



MEASUREMENT TECHNICAL REPORT FOR
Ten-Tec, Inc
1185 Dolly Parton Pkwy
Sevierville, TN 37862

MODEL: 599

ADDITIONAL MODELS: None

REPORT NUMBER: G1009237r1

Report Date: September 23, 2010

Revision Date: October 4, 2010

Date Test Sample Received: September 13, 2010

This report concerns: ANSI C63.4 (2003)

Test report was prepared by and test performed at:

GLOBAL TESTING LABORATORIES, LLC
3029 East Governor John Sevier Highway
Knoxville, Tennessee 37914-6424

Written By

Cailé Gonzalez
Office Manager

September 23, 2010

Date

Reviewed By

Derick Seay
EMC Manager

September 23, 2010

Date

Approved By

Roger Williams
Senior Mgr. Engineering

September 23, 2010

Date

LIST OF EXHIBITS REPORT # G1009237
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1. Summary of Results
2. Engineering Statement
3. System Test Configuration
4. Conducted Emissions (FCC Part 15)
5. Radiated Emissions (FCC Part 15)
6. Immunity to Cellular Signals 15.121 (FCC Part 15)
7. Conducted Emissions 15.111 (FCC Part 15)
8. Copy NVLAP Certificate

SECTION 1
SUMMARY OF RESULTS
REPORT # G1009237

This Test Report in no way constitutes or implies product certification, approval, or endorsement by NIST or any Government Agency and may not be used to imply such endorsement.

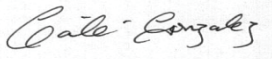
The equipment used in this test provided a Test Uncertainty Ratio better than 4:1. Uncertainties are expressed at approximately 95% confidence level ($k=2$).

This report covers only the listed Model: 599, which indicates that the previously mentioned equipment **MEETS, with modifications**, the requirements as set forth by the following standards:

- Conducted Emissions (FCC Part 15)
- Radiated Emissions (FCC Part 15) - Passed with modifications*
- Immunity to cellular signals 15.121 (FCC Part 15)
- Conducted Emissions 15.111 (FCC Part 15)

*Radiated Emissions modifications: Added Shield to Main CBA

Mass production of final instrument systems utilizing the exact electrical/ mechanical components, lead dress, and RF ground paths as tested by Global Testing Laboratories, LLC will not likely cause harmful interference to any radio communication, radio navigation or safety services. Any deviation in design from the system tested by our facility will require further verification of Compliance by Global Testing Laboratories, LLC. This test report is the confidential property of Ten-Tec, Inc. Extracts from this test report shall not be reproduced except in full without our written approval.



Cailé Gonzalez
Global Testing Laboratories, LLC

SECTION 2
ENGINEERING STATEMENT
REPORT # G1009237



Engineering Statement

All measurement data on the attached reports was taken pursuant to ANSI C63.4 by Global Testing Laboratories, LLC located in Knoxville, Tennessee. Although this data is taken under stringent laboratory conditions and to the best of our knowledge, represents accurate data, it must be recognized that emissions from this type of equipment may be greatly affected by the final installation of the equipment. Therefore, Global Testing Laboratories, LLC, while supporting the accuracy of the data in this report, takes no responsibility for use of equipment based on these tests. The manufacturer of this equipment must take full responsibility for any field problems, which may arise, and agrees that Global Testing Laboratories, LLC, in performing its functions in accordance with its objectives and purposes, does not assume or undertake to discharge any responsibility of the manufacturer to any other party or parties.

The testing on the Ten-Tec, Inc Model: 599 was performed from September 13, 2010 through September 22, 2010 and on September 28, 2010. The data contained within this technical report was compiled and approved by:

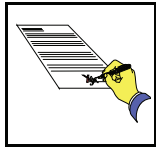
A handwritten signature in black ink, reading "Cailé Gonzalez".

Cailé Gonzalez
Global Testing Laboratories, LLC
3029 East Governor John Sevier Highway
Knoxville, Tennessee 37914-6424

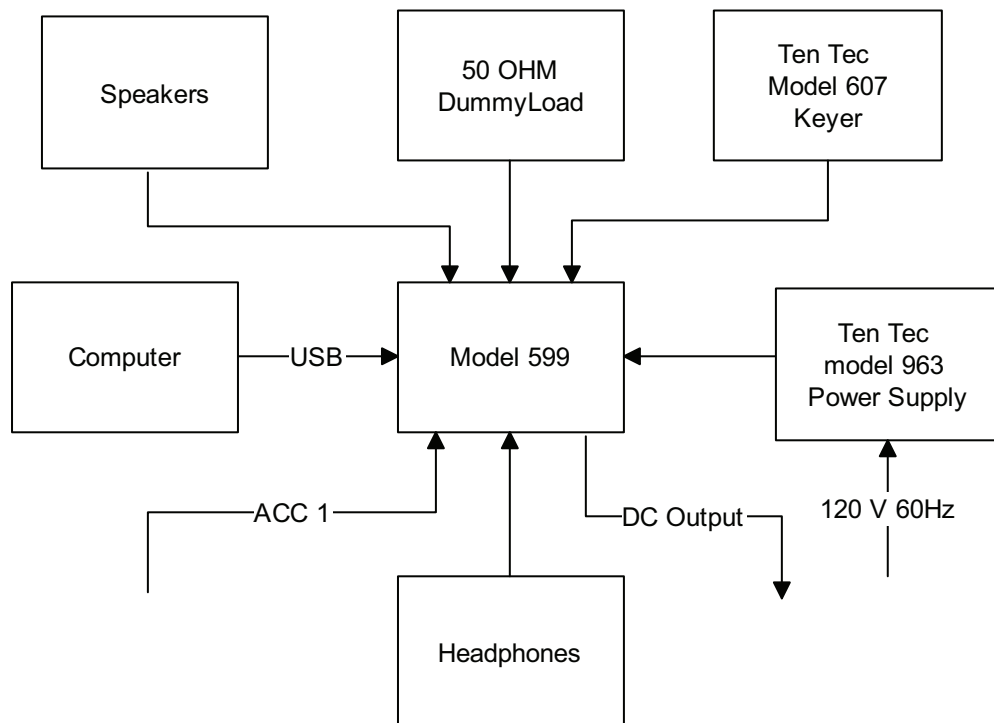
SECTION 3

SYSTEM TEST CONFIGURATION

REPORT # G1009237



The **Ten-Tec Model: 599** was configured into a simulated installation.



The specific setup for each test performed is described in the following Sections.

SECTION 4
CONDUCTED EMISSIONS
REPORT # G1009237

TEST PROCEDURE: FCC Part 15

ACRONYMS:

(E.M.I.) Electromagnetic Interference
(E.U.T.) Equipment Under Test
(L.I.S.N.) Line Impedance Stabilization Network

CONDUCTED EMISSIONS:

The (2) 50 ohm/50 micro-Henry LISN's were placed next to the EUT. For each test required, the AC power leads were connected to two (2) 50 ohm/50 micro-Henry L.I.S.N.s as described in section 9 Method of measurement of terminal interference voltage of EN 55022. The system was energized and placed into its normal operating mode. The 50-ohm output of the L.I.S.N. was connected to the R&S ESCI Spectrum Analyzer. The EUT was observed from 150 kHz to 30 MHz to identify the frequency of the emission that had the highest amplitude relative to the limit. For each mode of operation and for each current carrying conductor, cable and/or wire manipulation was performed while observing the Spectrum Analyzer. For this series of tests the emission that had the highest amplitude relative to the limit was recorded. The EUT was powered by 120 VAC 60 Hz.

Based on the preliminary tests, the EUT and the cable and/or wire configuration and mode of operation which produced the highest emission relative to the limit was selected for the final AC power line conducted emissions test. The final test on all current carrying conductors of the power cords that comprise the EUT was performed without variation of the configuration determined during the preliminary tests. The X-Y plots of EMI generated by the E.U.T. were taken.

