

TEST REPORT NO. RSI-2828E
ELECTROMAGNETIC EMISSION EVALUATION
OF THE
LUTRON ELECTRONICS
MODEL #: AR-6D-yy
FCC PART 15, SUBPART B AND C
24 JANUARY 2006

PREPARED FOR:

Lutron Electronics
7200 Suter Road
Coopersburg, PA 18036

SUBMITTED BY:

Radiation Sciences Inc.
3131 Detwiler Road
Harleysville, PA 19438

PREPARED BY:

Cathy J. Lattieri
Q. A. Administration
Radiation Sciences Inc.

REVIEWED BY:

John Kavalusky
EMC Test Engineer
Radiation Sciences Inc.

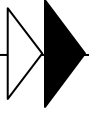


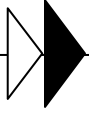
TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
	Table of Contents	i
	List of Figures	ii
	Administrative Data	iii
	Summary of Test Results	iv
1.0	INTRODUCTION	1
2.0	DESCRIPTION OF THE EQUIPMENT UNDER TEST (EUT)	2
3.0	TEST INSTRUMENTATION	3
4.0	TEST RESULTS	4
4.1	Conducted Emissions Test Results	4
4.2	Radiated Emissions Test Results	11
4.3	Bandwidth Measurements	25
5.0	Conclusions	30



LIST OF FIGURES

<u>FIGURE</u>	<u>TITLE</u>	<u>PAGE</u>
FIGURE 1	Conducted Emissions Test Setup Diagram	5
FIGURE 2	Conducted Emissions Test Setup Photographs	6
FIGURE 3	Conducted Emissions Test Results Phase Line, Rx434MHz	7
FIGURE 4	Conducted Emissions Test Results Neutral Line, Rx434MHz	8
FIGURE 5	Conducted Emissions Test Results Phase Line, Rx437MHz	9
FIGURE 6	Conducted Emissions Test Results Neutral Line, Rx437MHz	10
FIGURE 7	Duty Cycle Correction Factor	12
FIGURE 8	Radiated Emissions Test Setup Diagram	13
FIGURE 9	Radiated Emissions Test Setup Photographs	14
FIGURE 10	Radiated Emissions Test Results Data, Rx, Mode, 434MHz	15
FIGURE 11	Radiated Emissions Test Results Graph, Rx, Mode, 434MHz	16
FIGURE 12	Radiated Emissions Test Results Data, Rx, Mode, 437MHz	17
FIGURE 13	Radiated Emissions Test Results Graph, Rx, Mode, 437MHz	18
FIGURE 14	Radiated Emissions Test Results Data, CW, Tx Mode, 434MHz, Vert.	19
FIGURE 15	Radiated Emissions Test Results Data, CW, Tx Mode, 434MHz, Horiz.	20
FIGURE 16	Radiated Emissions Test Results Data, CW, Tx Mode, 437MHz, Vert.	21
FIGURE 17	Radiated Emissions Test Results Data, CW, Tx Mode, 437MHz, Horiz.	22
FIGURE 18	Intentional Radiator Test Results Data, CW, Tx Mode, 434MHz, H & V	23
FIGURE 19	Intentional Radiator Test Results Data, CW, Tx Mode, 437MHz, H & V	24
FIGURE 20	Bandwidth Test Results Data, CW, Tx Mode, 434MHz	26
FIGURE 21	Bandwidth Test Results Waveform, CW, Tx Mode, 434MHz	27
FIGURE 22	Bandwidth Test Results Data, CW, Tx Mode, 437MHz	28
FIGURE 23	Bandwidth Test Results Waveform, CW, Tx Mode, 437MHz	29



ADMINISTRATIVE DATA

TEST PERFORMED:

Measurements of Radiated and Conducted Emissions.

PURPOSE OF TEST:

To evaluate the ElectroMagnetic Emission (EME) characteristics of the Equipment Under Test (EUT) with respect to Subpart B and C of Part 15 of the Federal Communications Commission (FCC) Rules for intentional and unintentional radiators.

EQUIPMENT UNDER TEST (EUT):

Model Number: **AR-6D-yy**
Serial Number: **NSN**

CONTRACT:

Purchase Order Number: 0047112

TEST PERIOD:

15 November through 20 December 2005 and 13 January 2006

TEST FACILITY:

Radiation Sciences Incorporated (RSI), EMC Test Laboratory, located at: 3131 Detwiler Road, Harleysville, Pennsylvania 19438.

TEST PERSONNEL AND COORDINATORS:

Radiation Sciences Inc.

John Kavalusky

Lutron Electronics

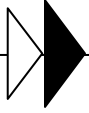
Mark Clouser
Robert Bollinger



SUMMARY OF TEST RESULTS

The **Model #: AR-6D-yy**, configured as described herein, **FULLY COMPLIES WITH THE REQUIREMENTS SET FORTH IN SUBPART B AND C OF PART 15 OF THE FEDERAL COMMUNICATIONS COMMISSION (FCC) RULES FOR INTENTIONAL AND UNINTENTIONAL RADIATORS.**

The test results contained in this report represent emission and/or immunity characteristics of only the product(s) (model and serial no.) tested. Radiation Sciences Inc. makes no claim that identical test results will be obtained for future tests of the same model/equipment.

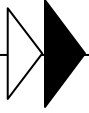


1.0 INTRODUCTION

This document is a report of tests to determine the EME characteristics of the **Model #: AR-6D-yy**, presented by **Lutron Electronics** of Coopersburg, Pennsylvania.

The purpose of the testing was to evaluate the EMC characteristics of the test sample with respect to Subpart B and C of Part 15 of the **FCC** Rules for intentional and unintentional radiators.

All test procedures used meet the requirements of the American National Standards Institute Procedure C63:4: "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz", 2003.



2.0 DESCRIPTION OF THE TEST SAMPLE:

The **Model # AR-6D-yy**, manufactured by **Lutron Electronics** of Coopersburg PA, is a Wall mounted radio controlled lamp dimmer. The -yy stands for the color code.

Hereinafter, the **Model #AR-6D-yy**, will be referred to as the **EUT** (Equipment Under Test).

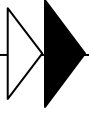




3.0 TEST INSTRUMENTATION

RSI INV NO.	DESCRIPTION	MANUFACTURER	MODEL #	SERIAL #	CAL DUE DATE
31	SPEC ANALYZER	ADVANTEST	R3271	J003583	1/27/2006
32.1	SPEC. ANALY.	H.P.	8566B	3638A08767	8/13/2006
33.1	SPEC. ANALY. DISPLY	H.P.		3701A22258	8/13/2006
39	PRE-AMP	H.P.	8349A	2403A00298	4/05/2006
52	ANTENNA	EMCO	3115	2425	6/10/2007
75	ANTENNA	TENSOR	4108	204	6/11/2007
80	ANTENNA	AMP.RES.Assoc.	AT1000	4094-025	6/14/2007
391	RECEIVER	R & S	ESVP	861744/015	3/15/2006
501	MINI MAST	EMCO	2075-2	0002-2278	
502	TURNTABLE	EMCO	2065-1.21	0001-2156	
503	CONTROLLER	EMCO	2090	0001-1489	
708	40ft Cable RG-223	PASTERNAK	BNC TO BNC	N/A	10/26/2006
712	20ft Cable RG-223	PASTERNAK	BNC TO BNC	N/A	10/26/2006
717	10ft SMA Cable	MIRO COAX(blue)	SMA TO SMA	N/A	9/15/2006

IF CAL DUE DATE = BLANK FIELD
Calibration is not required for this item. Equipment
not used to obtain a final reading (i.e. transmitting antenna).



4.0 TEST RESULTS

4.1 Conducted Power Line Measurements, Paragraph 15.107

Conducted power line measurements were recorded for the **EUT**.

