

## **APPENDIX A**

**WIR120411**

**FCC231 Data**

**§ 15.203      Antenna Requirement**

\*No data available for this section.

### § 15.207(a) Conducted Emissions Limits

	Frequency	Quasi-Peak Measurement	Correction Factor	Corrected Measurement	Quasi-Peak Limit	Margin	Result	Average Measurement	Correction Factor	Corrected Measurement	Average Limit	Margin	Result
	MHz	dBuV	dB	dBuV	dBuV	dB	Pass/Fail	dBuV	dB	dBuV	dBuV	dB	Pass/Fail
Line	0.1727	45.87	10.27	56.14	65.35	-9.22	PASS	28.06	10.27	38.33	55.35	-17.02	PASS
	0.2549	45.01	10.10	55.11	63.00	-7.89	PASS	27.80	10.10	37.90	53.00	-15.10	PASS
	0.3198	43.30	10.05	53.35	61.15	-7.80	PASS	30.13	10.05	40.17	51.15	-10.97	PASS
	0.4398	39.58	10.00	49.59	57.72	-8.13	PASS	23.41	10.00	33.42	47.72	-14.30	PASS
	0.5667	35.63	10.00	45.63	56.00	-10.37	PASS	13.67	10.00	23.67	46.00	-22.33	PASS
	0.9949	31.92	9.97	41.90	56.00	-14.10	PASS	13.69	9.97	23.67	46.00	-22.33	PASS
Neutral	0.1551	45.35	10.34	55.69	65.85	-10.16	PASS	30.97	10.34	41.32	55.85	-14.54	PASS
	0.2709	47.83	10.09	57.91	62.55	-4.63	PASS	26.20	10.09	36.29	52.55	-16.26	PASS
	0.3366	41.32	10.04	51.36	60.67	-9.31	PASS	28.30	10.04	38.34	50.67	-12.32	PASS
	0.3827	41.47	10.03	51.50	59.35	-7.85	PASS	24.02	10.03	34.04	49.35	-15.31	PASS
	0.4561	39.15	10.01	49.16	57.25	-8.09	PASS	24.44	10.01	34.45	47.25	-12.80	PASS
	0.6048	33.98	10.00	43.97	56.00	-12.03	PASS	13.37	10.00	23.37	46.00	-22.63	PASS