Calibration:

Equipment Used During Testing:

Cal. Date: Cal. Due:

7/18/09	1/18/11	R&S ESCI	s/n: 100389	Spectrum Analyzer
12/21/09	12/21/10	Fisher 50Ω /50μH	s/n: 9707 & 9708	LISN

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 1.9 MHz 160 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

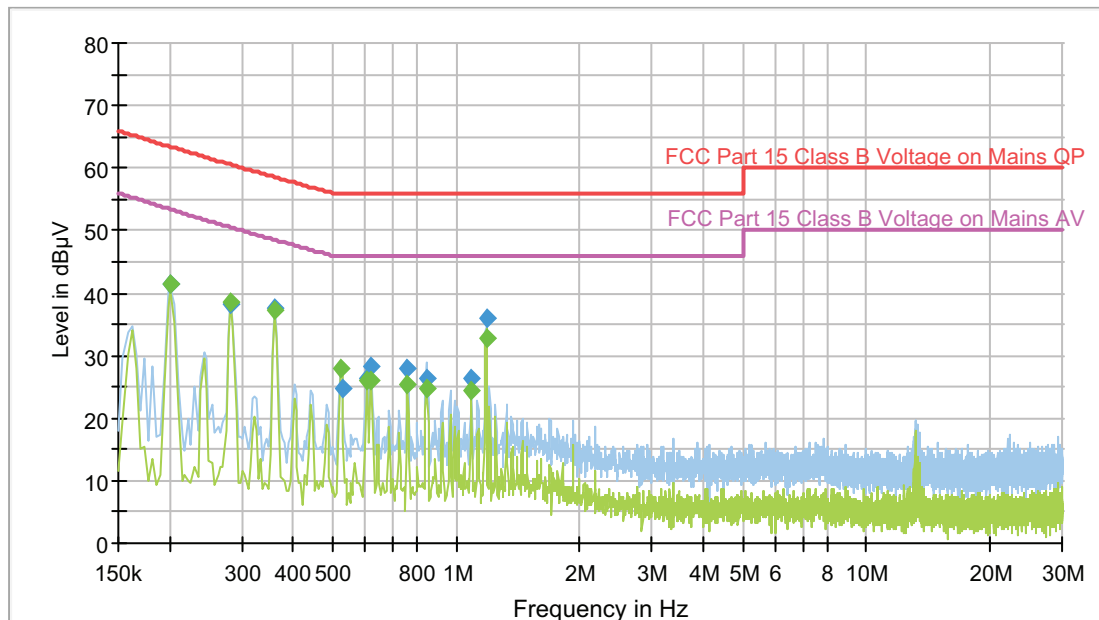
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	41.5	1000.00	9.000	FL	L1	9.9	21.9	63.4	
0.282000	38.3	1000.00	9.000	FL	L1	9.9	22.3	60.6	
0.362000	37.5	1000.00	9.000	FL	N	10.0	21.0	58.5	
0.526000	24.6	1000.00	9.000	FL	L1	10.0	31.4	56.0	
0.606000	26.4	1000.00	9.000	FL	N	10.0	29.6	56.0	
0.622000	28.2	1000.00	9.000	FL	N	10.0	27.8	56.0	
0.762000	28.1	1000.00	9.000	FL	N	10.0	27.9	56.0	
0.846000	26.5	1000.00	9.000	FL	N	10.0	29.5	56.0	
1.086000	26.2	1000.00	9.000	FL	N	10.0	29.8	56.0	
1.182000	36.1	1000.00	9.000	FL	N	10.0	19.9	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	41.5	1000.00	9.000	FL	L1	9.9	11.8	53.3	
0.282000	38.5	1000.00	9.000	FL	L1	9.9	12.0	50.5	
0.362000	37.2	1000.00	9.000	FL	N	10.0	11.3	48.5	
0.522000	28.0	1000.00	9.000	FL	N	10.0	18.0	46.0	
0.606000	25.9	1000.00	9.000	FL	N	10.0	20.1	46.0	
0.622000	26.0	1000.00	9.000	FL	N	10.0	20.0	46.0	
0.758000	25.5	1000.00	9.000	FL	N	10.0	20.5	46.0	
0.846000	24.8	1000.00	9.000	FL	N	10.0	21.2	46.0	
1.086000	24.6	1000.00	9.000	FL	N	10.0	21.4	46.0	
1.182000	32.7	1000.00	9.000	FL	N	10.0	13.3	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 3.749 MHz 80 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

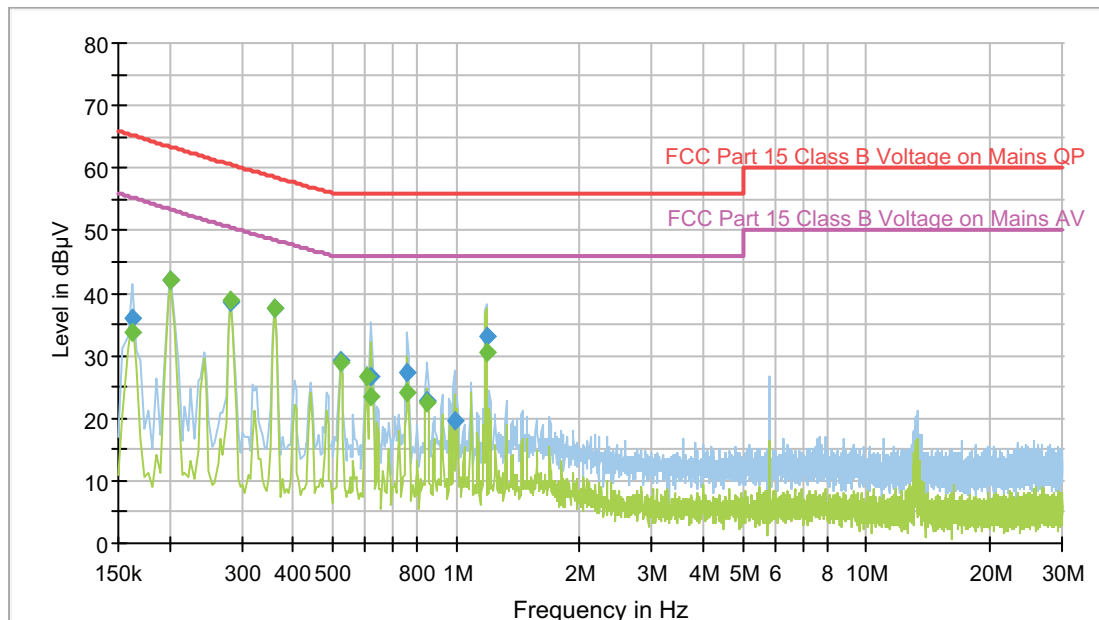
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	36.0	1000.00	9.000	FL	L1	9.9	29.3	65.3	
0.202000	42.0	1000.00	9.000	FL	L1	9.9	21.4	63.4	
0.282000	38.7	1000.00	9.000	FL	L1	9.9	21.9	60.6	
0.362000	37.8	1000.00	9.000	FL	N	10.0	20.7	58.5	
0.522000	29.3	1000.00	9.000	FL	N	10.0	26.7	56.0	
0.622000	26.5	1000.00	9.000	FL	N	10.0	29.5	56.0	
0.762000	27.2	1000.00	9.000	FL	N	10.0	28.8	56.0	
0.850000	22.7	1000.00	9.000	FL	N	10.0	33.3	56.0	
0.990000	19.6	1000.00	9.000	FL	N	10.0	36.4	56.0	
1.182000	33.0	1000.00	9.000	FL	N	10.0	23.0	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	33.8	1000.00	9.000	FL	L1	9.9	21.5	55.3	
0.202000	42.0	1000.00	9.000	FL	L1	9.9	11.3	53.3	
0.282000	38.9	1000.00	9.000	FL	L1	9.9	11.6	50.5	
0.362000	37.5	1000.00	9.000	FL	N	10.0	11.0	48.5	
0.522000	29.0	1000.00	9.000	FL	N	10.0	17.0	46.0	
0.602000	26.8	1000.00	9.000	FL	N	10.0	19.2	46.0	
0.622000	23.5	1000.00	9.000	FL	N	10.0	22.5	46.0	
0.762000	24.1	1000.00	9.000	FL	N	10.0	21.9	46.0	
0.846000	22.6	1000.00	9.000	FL	L1	10.0	23.4	46.0	
1.182000	30.4	1000.00	9.000	FL	N	10.0	15.6	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 5.4 MHz 60 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

