ELECTRONICS TEST CENTRE
MPB TECHNOLOGIES INC.

MPB

EMI TEST REPORT
FOR
Eleven Engineering Inc.
Airplay Wireless Controller

FCC ID: OP50001
TO DETERMINE COMPLIANCE WITH
FCC Part 15
Subpart C

PROJECT NO. 323A09

TEST COMPLETED: 14 September, 1999

Client: **Eleven Engineering Inc.**
Jason Gosior
2011 Commerce Place
10155-102 Street
Edmonton, AB
T5J 4G8

Prepared by:

_____
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EMI/EMC

Approved by:

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1.0 SUMMARY

The Airplay Wireless Controller, produced by Eleven Engineering Inc., **PASSED FCC Part 15 Subpart C**, radiated emissions on 14 September, 1999, in the configuration listed in this report.

2.0 INTRODUCTION

2.1 Scope

The purpose of this report is to present the findings and results of compliance testing performed against the electromagnetic compatibility and interference specifications, standards and requirements set forth in CFR 47, FCC Part 15.

2.2 Applicant

The Airplay Wireless Controller is manufactured by:

Eleven Engineering Inc.
2011 Commerce Place
10155-102 Street
Edmonton, AB
T5J 4G8

2.3 Applicability

All test procedures, limits, and results defined in this document apply to the Eleven Engineering Inc.'s Airplay Wireless Controller.
The results contained in this report relate only to the item(s) tested.

2.4 Test Sample Description

The test sample, provided for testing by Eleven Engineering Inc., was a Airplay Wireless Controller.
The Airplay Wireless Controller was a wireless game pad for the Sony® Playstation™.
The Airplay Wireless Controller was powered from a single AA battery and has no grounding.
<Other descriptions such as connections, manufacturer, and usage are to be included in parts lists and manuals.>

3.0 DETAILS OF *FCC Part 15*

3.1 Conducted Emissions (Not Applicable)

3.2 Radiated Emissions (*30 MHz - 4 GHz*)

Frequency of emission (MHz)	Subpart C Field Strength Limit (dBμV/m) (at 3 m)	Subpart C Field Strength Limit (dBμV/m) (at 10 m)
30 - 88	40.0	29.5
88 - 216	43.5	34
216 - 960	46.0	35.5
Above 960	54.0	43.5

4.0 TEST FACILITY

4.1 Test Sites

Tests were performed at the Electronics Test Centre:

Street address:
27 East Lake Hill
Airdrie, Alberta
T4B 2B7

Mailing Address:
P.O. Box 3485
Airdrie, Alberta
T4B 2B7

Tel: (403) 912-0037
Fax: (403) 912-0083

RF Anaechoic Chamber

References to the RF Anaechoic Chamber (RFAC) identify the test chamber located in the main building complex at the Electronics Test Centre. Its useable working space measures 8 m long x 4.9 m wide x 5.2 m high. The floor, walls and ceiling consist of annealed steel panels. The walls and ceiling are covered with 122 cm long pyramidal cones made of anechoic material. The floor supports a 15 cm high steel computer floor that acts as a ground plane. Test instrumentation is located in two shielded equipment vestibules located at the side of the main room. Cables are routed through bulkhead panels between the rooms as required. Power feeds are routed into the main room and vestibules through power line filters providing at least 100 dB of attenuation between 10 KHz and 10 GHz.

Open Field Test Site

References to the Open Area Test Site (OATS) identify the open area located on the property of the Electronics Test Centre. It conforms to the requirements of CSA C108.8-M1983 and ANSI C63.4. A metal ground plane and an all weather structure constructed of wood and fiberglass are provided. Fiberglass antenna masts are located 3, 10, and 30 meters from a rotateable wooden turntable. The 30 meter mast is located outside the all weather structure. Test instrumentation is located below the metal ground plane. Antenna cables are routed through conduits buried beneath the ground plane. Power feeds and cables that connect the test sample to auxiliary instrumentation are routed through a hole in the ground plane at the centre of the turntable. Power is provided to the underground facility through filters having at least 100 dB of attenuation between 10 KHz and 10 GHz. Test instrumentation is powered by a line isolation transformer. Calibration of the OATS was performed in accordance with ANSI C63.4. A report has been submitted to the FCC.

4.2 Test Equipment

Equipment Calibration

All measurement instrumentation conforms to ANSI C63.2. Calibration is maintained in accordance with manufacturer recommendations, NATO AQAP-6, and MIL-STD-45662. Each measurement device is labeled with its ETC asset number and calibration due date.

Calibration Accuracy

Test equipment used to provide quantitative measurements are calibrated with standards traceable to the National Research Council, National Institute of Standards and Technology or other national standards. Instrumentation systems for emissions measurements have the following accuracy's:
Frequency: ±2%
Amplitude: ± 2 dB

Test Equipment Descriptions

Instrument	Manufacturer	Model No.	Asset No.	Calibration Status
Spectrum Analyzer	Hewlett Packard	8566B	9565	Annual Calibration
Spectrum Analyzer	Hewlett Packard	8566B	9168	Annual Calibration

Measurement Range: 100 Hz To 22 GHz
Resolution Bandwidth: 3 dB bandwidths of 10 Hz to 3 MHz in a 1, 3, 10 sequence.
Amplitude Measurement Range: -134 dBm to + 30 dBm
Dynamic Range Spurious Response: for signals < -40 dBm all harmonic and intermodulation distortion > 70 dBm below input signal.
RF Input: 100 Hz to 22 GHz precision female type N connector.
Input SWR: 1.2, 100 Hz to 2.5 GHz; 1.5, 2.5 GHz to 5.8 GHz; 1.9, 5.8 GHz to 22 GHz with 10 dB input attenuation.

Instrument	Manufacturer	Model No.	Asset No.	Calibration Status
RF Preselector	Hewlett Packard	85685A	9563	Annual Calibration
RF Preselector	Hewlett Packard	85685A	9728	Annual Calibration

Measurement Range: 20 Hz to 2 GHz
Displayed Average Noise Level: -115 dBm, 9 KHZ to 50 KHZ; -132 dBm, 50 KHZ to 1 MHz; -150 dBm, 1 MHz to 1500 MHz; -147 dBm, 1500 MHz to 2000 MHz.
Residual Response: -90 dBm, 2 KHZ to 1 MHz; -112 dBm, 1 MHz to 2000 MHz.
RF Input: 20 Hz to 2 GHz precision female type N connector.
Input SWR: < 1.5

Instrument	Manufacturer	Model No.	Asset No.	Calibration Status
Quasi-Peak Adapter	Hewlett Packard	85650A	9243	Annual Calibration

Amplitude Accuracy: Bypass mode, ± 0.3 dB; normal mode, ± 1.0 dB
Frequency Accuracy in Normal Mode: 200 Hz BW, ± 10 Hz; 9 kHz BW, ± 4.5 kHz; 120 kHz BW, ± 60 kHz.

Instrument	Manufacturer	Model No.	Asset No.	Calibration Status
Line Impedance Stabilization Network	EMCO	3825/2r	9331	Annual Inspection
Line Impedance Stabilization Network	EMCO	3825/2r	9259	Annual Inspection

Isolation Frequency Range: 10 kHZ to 100 MHz
Power Source Frequencies: 0 Hz to 400 Hz
Current Rating: 25 amps
The 3825/2r LISN is designed to stabilize test units which operate with two line, single phase power.

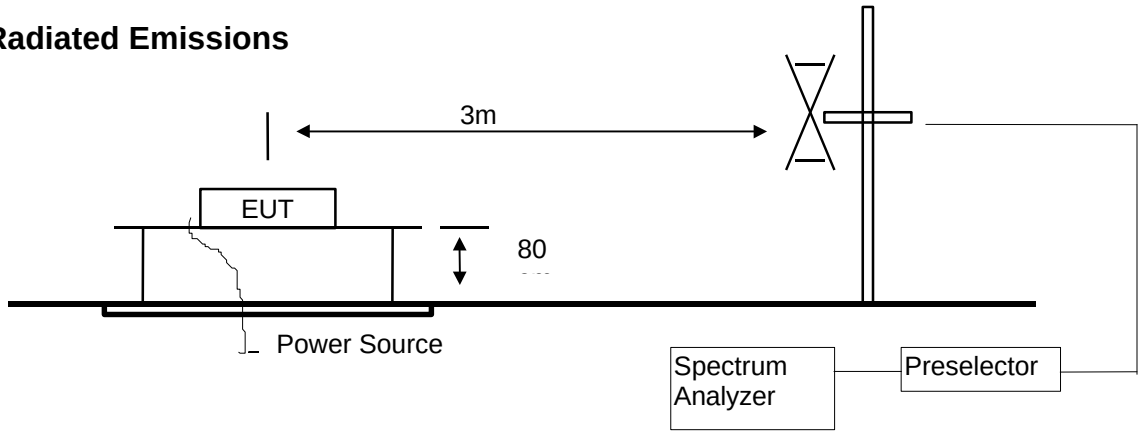
Instrument	Manufacturer	Model No.	Asset No.	Calibration Status
Biconal-Log	ARA	Lpb-2520/A	4318	Annual Calibration

Measurement Range: 25 MHz to 2000 MHz
Power Handling Capability: 1000 W
Average VSWR: 2:1

4.3 Test Configuration

The following diagrams illustrate the configuration of the Airplay Wireless Controller, and the test and measurement equipment used for FCC Part 15 Radiated Emissions.

Radiated Emissions



4.4 Measurement Uncertainty

For Radiated E-Field Emissions:
Frequency = + $1x10^{-3}$ MHz
Amplitude = + 3.8 / -3.9 dB (from 30 MHz to 200 MHz)
Amplitude = ± 2.8 dB (from 200 MHz to 1000 MHz

For Conducted Emissions:
Frequency = + $1x10^{-3}$ MHz
Amplitude = + 3.8 / -3.9 dB (from 30 MHz to 200 MHz)
Amplitude = ± 2.8 dB (from 200 MHz to 1000 MHz)

5.0 LABELING REQUIREMENTS

5.1 Industry Canada Requirements

Industry Canada has labeling requirements for digital apparatus. Section 6.2 of ICES-003 Issue 2 specifies the requirements as follows:

6.2 A written notice indicating compliance must accompany each unit of digital apparatus to the end user. The notice shall be in the form of a label that is affixed to the apparatus. Where because of insufficient space or other restrictions it is not feasible to affix a label to the apparatus, the notice may be in the form of a statement included in the user's manual.
The suggested text for the notice, in English and in French, is as follows. RF causing equipment regulations.
This Class [*] digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe [*] respecte toutes les exigences du règlement sur le matériel brouilleur du Canada.
[*] insert either "a" or "b" but not both as appropriate for the equipment requirements.

