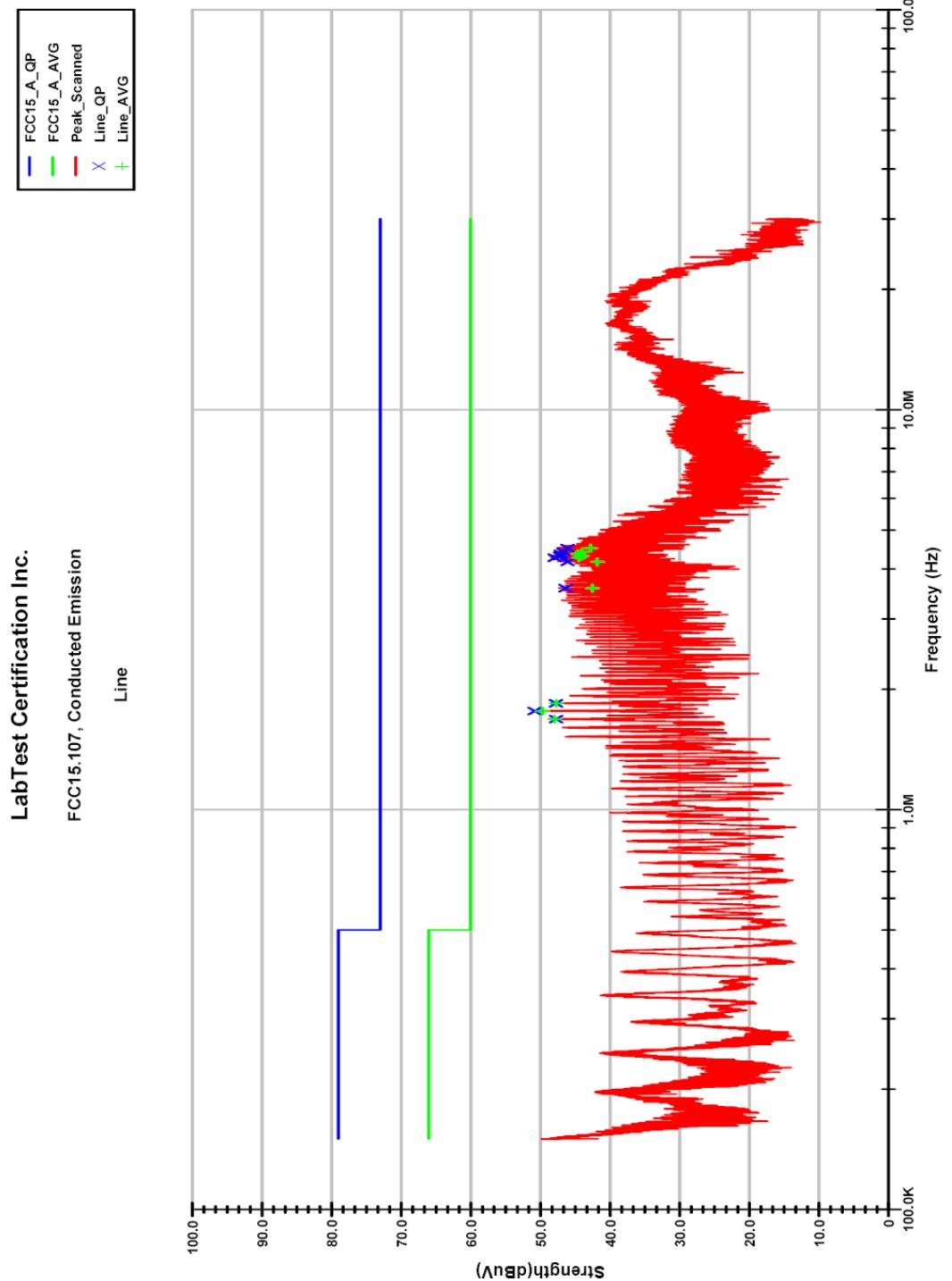
Emission level (dBuV) = Detected level (dBuV) + Cable Loss (dB)
+ Insertion Loss of LISN (dB)

There was no signal over limit.