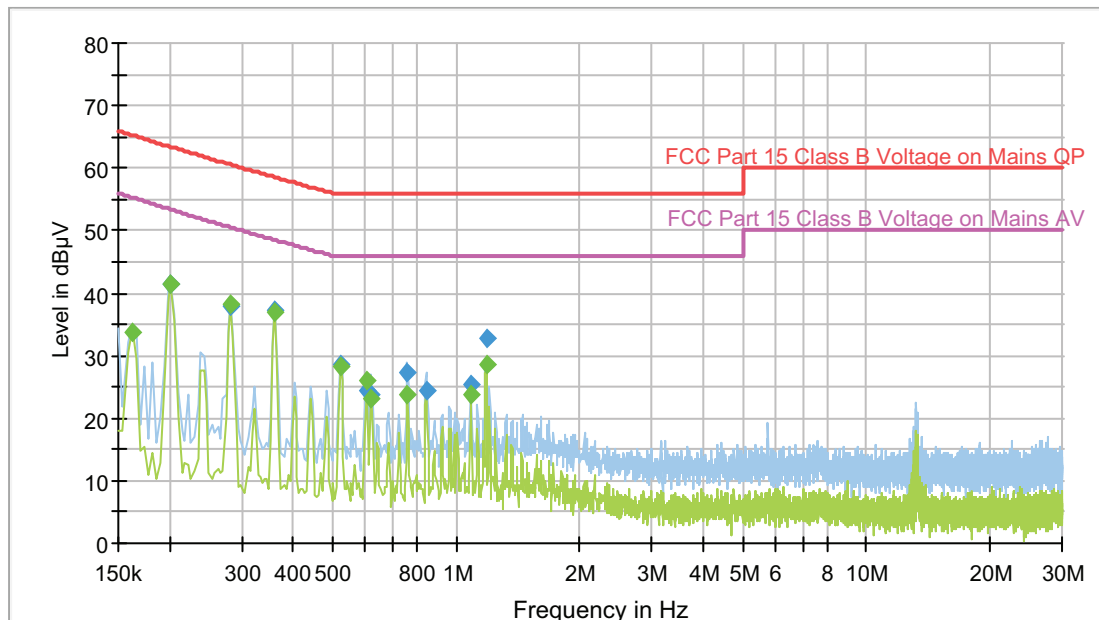
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	41.5	1000.00	9.000	FL	L1	9.9	21.9	63.4	
0.282000	37.9	1000.00	9.000	FL	L1	9.9	22.7	60.6	
0.362000	37.2	1000.00	9.000	FL	N	10.0	21.3	58.5	
0.522000	28.7	1000.00	9.000	FL	N	10.0	27.3	56.0	
0.606000	24.3	1000.00	9.000	FL	N	10.0	31.7	56.0	
0.622000	23.8	1000.00	9.000	FL	L1	10.0	32.2	56.0	
0.762000	27.3	1000.00	9.000	FL	N	10.0	28.7	56.0	
0.846000	24.3	1000.00	9.000	FL	N	10.0	31.7	56.0	
1.086000	25.5	1000.00	9.000	FL	N	10.0	30.5	56.0	
1.182000	32.7	1000.00	9.000	FL	L1	10.0	23.3	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	33.7	1000.00	9.000	FL	L1	9.9	21.6	55.3	
0.202000	41.5	1000.00	9.000	FL	L1	9.9	11.8	53.3	
0.282000	38.1	1000.00	9.000	FL	L1	9.9	12.4	50.5	
0.362000	37.1	1000.00	9.000	FL	N	10.0	11.4	48.5	
0.522000	28.3	1000.00	9.000	FL	N	10.0	17.7	46.0	
0.602000	26.0	1000.00	9.000	FL	N	10.0	20.0	46.0	
0.622000	23.1	1000.00	9.000	FL	N	10.0	22.9	46.0	
0.762000	23.8	1000.00	9.000	FL	N	10.0	22.2	46.0	
1.086000	23.9	1000.00	9.000	FL	N	10.0	22.1	46.0	
1.182000	28.5	1000.00	9.000	FL	L1	10.0	17.5	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 7.15 MHz 40 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

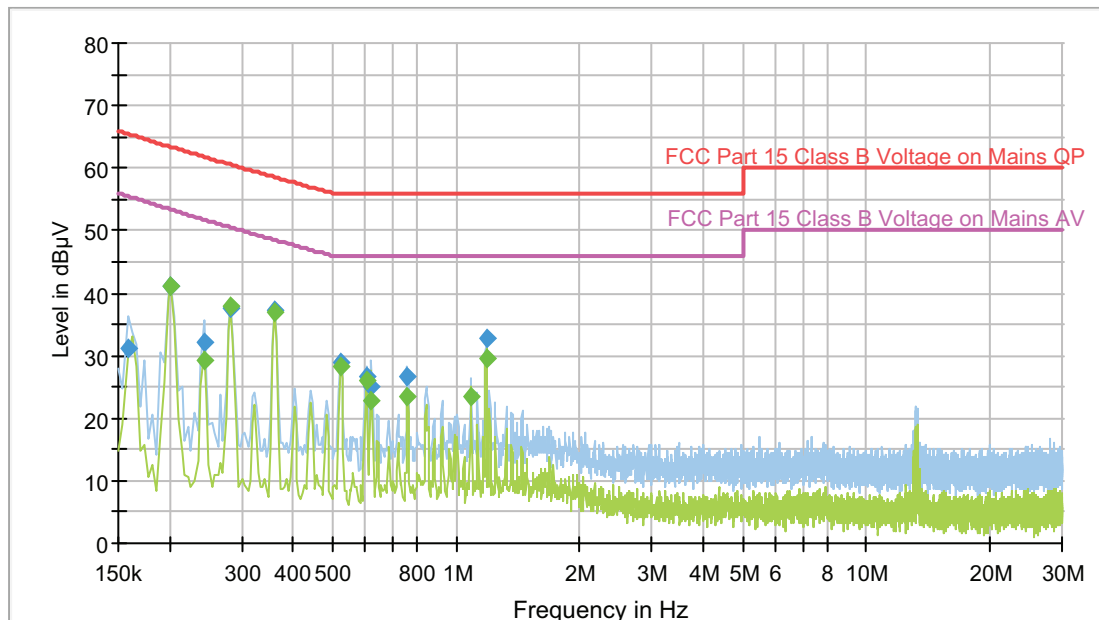
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.158000	31.1	1000.00	9.000	FL	N	9.9	34.4	65.5	
0.202000	41.0	1000.00	9.000	FL	L1	9.9	22.4	63.4	
0.242000	32.0	1000.00	9.000	FL	L1	9.9	29.8	61.8	
0.282000	37.7	1000.00	9.000	FL	L1	9.9	22.9	60.6	
0.362000	37.3	1000.00	9.000	FL	N	10.0	21.3	58.5	
0.522000	28.8	1000.00	9.000	FL	N	10.0	27.2	56.0	
0.602000	26.5	1000.00	9.000	FL	N	10.0	29.5	56.0	
0.622000	25.0	1000.00	9.000	FL	N	10.0	31.0	56.0	
0.762000	26.7	1000.00	9.000	FL	N	10.0	29.3	56.0	
1.182000	32.9	1000.00	9.000	FL	N	10.0	23.1	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	41.1	1000.00	9.000	FL	L1	9.9	12.2	53.3	
0.242000	29.3	1000.00	9.000	FL	L1	9.9	22.5	51.8	
0.282000	37.9	1000.00	9.000	FL	L1	9.9	12.6	50.5	
0.362000	36.9	1000.00	9.000	FL	N	10.0	11.6	48.5	
0.522000	28.3	1000.00	9.000	FL	N	10.0	17.7	46.0	
0.602000	25.9	1000.00	9.000	FL	N	10.0	20.1	46.0	
0.622000	22.8	1000.00	9.000	FL	N	10.0	23.2	46.0	
0.762000	23.5	1000.00	9.000	FL	N	10.0	22.5	46.0	
1.086000	23.3	1000.00	9.000	FL	N	10.0	22.7	46.0	
1.182000	29.7	1000.00	9.000	FL	N	10.0	16.3	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 10.1 MHz 30 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

