

FCC PART 15.247 REPORT

On Model: 802 CI

Prepared for ActionTec Electronics, Inc.

According to CFR 15.247 Requirements

FCC ID #: LNQ-802CI

Test Report #: ACT-0008-2667-FCC

Prepared by: Kelly Miguel

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Administrative Data

Manufacturer : ActionTec Electronics, Inc.
760 N. Mary Avenue
Sunnyvale, CA 94086

Telephone : (408) 548-4813

FCC ID : **LNQ-802CI**

Class : Spread Spectrum Transceiver

Interface Type : PCMCIA

Frequency Range : 2400.0 – 2470.5 MHz

Method : Direct Sequence Spread Spectrum System

Model Name(s) : 802CI

Part Number : N/A

Max RF Output (W) : 0.02 Watts (maximum)

Power Supply : Through Host PC

CFR Part(s) : CFR15.247

Date(s) of Tests : February 11-23, 2001

Report Number : ACT-0008-2667-FCC

EUT Description

ActionTec Electronic, model 802 CI (referred to as the EUT in this report) is a PCMCIA interface Direct Sequence Spread Spectrum Transceiver.

Test Summary

Test Summary (CFR 15.247)			
Specifications	Requirement	Results	Note
CFR15.247(a)(2)	For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.	Complied	Attachment D
CFR15.247(b)(1)	For frequency hopping systems operating in the 2400-2483.5 MHz or 5725-5850 MHz band and for all direct sequence systems: 1 watt.	Complied	Attachment E
CFR15.247(b)(4)	Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. Ses 1.1307(b)(1) of this chapter.	N/A	EUT is not a PCS device.
CFR15.247(c)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, base on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).	Complied	Attachment B & F, (no emissions fell within restricted bands)
CFR15.35(b)	On any frequency or frequencies above 1GHz, unless otherwise stated, the radiated limits shown are based on the use of measurement instrumentation employing an average detector function. When average radiated emission measurements are specified in the regulations, including emission measurements below 1000MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated. Unless otherwise specified, measurements above 1000MHz shall be performed using a minimum resolution bandwidth of 1MHz. Measurements of AC power line conducted emissions are performed using a CISPR quasi-peak detector, even for device for which average radiated emission measurements are specified	Complied	Attachment B & F
CFR15.247(d)	For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.	Complied	Attachment G
CFR15.247(e)	The processing gain of a direct sequence system shall be at least 10dB. The processing gain represents the improvement of to the received signal-to-noise ratio, after filtering to the information bandwidth, from the spreading / despreading function.	Complied	Attachment P
CFR15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party	Complied	Attachment C

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	<p>shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may designed the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p>																										
CFR15.209.a	<p>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:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Frequency (MHz)</th> <th>Field strength (microvolts/meter)</th> <th>Measurement distance (meters)</th> </tr> </thead> <tbody> <tr> <td>0.009-0.490.....</td> <td>2400/F(kHz)</td> <td>300</td> </tr> <tr> <td>0.490-1.705.....</td> <td>24000/F(kHz)</td> <td>30</td> </tr> <tr> <td>1.705-30.0.....</td> <td>30</td> <td>30</td> </tr> <tr> <td>30-88.....</td> <td>100**</td> <td>3</td> </tr> <tr> <td>88-216.....</td> <td>150**</td> <td>3</td> </tr> <tr> <td>216-960.....</td> <td>200**</td> <td>3</td> </tr> <tr> <td>Above 960.....</td> <td>500</td> <td>3</td> </tr> </tbody> </table> <p>**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. §§15.230 and 15.241.</p>	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	Complied	Attachment I
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																									
CFR15.207(a)	<p>For an intentional radiator which 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 frequency within the band 450kHz to 30MHz shall not exceed 250 microvolts.</p>	Complied	Attachment J																								
CFR15.31(e)	<p>For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.</p>	Complied	Attachment E																								

Test Location

EMC Compliance Management Group is located at 670 National Ave., Mountain View, CA 94043, USA.

Accreditation Bodies

EMC Compliance Management Group is a fully accredited Test Laboratory.



In compliance with the site registration requirements of Section 2.948 of the FCC Rules to perform EMI measurements for the general public.



Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code # 200068-0.

EUT Exercise Software

The client supplied the software "Prism Test Appliance (Version 3.0.8) at TX Rate 11MB". The software was used to exercise during conducted and radiated testing. No other data was transmitted to the EUT during testing.