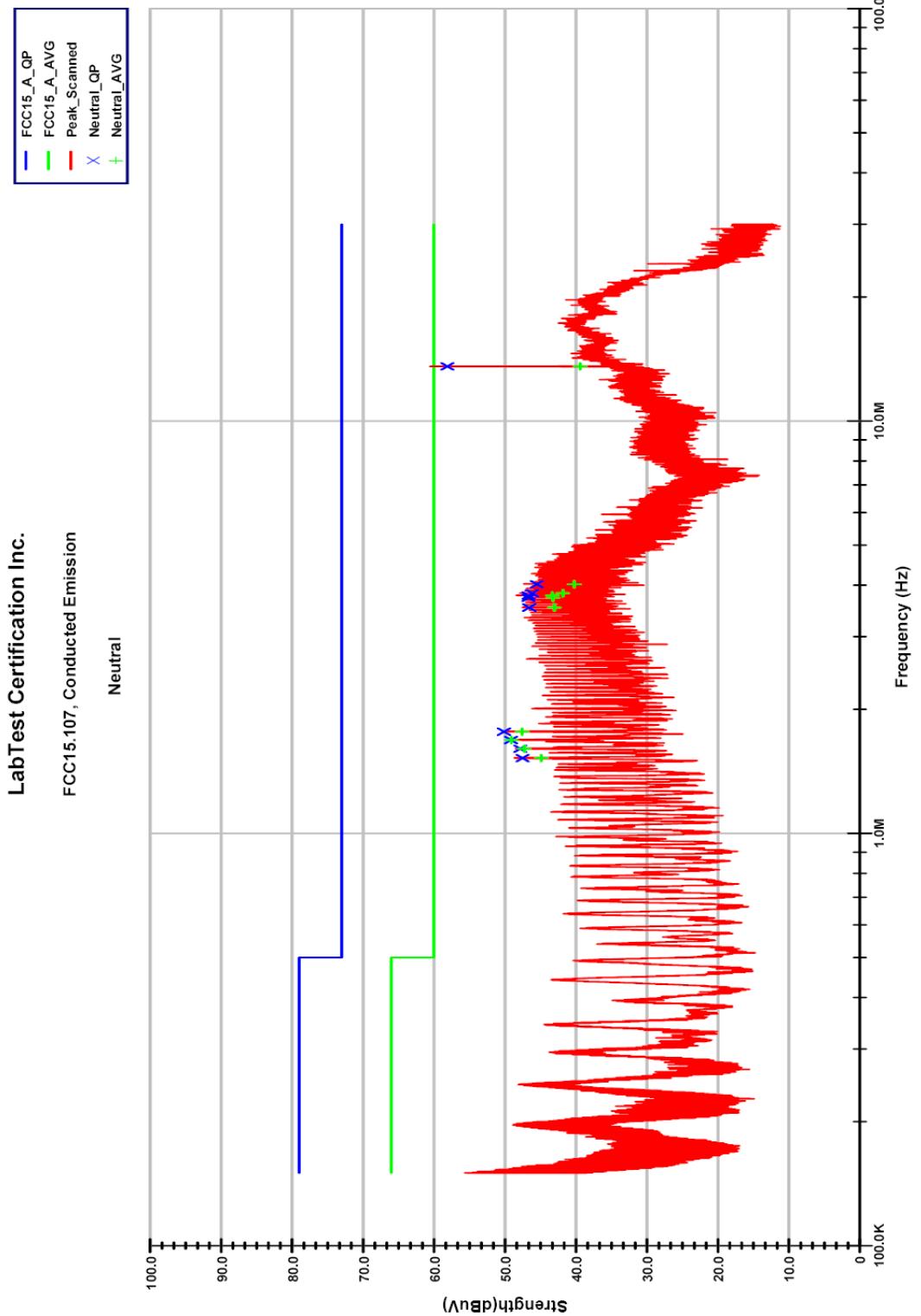
Prepared by: LabTest Certification Inc.
Date Issued: July 07, 2008
Project No.: 9170