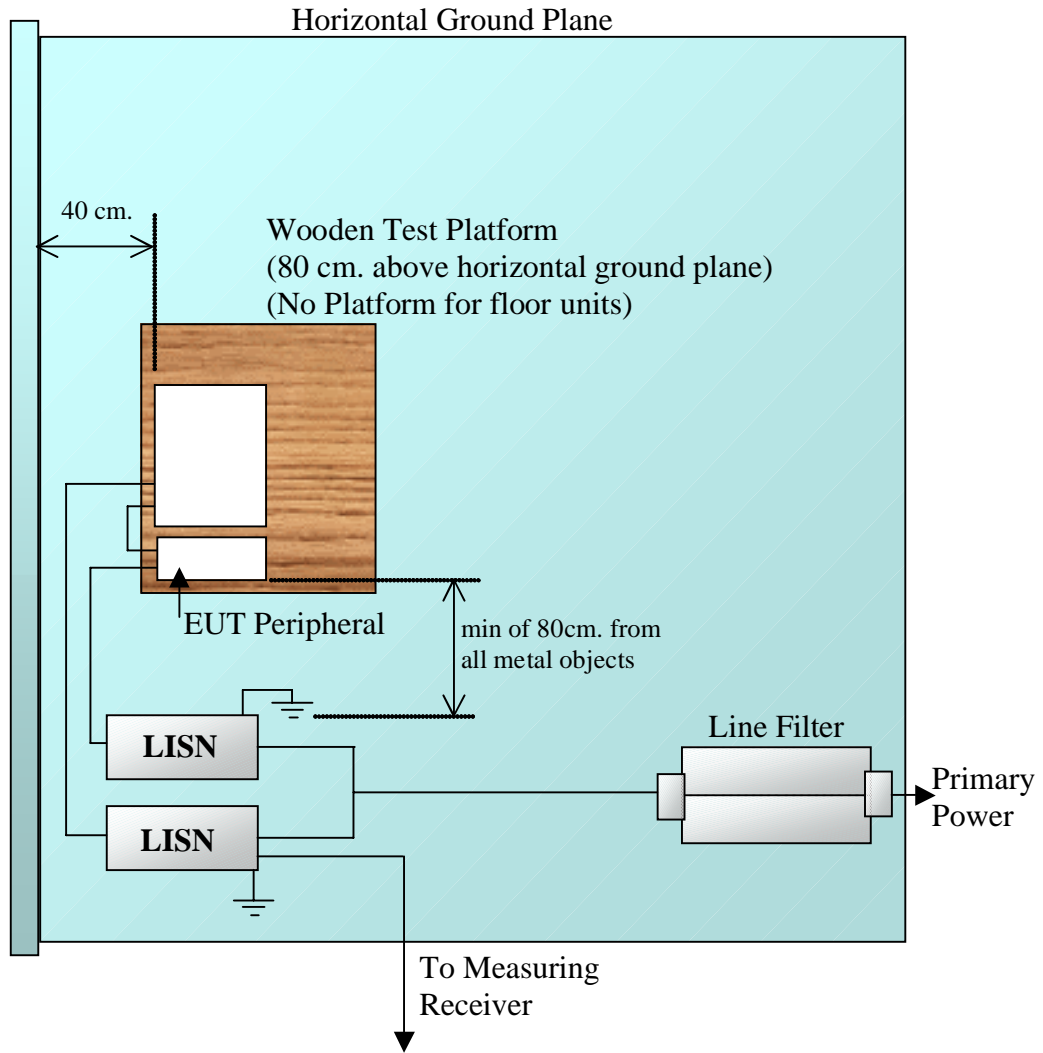
The **EUT** was placed on a table 80cm above a horizontal ground plane in a shield room. The power cable were bundled and oriented in a configuration which produced maximum emissions. The rear of the **EUT** was positioned at the edge of a 1m x 1.5m tabletop that was 40cm from the vertical ground plane. The **EUT** was positioned 80cm from all metal objects. The filtered power (115VAC, 60Hz) was fed through 50uh LISNs to the **EUT**. A spectrum analyzer was used to scan the frequency range of .150-30MHz.

The test setup diagram is shown in Figure 1 and photographs are shown in Figure 2.

The **EUT** was tested while being operated at two transmit frequencies of 434 and 437MHz.

The results of the line-to-ground radio noise voltage measurements are shown on graphs in Figures 3 through 6 for receive modes only of each operating frequency.

ALL LEVELS ARE BELOW THE APPLICABLE LIMITS AS SPECIFIED BY THE FCC IN PARAGRAPH 15.107.



**Conducted Emissions Test Setup Diagram (Top View)
Figure 1**



**Conducted Emissions Test Setup Photographs
Figure 2**

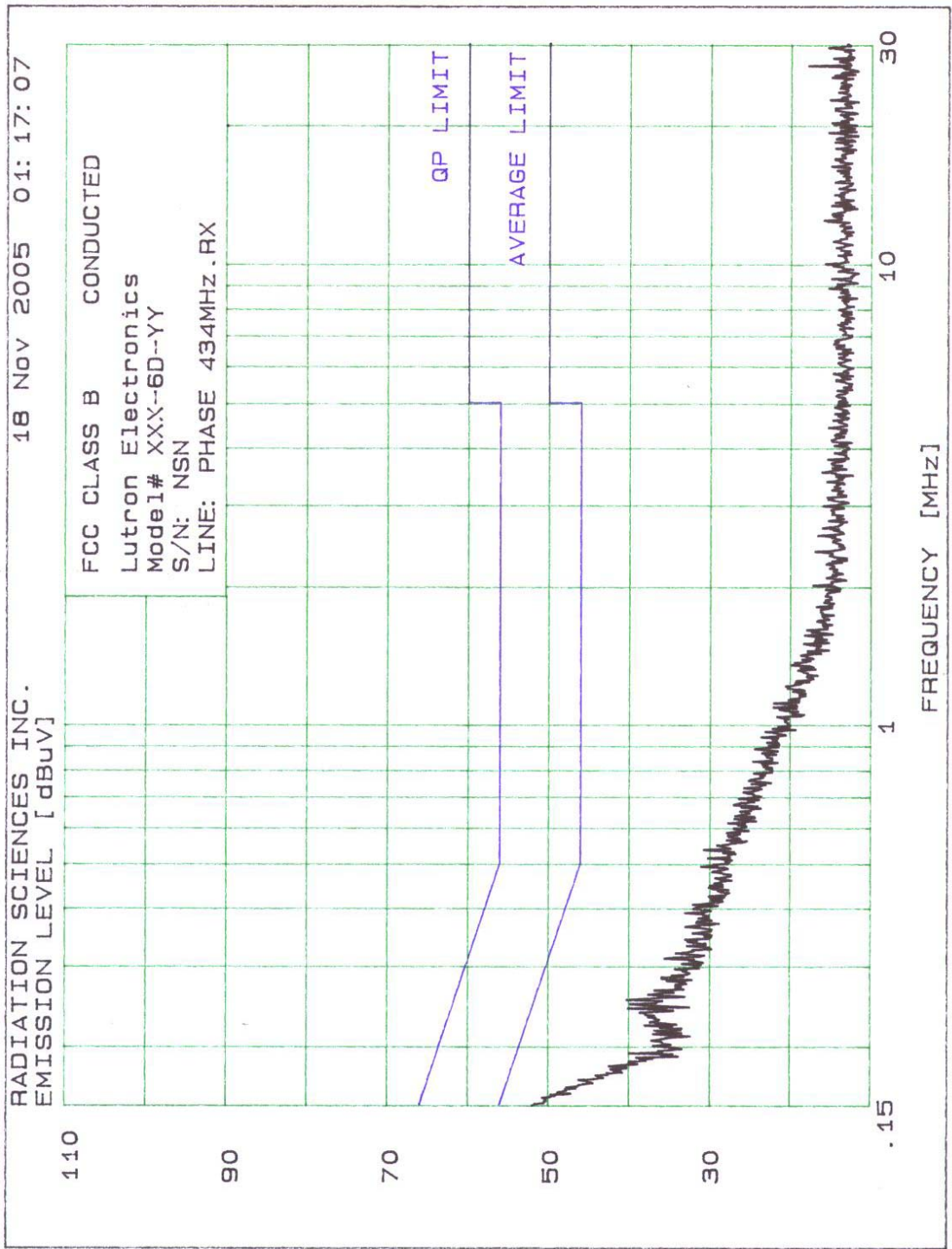


Figure 3

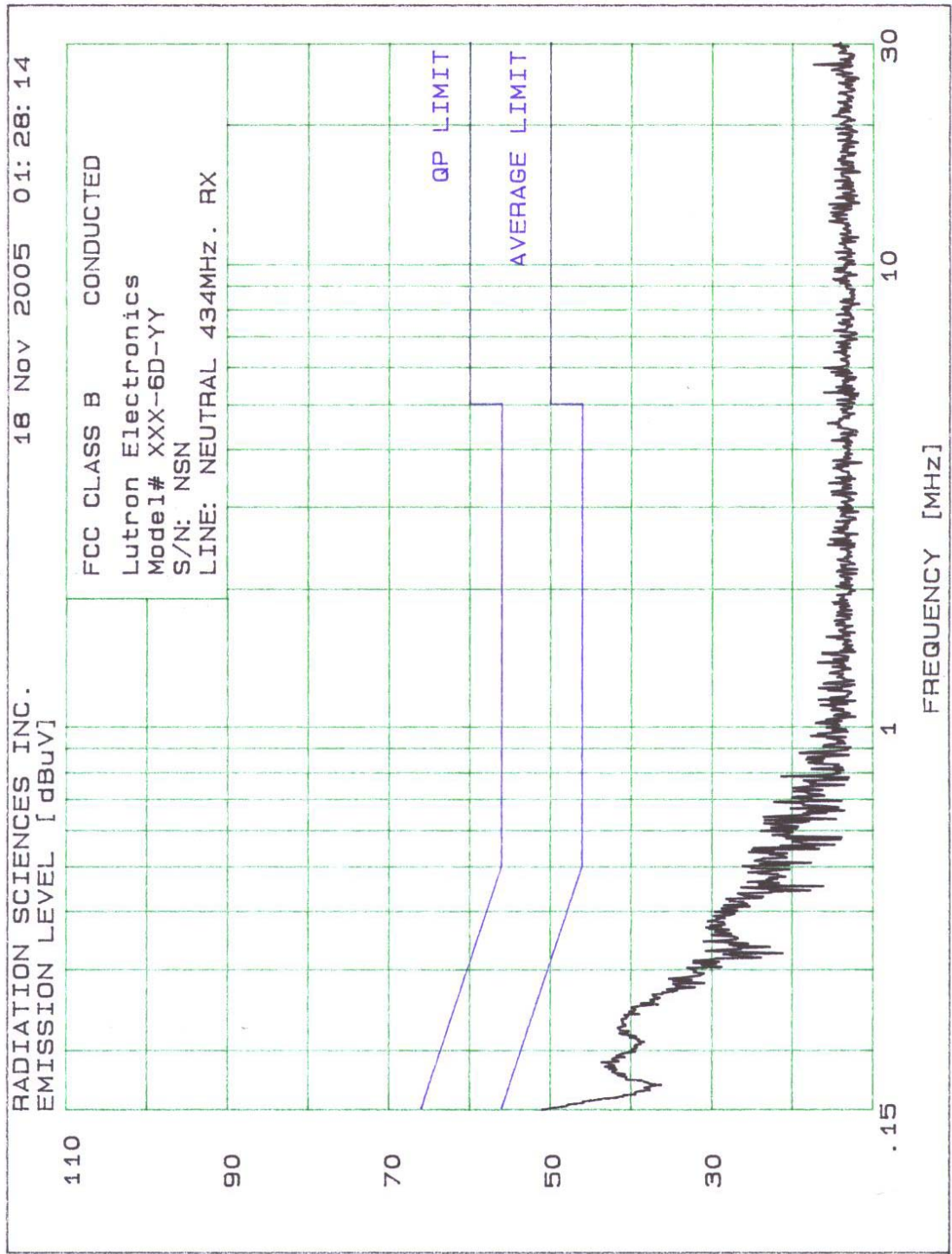
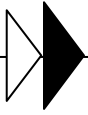