Equipment Modification

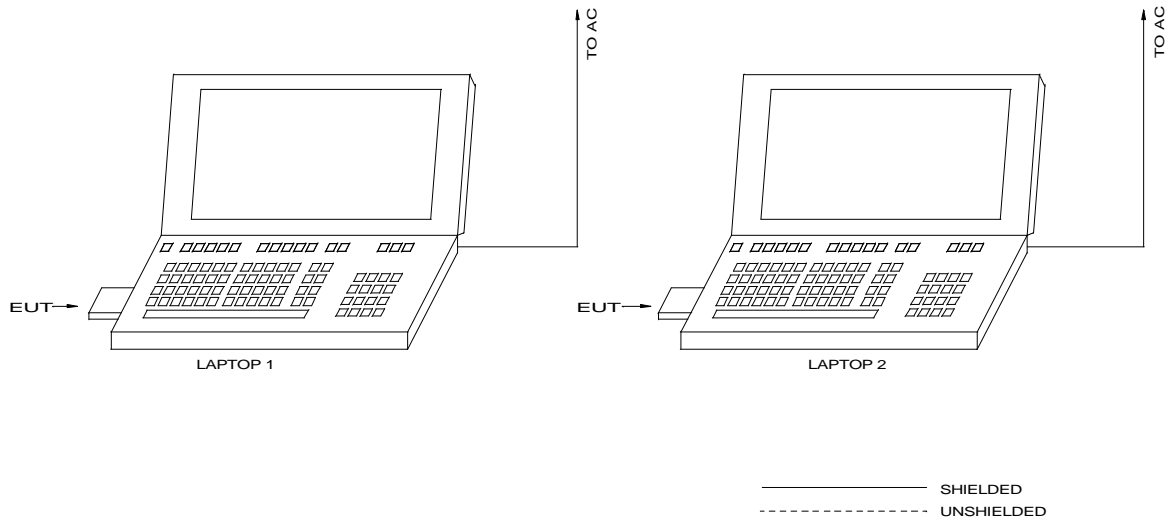
Any modifications installed previous to testing by Action Tec Electronic will be incorporated in each production model sold or leased in Europe.

There were no modifications installed by EMC Compliance Management Group.

Test System Details

EUT				
Model Number:	802 CI			
Description:	DS Spread Spectrum Transceiver			
Manufacturer:	ActionTec Electronics, Inc.			
Support Equipment				
Description	Model Number	Serial Number	Manufacturer	Cable Description
Laptop 1	CA1 (B Test)	00210065	Gateway	Shielded
Laptop 2	M8300	0INI006993	ASUS	Shielded
Cable Description				
None				

Configuration of Tested System



ATTACHMENT A – PRODUCT INFORMATION

Frequency Range: 2.412GHz – 2.462GHz

Channels: 11, see table below

Channel Separation: 5MHz

Aggregate bit rate: up to 11mb/s

Transmitting Method: Direct Sequence Spread Spectrum

Transmitting Power: 0.02 Watts (Maximum)

Antenna: Copper etched plate antennas (TX and RX)

Interface: PCMCIA

Power Supply: 3.3 VDC through Host PC PCMCIA Port

External Connections: None

Channel ID	Frequency (MHz)	Channel ID	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		

ATTACHMENT B – CFR15.205 RESTRICTED BAND

Special attention is made for the EUT's harmonic and spurious radiated emission in the restricted bands of operation. The EUT was tested from 150kHz and up to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1GHz, average measurements was used using RBW 1MHz-VBW 10Hz and linearly polarized horn antennas. In addition, peak measurements were taken to ensure that the peak levels are not more than 20dB above the average limit. All out of band emissions, other than those created by the spreading frequency, data sequence, and the carrier modulation must not exceed the limits show in Table 2 per 150.209.

Frequency (MHz)	Field strength (microvolts/meter)	Measure 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

ATTACHMENT C – CFR15.203 ANTENNA REQUIREMENT

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the applicant can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with this requirement.

The ActionTec Electronic, Inc. Model 802-CI complies with the requirement of 15.203. The antenna is a copper etched plate antenna, no user accessible parts.

Conclusion: Pass, EUT meet 15.203 requirements. There are no provisions for connection to an external antenna or antenna replacement for users.