Client: Epic Data Inc.
Report No.: 9170-1E
Revision No.: 1

- Graph of Conducted Emission: Line



- Graph of Conducted Emission: Neutral



Prepared by: LabTest Certification Inc.
 Date Issued: July 07, 2008
 Project No.: 9170

Client: Epic Data Inc.
 Report No.: 9170-1E
 Revision No.: 1

- Table of Conducted Emission: Line

LabTest Certification Inc. FCC15.107, Conducted Emission Line, Stress, Class A						
Operator: Jeremy LEE	Project #: 9170 Contact: Mark C. Havlasek Company: Epic Data Inc.					
Frequency MHz	FCC15.107_AVG	Line_AVG	Margin_AVG	FCC15.107_QP	Line_QP	Margin_QP
150.000 KHz	66.00			79.00		
500.000 KHz	66.00			79.00		
500.000 KHz	66.00			79.00		
1.683 MHz	60.00	47.95	12.05	73.00	47.71	25.29
1.763 MHz	60.00	49.68	10.32	73.00	50.80	22.20
1.843 MHz	60.00	47.73	12.27	73.00	47.74	25.26
3.577 MHz	60.00	42.52	17.48	73.00	46.37	26.63
4.163 MHz	60.00	41.81	18.19	73.00	46.07	26.93
4.262 MHz	60.00	44.46	15.54	73.00	47.91	25.09
4.309 MHz	60.00	43.99	16.01	73.00	47.13	25.87
4.357 MHz	60.00	44.60	15.40	73.00	47.06	25.94
4.407 MHz	60.00	43.99	16.01	73.00	46.64	26.36
4.505 MHz	60.00	42.78	17.22	73.00	46.08	26.92
30.000 MHz	60.00			73.00		
Sample #: 616712						
Temp.: 18 C, Hum.: 60.0 %						
Barometer Pres.: 102.26 kPa						

- Table of Conducted Emission: Neutral

LabTest Certification Inc. FCC15.107, Conducted Emission Neutral, Stress, Class A						
Operator: Jeremy LEE	Project #: 9170 Contact: Mark C. Havlasek Company: Epic Data Inc.					
Frequency MHz	FCC15.107_AVG	Neutral_AVG	Margin_AVG	FCC15.107_QP	Neutral_QP	Margin_QP
150.000 KHz	66.00			79.00		
500.000 KHz	66.00			79.00		
500.000 KHz	66.00			79.00		
1.522 MHz	60.00	44.85	15.15	73.00	47.51	25.49
1.604 MHz	60.00	47.26	12.74	73.00	47.83	25.17
1.684 MHz	60.00	49.09	10.91	73.00	49.13	23.87
1.765 MHz	60.00	47.56	12.44	73.00	50.12	22.88
3.530 MHz	60.00	43.01	16.99	73.00	46.59	26.41
3.725 MHz	60.00	43.22	16.78	73.00	46.68	26.32
3.773 MHz	60.00	43.29	16.71	73.00	46.65	26.35
3.824 MHz	60.00	41.84	18.16	73.00	46.17	26.83
4.018 MHz	60.00	40.22	19.78	73.00	45.50	27.50
13.562 MHz	60.00	39.38	20.62	73.00	58.11	14.89
30.000 MHz	60.00			73.00		
Sample #: 616712						
Temp.: 18 C, Hum.: 60.0 %						
Barometer Pres.: 102.26 kPa						

Frequency Tolerance

Regulation	FCC15.225:2007
Barometric Pressure:	102.01 kPa
Test Date	June 25, 2008
Sample Number	616712
Calibrated Test Equipment (ID)	058, 106
Reference Equipment (ID) (Calibration not required)	023, 059
Electrical Rating-Nominal	110VAC, 60Hz, Single Phase
Tested By	Jeremy LEE

Use the barometric pressure reported at: <http://www.theweathernetwork.com/weather/CABC0308>

Test Limits

FCC 15.225:

(e) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test Setup

The test was performed in accordance with **FCC 15.225:2007 and ANSI C63.4, 2003**.