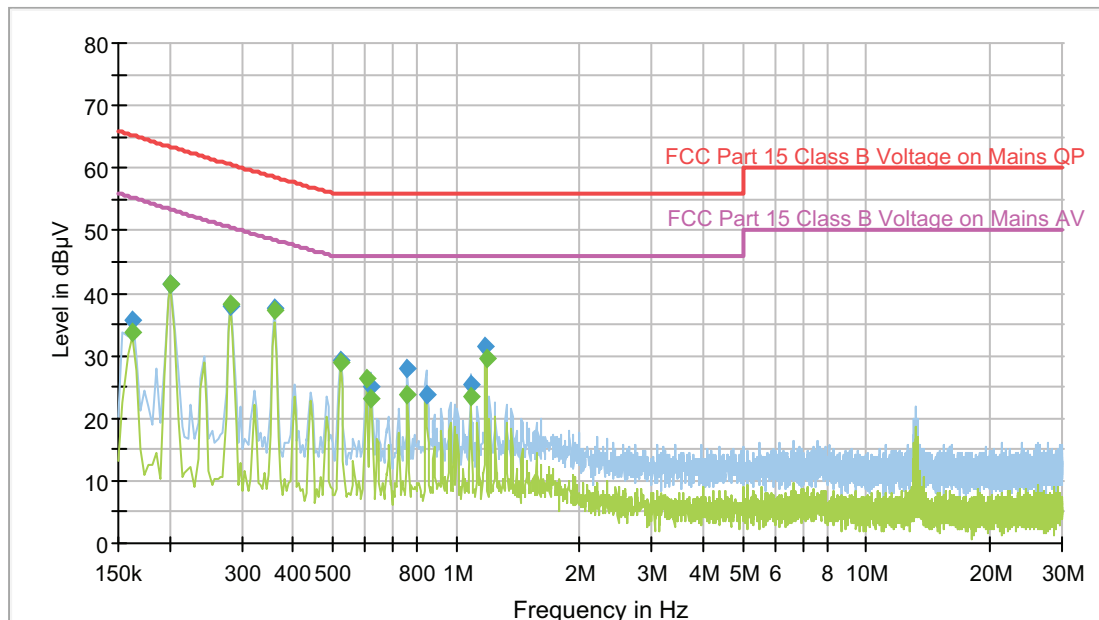
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	35.7	1000.00	9.000	FL	L1	9.9	29.6	65.3	
0.202000	41.4	1000.00	9.000	FL	L1	9.9	22.0	63.4	
0.282000	37.9	1000.00	9.000	FL	L1	9.9	22.7	60.6	
0.362000	37.5	1000.00	9.000	FL	N	10.0	21.0	58.5	
0.522000	29.1	1000.00	9.000	FL	N	10.0	26.9	56.0	
0.622000	25.0	1000.00	9.000	FL	N	10.0	31.0	56.0	
0.762000	28.1	1000.00	9.000	FL	N	10.0	27.9	56.0	
0.846000	23.8	1000.00	9.000	FL	N	10.0	32.2	56.0	
1.086000	25.5	1000.00	9.000	FL	N	10.0	30.5	56.0	
1.178000	31.5	1000.00	9.000	FL	L1	10.0	24.5	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	33.9	1000.00	9.000	FL	L1	9.9	21.4	55.3	
0.202000	41.4	1000.00	9.000	FL	L1	9.9	11.9	53.3	
0.282000	38.1	1000.00	9.000	FL	L1	9.9	12.4	50.5	
0.362000	37.3	1000.00	9.000	FL	N	10.0	11.2	48.5	
0.522000	28.8	1000.00	9.000	FL	N	10.0	17.2	46.0	
0.602000	26.3	1000.00	9.000	FL	N	10.0	19.7	46.0	
0.618000	23.0	1000.00	9.000	FL	N	10.0	23.0	46.0	
0.762000	23.8	1000.00	9.000	FL	N	10.0	22.2	46.0	
1.086000	23.6	1000.00	9.000	FL	N	10.0	22.4	46.0	
1.182000	29.5	1000.00	9.000	FL	N	10.0	16.5	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 14.1 MHz 20 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

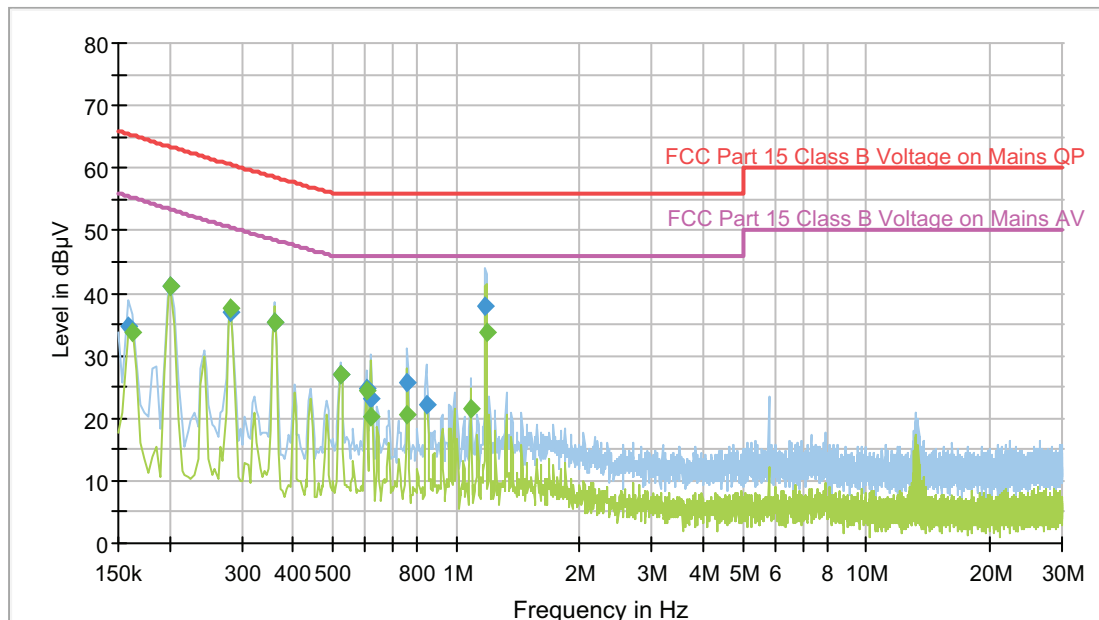
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.158000	34.6	1000.00	9.000	FL	L1	9.9	30.9	65.5	
0.202000	41.2	1000.00	9.000	FL	L1	9.9	22.2	63.4	
0.282000	36.8	1000.00	9.000	FL	L1	9.9	23.8	60.6	
0.362000	35.3	1000.00	9.000	FL	N	10.0	23.2	58.5	
0.522000	27.1	1000.00	9.000	FL	N	10.0	28.9	56.0	
0.602000	24.9	1000.00	9.000	FL	N	10.0	31.1	56.0	
0.622000	23.2	1000.00	9.000	FL	N	10.0	32.8	56.0	
0.762000	25.5	1000.00	9.000	FL	N	10.0	30.5	56.0	
0.846000	22.2	1000.00	9.000	FL	N	10.0	33.8	56.0	
1.178000	37.9	1000.00	9.000	FL	N	10.0	18.1	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	33.9	1000.00	9.000	FL	L1	9.9	21.4	55.3	
0.202000	41.3	1000.00	9.000	FL	L1	9.9	12.0	53.3	
0.282000	37.7	1000.00	9.000	FL	L1	9.9	12.8	50.5	
0.362000	35.3	1000.00	9.000	FL	N	10.0	13.2	48.5	
0.522000	26.9	1000.00	9.000	FL	N	10.0	19.1	46.0	
0.602000	24.3	1000.00	9.000	FL	N	10.0	21.7	46.0	
0.622000	20.3	1000.00	9.000	FL	N	10.0	25.7	46.0	
0.758000	20.4	1000.00	9.000	FL	N	10.0	25.6	46.0	
1.086000	21.6	1000.00	9.000	FL	N	10.0	24.4	46.0	
1.182000	33.6	1000.00	9.000	FL	N	10.0	12.4	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 18.1 MHz 17 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