ATTACHMENT D – CFR 15.247(a)(2) – DIRECT SEQUENCE BANDWIDTH (CONDUCTED)

6dB bandwidth for Direct Sequence systems must be at lease 500 kHz

R. Bandwidth = 100 kHz
 Video Bandwidth = 100 kHz
 Frequency Span = 20 MHz
 Reference Level = 13 dBm
 Sweep Time = 20 mS
 RF Attenuation = 25 dB
 External Attenuator = 0 dB

		6 dB Bandwidth (MHz)			
CHANNEL	FREQUENCY (MHz)	TX Rate = 1MHz	TX Rate = 5.5MHz	TX Rate = 11MHz	Plot #
1	2412.25	8.66	8.66	8.66	Plot 1
6	2437.11	8.41	8.40	8.41	Plot 2
11	2462.03	8.60	8.60	8.60	Plot 3

Result Table 1 - 6dB Bandwidth Measurement Results

Test Result: Pass, EUT meets minimum requirement.

ATTACHMENT E – CFR15.247(b) MAXIMUM PEAK OUTPUT POWER MEASUREMENT & CFR15.31(e) VOLTAGE VARIATION TESTS (CONDUCTED)

The maximum peak output power of the transmitter shall not exceed 1 watt (+30 dBm).

R. Bandwidth = 100 kHz
 Video Bandwidth = 100 kHz
 Frequency Span = 100 MHz
 Reference Level = 13 dBm
 Sweep Time = 20 mS
 RF Attenuation = 25 dB
 External Attenuator = 0 dB

Peak Output Power = Power Meter Reading + Power Sensor Factor

TX Rate	CHANNEL	CENTER FREQUENCY (MHz)	POWER METER READING (dBm)	POWER SENSOR FACTOR (dB)	PEAK OUTPUT POWER (dBm)	Plot #
1 MB	1	2412.25	9.8	-0.2	9.6	Plot 4
	6	2437.11	9.1	-0.2	8.9	
	11	2462.03	9.1	-0.2	8.9	
5.5 MB	1	2412.25	9.8	-0.2	9.6	Plot 5
	6	2437.11	9.5	-0.2	9.3	
	11	2462.03	9.1	-0.2	8.9	
11 MB	1	2412.25	10.0	-0.2	9.8	Plot 6
	6	2437.11	9.9	-0.2	9.7	
	11	2462.03	9.3	-0.2	9.1	

Result Table 2. Output Power Measurements

TX Rate	CHANNEL	CENTER FREQUENCY (MHz)	POWER METER READING (dBm)	POWER SENSOR FACTOR (dB)	PEAK OUTPUT POWER (dBm)	AC SUPPLY TO HOST
11MB	1	2412.25	10.0	-0.2	9.8	102VAC
11MB	1	2412.25	10.0	-0.2	9.8	138VAC

Result Table 2a. CFR15.31(e) Voltage Variation Output Power Measurements

Test Result: Pass, EUT meet minimum requirements.

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ATTACHMENT F – CFR15.247(c) RADIATED EMISSION MEASUREMENT 1GHZ - 25GHz (FUNDAMENTAL AND HARMONICS)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, base on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Operating Channel = 1
 Operation Frequency = 2412 MHz
 TX Rate = 1, 5.5 and 11MB
 Test Distance = 3 Meters
 100kHz Out-of-band plot = **Plot 7**, RBW/VBW = 100kHz, RF Att.= 20dB / Span = 200MHz

Freq. (MHz)	RAW Reading (dBuV)	Correction Factors (dB/m)	Polar. (V/H)	Detector (Peak/Ave)	Field Strength (dBuV/m)	Margin (dB)	Notes
2411.6	56.11	10.49	V	Peak	66.60	-	OF
2411.6	57.84	10.49	H	Peak	68.35	-	OF
4824.2	38.61	14.26	H	Ave	52.87	-1.13	RB
7238.1	25.63	22.5	H	Ave	48.13	-5.87	NRB
9645.7	<20.00	-	V	Peak	-	-	NRB

Result Table 3. Radiated Emission Measurements (Fundamental & Harmonics)

Legends:

OF = Operating Frequency.

NRB = Non Restricted Band, Limits should be 20 dB below the “OF”.

RB = Frequency within the Restricted Bands according to CFR15.205, Limits shall comply with CFR15.209. In this case the limit is 500uV/m (54dBuV/m).

Notes:

1. An EMI receiver peak scan is made from 1 – 25 GHz frequency range using RBW/VBW = 100kHz.
2. Average measurements above 1 GHz are using RBW = 1 MHz, VBW = 10 Hz.
3. During this test EUT is manipulated through typical positions, polarity and length, the worst case emissions are reported above.