The EUT was operated at "the Stress mode, the worst case of operating".

As required by FCC15.225, Frequency Tolerance were measured by Spectrum analyzer with Antenna. This test was measured using RBW=10Hz.

The measurements were taken after the frequency and unit had stabilized for each temperature over a period of 10 minutes.

The voltage Stability part of the test, the measurements were taken over the voltage range of 93.5VAC to 126.5VAC which is the 85% to 115% of the rated operating voltages of 110VAC.

Test Results:

All frequencies were within +/- 0.01%.

Frequency Stability

Date: June 25, 2008

(< 0.01%, 1356Hz)

Intentional Radiation Frequency: 13.56MHz

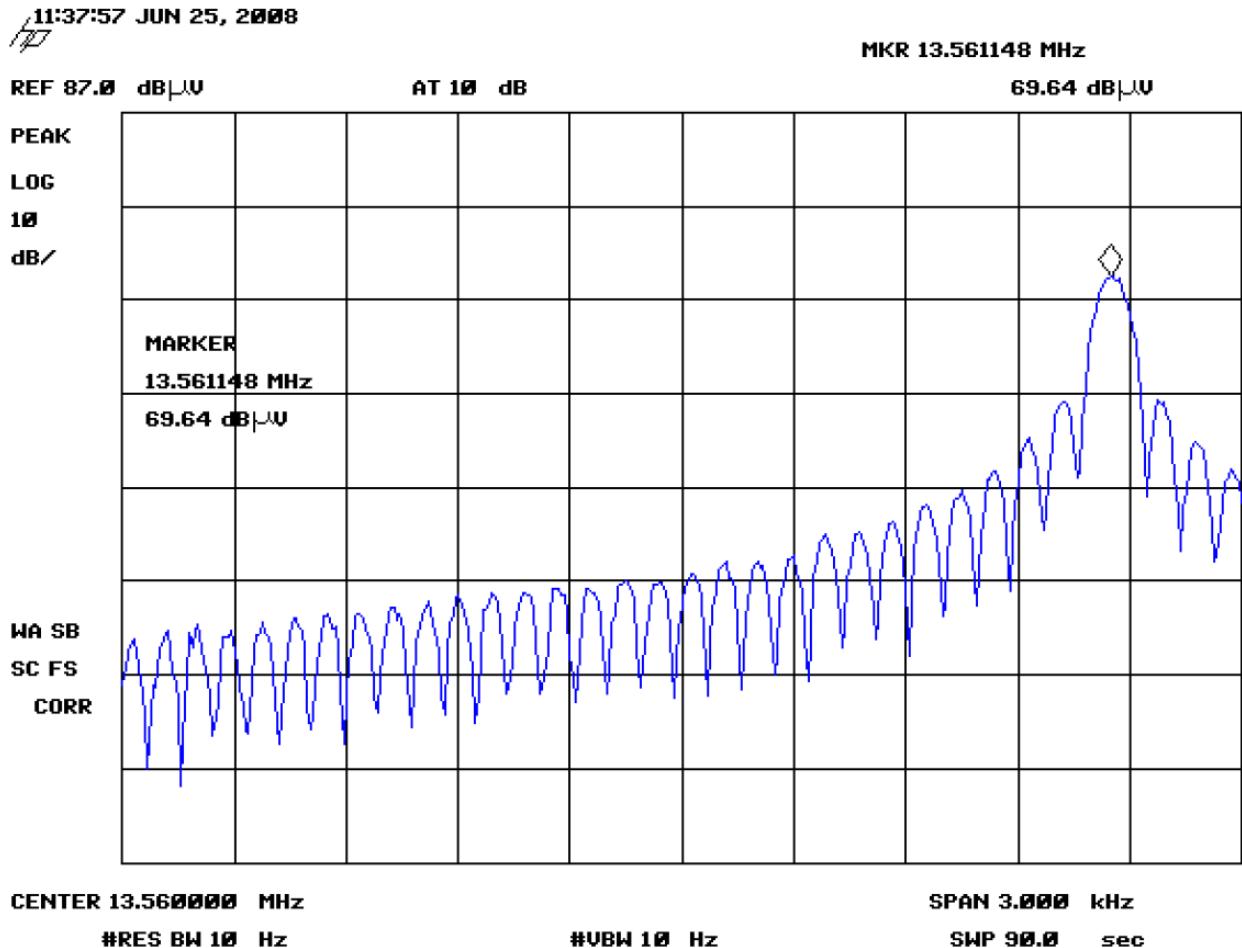
Temp.(C)	Measured Frequencies(Hz)		
	126.5VAC(115%)	110VAC(100%)	93.5VAC(85%)
+50	N/A	13,561,148	N/A
+40	N/A	13,561,170	N/A
+30	N/A	13,561,148	N/A
+20	13,561,238	13,561,238	13,561,238
+10	N/A	13,561,260	N/A
0	N/A	13,561,298	N/A
-10	N/A	13,561,320	N/A
-20	N/A	13,561,343	N/A