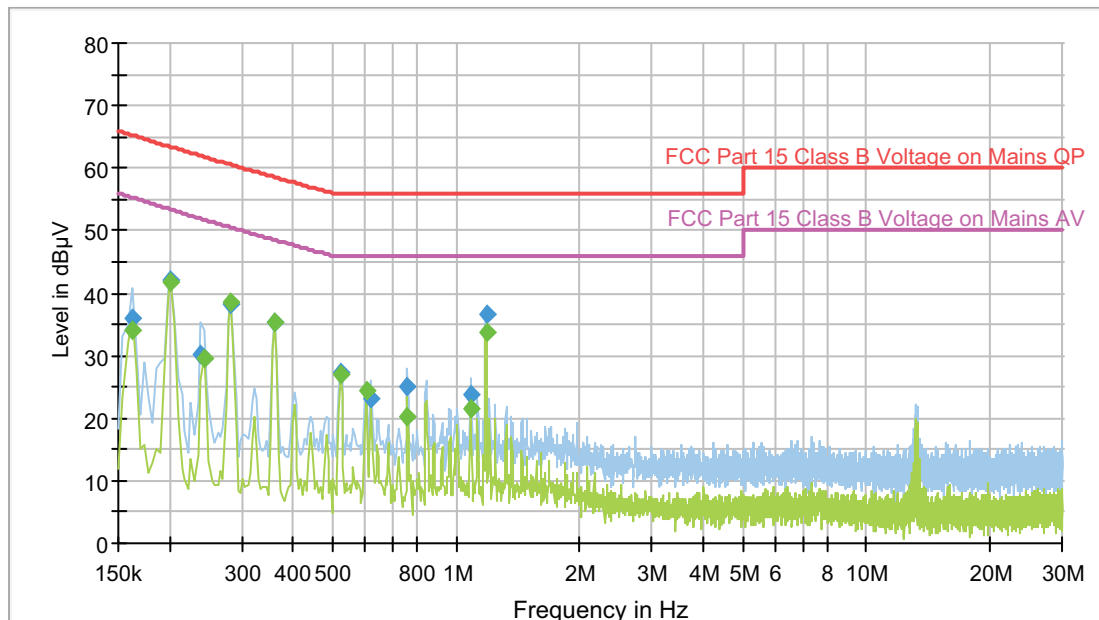
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	36.1	1000.00	9.000	FL	N	9.9	29.2	65.3	
0.202000	41.9	1000.00	9.000	FL	N	9.9	21.5	63.4	
0.238000	30.4	1000.00	9.000	FL	L1	9.9	31.6	62.0	
0.282000	38.4	1000.00	9.000	FL	L1	9.9	22.2	60.6	
0.362000	35.4	1000.00	9.000	FL	L1	10.0	23.1	58.5	
0.522000	27.3	1000.00	9.000	FL	L1	10.0	28.7	56.0	
0.622000	23.1	1000.00	9.000	FL	L1	10.0	32.9	56.0	
0.762000	25.1	1000.00	9.000	FL	N	10.0	30.9	56.0	
1.086000	23.7	1000.00	9.000	FL	N	10.0	32.3	56.0	
1.182000	36.7	1000.00	9.000	FL	L1	10.0	19.3	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	34.0	1000.00	9.000	FL	N	9.9	21.3	55.3	
0.202000	41.9	1000.00	9.000	FL	L1	9.9	11.4	53.3	
0.242000	29.7	1000.00	9.000	FL	L1	9.9	22.1	51.8	
0.282000	38.6	1000.00	9.000	FL	L1	9.9	11.9	50.5	
0.362000	35.4	1000.00	9.000	FL	L1	10.0	13.1	48.5	
0.522000	27.1	1000.00	9.000	FL	N	10.0	18.9	46.0	
0.602000	24.5	1000.00	9.000	FL	L1	10.0	21.5	46.0	
0.758000	20.4	1000.00	9.000	FL	L1	10.0	25.6	46.0	
1.086000	21.6	1000.00	9.000	FL	N	10.0	24.4	46.0	
1.182000	33.7	1000.00	9.000	FL	L1	10.0	12.3	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 21.05 MHz 15 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dBµV - 80dBµV

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

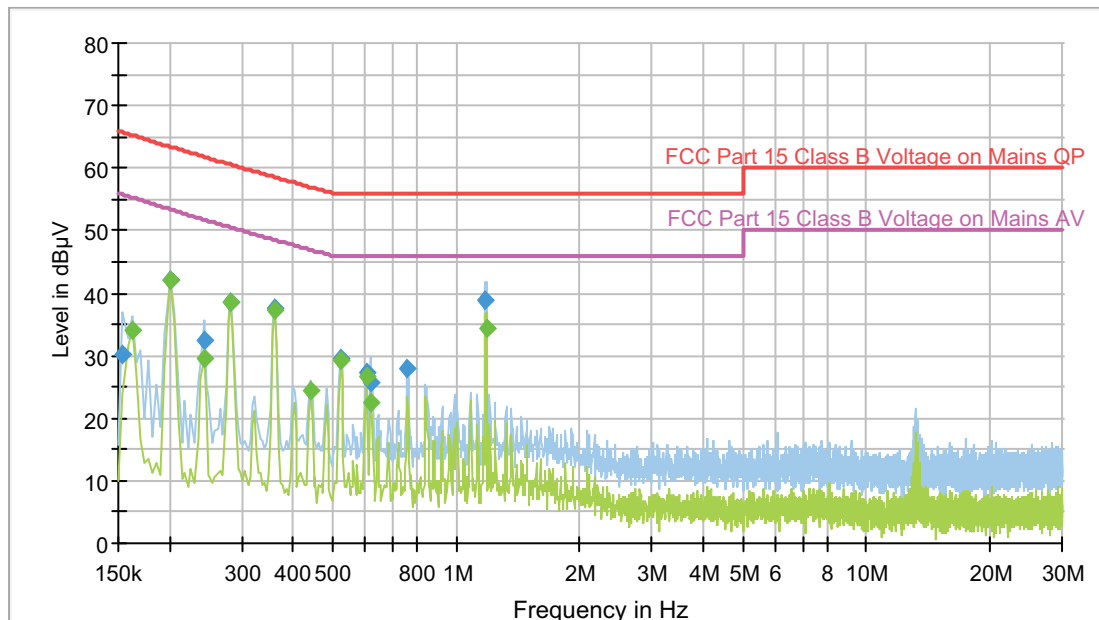
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.154000	30.3	1000.00	9.000	FL	L1	9.9	35.5	65.8	
0.202000	41.9	1000.00	9.000	FL	L1	9.9	21.5	63.4	
0.242000	32.5	1000.00	9.000	FL	L1	9.9	29.3	61.8	
0.282000	38.4	1000.00	9.000	FL	L1	9.9	22.2	60.6	
0.362000	37.6	1000.00	9.000	FL	N	10.0	20.9	58.5	
0.522000	29.7	1000.00	9.000	FL	N	10.0	26.3	56.0	
0.602000	27.2	1000.00	9.000	FL	N	10.0	28.8	56.0	
0.618000	25.6	1000.00	9.000	FL	N	10.0	30.4	56.0	
0.762000	28.1	1000.00	9.000	FL	N	10.0	27.9	56.0	
1.178000	38.7	1000.00	9.000	FL	N	10.0	17.3	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	34.0	1000.00	9.000	FL	L1	9.9	21.3	55.3	
0.202000	42.0	1000.00	9.000	FL	L1	9.9	11.3	53.3	
0.242000	29.7	1000.00	9.000	FL	L1	9.9	22.1	51.8	
0.282000	38.6	1000.00	9.000	FL	L1	9.9	11.9	50.5	
0.362000	37.4	1000.00	9.000	FL	N	10.0	11.1	48.5	
0.442000	24.3	1000.00	9.000	FL	N	10.0	22.6	46.9	
0.522000	29.4	1000.00	9.000	FL	N	10.0	16.6	46.0	
0.602000	26.6	1000.00	9.000	FL	N	10.0	19.4	46.0	
0.618000	22.6	1000.00	9.000	FL	N	10.0	23.4	46.0	
1.182000	34.4	1000.00	9.000	FL	L1	10.0	11.6	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 24.9 MHz 12 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dBμV - 80dBμV