5.2 FCC Requirements

The FCC has labeling requirements for computing devices. Section 15.19 of the FCC rules specifies the requirements as follows.

15.19 Labeling Requirements

A. In addition to the requirements in part 2 of this chapter, a device subject to certification, notification or verification shall be labeled as follows:

- Receivers associated with the operation of a licensed radio service, e.g., FM Broadcast under Part 73, Land Mobile Operation under Part 90, etc., Shall bear the following statement in a conspicuous location on the device:
  This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.
- A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:
  This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.
- All other devices shall bear the following statement in a conspicuous location on the device:
  This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
  1) This device may not cause harmful interference
  2) This device must accept any interference received, including interference that may cause undesired operation.

B. Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified in this section is required to be affixed only to the main control unit.

C. When the device is so small or for such use that it is not practicable to place the statement specified in this section on it, the information required by these paragraphs shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

The FCC has a requirement to provide user information in the equipment manuals of all devices subject to Part 15.

15.21 Information To User

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The Electronics Test Centre recommends that the following statement be placed in a prominent location in the text of the manual.
Note: Equipment changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
The FCC has a requirement to provide user information in equipment manuals of computing devices. Section 15.105 of the FCC Rules specifies the requirements as follows.

15.105 Information To The User

A. For a class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

B. For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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

Re-Orient Or Relocate The Receiving Antenna.

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

C. The provisions of paragraphs (a) and (b) do not apply to digital devices exempted from the technical standards under the provisions of section 15.103.

D. For systems incorporating several digital devices, the statement shown in paragraph (a) or (b) needs to be contained only in the instruction manual for the main control unit.

6.0 Test Description

6.1 Equipment Configuration

The information in section 6.1 is as specified by Eleven Engineering Inc.

The frequency of the 16 channels that the Airplay Wireless Controller uses are as follows:

Channel	Frequency (MHz)
0	315.0146
1	315.2042
2	315.5857
3	315.9051
4	316.1878
5	316.4860
6	316.7903
7	317.1131
8	317.4065
9	317.6907
10	318.0141
11	318.2986
12	318.5862
13	318.8936
14	319.2070
15	319.4874

The Frequency Range of the Airplay Wireless Controller is **4.5 MHz**.
The Occupied Bandwidth (3dB) is **30 kHz**.
The Frequency Stability is **± 20 ppm**.
The Modulation Method is **FSK via Direct FM**.
The Output Power is **-47 dBm into 50 ohms**.

Block diagrams and applicable operating frequencies will be provided by Eleven Engineering Inc.

6.2 Test Setup Photos


10 m Test Setup
(used for transmit frequency measurement)

6.3 Test Procedures

The test procedures use are found in Electronics Test Centre Document A0049, and has been filed with the FCC and the Canadian Standards Council.

Appendix 1

Test Result Data Forms
FOR
Eleven Engineering Inc.'s
Airplay Wireless Controller
TO DETERMINE COMPLIANCE WITH
FCC Part 15 Subpart C
When Transmitting at 314.014 MHz

PROJECT NO. 323A09

TEST COMPLETED: 14 September, 1999

Client: **Eleven Engineering Inc.**
Jason Gosior
2011 Commerce Place
10155-102 Street
Edmonton, AB
T5J 4G8

TABLE OF CONTENTS

This testing was done using a Airplay Wireless Controller.
This Test was done using FCC Part 15 Subpart C specifications at a distance of 3 m.

The transmit power and bandwidth measurements were measured at 10 m.

The Airplay Wireless Controller produced by Eleven Engineering Inc., **PASSED** FCC Part 15 Subpart C in the configuration shown on the configuration information sheet.

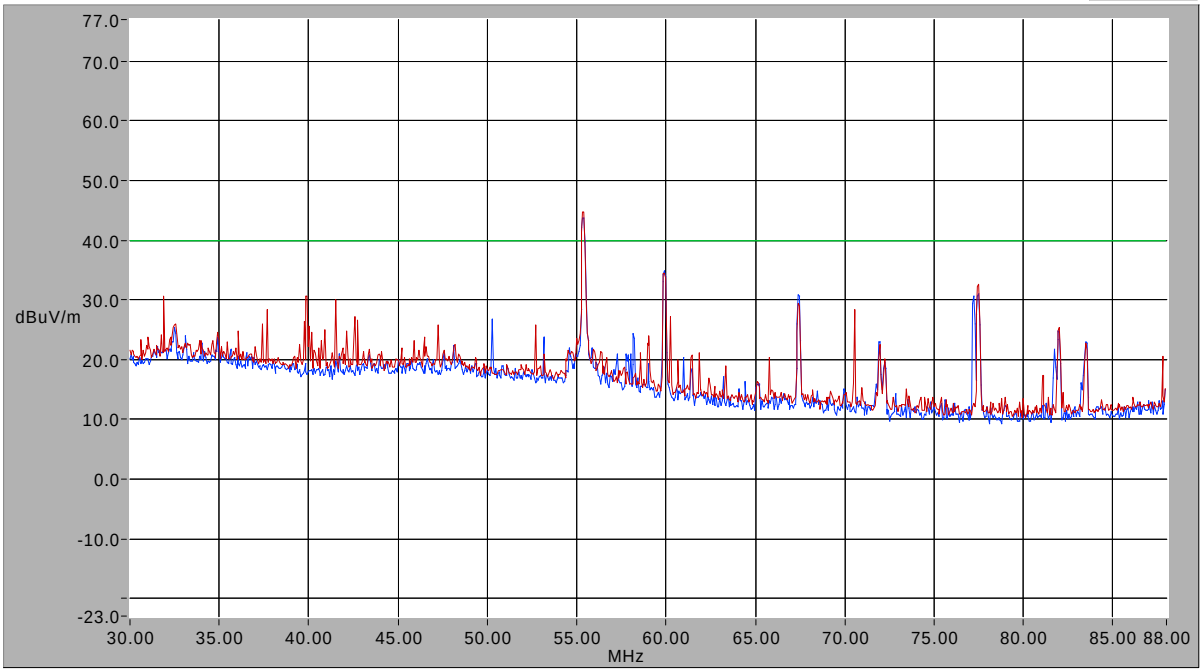
The Equipment Under Test is considered to have passed if the radiated E-field power does not exceed the limit of the appropriate standard as shown in section 3 of this report.

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 30 - 88 MHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 11:11 AM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 1

EMI
AMB
LIM



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: 50.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318h10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

QUASI-PEAK DATA

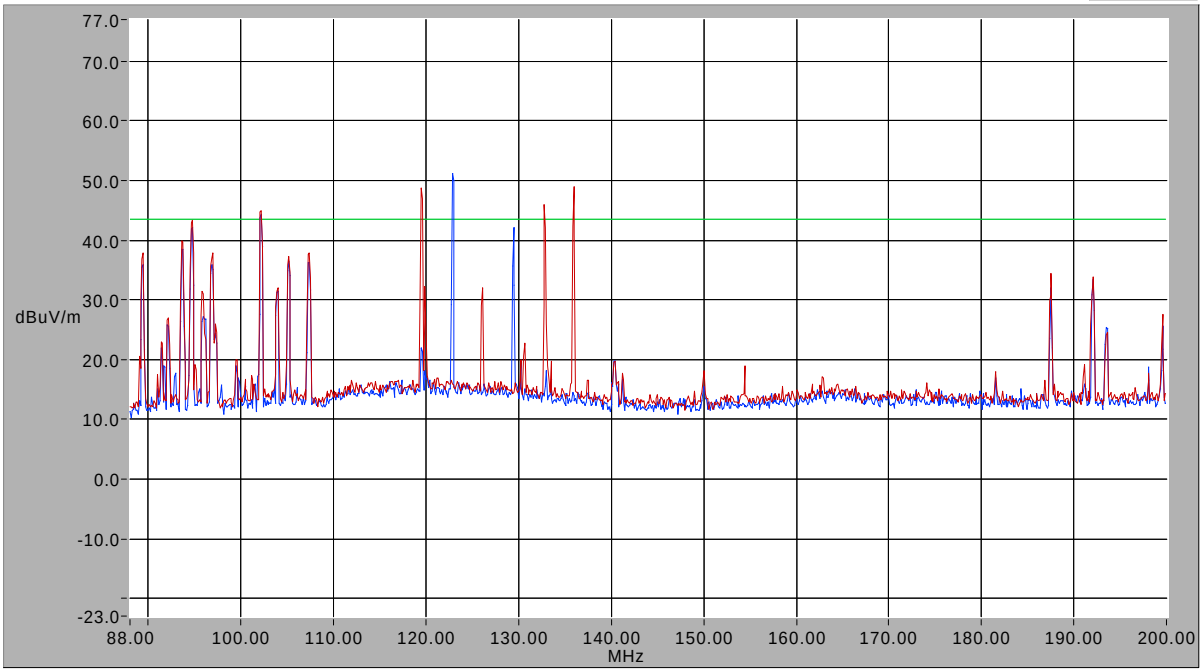
Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
32.582	-	-	-	-	-	-	-	-	Ambient
40.088	-	-	-	-	-	-	-	-	Ambient
55.254	-	-	-	-	-	-	-	-	Ambient
59.780	-	-	-	-	-	-	-	-	Ambient
67.236	-	-	-	-	-	-	-	-	Ambient
77.244	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 88 - 200 MHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 11:22 AM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 2

EMI
AMB
LIM



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: Auto
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318h10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
88.930	-	-	-	-	-	-	-	-	Ambient
93.694	-	-	-	-	-	-	-	-	Ambient
94.680	-	-	-	-	-	-	-	-	Ambient
96.870	-	-	-	-	-	-	-	-	Ambient
102.120	-	-	-	-	-	-	-	-	Ambient
107.274	-	-	-	-	-	-	-	-	Ambient
119.776	-	-	-	-	-	-	-	-	Ambient
122.946	-	-	-	-	-	-	-	-	Ambient
130.056	-	-	-	-	-	-	-	-	Ambient
131.942	-	-	-	-	-	-	-	-	Ambient
136.492	-	-	-	-	-	-	-	-	Ambient