Figure 4

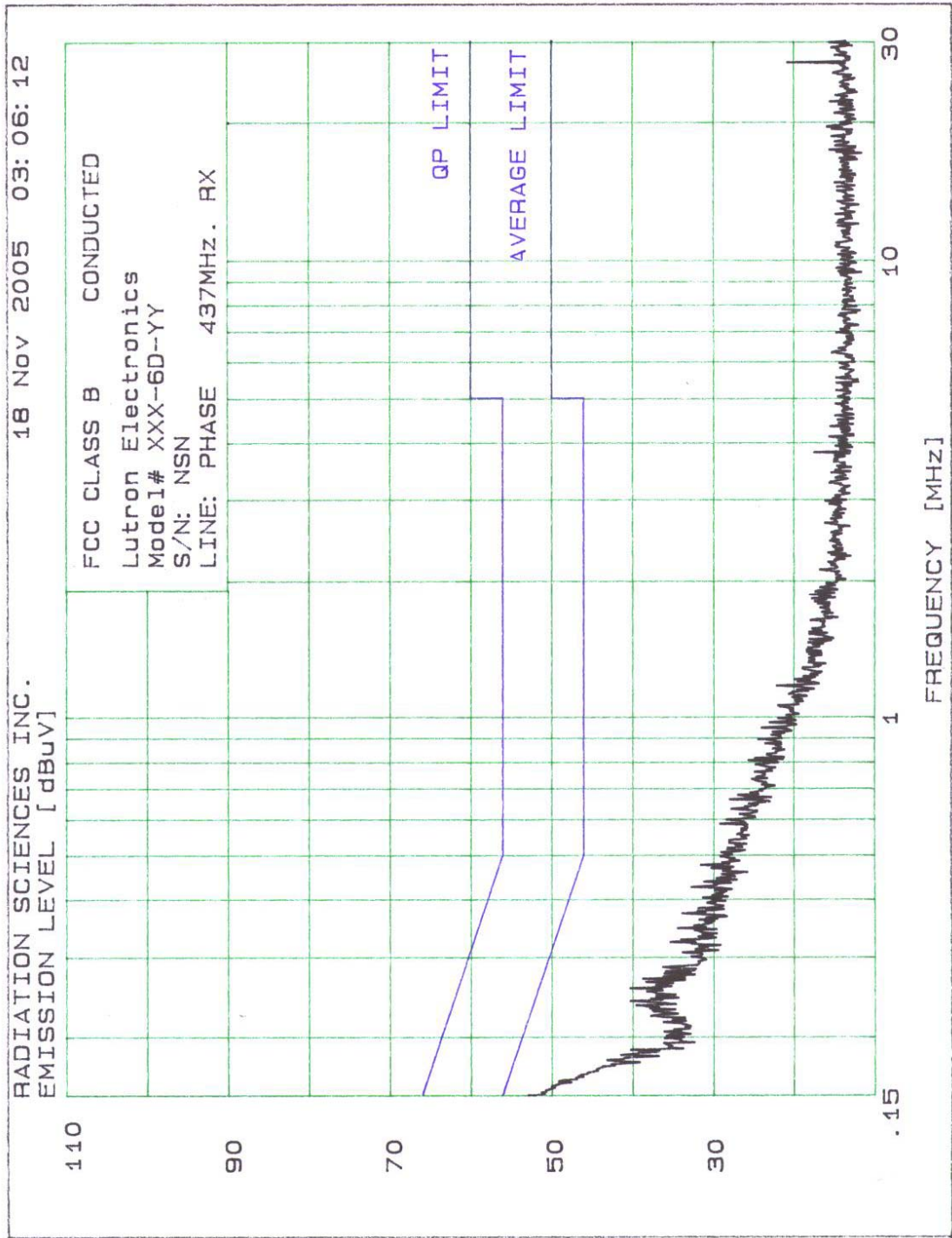
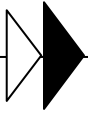


Figure 5

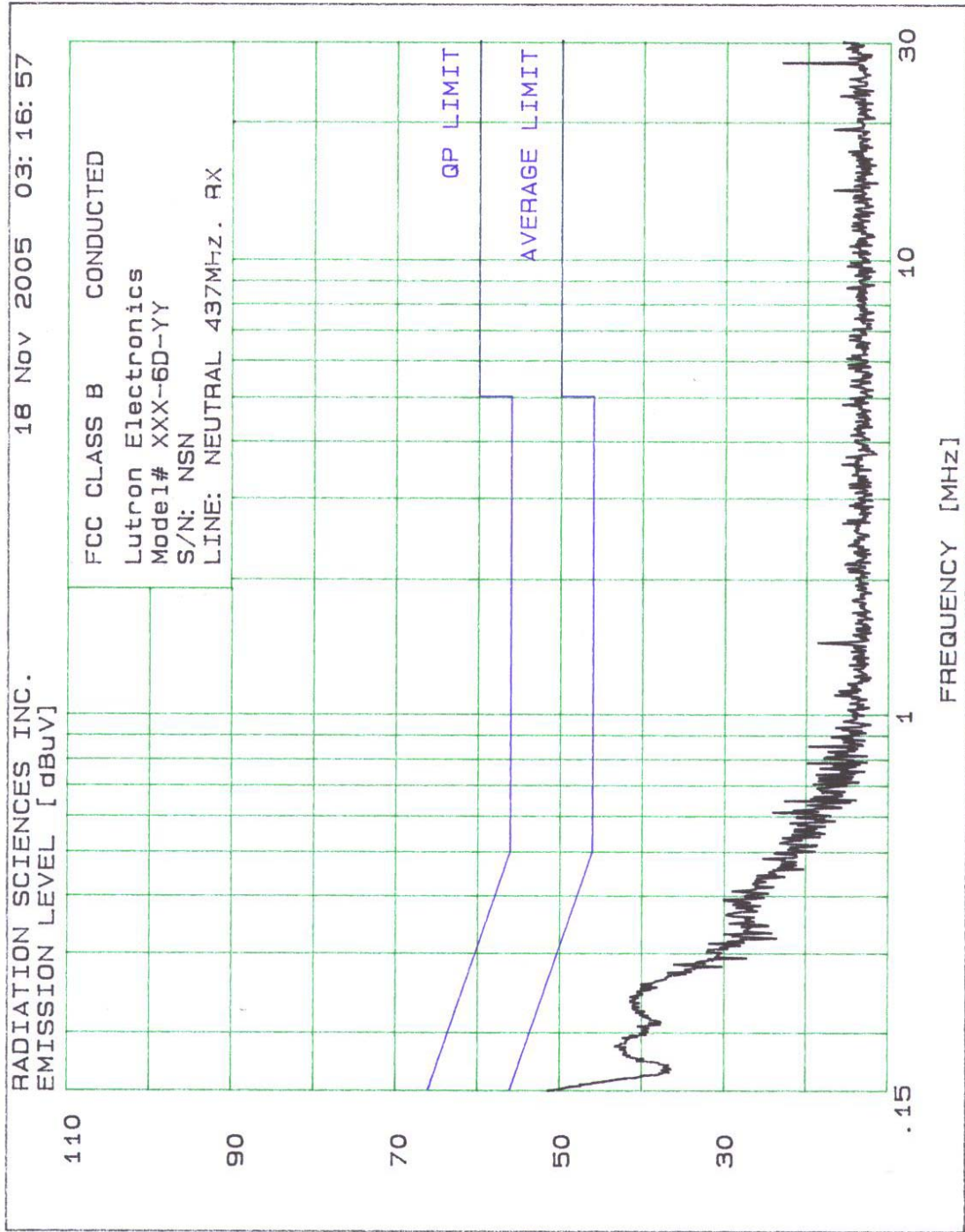
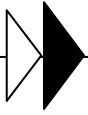


Figure 6



4.2 Radiated Emissions Measurements, §15.33, §15.35, §15.109, §15.205, §15.209, §15.231

Radiated Emissions measurements were recorded for the test sample at a distance of 3 meters. Radiated Emissions were measured with the antenna in both the horizontal and vertical polarizations. The antenna was raised 1 to 4 meters in height and the Equipment Under Test (EUT) was rotated 360° to maximize the emission. No significant emission level changes occurred while positioning the EUT power cable.

For intentional radiators the field strength of emissions of the EUT was measured out to the tenth harmonic of the carrier frequency. The carrier frequency was set to 434 and 437MHz.

An average factor of 20dB was applied to the level of the fundamental emission when compared to the FCC limit. The EUT duty cycle information supporting the -20dB factor is shown in Figure 7.

Figure 8 is a test setup diagram for Radiated Emissions and Figure 9 is a test setup photographs.