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

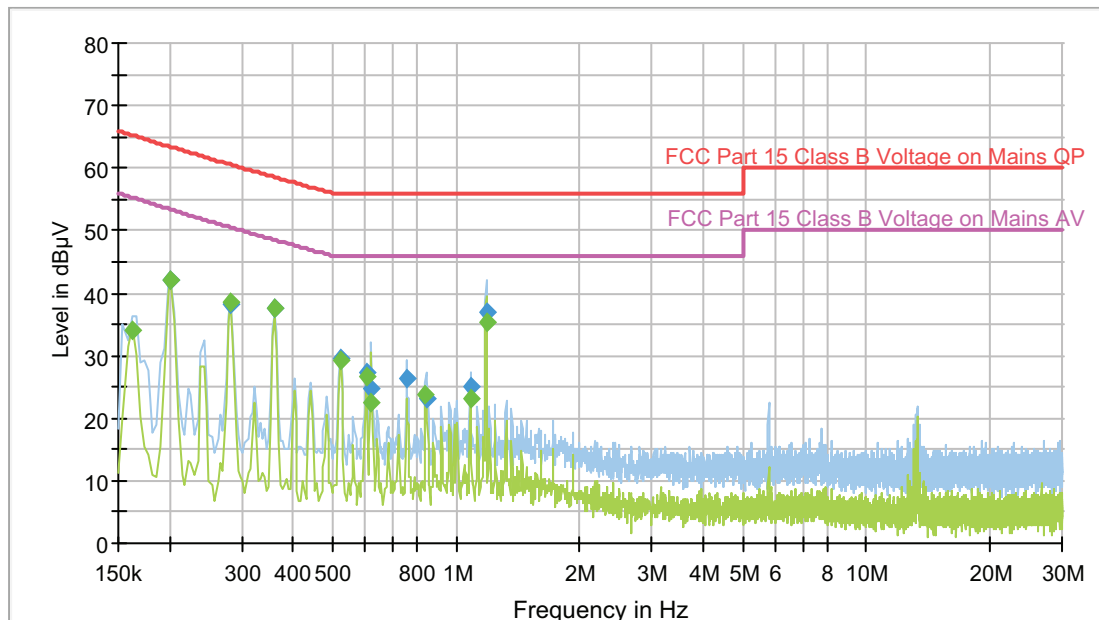
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	42.0	1000.00	9.000	FL	L1	9.9	21.4	63.4	
0.282000	38.3	1000.00	9.000	FL	L1	9.9	22.4	60.6	
0.362000	37.7	1000.00	9.000	FL	N	10.0	20.8	58.5	
0.522000	29.6	1000.00	9.000	FL	N	10.0	26.4	56.0	
0.602000	27.4	1000.00	9.000	FL	N	10.0	28.6	56.0	
0.622000	24.7	1000.00	9.000	FL	N	10.0	31.3	56.0	
0.758000	26.4	1000.00	9.000	FL	N	10.0	29.6	56.0	
0.846000	23.0	1000.00	9.000	FL	N	10.0	33.0	56.0	
1.086000	25.0	1000.00	9.000	FL	N	10.0	31.0	56.0	
1.182000	37.1	1000.00	9.000	FL	L1	10.0	18.9	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	34.0	1000.00	9.000	FL	L1	9.9	21.3	55.3	
0.202000	42.0	1000.00	9.000	FL	L1	9.9	11.3	53.3	
0.282000	38.5	1000.00	9.000	FL	L1	9.9	12.0	50.5	
0.362000	37.5	1000.00	9.000	FL	N	10.0	11.0	48.5	
0.522000	29.3	1000.00	9.000	FL	N	10.0	16.7	46.0	
0.602000	26.8	1000.00	9.000	FL	N	10.0	19.2	46.0	
0.622000	22.5	1000.00	9.000	FL	N	10.0	23.5	46.0	
0.842000	23.7	1000.00	9.000	FL	N	10.0	22.3	46.0	
1.086000	23.3	1000.00	9.000	FL	N	10.0	22.7	46.0	
1.182000	35.5	1000.00	9.000	FL	N	10.0	10.5	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 29 MHz 10 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

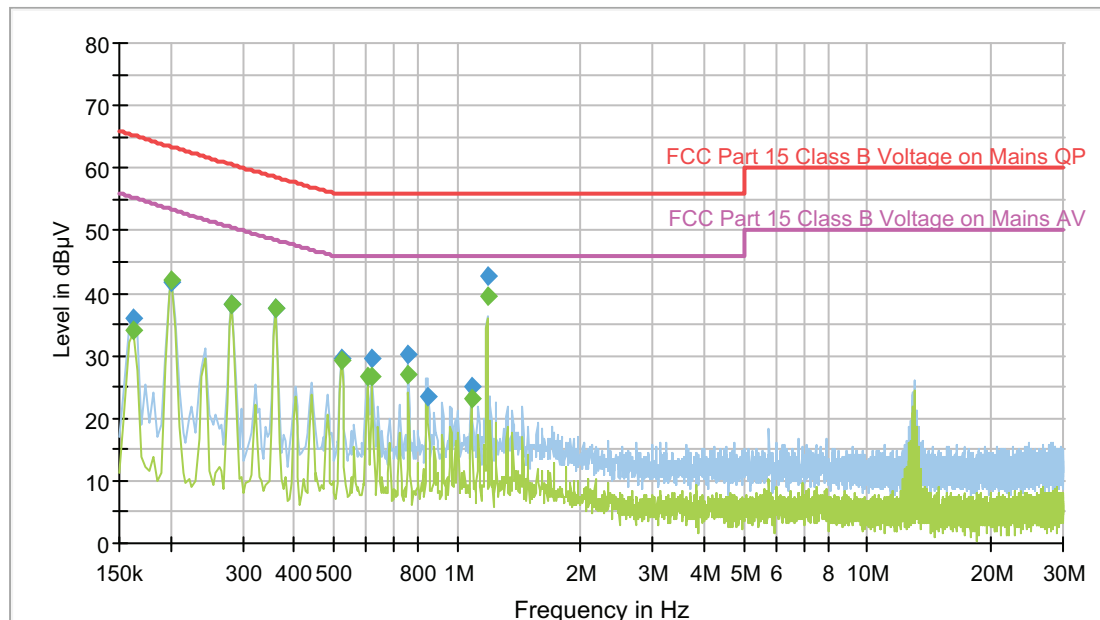
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	36.0	1000.00	9.000	FL	N	9.9	29.3	65.3	
0.202000	41.9	1000.00	9.000	FL	N	9.9	21.5	63.4	
0.282000	38.2	1000.00	9.000	FL	N	9.9	22.4	60.6	
0.362000	37.7	1000.00	9.000	FL	L1	10.0	20.8	58.5	
0.522000	29.5	1000.00	9.000	FL	L1	10.0	26.5	56.0	
0.622000	29.6	1000.00	9.000	FL	L1	10.0	26.4	56.0	
0.762000	30.3	1000.00	9.000	FL	L1	10.0	25.7	56.0	
0.846000	23.6	1000.00	9.000	FL	L1	10.0	32.4	56.0	
1.086000	25.0	1000.00	9.000	FL	L1	10.0	31.0	56.0	
1.182000	42.6	1000.00	9.000	FL	L1	10.0	13.4	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	34.0	1000.00	9.000	FL	N	9.9	21.3	55.3	
0.202000	42.0	1000.00	9.000	FL	N	9.9	11.3	53.3	
0.282000	38.4	1000.00	9.000	FL	N	9.9	12.1	50.5	
0.362000	37.5	1000.00	9.000	FL	L1	10.0	11.0	48.5	
0.522000	29.2	1000.00	9.000	FL	L1	10.0	16.8	46.0	
0.602000	26.7	1000.00	9.000	FL	L1	10.0	19.3	46.0	
0.622000	26.8	1000.00	9.000	FL	L1	10.0	19.2	46.0	
0.762000	27.0	1000.00	9.000	FL	L1	10.0	19.0	46.0	
1.086000	23.3	1000.00	9.000	FL	L1	10.0	22.7	46.0	
1.182000	39.6	1000.00	9.000	FL	L1	10.0	6.4	46.0	