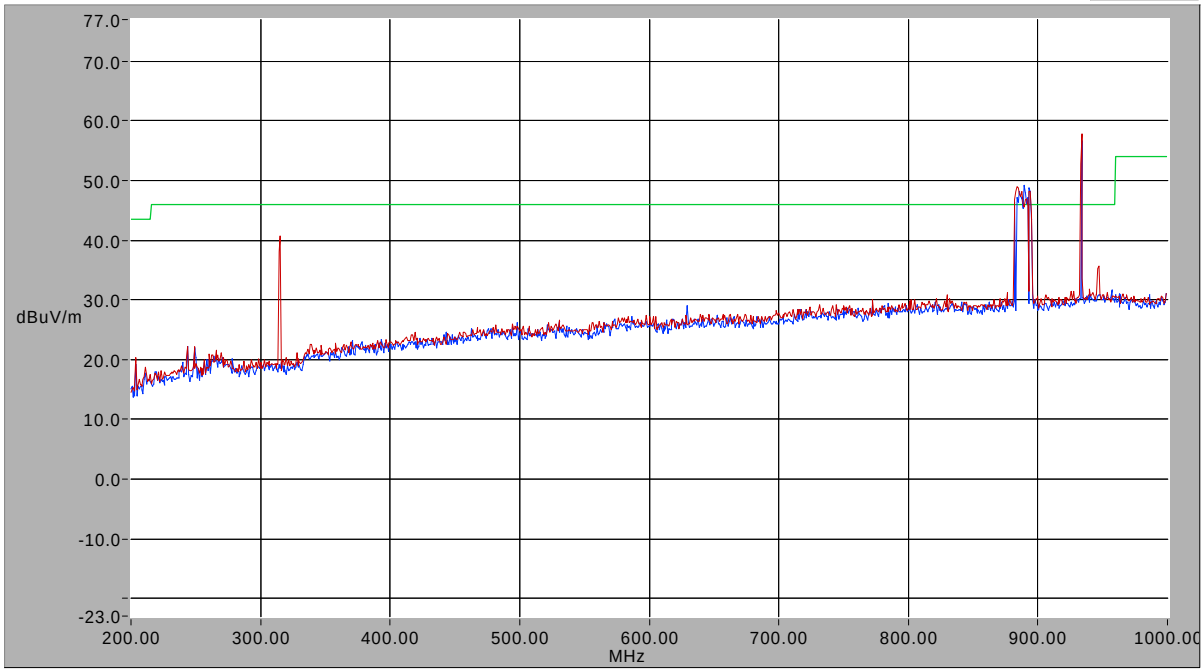
Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 200 - 1000 MHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: 11:39 AM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

September 14, 1999

Plot Number: 3



VBW 300.000 kHz
RBW: 1.000 MHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318h10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

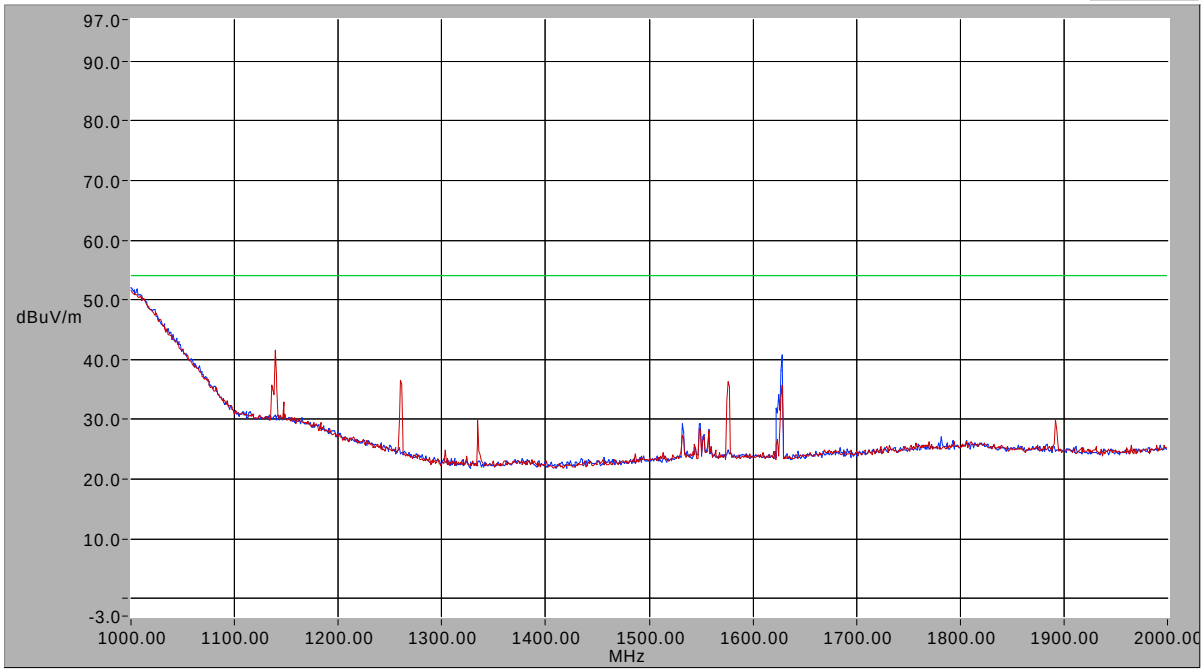
QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
945.020	0	0	10.70	22.51	3.09	0.00	36.30	46.02	Pass
316.610	-	-	-	-	-	-	-	-	TX Freq.
885.705	-	-	-	-	-	-	-	-	Ambient
931.720	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 1 - 2 GHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 2:56 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 4



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 10.00 dB
An Atten: 10.00 dB

Associated Files

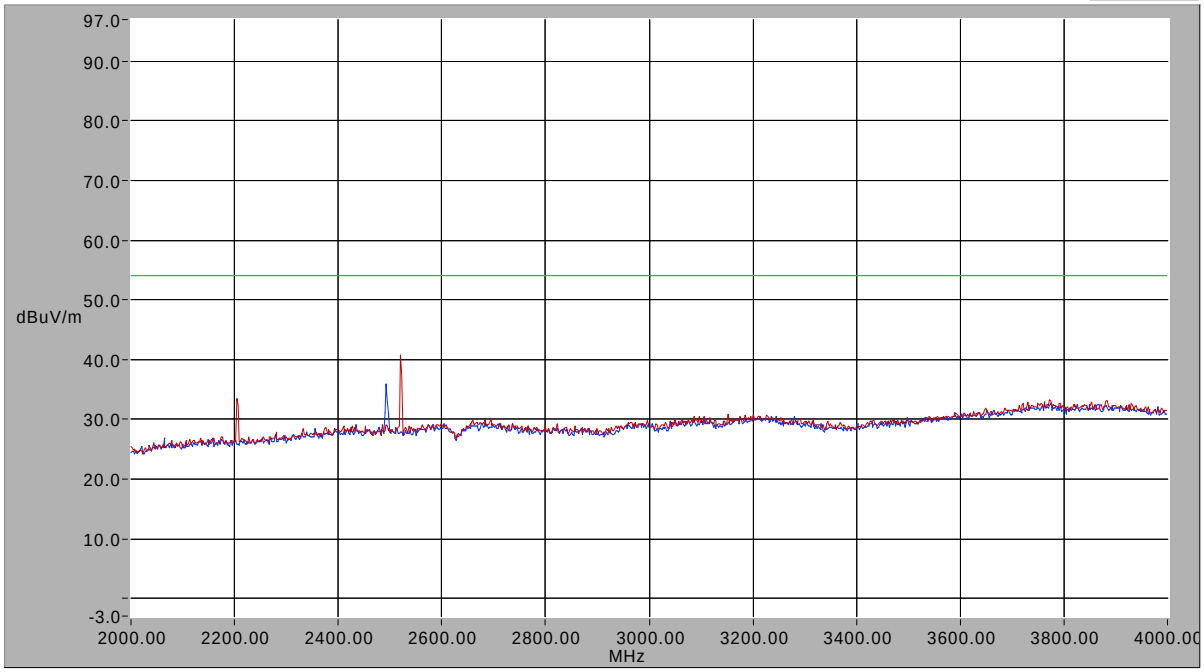
ofts10m.dat	8/7/1999
09588h3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 2 - 4 GHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 3:01 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

Plot Number: 5



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

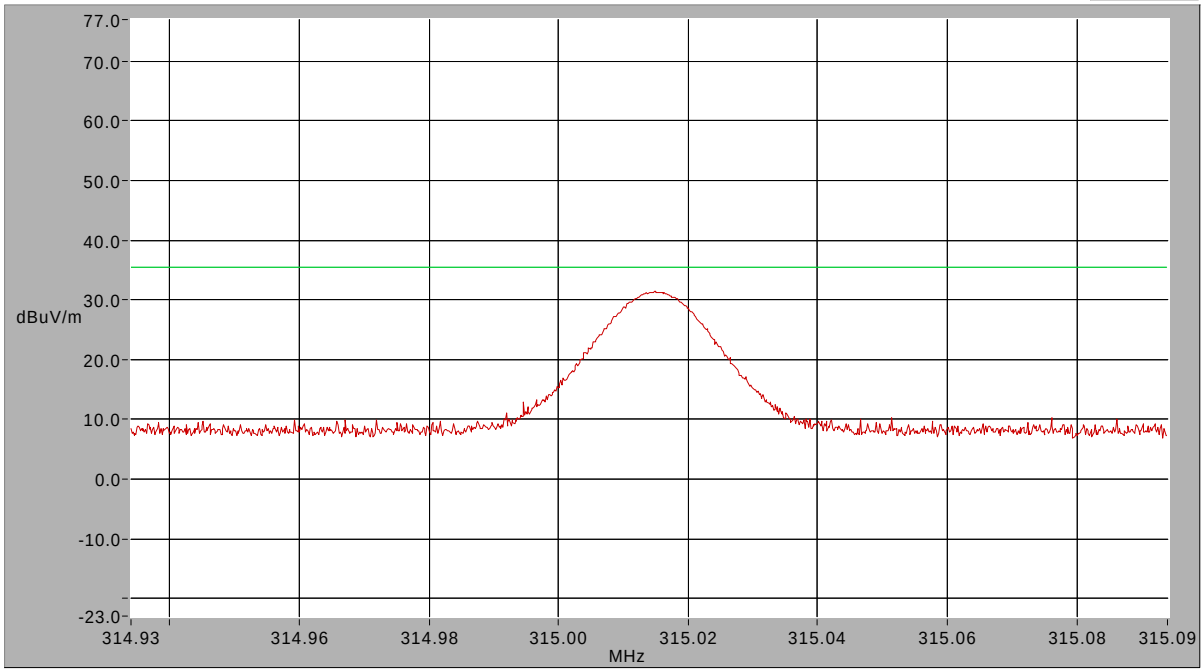
Associated Files

ofts10m.dat	8/7/1999
09588h3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 10m

Title: TX freq
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 10 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 10:48 AM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 6



VBW 30.000 kHz
RBW: 10.000 kHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat 8/7/1999
04318h10.dat 23/4/1998
FCC15B10.DAT 20/8/1998