The nominal voltage: 110VAC, 60Hz
B.P.:102.01kPa
RBW:10Hz, VBW:10Hz, SPAN:3kHz, SWEEP:90s

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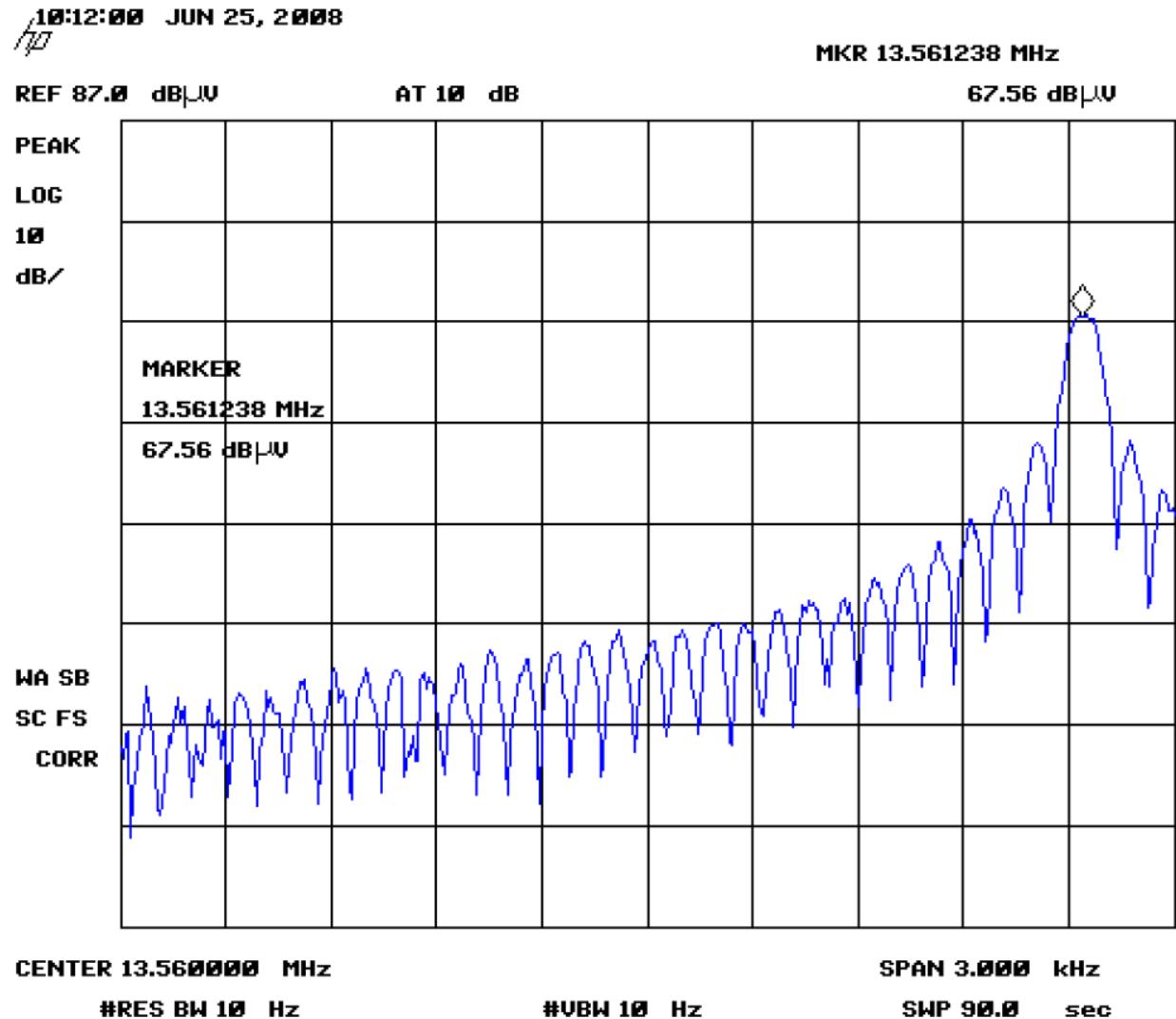
- Frequency plot at +50 °C