EMC32 Report

Information

Date: 9-13-10
Report Number: G1009237
Operator Name: D Seay
Operating Conditions: 120V 60Hz
Notes: 50.125 MHz 6 meters.

EMI Auto Test Template: FCC Class B Conducted Cage

Hardware Setup: EMI conducted\Voltage with 2-Line-LISN Cage
Frequency Range: 150kHz - 30MHz
Graphics Level Range: 0dB μ V - 80dB μ V

Preview Measurements:
Scan Test Template: FCC part 15 Class B cage Prescan
LISN Lines: N,L1,PE Floating

Data Reduction:
1st Limit Line: FCC Part 15 Class B Voltage on Mains QP
2nd Limit Line: FCC Part 15 Class B Voltage on Mains AV
Maximum Results: 10
Acceptance Offset: -100 dB

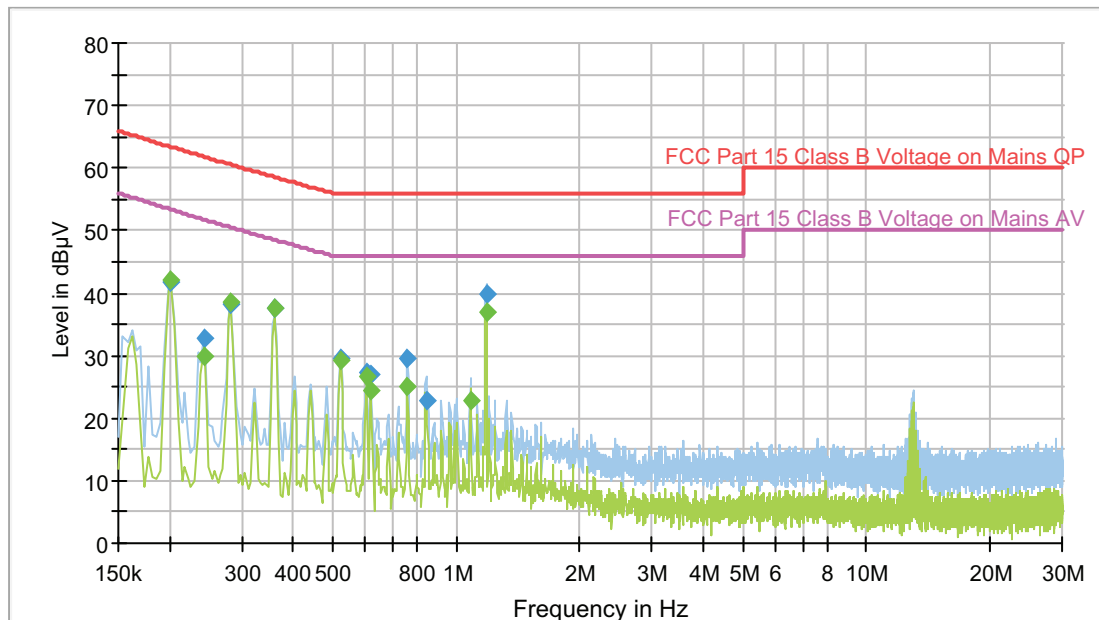
Final Measurements:
Template for Single Meas.: FCC part 15 Class B cage Final
FCC: No

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	QuasiPeak; CAverage	9kHz	1s	Receiver

Report Settings:
Report Template: Sample EMI Auto Test Report
Create Electronic Report: RTF

Document Name: EMI Report

FCC Class B Conducted Cage



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	41.8	1000.00	9.000	FL	L1	9.9	21.6	63.4	
0.242000	32.9	1000.00	9.000	FL	L1	9.9	28.9	61.8	
0.282000	38.2	1000.00	9.000	FL	L1	9.9	22.4	60.6	
0.362000	37.7	1000.00	9.000	FL	N	10.0	20.8	58.5	
0.522000	29.6	1000.00	9.000	FL	N	10.0	26.4	56.0	
0.602000	27.3	1000.00	9.000	FL	N	10.0	28.7	56.0	
0.618000	27.0	1000.00	9.000	FL	N	10.0	29.0	56.0	
0.762000	29.6	1000.00	9.000	FL	N	10.0	26.4	56.0	
0.846000	22.9	1000.00	9.000	FL	N	10.0	33.1	56.0	
1.182000	39.7	1000.00	9.000	FL	N	10.0	16.3	56.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	42.0	1000.00	9.000	FL	L1	9.9	11.3	53.3	
0.242000	29.7	1000.00	9.000	FL	L1	9.9	22.1	51.8	
0.282000	38.4	1000.00	9.000	FL	L1	9.9	12.1	50.5	
0.362000	37.5	1000.00	9.000	FL	N	10.0	11.0	48.5	
0.522000	29.4	1000.00	9.000	FL	N	10.0	16.6	46.0	
0.602000	26.6	1000.00	9.000	FL	N	10.0	19.4	46.0	
0.618000	24.3	1000.00	9.000	FL	N	10.0	21.7	46.0	
0.762000	25.1	1000.00	9.000	FL	N	10.0	21.0	46.0	
1.086000	22.8	1000.00	9.000	FL	N	10.0	23.2	46.0	
1.182000	36.8	1000.00	9.000	FL	N	10.0	9.2	46.0	

SECTION 5
RADIATED EMISSIONS
REPORT # G1009237

TEST PROCEDURE: FCC Part 15

The EUT was placed in a typical configuration approximately 0.8m above a metal turntable mounted level with the metal ground plane. A receiving Biconical antenna was placed 3 meters away from the EUT on a 4-meter fiberglass mast. The receiving antenna was connected to the 50 Ω input of the HP8566B spectrum analyzer. The EUT was powered by 120 VAC 60 Hz and was configured into its normal operational mode.

The 30 to 40 MHz band was observed on the spectrum analyzer while the EUT power and control leads were adjusted to maximize emissions. The peak frequencies for this band were recorded. This search for emissions continued from 40 MHz up to 15 GHz.

The receiving antennas were varied in height from 1 to 4 meters and the remote turntable was rotated 360 degrees to find the maximum emissions. This test was performed for all modes of operation.

All significant emissions are reported on the attached data report. To verify that the E.M.I. emissions measured were generated by the E.U.T., the system power was interrupted at peak reading while observing the Spectrum Analyzer. Unless otherwise specified, all Radiated Emissions are recorded as "PEAK" spectrum analyzer readings.

When the PEAK reading exceeds the Limit, the QP is taken and recorded as dB μ v(QP). The Radiated Field Strength was calculated as follows: Maximum Emission Received (dB) + Antenna Factor (dB) + Cable Loss (dB) = Field Strength dB μ v/Meter.