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**ATTACHMENT F – CFR15.247 (c) RADIATED EMISSION MEASUREMENT 1GHz
- 25GHz (FUNDAMENTAL AND HARMONICS) (CONT.)**

Operating Channel = 6
 Operation Frequency = 2437 MHz
 TX Rate = 1, 5.5 and 11MB
 Test Distance = 3 Meters

Freq. (MHz)	RAW Reading (dBuV)	Correction Factors (dB/m)	Polar. (V/H)	Detector (Peak/Ave)	Field Strength (dBuV/m)	Margin (dB)	Notes
2437.6	51.39	10.56	H	Peak	61.95	-	OF
2437.6	48.57	10.56	V	Peak	59.13	-	OF
4875.3	38.33	14.3	H	Ave	52.63	-1.37	RB
7312.9	27.32	22.50	H	Ave	49.82	-4.18	RB
9650.6	<20.00	-	H	Peak	-	-	NRB
1208.83	<20.00	-	H	Peak	-	-	NRB

Result Table 4. Radiated Emission Measurements (Fundamental & Harmonics)

Legends:

OF = Operating Frequency.

NRB = Non Restricted Band, Limits should be 20 dB below the “OF”.

RB = Frequency within the Restricted Bands according to CFR15.205, Limits shall comply with CFR15.209. In this case the limit is 500uV/m (54dBuV/m).

Notes:

1. An EMI receiver peak scan is made from 1 – 25 GHz frequency range using RBW/VBW = 100kHz.
2. Average measurements above 1 GHz are using RBW= 1 MHz, VBW = 10 Hz.
3. During this test EUT is manipulated through typical positions, polarity and length, the worst case emissions are reported above.

ATTACHMENT F – CFR15.247(c) RADIATED EMISSION MEASUREMENT 1GHz - 25GHz (FUNDAMENTAL AND HARMONICS) (CONT.)

Operating Channel = 11
 Operation Frequency = 2412.25 MHz
 TX Rate = 1, 5.5 and 11MB
 Test Distance = 3 Meters
 Out-of-band plot = **Plot 8**, RBW/VBW = 100kHz, RF Att.= 20dB / Span = 200MHz

Freq. (MHz)	RAW Reading (dBuV)	Correction Factors (dB/m)	Polar. (V/H)	Detector (Peak/Ave)	Field Strength (dBuV/m)	Margin (dB)	Notes
2461.7	53.75	10.63	V	Peak	64.38	-	OF
2461.7	54.26	10.63	H	Peak	64.89	-	OF
4923.4	36.89	14.35	H	Ave	51.24	-2.76	RB
7385.7	26.82	22.50	H	Ave	49.32	-4.68	RB
9747.7	< 30.00	-	H	Peak	-	-	NRB
12309.7	< 30.00	-	H	Peak	-	-	NRB

Result Table 5. Radiated Emission Measurements (Fundamental & Harmonics)

Legends:

- OF = Operating Frequency.
- NRB = Non Restricted Band, Limits should be 20 dB below the “OF”.
- RB = Frequency within the Restricted Bands according to CFR15.205, Limits shall comply with CFR15.209. In this case the limit is 500uV/m (54dBuV/m).

Notes:

1. An EMI receiver peak scan is made from 1 – 25 GHz frequency range using RBW/VBW = 100kHz.
2. Average measurements above 1 GHz are using RBW = 1 MHz, VBW = 10 Hz.
3. During this test EUT is manipulated through typical positions, polarity and length, the worst case emissions are reported above.

Test Result: Pass, EUT meet minimum requirements.

ATTACHMENT G - CFR 15.247(d) POWER DENSITY (CONDUCTED)

The transmitted power density averaged over any 1 second interval shall not be 8dBm in any 3kHz bandwidth within these bands.