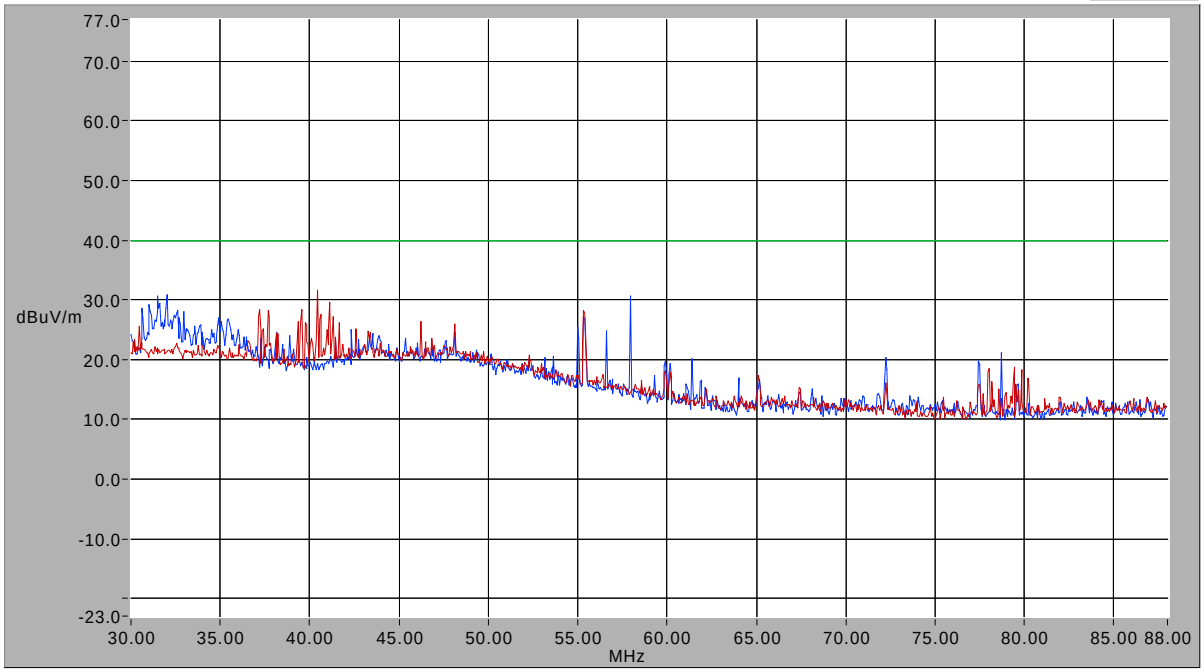
QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
315.015	159	287	18.80	13.46	1.76	0.00	34.02	35.56	Pass

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 30 - 88 MHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 1:12 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 7



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: 50.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

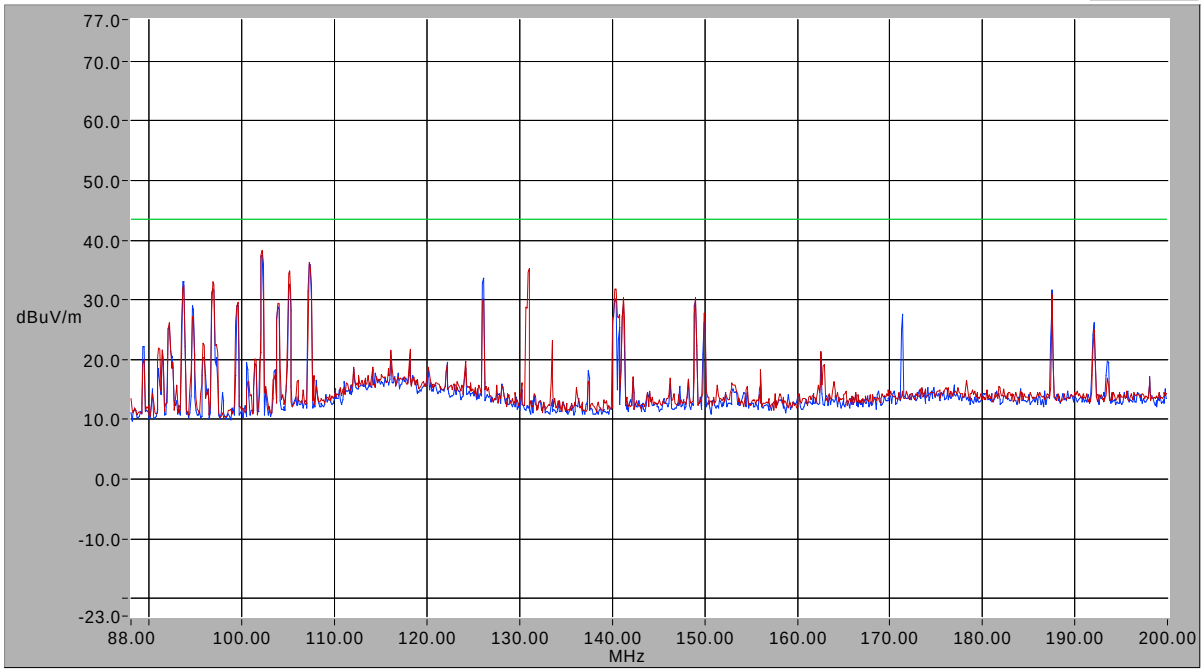
Associated Files

ofts10m.dat	8/7/1999
04318v10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 88 - 200 MHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 1:17 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 8



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: Auto
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318v10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

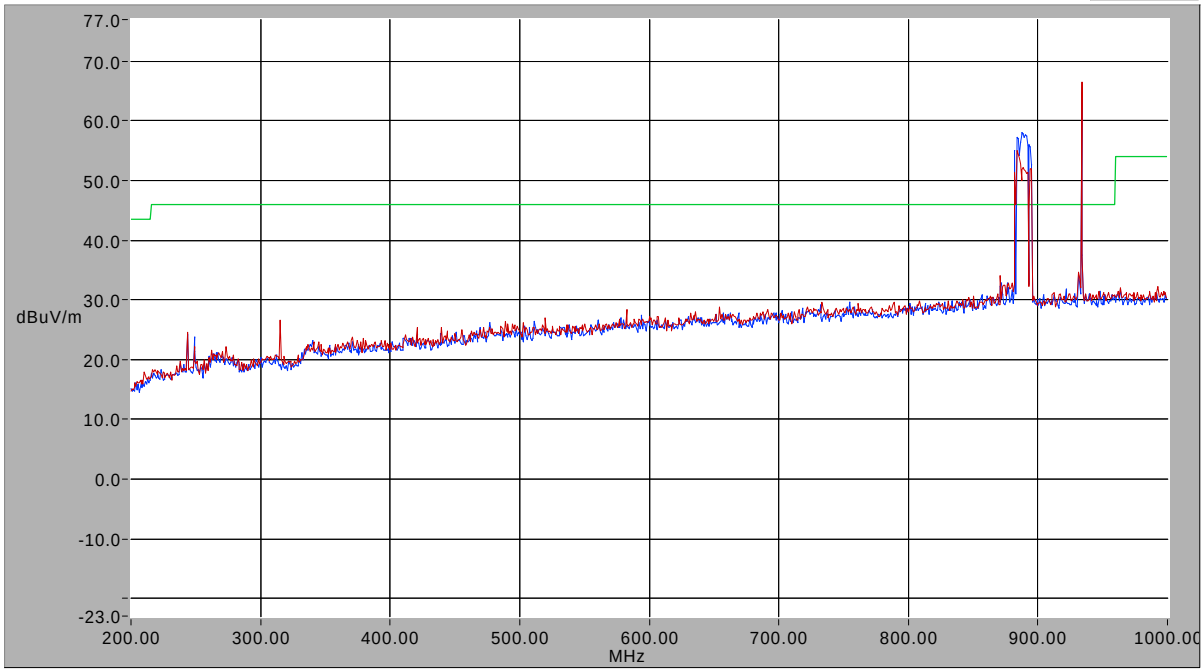
QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
102.116	-	-	-	-	-	-	-	-	Ambient
130.040	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 200 - 1000 MHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 1:23 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 9



VBW 300.000 kHz
RBW: 1.000 MHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318v10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

QUASI-PEAK DATA

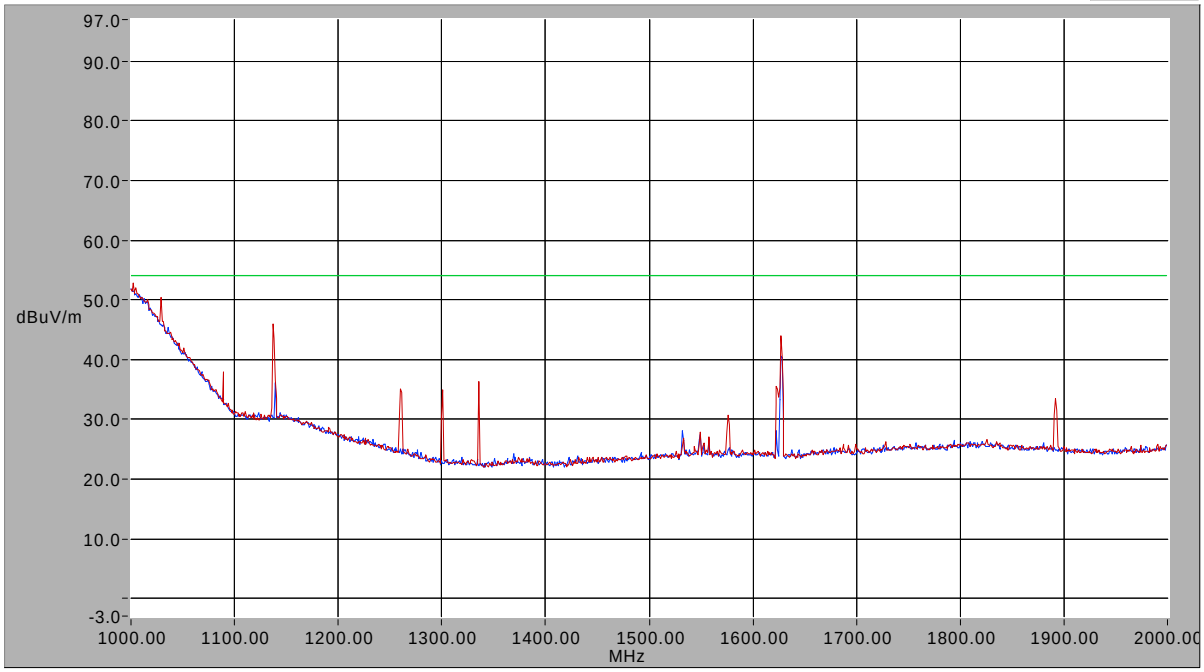
Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
315.005	-	-	-	-	-	-	-	-	TX Freq.
884.860	-	-	-	-	-	-	-	-	Ambient
931.720	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 1 - 2 GHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 2:38 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