The test results for Radiated Emissions testing are shown in the following figures:

- Figure 10 Unintentional Radiated Emissions, data sheet, 434MHz Receive Mode
- Figure 11 Unintentional Radiated Emissions, graph, 434MHz Receive Mode
- Figure 12 Unintentional Radiated Emissions, data sheet, 437MHz Receive Mode
- Figure 13 Unintentional Radiated Emissions, graph, 437MHz Receive Mode
- Figure 14 Unintentional Radiated Emissions, data sheet, 434MHz CW Transmit Mode, Vert
- Figure 15 Unintentional Radiated Emissions, data sheet, 434MHz CW Transmit Mode, Horiz
- Figure 16 Unintentional Radiated Emissions, data sheet, 437MHz CW Transmit Mode, Vert
- Figure 17 Unintentional Radiated Emissions, data sheet, 437MHz CW Transmit Mode, Horiz

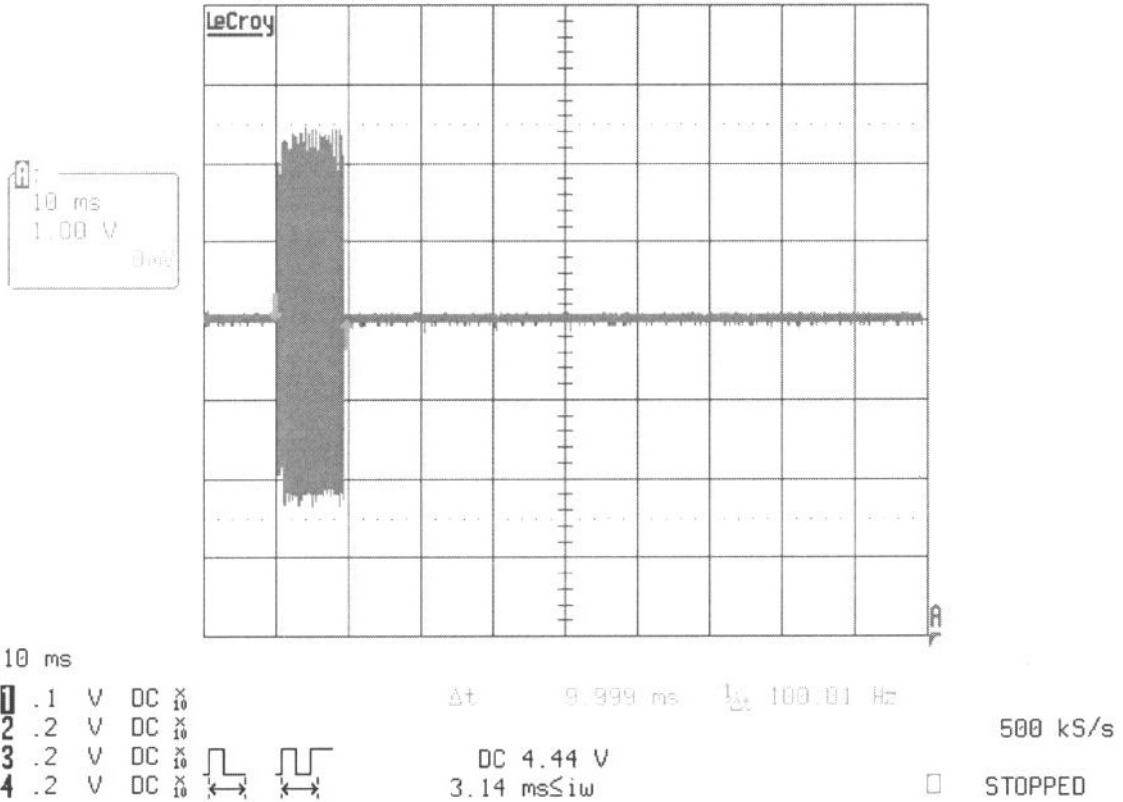
- Figure 18 Intentional Radiated Emissions, data sheet, 434MHz CW Transmit Mode
- Figure 19 Intentional Radiated Emissions, data sheet, 437MHz CW Transmit Mode

ALL LEVELS COMPLY WITH THE APPLICABLE FCC LIMITS FOR RADIATED EMISSIONS PER THE APPLICABLE PARAGRAPHS.



4-May-05
7:43:59

Reading Floppy Disk Drive



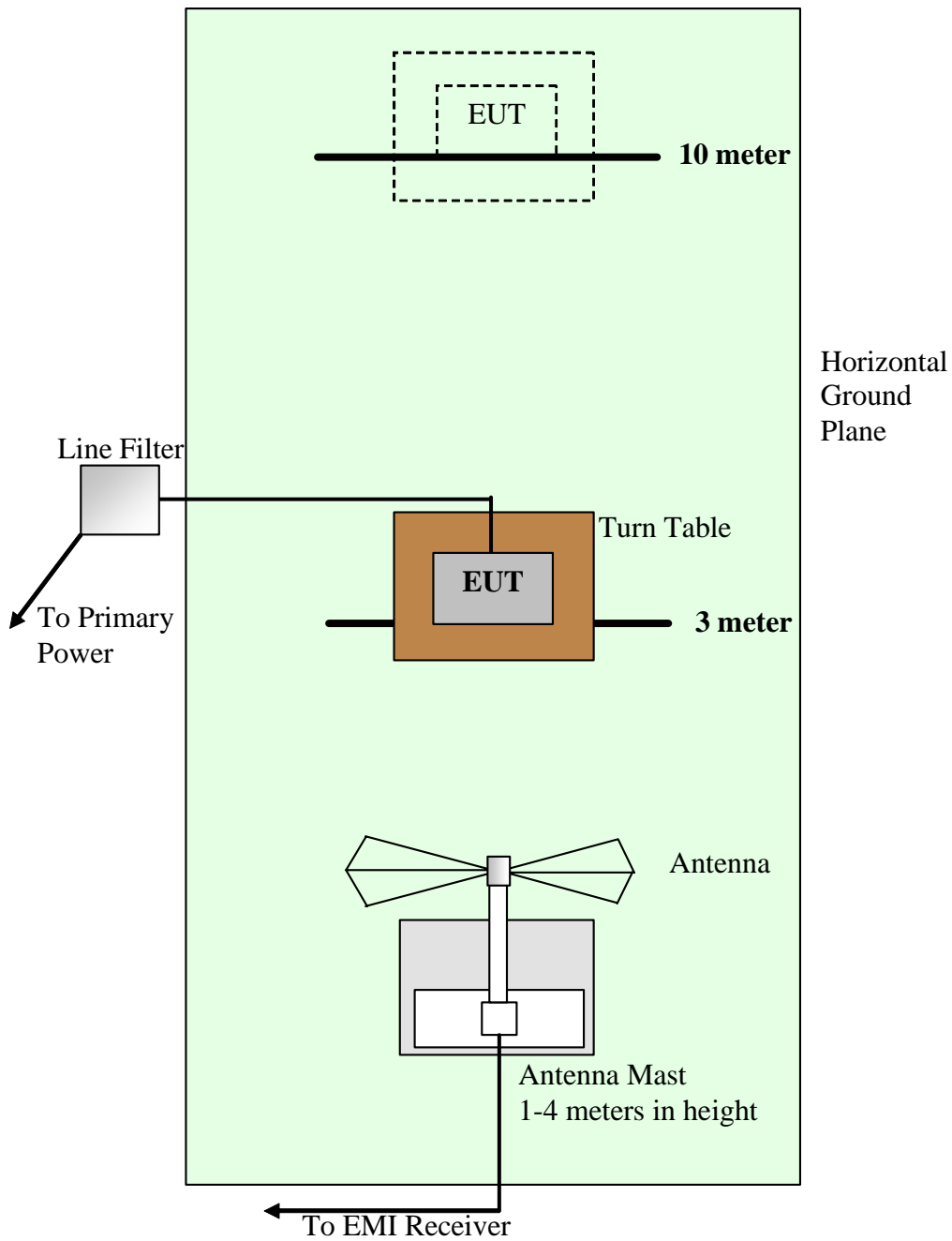
Duty Cycle Correction Factor Calculation:

Total Number of Pulses counted in 100ms

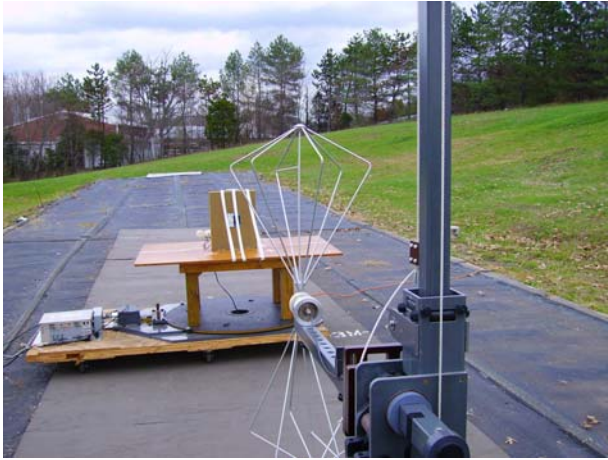
Total Time On = 9.999ms

$$\begin{aligned}
 \text{Duty Cycle Correction Factor} &= 20 \log [\text{Time On} / (\text{Time On} + \text{Time Off})] \\
 &= 20 \log [9.999 \text{ ms} / 100 \text{ ms}] \\
 &= 20 \log [0.1] \\
 &= -20 \text{ dB}
 \end{aligned}$$

**Duty Cycle Correction Factor
Figure 7**



**Radiated Emissions Test Setup Diagram
Figure 8**



**Radiated Emission Test Setup Photographs
Figure 9**



Electromagnetic Emission Test

E U T	Manufacturer: Lutron Electronics	Date: 11/16-17/2005	Test Code RE
	Model#: AR-6D-yy	Test Instruments: RSI # 75, 80, 391, 708, 501, 502, 503	Technician
	Serial #: N/A	Frequency Range: 30MHz – 6936MHz	Engineer
Mode: Receive 434MHz			