R. Bandwidth = 3 kHz
 Video Bandwidth = 3 kHz
 Frequency Span = 3.0 MHz
 Reference Level = 8 dBm
 Sweep Time = 1000 S (100 S)
 RF Attenuation = 20 dB
 External Attenuator = 0 dB

TX Rate	CHANNEL	CENTER FREQUENCY (MHz)	POWER DENSITY (dBm)	Plot
1 MB	1	2412.69	-13.1	Plot 9
	6	2437.68	-13.2	Plot 10
	11	2462.68	-13.4	Plot 11
5.5 MB	1	2412.68	-13.3	Plot 12
	6	2437.68	-13.2	Plot 13
	11	2462.68	-13.4	Plot 14
11 MB	1	2412.68	-13.1	Plot 15
	6	2437.68	-13.1	Plot 16
	11	2462.03	-13.3	Plot 17

Result Table 6. Power Density Conducted Measurements

Test Result: Pass, EUT meets minimum requirement.

ATTACHMENT H -ANTENNA GAIN (ESTIMATED)

The estimated antenna gain is calculated based on the difference between the conducted power output and radiated power density.

CHANNEL	FREQUENCY (MHz)	CONDUCTED PEAK POWER OUTPUT (dBm)	RADIATED POWER DENSITY (3m) (dBm/m)	ESTIMATE D ANTENNA GAIN (dBi)
1	2411.76	1.2	-53.93	-52.73
Estimated Antenna Gain (dBi):				-52.73

Result Table 7. Antenna Gain (estimated)

Test Result: Estimated Antenna Gain = -53.73

ATTACHMENT I – CFR15.209(a) RADIATED EMISSION MEASUREMENT 212R01

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

Operating Frequency = 2412, 2437 and 2462MHz
 Res. Bandwidth = 120 kHz
 Sweep Time = 30 mS

Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dBµV/m]	Delta, QP [dB]	3 Meters Limits [dBµV/m]	Correction Factors [dB/m]
Set-up/Configuration: EN55022:1998, CISPR 16-1:1993					
387.822	V	35.8	-1.2	37.0	20.8
344.100	H	35.8	-1.2	37.0	18.0
196.628	V	28.7	-1.3	30.0	11.8
196.624	H	28.6	-1.4	30.0	11.8
76.433	H	28.1	-1.9	30.0	7.5
491.547	H	35.1	-1.9	37.0	21.8
1. All Emissions were investigated from 30 to 1000 MHz the 6 worst emissions are reported. 2. Plots from chamber are included, plot 18 (vertical polarization) & 19 (horizontal polarization). 3. For handheld devices, the EUT is rotated through three orthogonal axes to obtain the maximum emissions.					

Result Table 8. CFR15.209 (a) Radiated Emission Test Results



ATTACHMENT J - CFR15.207 (a) CONDUCTED EMISSION TEST RESULTS

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is back onto the AC power line on frequency within the band 450 kHz to 30 MHz shall not exceed 250 microvolts.

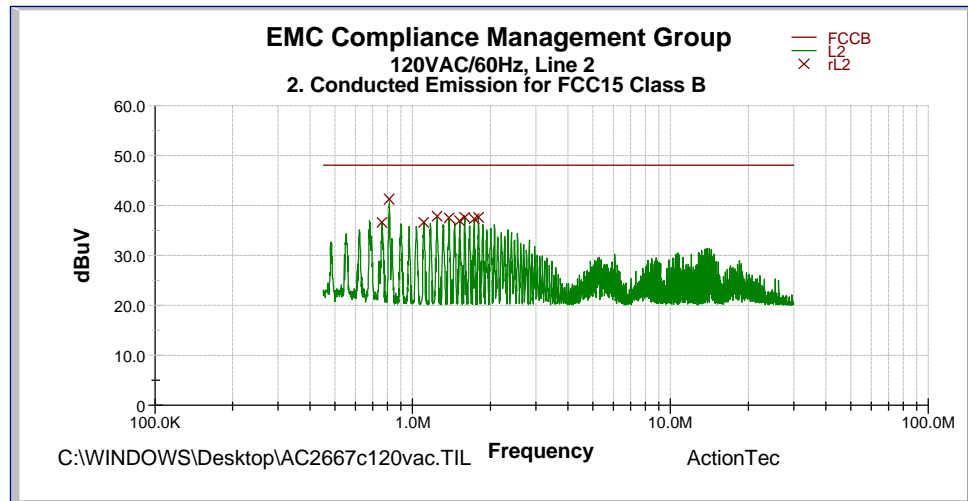
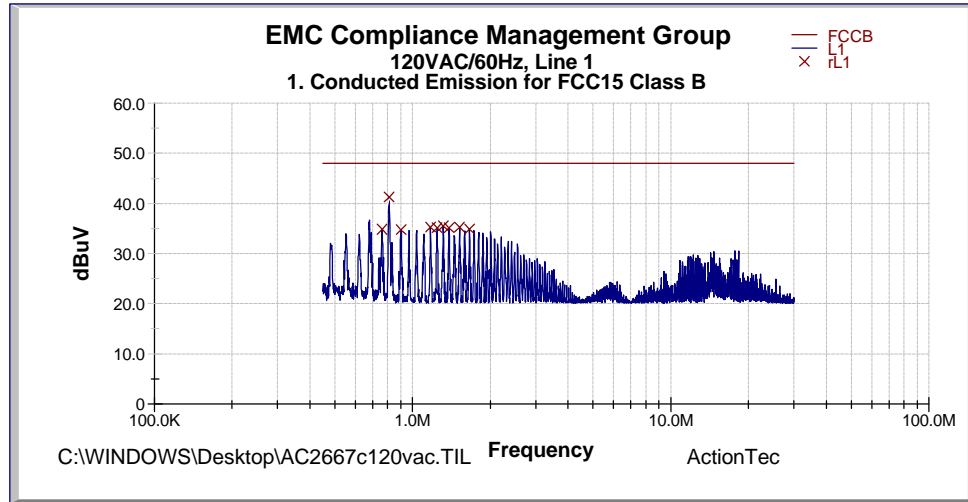
Operating Frequency = 2412, 2437 and 2462MHz