Calibration:

Cal. Date: Cal. Due:

4/01/09 10/01/10

4/01/09 10/01/10

4/07/10 4/07/11

10/12/09 10/12/10

10/12/09 10/12/10

Equipment Used During Testing:

HP 8566B	s/n: 6612	Spectrum Analyzer
HP 85650A	s/n: 1001	Quasi-Peak Adapter
HP 85685A	s/n: 1176	RF Pre-selector
EM-6912	s/n: 613	Biconical Antenna
EM-6950	s/n: 847	Log-Periodic Antenna

SUPPLEMENTAL DATA

REPORT # G1009237

GLOBAL TESTING LABORATORIES, LLC
3029 GOV. JOHN SEVIER HWY.
KNOXVILLE, TENNESSEE 37914
TEL: (865) 523-9972 FAX: (865) 637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 6 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.

THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY

SPECTRUM ANALYZER SETTINGS: 30MHz-1GHZ
RBW: 100KHz
VBW: 100KHz

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147.4	27.4	29.3	-16.1	-14.2	43.5	
163.5	33.8	34.1	-9.7	-9.4	43.5	
172	33.18	30.08	-10.32	-13.42	43.5	
180.5	38.9	36.9	-4.6	-6.6	43.5	
261	30.15	28.05	-15.85	-17.95	46	
658	39.76	37.86	-6.24	-8.14	46	

SUPPLEMENTAL DATA

REPORT # G1009237

GLOBAL TESTING LABORATORIES, LLC
3029 GOV. JOHN SEVIER HWY.
KNOXVILLE, TENNESSEE 37914
TEL: (865) 523-9972 FAX: (865) 637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 10 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.

THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY 30MHz-1GHZ
SPECTRUM ANALYZER SETTINGS: RBW: 100KHz
 VBW: 100KHz

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA

REPORT # G1009237

GLOBAL TESTING LABORATORIES, LLC
3029 GOV. JOHN SEVIER HWY.
KNOXVILLE, TENNESSEE 37914
TEL: (865) 523-9972 FAX: (865) 637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 12 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.
THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY 30MHz-1GHz
SPECTRUM ANALYZER SETTINGS: RBW: 100KHz
VBW: 100KHz

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA

REPORT # G1009237

GLOBAL TESTING LABORATORIES, LLC
3029 GOV. JOHN SEVIER HWY.
KNOXVILLE, TENNESSEE 37914
TEL: (865) 523-9972 FAX: (865) 637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 15 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.

THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY 30MHz-1GHZ
SPECTRUM ANALYZER SETTINGS: RBW: 100KHz
 VBW: 100KHz

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA REPORT # G1009237

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OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 17 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.
THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY
SPECTRUM ANALYZER SETTINGS:

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	
650	39.95	37.05	-6.05	-8.95	46	

SUPPLEMENTAL DATA REPORT # G1009237

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KNOXVILLE, TENNESSEE 37914
TEL:(865)523-9972 FAX:(865)637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 20 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.
THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY
SPECTRUM ANALYZER SETTINGS:

30MHz-1GHZ
RBW: 100KHz
VBW: 100KHz

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA REPORT # G1009237

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KNOXVILLE, TENNESSEE 37914
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OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #:	G1009237
MANUFACTURE:	Ten-Tec
MODEL #	599
DATE:	9/22/2010
NOTE:	30 meters
	Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.
THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY
SPECTRUM ANALYZER SETTINGS:

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA

REPORT # G1009237

GLOBAL TESTING LABORATORIES, LLC
3029 GOV. JOHN SEVIER HWY.
KNOXVILLE, TENNESSEE 37914
TEL: (865) 523-9972 FAX: (865) 637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 40 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.
THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY 30MHz-1GHZ
SPECTRUM ANALYZER SETTINGS: RBW: 100KHz
VBW: 100KHz

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA REPORT # G1009237

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KNOXVILLE, TENNESSEE 37914
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OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 60 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.
THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY
SPECTRUM ANALYZER SETTINGS:

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA REPORT # G1009237

GLOBAL TESTING LABORATORIES, LLC
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KNOXVILLE, TENNESSEE 37914
TEL:(865)523-9972 FAX:(865)637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 80 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.
THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY
SPECTRUM ANALYZER SETTINGS:

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SUPPLEMENTAL DATA

REPORT # G1009237

GLOBAL TESTING LABORATORIES, LLC
3029 GOV. JOHN SEVIER HWY.
KNOXVILLE, TENNESSEE 37914
TEL: (865) 523-9972 FAX: (865) 637-7598

OPEN FIELD RADIATION MEASUREMENT FCC PART 15 CLASS "B" LIMITS

REPORT #: G1009237
MANUFACTURE: Ten-Tec
MODEL #: 599
DATE: 9/22/2010
NOTE: 160 meters
Added shield to main CBA

DELTA REFERS TO THE dB DIFFERENCE BETWEEN THE HORIZONTAL OR VERTICAL READING AND THE dB LIMIT AT THAT FREQUENCY.

THE FOLLOWING ARE PEAK READINGS WITH CABLE AND ANTENNA FACTORS INCLUDED EXCEPT AS NOTED BY "QP".

"QP" = QUASI PEAK READING AT THAT FREQUENCY 30MHz-1GHZ
SPECTRUM ANALYZER SETTINGS: RBW: 100KHz
VBW: 100KHz

TEST DISTANCE BETWEEN DEVICE UNDER TEST AND RECEIVING ANTENNA: 3-METERS

FREQ. (MHz)	HORZ. dBuV/m	VERT. dBuV/m	H DELTA (dBuV)	V DELTA (dBuV)	LIMIT CLASS "B"	FREQ. STATUS
147	27.84	29.74	-15.66	-13.76	43.5	
163.5	34.34	34.64	-9.16	-8.86	43.5	
172	33.86	30.76	-9.64	-12.74	43.5	
180.5	39.64	37.64	-3.86	-5.86	43.5	
261	30.32	28.22	-15.68	-17.78	46	
324	31.2	29.7	-14.8	-16.3	46	

SECTION 6
IMMUNITY TO CELLULAR SIGNAL
REPORT # G1009237

FCC PART 15-
Section 15.121

MFG: Ten Tec

TESTED BY: D. Seay

MODEL: 599


TEST DATE: 9-20-10

Test Conditions: Temperature: 70° F

Relative Humidity: 45%

Frequency Range Tested: 50 - 54MHz

FREQUENCY (MHZ)	SIGNAL AMPLITUDE	AFFECTED FREQUENCY RANGE (MHZ)	SIGNAL LEVEL
859	-90dBm	None	
824	-52dBm	None	
837	-52dBm	None	
849	-52dBm	None	
869	-52dBm	None	
882	-52dBm	None	
894	-52dBm	None	

** The equipment was tested and found to comply with the specifications called out in Section 15.121 of the FCC rules and regulations Part 15. **

SECTION 7
CONDUCTED EMISSIONS
REPORT # G1009237

FCC PART 15-
Section 15.111

MFG: Ten Tec

TESTED BY: D. Seay

MODEL: 599


TEST DATE: 9-28-10

Test Conditions: Temperature: 70° F

Relative Humidity: 45%

Frequency Range Tested: 50 - 54MHz

FREQUENCY (MHZ)	SIGNAL AMPLITUDE	LIMIT	MARGIN
89	24.15 dBμV	50 dBμV	28.85 dBμV
120	21.35 dBμV	50 dBμV	28.65 dBμV
175	31.85 dBμV	50 dBμV	18.15 dBμV
293	28 dBμV	50 dBμV	22 dBμV
305	23.35 dBμV	50 dBμV	26.65 dBμV
344	23 dBμV	50 dBμV	27 dBμV
386	21 dBμV	50 dBμV	29 dBμV
460	27.85 dBμV	50 dBμV	22.15 dBμV
540	22.2 dBμV	50 dBμV	27.8 dBμV
557	20.65 dBμV	50 dBμV	29.35 dBμV
720	27.85 dBμV	50 dBμV	22.15 dBμV

** The equipment was tested and found to comply with the specifications called out in
FCC part 15 Section 15.111. **

SECTION 8
NVLAP CERTIFICATE
REPORT # G1009237

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200409-0

Global Testing Laboratories, LLC
Knoxville, TN

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2010-07-01 through 2011-06-30
Effective dates



Sally A. Bruce
For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)