Plot Number: 10



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 10.00 dB
An Atten: 10.00 dB

Associated Files

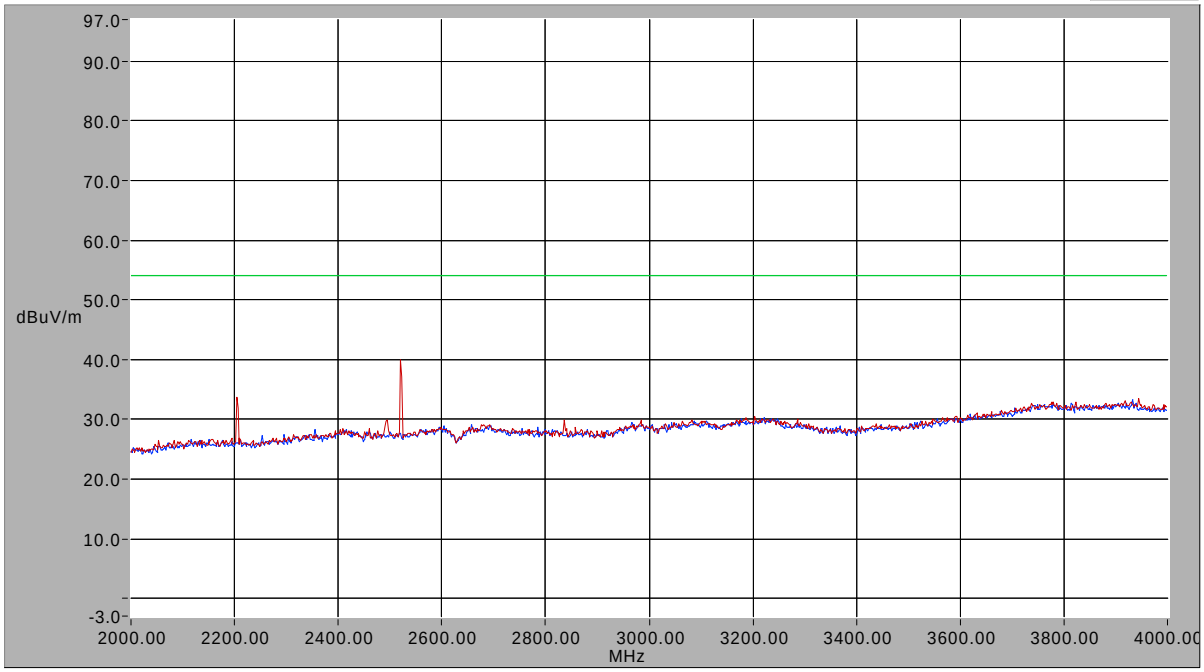
ofts10m.dat	8/7/1999
09588v3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 2 - 4 GHz
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 3:29 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

Plot Number: 11



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
09588v3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

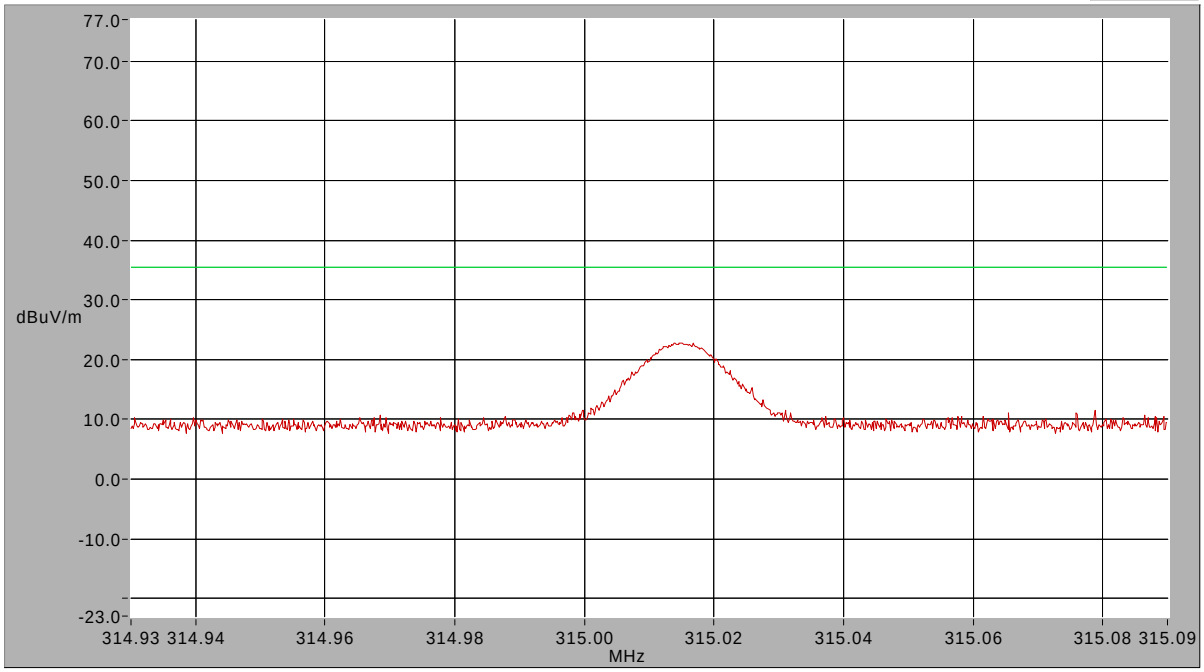
Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 10m

Title: TX Freq.
Mode of Operation: TX at 314.014 MHz (Low Channel)
Distance: 10 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: 1:33 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

September 14, 1999

Plot Number: 12



VBW 30.000 kHz
RBW: 10.000 kHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat 8/7/1999
04318v10.dat 23/4/1998
FCC15B10.DAT 20/8/1998

QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
315.016	232	398	7.30	14.22	1.76	0.00	23.28	35.56	Pass

Appendix 2

Test Result Data Forms
FOR
Eleven Engineering Inc.'s
Airplay Wireless Controller
TO DETERMINE COMPLIANCE WITH
FCC Part 15 Subpart C
When Transmitting at 319.48 MHz

PROJECT NO. 323A09

TEST COMPLETED: 14 September, 1999

Client: **Eleven Engineering Inc.**
Jason Gosior
2011 Commerce Place
10155-102 Street
Edmonton, AB
T5J 4G8

TABLE OF CONTENTS

This testing was done using a Airplay Wireless Controller.
This Test was done using FCC Part 15 Subpart C specifications at a distance of 3 m.

The transmit power and bandwidth measurements were measured at 10 m.

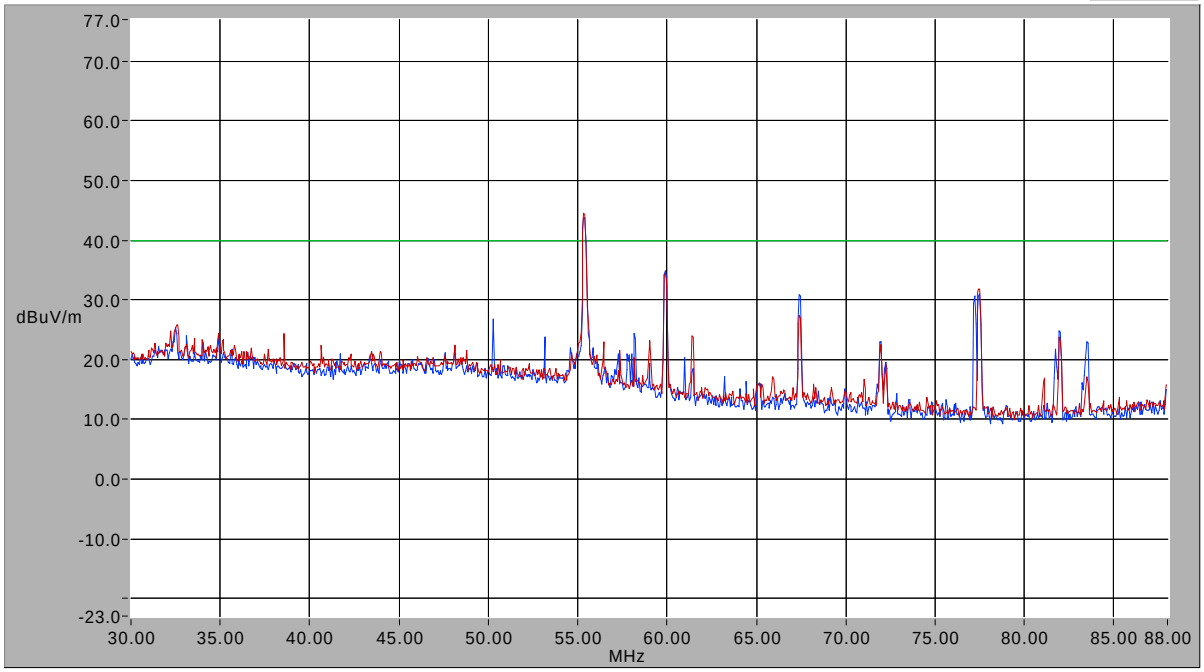
The Airplay Wireless Controller produced by Eleven Engineering Inc., **PASSED** FCC Part 15 Subpart C in the configuration shown on the configuration information sheet.

The Equipment Under Test is considered to have passed if the radiated E-field power does not exceed the limit of the appropriate standard as shown in section 3 of this report.