Res. Bandwidth = 9 kHz

Sweep Time = 30 mS

Line	Frequency [MHz]	Corrected QP Reading [dB(μV)]	Delta QP [dB]
L1	760.95	31.07	-16.93
L1	1.31501	32.08	-15.92
L1	1.3826	32.14	-15.86
L2	1.58991	34.61	-13.39
L2	1.38131	34.48	-13.52
L2	1.51936	34.14	-13.86

Note: All reading are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used.



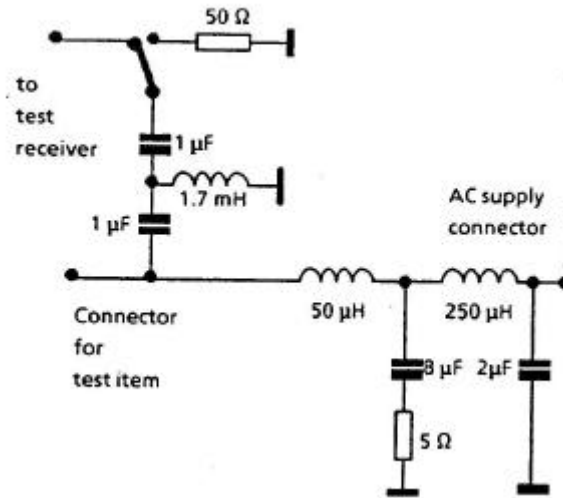


ATTACHMENT K - TEST EQUIPMENT

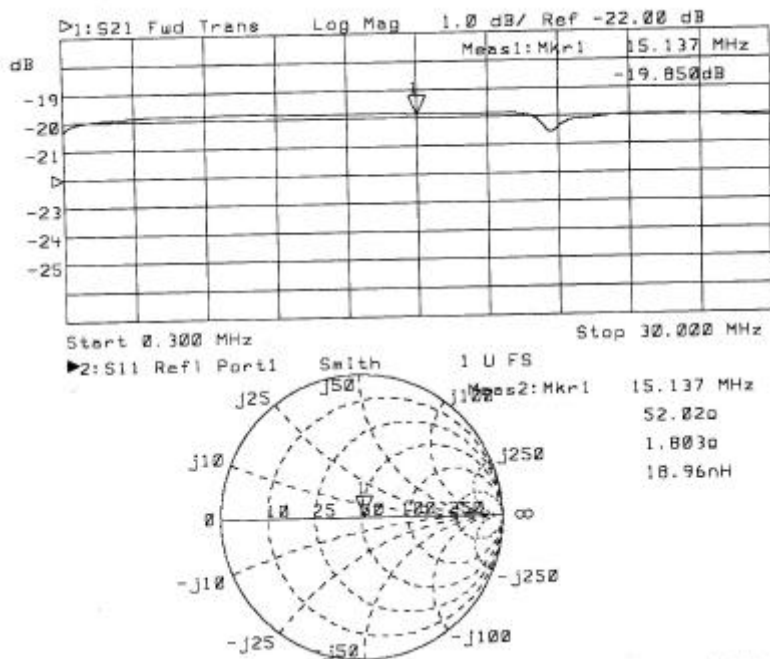
Test Equipment	Manufacturer/ Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	R&S / ESMI-RF	849937/006	03/01/00	03/01/01
EMI Receiver	R&S / ESAI-D	825035/005	03/01/00	03/01/01
Bilog Antenna	CHASE CBL6112A	2274	11/16/00	11/16/01
Horn Antenna	EMCO / 3115 w/ Miteq Amp	001	10/28/00	10/28/01
Horn Antenna	EMCO / 3116 w/ Miteq Amp	002	10/28/00	10/28/01
LISN	R & S / ESH3-Z5	844249/018	11/15/00	11/15/01
Signal Generator	HP / 83711B	3324A03288	08/29/00	08/29/01
RF Power Meter	Boonton / 42AD	09	03/08/00	03/08/01
RF Power Sensor	Boonton / 41-4B	157	03/08/00	03/08/01
RF Power Sensor	Boonton / 42004A	11544	03/08/00	03/08/01
Scope	Tektronix / TDS 360	B0120165	05/12/00	05/12/01
Attenuators	HP / 8491C	00423	VBU	VBU
Test Chamber	HumiTenn	A032331	VBU	VBU
Temp. Controller	Partlow Corp / MRC7000	94G86270	08/21/00	08/21/01
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).				