- Frequency plot at +20 °C

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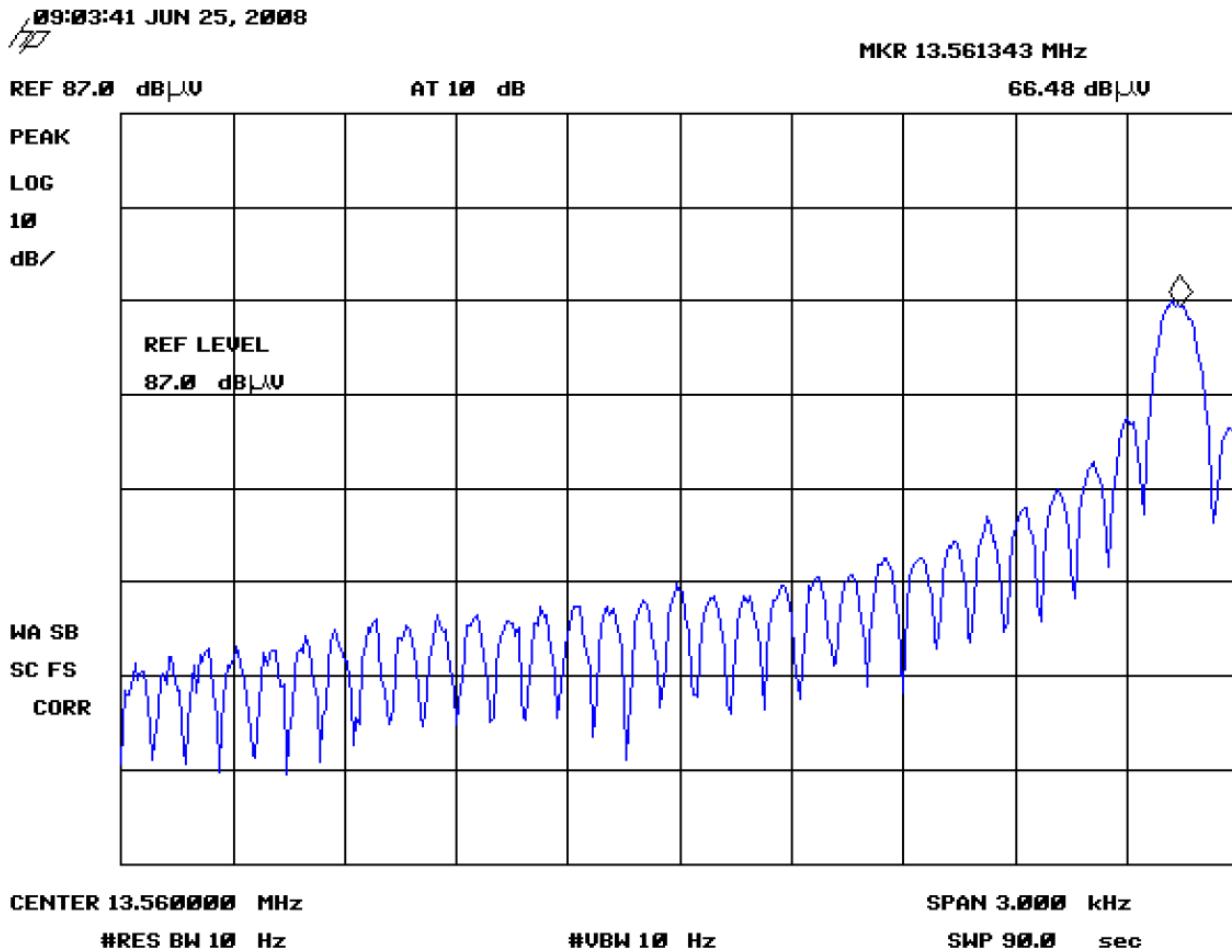
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- Frequency plot at -20 °C