Temperature: 73°F	Additional Info:	Test Spec: FCC Part 15, Class B Unintentional Radiators
Humidity: 61%		

Radiated Distance: 3 meter Antenna: Bicon / Log	<input checked="" type="checkbox"/> HORIZ. <input type="checkbox"/> BB <input type="checkbox"/> NB <input checked="" type="checkbox"/> VERT. <input type="checkbox"/> H <input type="checkbox"/> E	Conducted Line: Function:	<input type="checkbox"/> BB <input type="checkbox"/> NB
--	---	--	--

FREQ.	IND. Level	Pre-Amp Factor	Correction Factors		Final Level	Antenna Height	EUT Azimuth	Remarks
			ANT.	Cable loss				
MHz	dBµV	dB	dB	dB	dBµV/m	Meters	Degree	
30.0	7.0	0.0	12.9	0.8	20.7	1.00	27.9	Vertical
120.0	1.5	0.0	11.2	1.9	14.6	1.00	27.9	
200.0	1.0	0.0	14.6	2.3	17.9	1.00	27.9	
300.0	-1.5	0.0	14.8	3.0	16.3	1.14	34.6	
435.965	20.0	0.0	17.4	3.6	41.0	1.28	139.9	
436.1	17.1	0.0	17.4	3.6	38.1	1.28	139.9	
438.089	18.0	0.0	17.4	3.7	39.1	1.28	139.9	
500.0	-1.5	0.0	17.9	4.0	20.4	1.14	34.6	
1000.0	-0.2	0.0	24.2	5.8	29.8	1.14	34.6	
1734.0	47.0	-33.0	26.5	1.0	41.5	1.00	0.0	
3468.0	43.3	-25.0	31.8	1.0	51.1	1.00	0.0	
5202.0	40.6	-23.6	33.5	1.5	52.0	1.00	0.0	
6936.0	39.0	-22.8	35.2	1.9	53.3	1.00	0.0	↓
30.0	1.5	0.0	13.1	0.8	15.4	1.00	27.9	Horizontal
60.0	7.0	0.0	9.1	1.2	17.3	1.00	27.9	
120.0	5.0	0.0	11.1	1.9	18.0	1.00	27.9	
200.0	3.0	0.0	13.5	2.3	18.8	1.00	27.9	
300.0	-1.6	0.0	15.2	3.0	16.6	1.14	34.6	
435.967	20.0	0.0	17.3	3.6	40.9	1.28	139.9	
437.988	14.8	0.0	17.2	3.6	35.6	1.28	139.9	
440.016	12.5	0.0	17.3	3.7	33.5	1.28	139.9	
500.0	-1.1	0.0	18.2	4.0	21.1	1.14	139.9	
1000.0	-0.2	0.0	24.6	5.8	30.2	1.14	139.9	
1734.0	50.7	-33.0	26.5	1.0	45.2	1.00	0.0	
3468.0	43.3	-25.0	31.1	1.0	50.4	1.00	0.0	
5202.0	39.6	-23.6	33.6	1.5	51.1	1.00	0.0	
6936.0	38.0	-22.8	35.3	1.9	52.4	1.00	0.0	↓

Figure 10

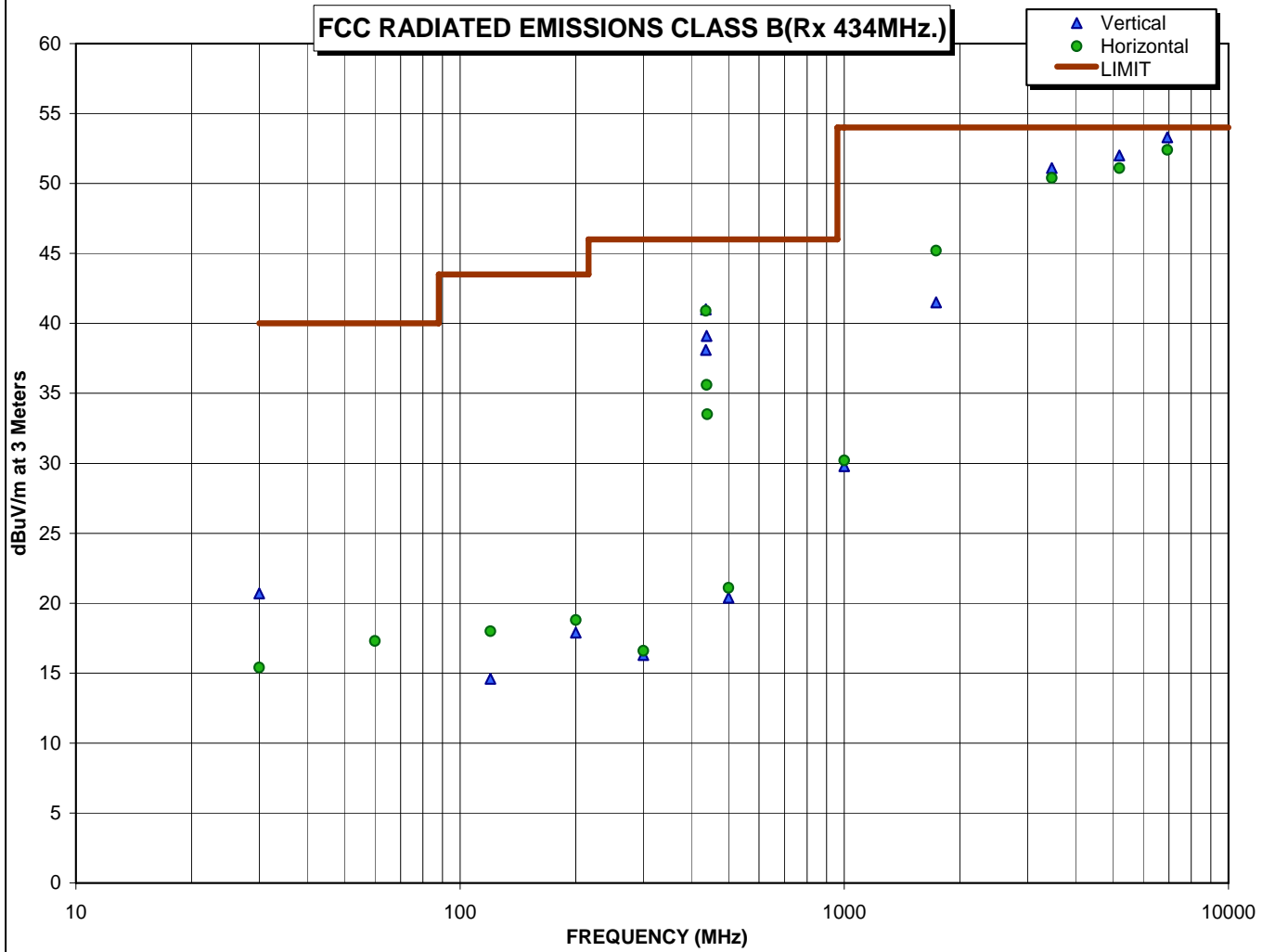
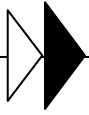


Figure 11



Electromagnetic Emission Test

E U T	Manufacturer: Lutron Electronics	Date: 11/16-17/2005	Test Code RE
	Model#: AR-6D-yy	Test Instruments: RSI # 75, 80, 391, 708, 501, 502, 503	Technician
	Serial #: N/A	Frequency Range: 30MHz – 2183MHz	Engineer
	Mode: Receive 437MHz		

Temperature: 73°F	Additional Info:	Test Spec: FCC Part15, Class B Unintentional Radiators
Humidity: 61%		

Radiated Distance: 3 meter Antenna: Bicon / Log	<input checked="" type="checkbox"/> HORIZ. <input type="checkbox"/> BB <input type="checkbox"/> NB <input checked="" type="checkbox"/> VERT. <input type="checkbox"/> H <input type="checkbox"/> E	Conducted Line: Function:	<input type="checkbox"/> BB <input type="checkbox"/> NB
--	---	--	--

FREQ.	IND. Level	Pre-Amp Factor	Correction Factors		Final Level	Antenna Height	EUT Azimuth	Remarks
			ANT.	Cable loss				
MHz	dBµV	dB	dB	dB	dBµV/m	Meters	Degree	
30.0	8.0	0.0	12.9	0.8	21.7	1.37	33.1	Vertical
120.0	1.0	0.0	11.2	1.9	14.1	1.37	33.1	
192.0	4.4	0.0	14.2	2.2	20.8	1.00	248	
200.0	4.0	0.0	14.6	2.3	20.9	1.37	33.1	
300.0	-1.6	0.0	14.8	3.0	16.2	1.14	38.7	
434.0	21.4	0.0	17.4	3.7	42.5	1.14	28.4	
437.9	13.9	0.0	17.4	3.6	34.9	1.36	150.8	
442.4	20.0	0.0	17.4	3.7	41.1	1.13	125.0	
500.0	-1.1	0.0	17.9	4.0	20.8	1.40	97	
873.386	2.4	0.0	22.8	5.4	30.6	1.38	97	
1000.0	-0.2	0.0	24.2	5.8	29.8	1.14	38.7	
1747.0	46.6	-33.0	25.4	1.0	40	1.00	0.0	
2183.0	47.3	-29.0	28.2	1.0	47.5	1.00	360	↓
30.0	2.0	0.0	13.1	0.8	15.9	1.00	27.9	Horizontal
60.0	10.0	0.0	9.1	1.2	20.3	1.52	33.1	
120.0	6.0	0.0	11.0	1.9	18.9	2.21	0.0	
200.0	6.8	0.0	14.0	2.3	23.1	2.21	0.0	
300.0	-1.1	0.0	15.2	3.0	17.1	1.14	38.7	
427.63	22.7	0.0	17.3	3.6	43.6	1.00	126	
432.0	17.7	0.0	17.3	3.6	38.6	1.14	38.7	
435.0	15.1	0.0	17.3	3.7	36.1	1.14	38.7	
442.4	7.3	0.0	17.1	3.7	28.1	1.14	38.7	
500.0	-1.6	0.0	18.2	4.0	20.6	1.14	38.7	
873.386	2.4	0.0	23.3	5.4	31.1	1.00	252	
1000.0	0.2	0.0	24.6	5.8	30.6	1.14	38.7	
1310.0	47.0	-31.0	25.1	1.0	42.1	1.00	0.0	
1747.0	46.6	-33.0	26.6	1.0	41.2	1.00	0.0	
2183.0	48.5	-29.0	28.2	1.0	48.7	1.00	0.0	↓