ATTACHMENT L - LISN SPECIFICATIONS

LISN use in this test is manufactured by R & S, model ESH3-Z5. This LISN complies with the FCC and CISPR requirements. The frequency range is from 9kHz to 30MHz. Impedance is 50 Ohms.



LISN Schematics (only 1 line shown)

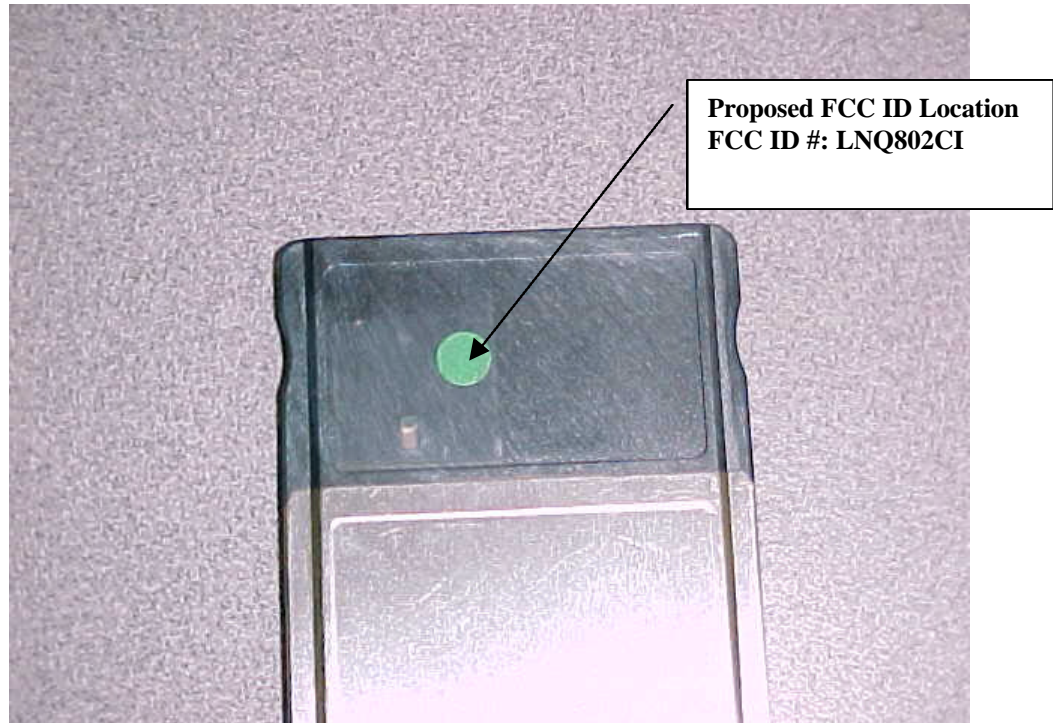


Network Analyzer Plot

ATTACHMENT M – SAMPLE PHOTOS



ATTACHMENT N – PROPOSED FCC ID LABELS AND LOCATION



ATTACHMENT O – PLOTS OF TESTS

ATTACHMENT P – PROCESSING GAIN