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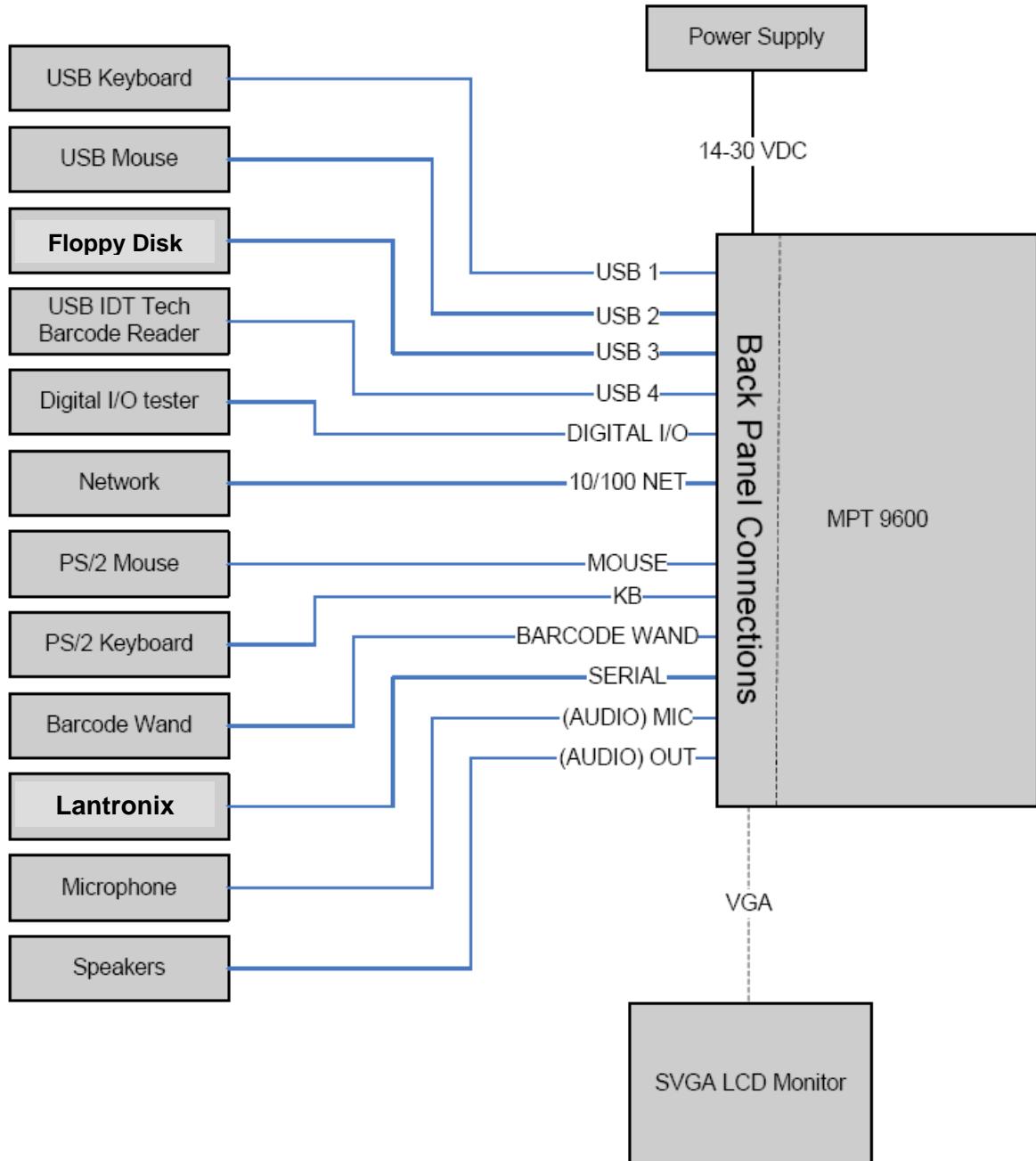
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Appendix A: Test Equipment Used