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 30 - 88 MHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 12:09 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 13



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: 50.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318h10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

QUASI-PEAK DATA

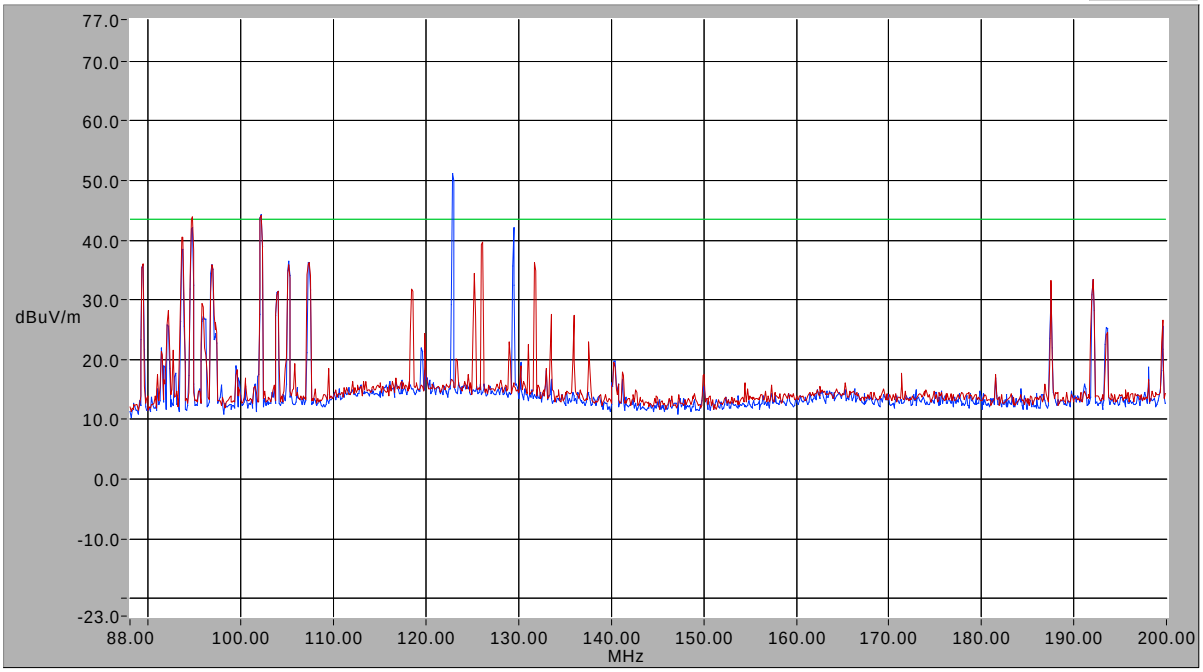
Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
55.248	-	-	-	-	-	-	-	-	Ambient
59.754	-	-	-	-	-	-	-	-	Ambient
67.230	-	-	-	-	-	-	-	-	Ambient
77.242	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 88 - 200 MHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 12:17 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 14

EMI
AMB
LIM



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: Auto
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318h10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
88.934	-	-	-	-	-	-	-	-	Ambient
93.690	-	-	-	-	-	-	-	-	Ambient
94.714	-	-	-	-	-	-	-	-	Ambient
96.866	-	-	-	-	-	-	-	-	Ambient
102.108	-	-	-	-	-	-	-	-	Ambient
105.074	-	-	-	-	-	-	-	-	Ambient
107.272	-	-	-	-	-	-	-	-	Ambient
122.728	-	-	-	-	-	-	-	-	Ambient
126.982	-	-	-	-	-	-	-	-	Ambient
130.038	-	-	-	-	-	-	-	-	Ambient
132.118	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

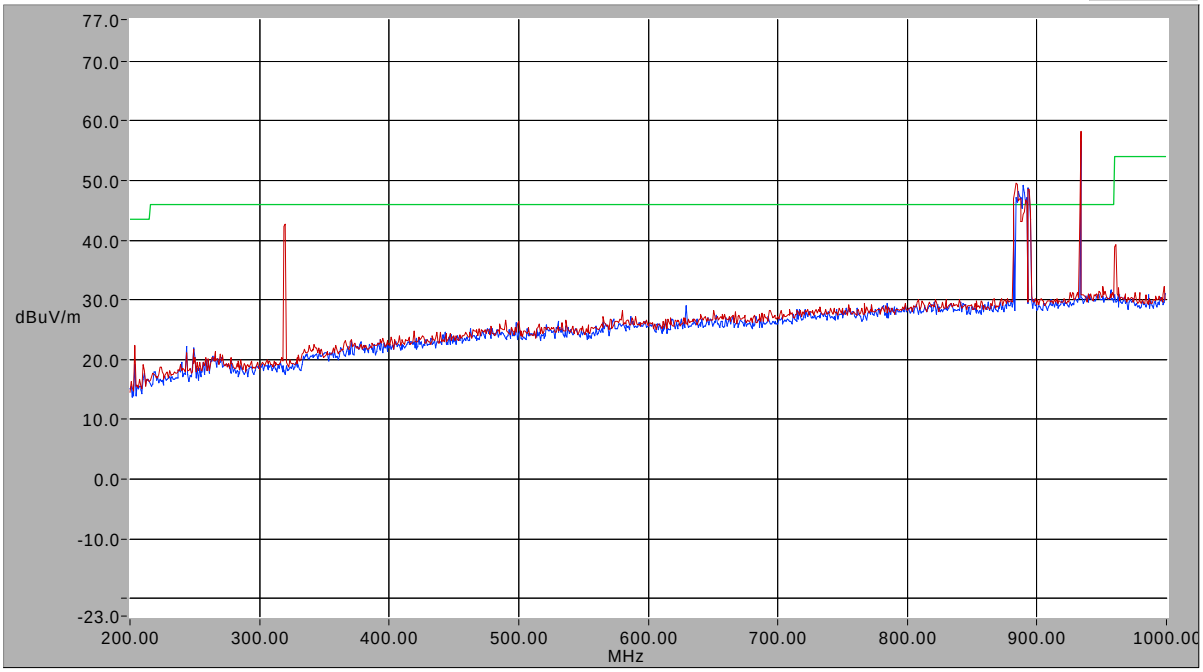
Title: 200 - 1000 MHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: 12:25 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

September 14, 1999

Plot Number: 15

EMI
AMB
LIM



VBW 300.000 kHz
RBW: 1.000 MHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318h10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
319.465	-	-	-	-	-	-	-	-	TX Freq.
882.430	-	-	-	-	-	-	-	-	Ambient
931.720	-	-	-	-	-	-	-	-	Ambient
958.462	0	0	10.90	22.40	3.10	0.00	36.40	46.02	Pass

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

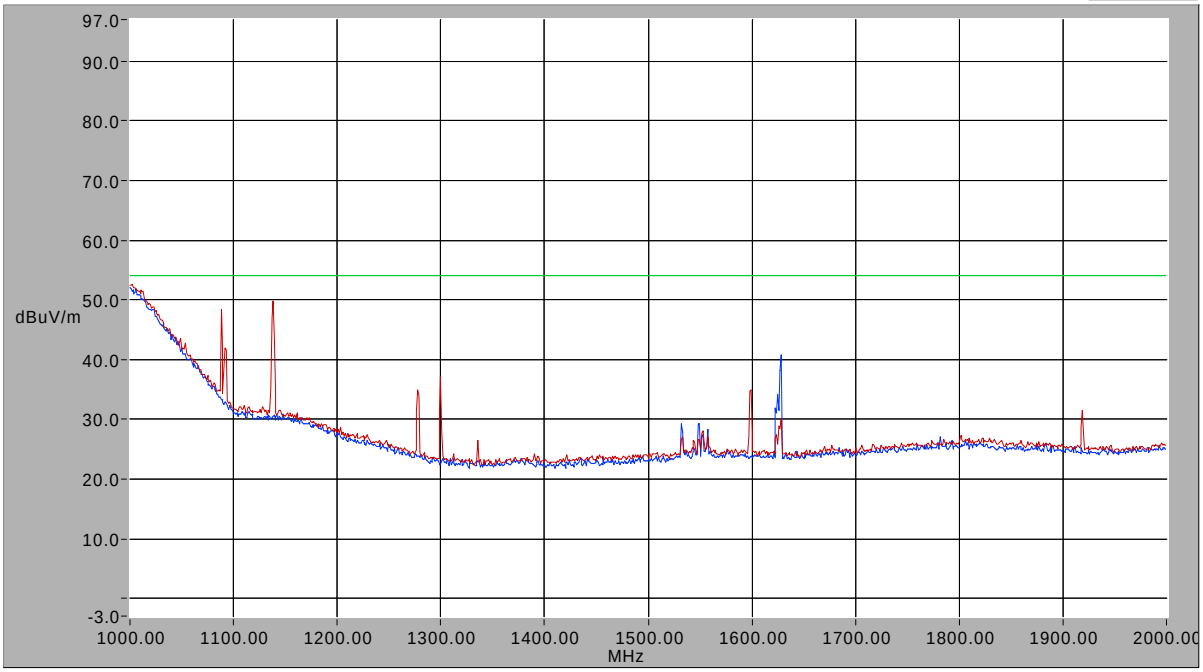
Title: TX Freq.
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: 2:12 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

September 14, 1999

Plot Number: 16

EMI
AMB
LIM



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 10.00 dB
An Atten: 10.00 dB

Associated Files

ofts10m.dat	8/7/1999
09588h3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
1097.980	-	-	-	-	-	-	-	-	Ambient
1137.660	-	-	-	-	-	-	-	-	Ambient

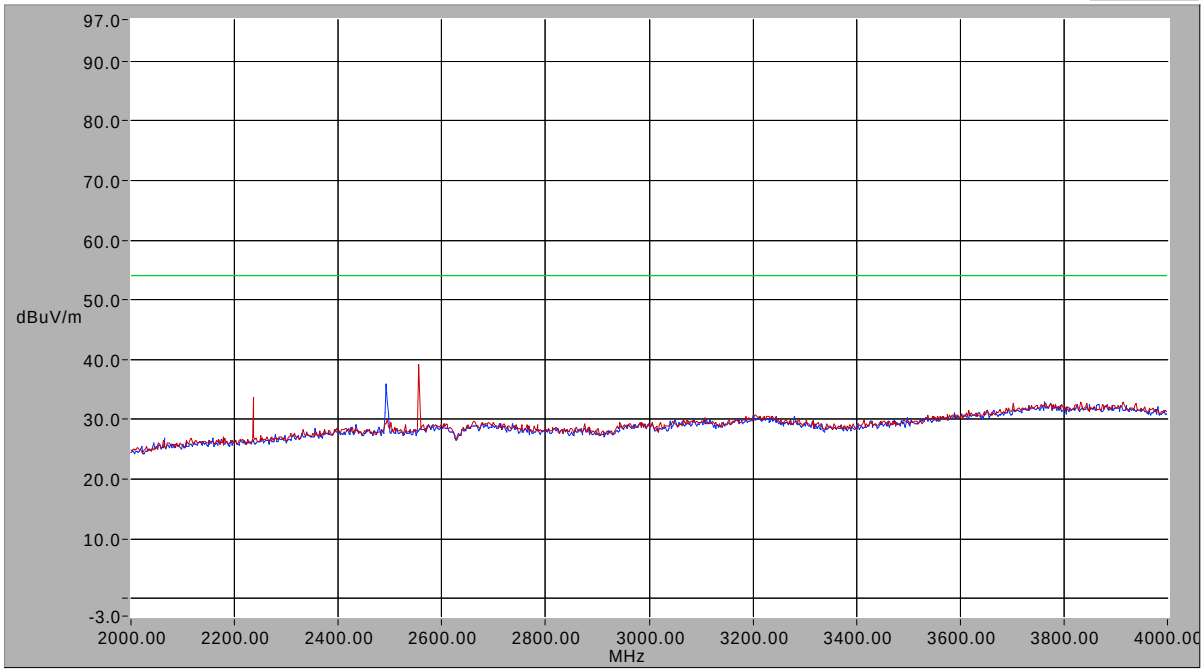
Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 3m