Figure 12

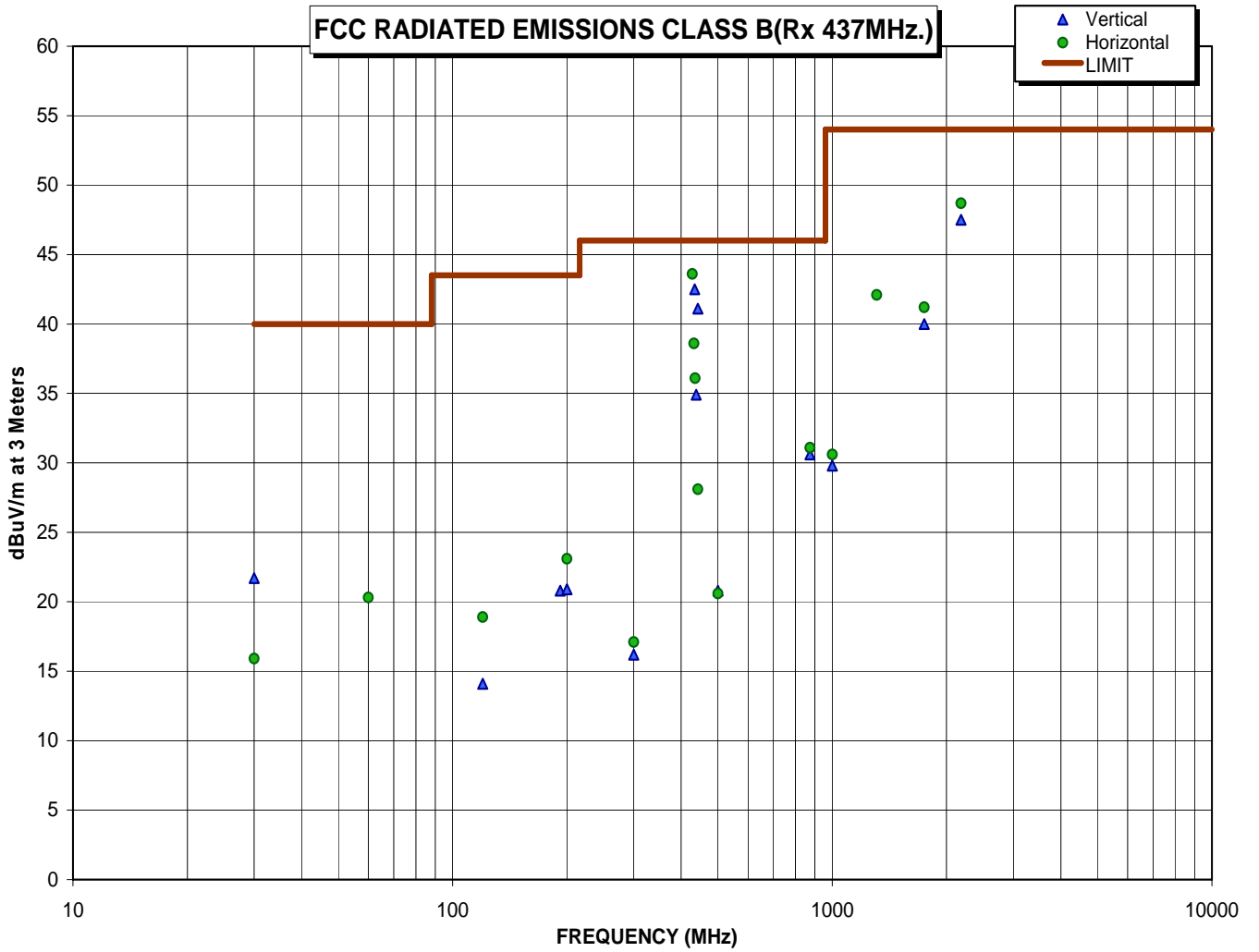
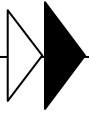


Figure 13



Company: Lutron Electronics
Model # AR-6D-yy
Fund. Freq.: 434MHz
MODE: Rx

Test Personnel: J. Kavalusky
Date: 11/16-17/2005

Radiated Emissions for Unintentional Radiators

Frequency (MHz)	Polarity	Antenna Height (Meters)	Azimuth (Degrees)	Indicated Level (dBuV)	Antenna Factor (dB)	Pre-Amp Gain Factor (dB)	Cable Loss (dB)	Averaging Factor (dB)	Field Strength @ 3m (dBuV/m)	Limits @ 3m (dBuV/m)	Margin (dB)
30	Vert	1.00	27.9	7.0	12.9	0.0	0.8		20.7	41.93	-21.2
120	Vert	1.00	27.9	1.5	11.2	0.0	1.9		14.6	41.53	-26.9
200.0	Vert	1.00	27.9	1.0	14.6	0.0	2.3		17.9	51.48	-33.6
300.0	Vert	1.14	34.6	-1.5	14.8	0.0	3.0		16.3	54.67	-38.4
435.965	Vert	1.28	139.9	20.0	17.4	0.0	3.6		41.0	60.92	-19.9
436.1	Vert	1.28	139.9	17.1	17.4	0.0	3.6		38.1	60.61	-22.5
438.089	Vert	1.28	139.9	18.0	17.40	0.0	3.7		39.1	60.84	-21.7
500	Vert	1.14	34.6	-1.5	17.9	0.0	4.0		20.4	61.90	-41.5
1000.0	Vert	1.14	34.6	-0.2	24.2	0.0	5.8		29.8	61.9	-32.1
1734	Vert	1.00	0.0	47.0	26.5	-33.0	1.0		41.5	61.9	-20.4
3468.0	Vert	1.00	0.0	43.3	31.8	-25.0	1.0		51.1	61.9	-10.8
5202.0	Vert	1.00	0.0	40.6	33.5	-23.6	1.5		52.0	61.9	-9.9
6936.0	Vert	1.00	0.0	39.0	35.2	-22.8	1.9		53.3	61.6	-8.3

Figure 14



Company: Lutron Electronics
Model # AR-6D-yy
Fund. Freq.: 434MHz
MODE: Rx

Test Personnel: J.Kavalusky
Date: 11/16-17/2005

Radiated Emissions for Unintentional Radiators

Frequency (MHz)	Polarity	Antenna Height (Meters)	Azimuth (Degrees)	Indicated Level (dBuV)	Antenna Factor (dB)	Pre-Amp Gain Factor (dB)	Cable Loss (dB)	Averaging Factor (dB)	Field Strength @ 3m (dBuV/m)	Limits @ 3m (dBuV/m)	Margin (dB)
30	Horiz	1.00	27.9	1.5	13.1	0.0	0.8		15.4	41.93	-26.5
60	Horiz	1.00	27.9	7.0	9.1	0.0	1.2		17.3	41.93	-24.6
120.0	Horiz	1.00	27.9	5.0	11.1	0.0	1.9		18.0	41.58	-23.6
200.0	Horiz	1.00	27.9	3.0	13.5	0.0	2.3		18.8	51.48	-32.7
300.0	Horiz	1.14	34.6	-1.6	15.2	0.0	3.0		16.6	54.67	-38.1
435.967	Horiz	1.28	139.9	20.0	17.3	0.0	3.6		40.9	60.61	-19.7
437.988	Horiz	1.28	139.9	14.8	17.2	0.0	3.6		35.6	60.84	-25.2
440.016	Horiz	1.28	139.9	12.5	17.30	0.0	3.7		33.5	60.86	-27.4
500	Horiz	1.14	139.9	-1.1	18.2	0.0	4.0		21.1	61.90	-40.8
1000.0	Horiz	1.14	139.9	-0.2	24.6	0.0	5.8		30.2	61.9	-31.7
1734	Horiz	1.00	0.0	50.7	26.5	-33.0	1.0		45.2	61.9	-16.7
3468.0	Horiz	1.00	0.0	43.3	31.1	-25.0	1.0		50.4	61.9	-11.5
5202.0	Horiz	1.00	0.0	39.6	33.6	-23.6	1.5		51.1	61.9	-10.8
6936.0	Horiz	1.00	0.0	38.0	35.3	-22.8	1.9		52.4	61.9	-9.5