ID No.	Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due Date	Calibration Certificate No:	Calibration Laboratory
023	Temperature Test Chamber	Thermotron	S-8	17633	N/A	N/A	N/A	N/A
058	Humidity/ Temperature Logger	Veriteq	SP-2000	04032164	13-Sep-2007	13-Sep-2008	0125372	Veriteq
059	AC Power Source	California Instrument	5000i	HK51870	N/A	N/A	N/A	N/A
106	Spectrum Analyzer	HP	8596EM	3536A00113	15-Sep-2007	13-Sep-2008	CX19712	CMC
112	GTEM EMC Chamber	Emco	5317	N/A	04-Oct-2005	04-Oct-2010	1000082343	Wescan
124	Pre-Amplifier	Com-Power	PA-103	161118	29-Nov-2007	29-Nov-2008	269525	Wescan
127	LISN (I)	Com-Power	LI-200	12054	31-Aug-2007	29-Aug-2008	CX19714	CMC
128	LISN (II)	Com-Power	LI-200	12216	31-Aug-2007	29-Aug-2008	CX19713	CMC
141	Pre-Amplifier	RF Bay	LPA-10-10	N/A	28-Feb-2008	28-Feb-2009	272296	Wescan
225	Biconical Antenna	EMCO	3110B	9211-1595	28 -Apr-2008	28-Apr-2009	66839	ETS- Lindgren
227-1	Active Monopole Antenna	A.H. Systems	SAS-550-1B	530	30-Mar-2007	30-Mar-2009	7834RB	A.H. Systems
227-2	Log Periodic Antenna	A.H. Systems	SAS-510-2	1262	30-Apr-2008	30-Apr-2009	66817	ETS- Lindgren
227-3	Horn Antenna	A.H. Systems	SAS-571	936	30-Apr-2008	30-Apr-2009	66892	ETS- Lindgren
233	Coaxial RF Cable	N/A	LCI-001	N/A	15 Oct 2007	15 Oct 2009	268190	Wescan
235	Turn table System	Sunol Sciences Co.	SC104V	031407-1	N/A	N/A	N/A	N/A

Appendix B: Cable Configuration



Appendix C: Photographs

- EUT : Front View



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- EUT : Rear View



- EUT : Top View



- Test configuration for Radiated Emission at OATS



- Test configuration for Radiated Emission at OATS; on the table setting.



- Test configuration for Conducted Emission



- Test configuration at Temperature test chamber



END OF REPORT