Title: 2 - 4 GHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 3:09 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

Plot Number: 17

EMI
AMB
LIM



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

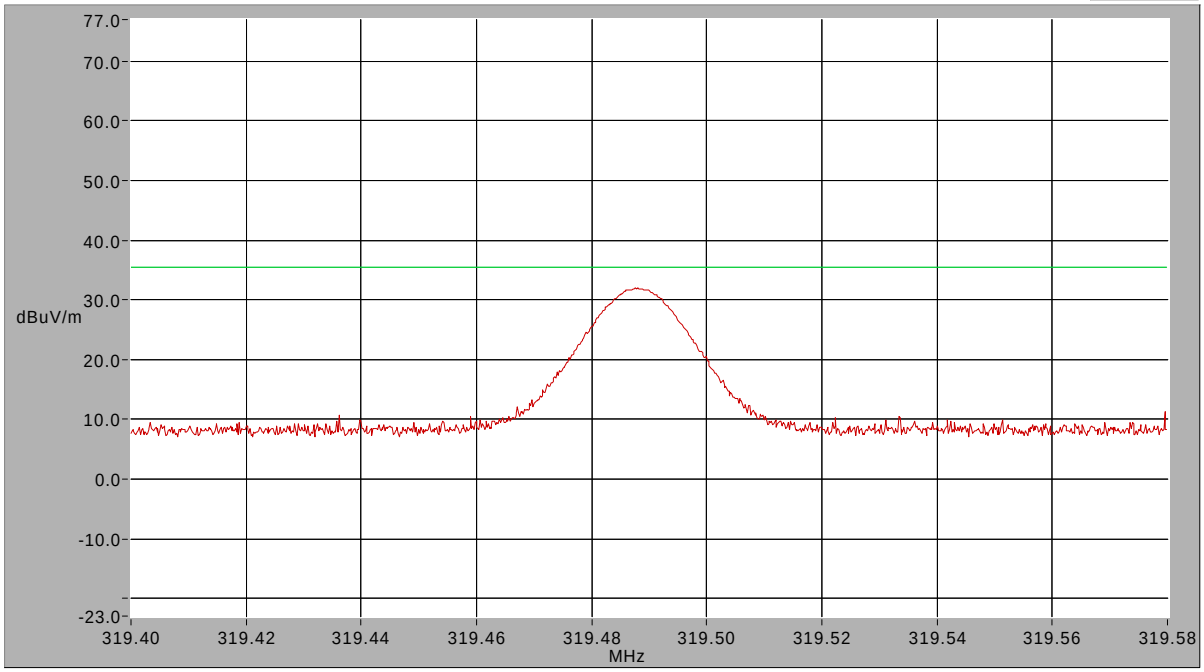
Associated Files

ofts10m.dat	8/7/1999
09588h3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

Radiated Emissions
Horizontal Polarity
FCC Part 15 Class B 10m

Title: TX freq
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 10 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 10:27 AM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 18



VBW 30.000 kHz
RBW: 10.000 kHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat 8/7/1999
04318h10.dat 23/4/1998
FCC15B10.DAT 20/8/1998

QUASI-PEAK DATA

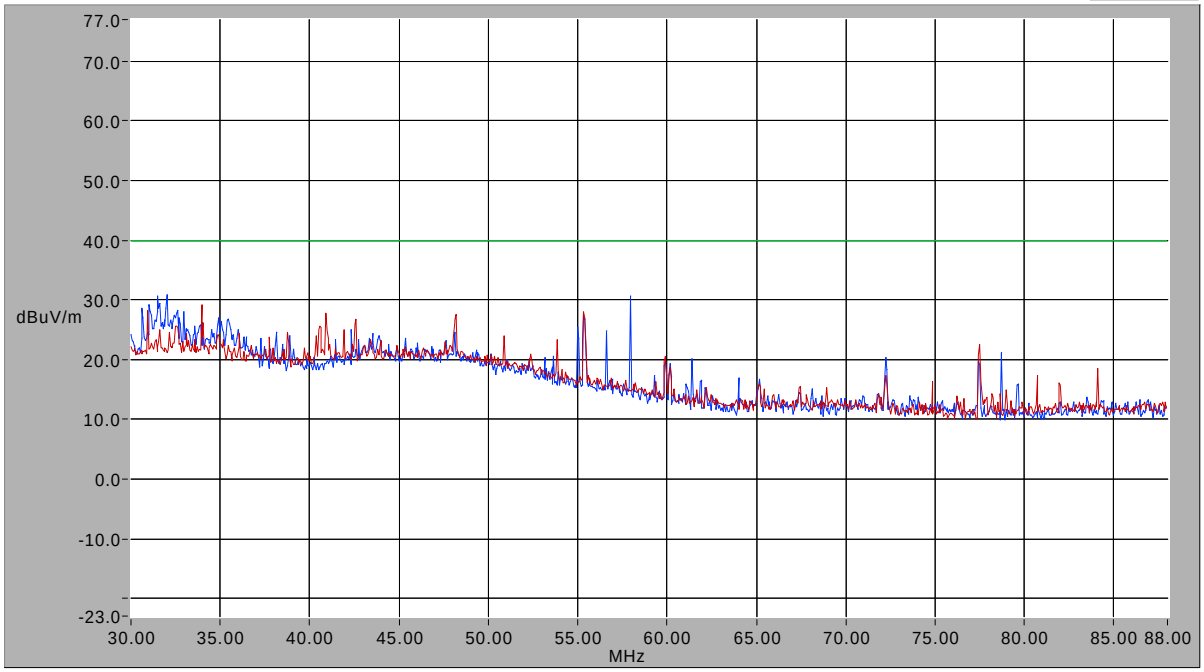
Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
319.488	165	233	19.60	13.50	1.78	0.00	34.88	35.56	Pass

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 30 - 88 MHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 1:06 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

Plot Number: 19



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: 50.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

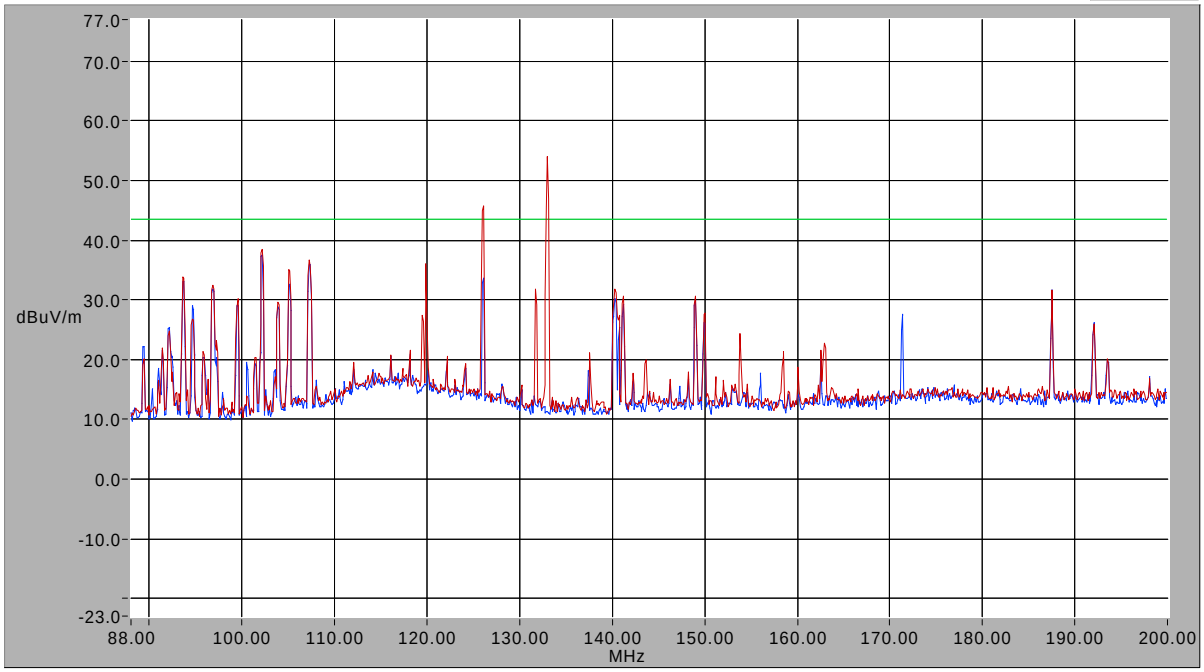
Associated Files

ofts10m.dat	8/7/1999
04318v10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 88 - 200 MHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 12:43 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 20



VBW 300.000 kHz
RBW: 100.000 kHz
Sweep Time: Auto
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318v10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

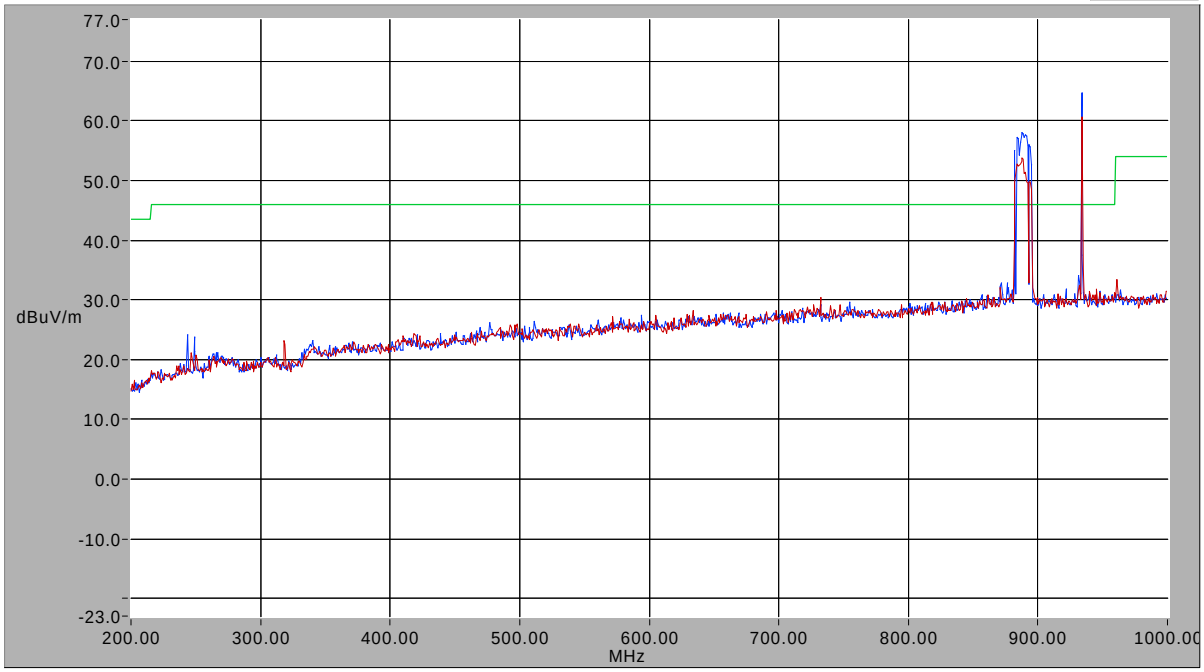
QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
93.666	-	-	-	-	-	-	-	-	Ambient
102.094	-	-	-	-	-	-	-	-	Ambient
107.232	-	-	-	-	-	-	-	-	Ambient
126.010	-	-	-	-	-	-	-	-	Ambient
133.298	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 200 - 1000 MHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 12:47 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 21