Figure 15



Company: Lutron Electronics
Model # AR-6D-yy
Fund. Freq. 437MHz.
Mode: Rx

Test Personnel: J. Kavalusky
Date: 11/16-17/05

Radiated Emissions for Unintentional Radiators

Frequency (MHz)	Polarity	Antenna Height (Meters)	Azimuth (Degrees)	Indicated Level (dBuV)	Antenna Factor (dB)	Pre-Amp Gain Factor (dB)	Cable Loss (dB)	Averaging Factor (dB)	Field Strength @ 3m (dBuV/m)	Limits @ 3m (dBuV/m)	Margin (dB)
30	Vert	1.37	33.1	8.0	12.9	0.0	0.8		21.7	41.93	-20.2
120	Vert	1.37	33.1	1.0	11.2	0.0	1.9		14.1	41.53	-27.4
192.0	Vert	1.00	248	4.4	14.2	0.0	2.2		20.8	51.48	-30.7
200.0	Vert	1.37	33.1	4.0	14.6	0.0	2.3		20.9	51.48	-30.6
300.0	Vert	1.14	38.7	-1.6	14.8	0.0	3.0		16.2	54.67	-38.5
434	Vert	1.14	28.4	21.40	17.4	0.0	3.7		42.5	60.61	-18.1
437.8	Vert	1.36	150.8	13.9	17.4	0.0	3.6		34.9	60.84	-25.9
442.4	Vert	1.13	125.0	20.0	17.4	0.0	3.7		41.1	60.92	-19.8
500.0	Vert	1.40	97	-1.1	17.9	0.0	4.0		20.8	61.9	-41.1
873.386	Vert	1.38	97	2.4	22.8	0.0	5.4		30.6	61.9	-31.3
1000.0	Vert	1.14	38.7	-0.2	24.2	0.0	5.8		29.8	61.9	-32.1
1747.0	Vert	1.00	0	46.6	25.4	-33.0	1.0		40.0	61.9	-21.9
2183.0	Vert	1.00	360	47.3	28.2	-29.0	1.0		47.5	61.9	-14.4

Figure 16



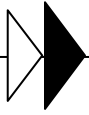
Company: Lutron Electronics
Model # AR-6D-yy
Fund. Freq.: 437MHz
Mode: Rx

Test Personnel: J.Kavalusky
Date:11/16-17/2005

Radiated Emissions for UnIntentional Radiators

Frequency (MHz)	Polarity	Antenna Height (Meters)	Azimuth (Degrees)	Indicated Level (dBuV)	Antenna Factor (dB)	Pre-Amp Gain Factor (dB)	Cable Loss (dB)	Averaging Factor (dB)	Field Strength @ 3m (dBuV/m)	Limits @ 3m (dBuV/m)	Margin (dB)
30	Horiz	1.00	27.9	2.0	13.1	0.0	0.8		15.9	41.93	-26.0
60	Horiz	1.52	33.1	10.0	9.1	0.0	1.2		20.3	41.93	-21.6
120.0	Horiz	2.21	0.0	6.0	11.0	0.0	1.9		18.90	41.58	-22.7
200.0	Horiz	2.21	0.0	6.8	14.0	0.0	2.3		23.1	51.48	-28.4
300.0	Horiz	1.14	38.7	-1.1	15.2	0.0	3.0		17.1	54.67	-37.6
427.63	Horiz	1.00	126	22.7	17.3	0.0	3.6		43.6	60.61	-17.0
432	Horiz	1.14	38.7	17.7	17.3	0.0	3.6		38.6	60.84	-22.2
435	Horiz	1.14	38.7	15.1	17.3	0.0	3.7		36.10	60.86	-24.8
442.4	Horiz	1.14	38.7	7.3	17.1	0.0	3.7		28.1	60.92	-32.8
500.0	Horiz	1.14	38.7	-1.6	18.2	0.0	4.0		20.6	61.9	-41.3
873.386	Horiz	1.00	252	2.4	23.3	0.0	5.4		31.1	61.9	-30.8
1000.0	Horiz	1.14	38.7	0.2	24.6	0.0	5.8		30.6	61.9	-31.3
1310.0	Horiz	1.00	0	47.0	25.1	-31.0	1.0		42.1	61.9	-19.8
1747.0	Horiz	1.00	0	46.6	26.6	-33.0	1.0		41.2	61.9	-20.7
2183.0	Horiz	1.00	0	48.5	28.2	-29.0	1.0		48.7	61.9	-13.2

Figure 17



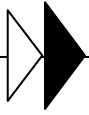
Company: Lutron Electronics
Model # AR-6D-yy
Fund. Freq.: 434MHz.
Mode: Tx (CW)

Test Personnel John Kavalusky
DATE: 1/13/06

Radiated Emission for Intentional Radiators

Frequency (MHz)	Polarity	Antenna Height (Meters)	Azimuth (Degrees)	Indicated Level (dBuV)	Antenna Factor (dB)	Pre-Amp Gain Factor (dB)	Cable Loss (dB)	Averaging Factor (dB)	Field Strength @ 3m (dBuV/m)	Limits @ 3m (dBuV/m)	Margin (dB)
434	Vert	1.00	34.6	78.4	17.4	0.0	3.7	-20.0	79.5	80.73	-1.2
868	Vert	1.00	34.6	18.0	22.6	0.0	5.3	-20.0	25.9	61.93	-36.0
1302	Vert	1.00	0	59.00	24.9	-31.0	1.0	-20.0	33.90	54.00	-20.1
1736	Vert	1.00	0	51.00	26.5	-33.0	1.0	-20.0	25.50	61.93	-36.4
2170	Vert	1.00	0	55.6	27.7	-29.0	1.0	-20.0	35.3	61.93	-26.6
2604	Vert	1.00	0	54.00	28.7	-32.0	1.0	-20.0	31.70	61.93	-30.2
3038	Vert	1.00	0	47.20	30.0	-27.0	1.0	-20.0	31.20	61.93	-30.7
3472	Vert	1.00	0	48.6	31.8	-25.0	1.0	-20.0	36.4	61.93	-25.5
3906	Vert	1.00	0	46.2	32.1	-23.3	1.0	-20.0	36.00	54.0	-18.0
4340	Vert	1.00	0	46.2	32.0	-22.0	1.0	-20.0	37.2	54.0	-16.8
434	Horiz	1.00	34.6	59.9	17.3	0.0	3.7	-20.0	60.9	80.73	-19.8
868	Horiz	1.00	34.6	15.9	23.0	0.0	5.4	-20.0	24.3	61.93	-37.6
1302	Horiz	1.00	0	54.7	24.8	-31.0	1.0	-20.0	29.5	54.00	-24.5
1736	Horiz	1.00	0	55.3	26.5	-33.0	1.0	-20.0	29.8	61.93	-32.1
2170	Horiz	1.00	0	56.10	27.7	-29.0	1.0	-20.0	35.80	61.93	-26.1
2604	Horiz	1.00	0	52.90	28.5	-32.0	1.0	-20.0	30.4	61.93	-31.5
3038	Horiz	1.00	0	44.70	29.9	-27.0	1.0	-20.0	28.60	61.93	-33.3
3472	Horiz	1.00	0	43.60	31.1	-25.0	1.0	-20.0	30.70	61.93	-31.2
3906	Horiz	1.00	0	40.20	32.3	-23.3	1.0	-20.0	30.20	54.0	-23.8
4340	Horiz	1.00	0	40.80	32.5	-22.0	1.0	-20.0	32.30	54.0	-21.7

Figure 18



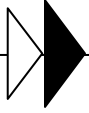
Company: Lutron Electronics
Model # AR-6D-yy
Fund. Freq.: 437MHz
Mode: Tx (CW)

Test Pers: John Kavalusky
Date: 1/13/06

Radiated Emission for Intentional Radiators

Frequency (MHz)	Polarity	Antenna Height (Meters)	Azimuth (Degrees)	Indicated Level (dBuV)	Antenna Factor (dB)	Pre-Amp Gain Factor (dB)	Cable Loss (dB)	Averaging Factor (dB)	Field Strength @ 3m (dBuV/m)	Limits @ 3m (dBuV/m)	Margin (dB)
437	Vert	1.16	28.6	74.6	17.4	0.0	3.6	-20.0	75.6	80.3	-4.7
874	Vert	1.00	28.6	39.0	22.8	0.0	5.4	-20.0	47.2	61.9	-14.7
1311	Vert	1.00	0	56.30	25.1	-32.0	1.0	-20.0	30.4	61.9	-31.5
1748	Vert	1.00	0	52.70	26.3	-33.0	1.0	-20.0	27.00	54.0	-27.0
2185	Vert	1.00	0	48.0	28.2	-29.0	1.0	-20.0	28.2	61.9	-33.7
2622	Vert	1.00	0	49.00	30.0	-32.0	1.0	-20.0	28.00	61.9	-33.9
3059	Vert	1.00	0	44.80	30.3	-27.0	1.0	-20.0	29.10	61.9	-32.8
3496	Vert	1.00	0	43.5	31.4	-25.0	1.0	-20.0	30.9	54.0	-23.1
3933	Vert	1.00	0	40.2	32.44	-23.3	1.0	-20.0	30.34	54.0	-23.7
4370	Vert	1.00	0	40.6	32.5	-22.0	1.0	-20.0	32.1	54.0	-21.9
437	Horiz	1.00	0	57.3	17.3	0.0	3.6	-20.0	58.2	80.3	-22.1
874	Horiz	1.00	58.4	42.0	23.3	0.0	5.4	-20.0	50.7	61.9	-11.2
1311	Horiz	1.00	0	55.60	25.1	-32.0	1.0	-20.0	29.70	61.9	-32.2
1748	Horiz	1.00	0	53.70	26.6	-33.0	1.0	-20.0	28.30	54.0	-25.7
2185	Horiz	1.00	28.4	52.90	28.2	-29.0	1.0	-20.0	33.1	61.9	-28.8
2622	Horiz	1.00	28.4	51.00	29.9	-32.0	1.0	-20.0	29.90	61.9	-32.0
3059	Horiz	1.00	0	48.70	30.4	-27.0	1.0	-20.0	33.10	61.9	-28.8
3496	Horiz	1.00	0	47.40	31.5	-25.0	1.0	-20.0	34.90	54.0	-19.1
3933	Horiz	1.00	0	41.10	32.54	-23.3	1.0	-20.0	31.34	54.0	-22.7
4370	Horiz	1.00	0	39.90	32.5	-22.0	1.0	-20.0	31.40	54.0	-22.6

Figure 19



4.3 Bandwidth Measurements, Paragraph 15.231

Bandwidth measurements were made at the two transmit frequencies of 434 and 437MHz.