VBW 300.000 kHz
RBW: 1.000 MHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat	8/7/1999
04318v10.dat	23/4/1998
FCC15B3.DAT	20/8/1998

QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
319.475	-	-	-	-	-	-	-	-	TX Freq.
885.660	-	-	-	-	-	-	-	-	Ambient
931.910	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

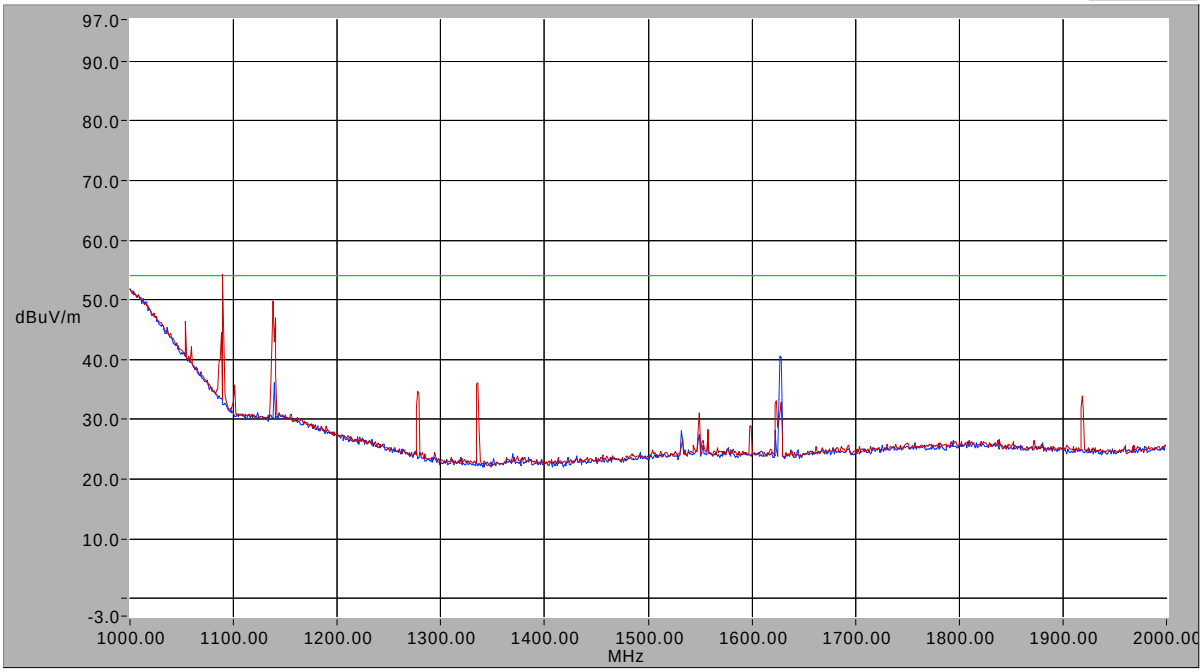
Title: TX Freq.
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: 2:48 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

September 14, 1999

Plot Number: 22

EMI
AMB
LIM



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 10.00 dB
An Atten: 10.00 dB

Associated Files

ofts10m.dat	8/7/1999
09588v3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

QUASI-PEAK DATA

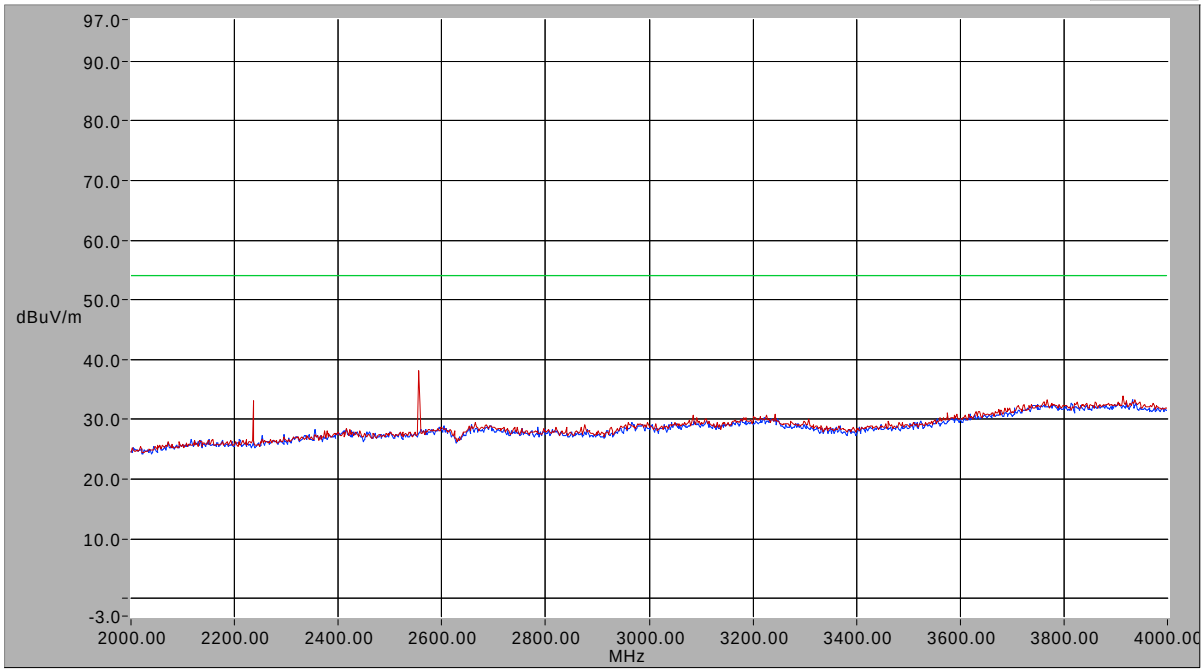
Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
1081.460	-	-	-	-	-	-	-	-	Ambient
1137.989	-	-	-	-	-	-	-	-	Ambient

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 3m

Title: 2 - 4 GHz
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 3:16 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1

Plot Number: 23



VBW 30.000 kHz
RBW: 1.000 MHz
Sweep Time: Auto
Ref. Lev: 97.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

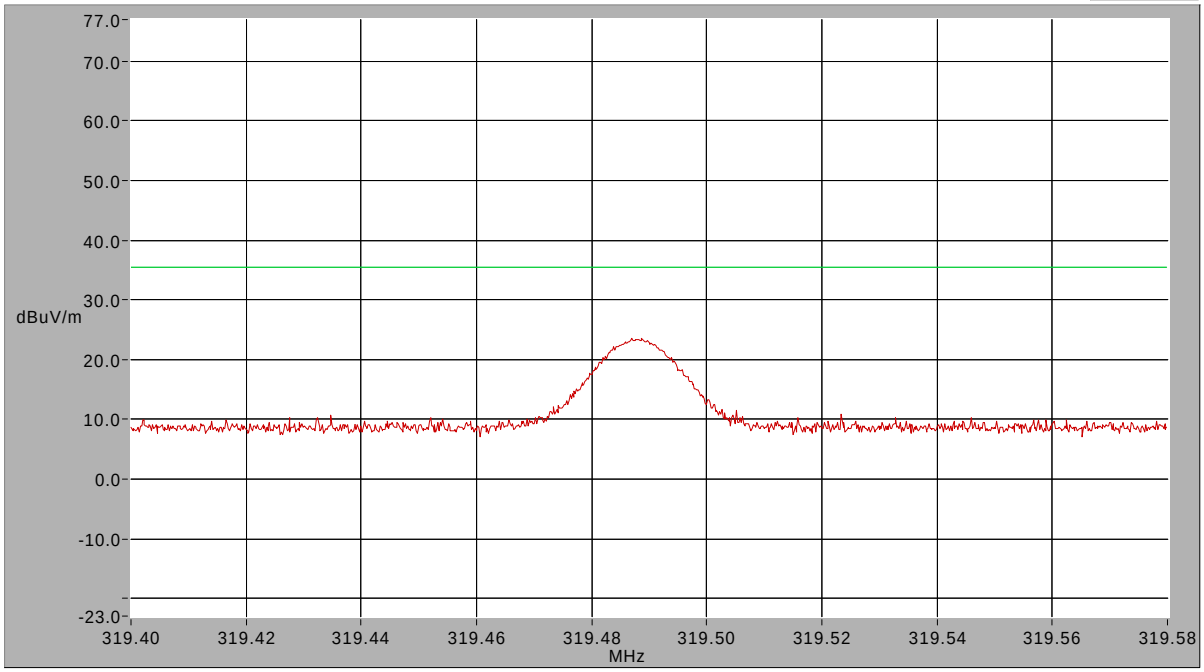
Associated Files

ofts10m.dat	8/7/1999
09588v3.dat	9/5/1997
FCC15B3.DAT	20/8/1998
	31/12/1903

Radiated Emissions
Vertical Polarity
FCC Part 15 Class B 10m

Title: TX Freq.
Mode of Operation: TX at 319.48 MHz (High Channel)
Distance: 3 meters
Technologist: Jeffery Taylor
Comments: Layout X with -34 dB

Date & Time: September 14, 1999 1:47 PM
Project #: 323A09
Company: Eleven Engineering Inc.
Product: Airplay Wireless Controller
Serial #: 1
Plot Number: 24



VBW 30.000 kHz
RBW: 10.000 kHz
Sweep Time: 100.00 ms
Ref. Lev: 77.00 dBuV/m
PR Atten: 0.00 dB
An Atten: 0.00 dB

Associated Files

ofts10m.dat 8/7/1999
04318v10.dat 23/4/1998
FCC15B10.DAT 20/8/1998

QUASI-PEAK DATA

Freq (MHz)	Azimuth (deg)	Height (cm)	SA Lvl (dBuV/m)	AF (dB)	CF (dB)	OF (dB)	Lvl (dBuV/m)	Limit (dBuV/m)	RESULT
319.488	239	392	8.30	13.88	1.78	0.00	23.95	35.56	Pass

END OF DOCUMENT