RSI used an HP 8566 Spectrum Analyzer to perform bandwidth measurements. Bandwidth plots are shown on data sheets.

The requirement states that the bandwidth shall be no wider than .25% of the center frequency at the 20dB down points. Results of testing are shown in Figures 20 through 23.

THE BANDWIDTH MEASUREMENTS COMPLIED WITH THE FCC REQUIREMENTS SET FORTH IN PARAGRAPH 15.231.

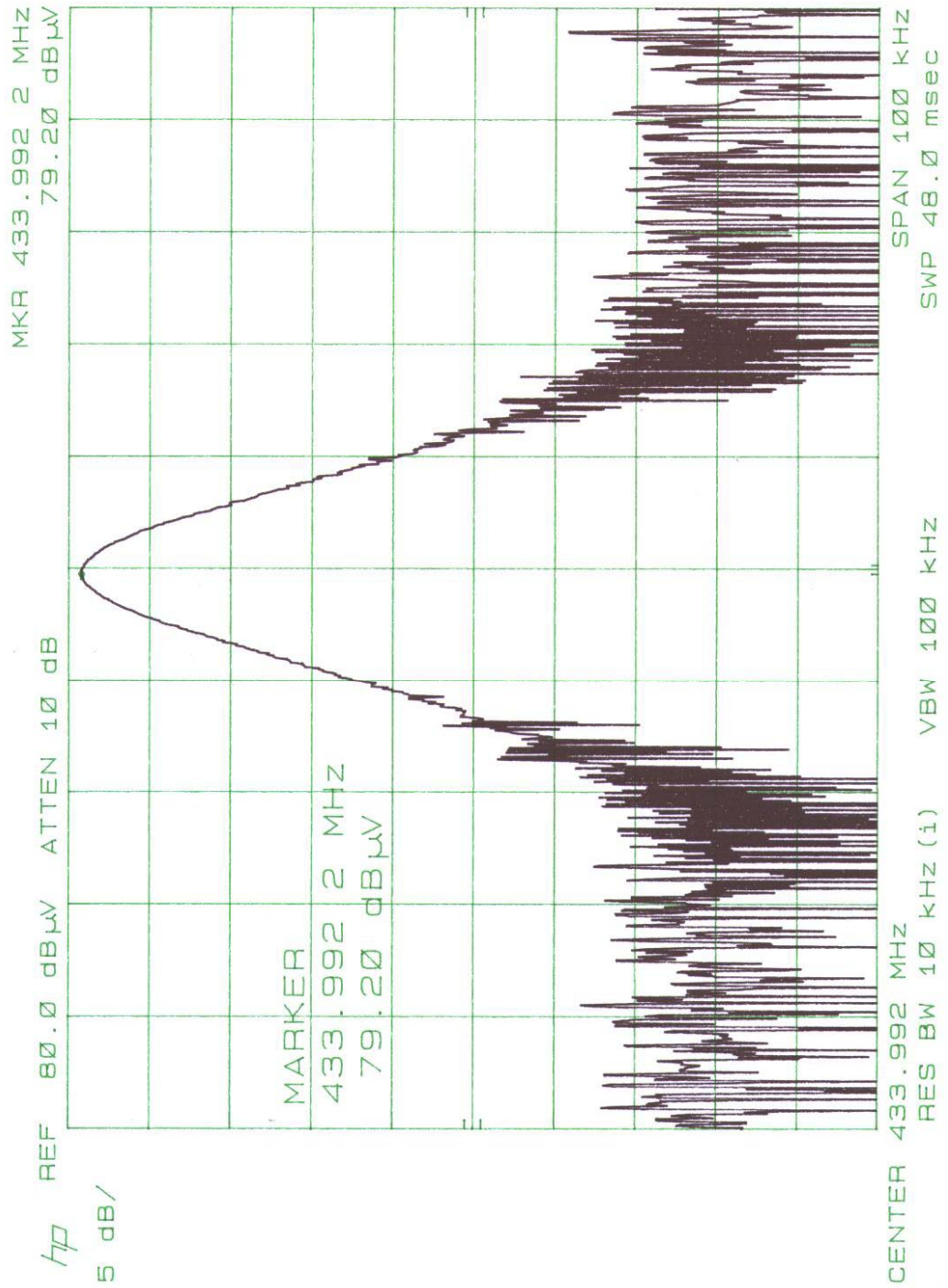
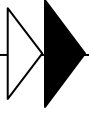


Figure 21



Company: Lutron Electronics
Model # AR-6D-yy
Fund. Freq.: 437MHz

Test Personnel: C. Kosiorek
Date: 11/15/2005

Bandwidth of Fundamental Frequency

	Frequency (MHz)	Measurement (dBuV/m)
Center Frequency	437.0	81.55
20 dB down	436.9811	61.35
20 dB down	437.0023	61.45

The bandwidth is 21.2 kHz.

Allowable Bandwidth: 0.25% of Fundamental Frequency
For 437MHz: ± 0.5463 MHz

Figure 22

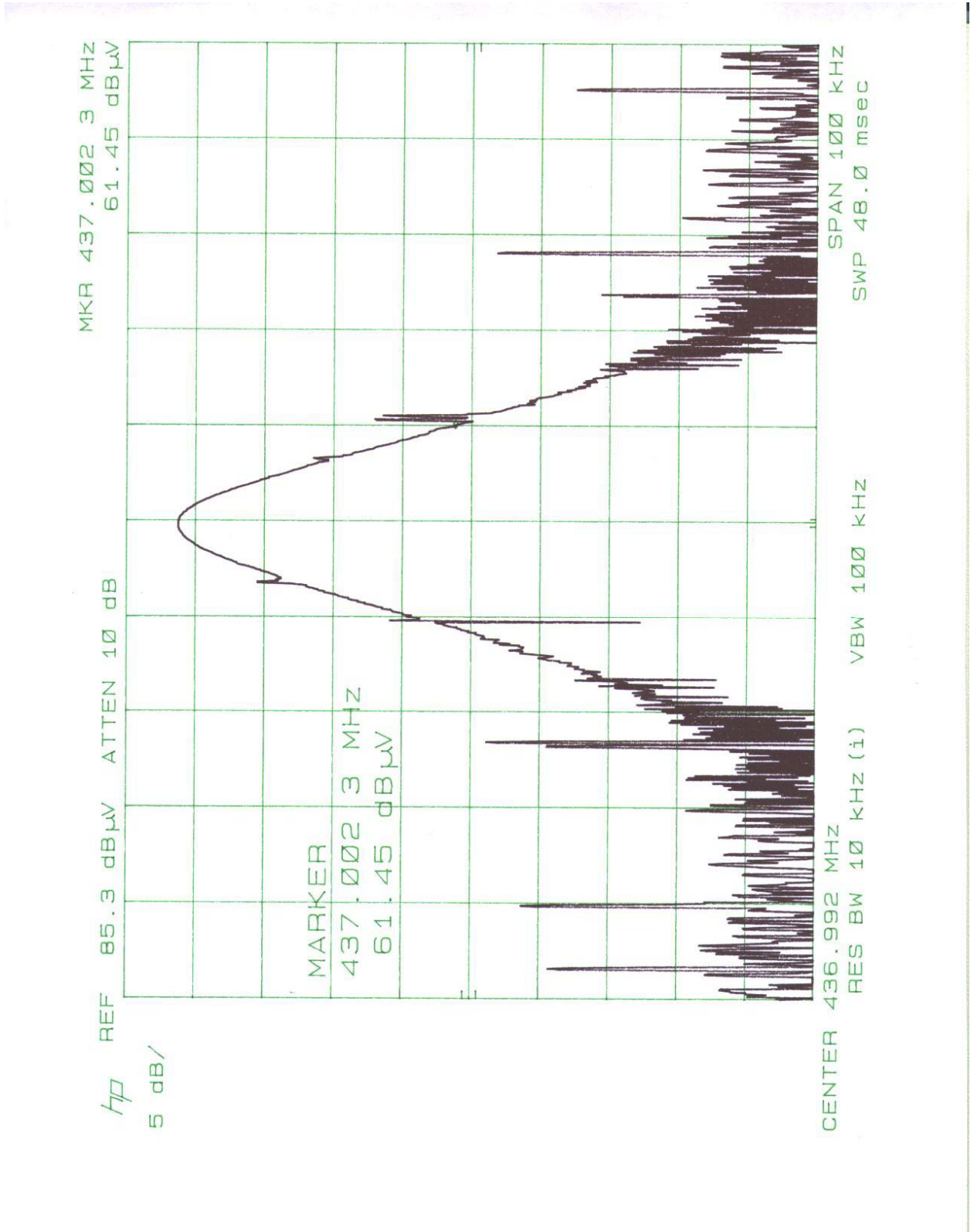


Figure 23



5.0 CONCLUSIONS

The evaluation of the **Lutron Electronics Model #: AR-6D-yy**, configured as described herein, indicated that the unit complies with the requirements set forth in Subpart B and C of Part 15 of the **FCC Rules** for unintentional and intentional radiators.

1. The **EUT** meets the Conducted Emissions limits set forth in §15.107
2. The **EUT** meets the Radiated Emissions limits for unintentional radiators set forth in §15.109.
3. The **EUT** meets the Radiated Emissions limits for intentional radiators set forth in §15.205, §15.209, and §15.231 (c).