Figure 1. CEV datasheet - Data

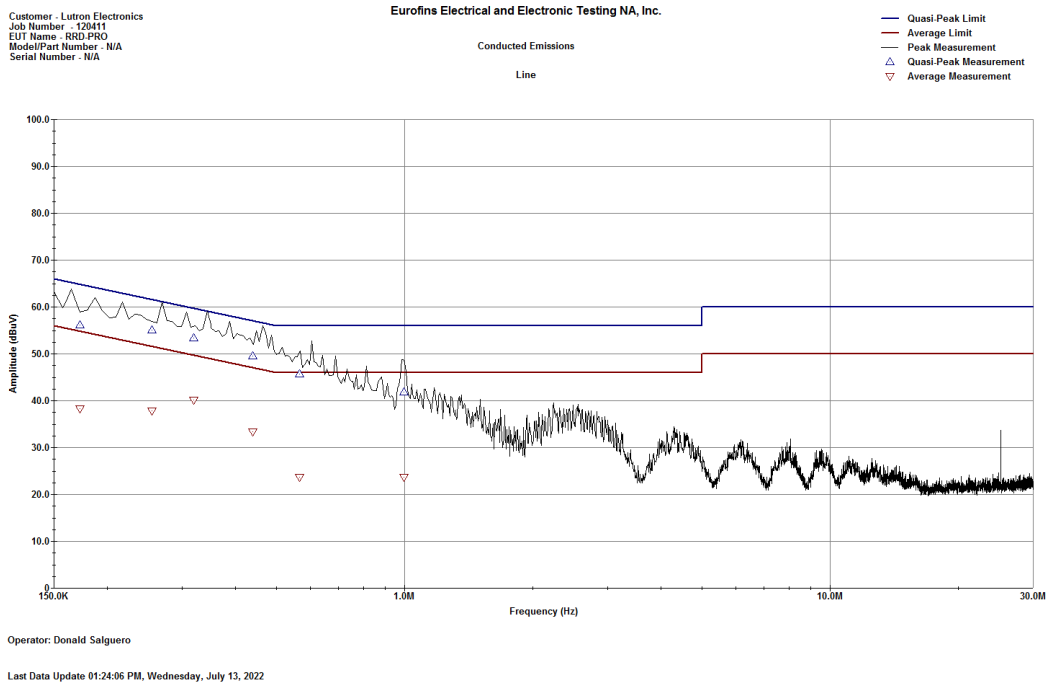


Figure 2. Line

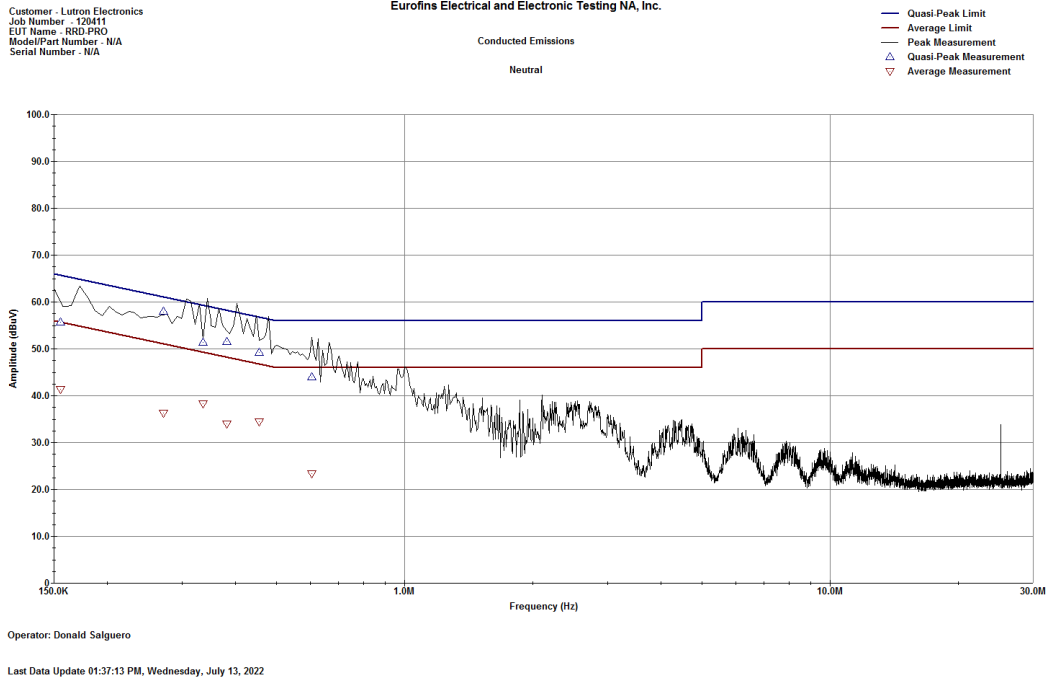


Figure 3. Neutral

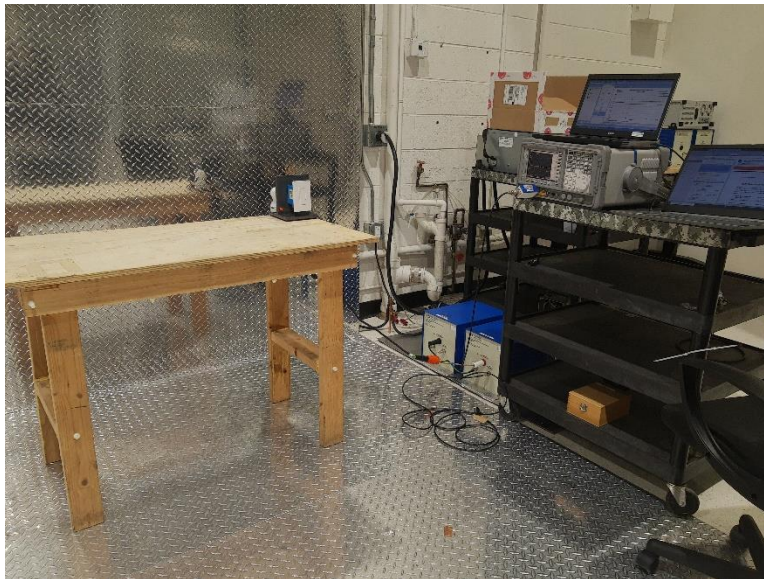

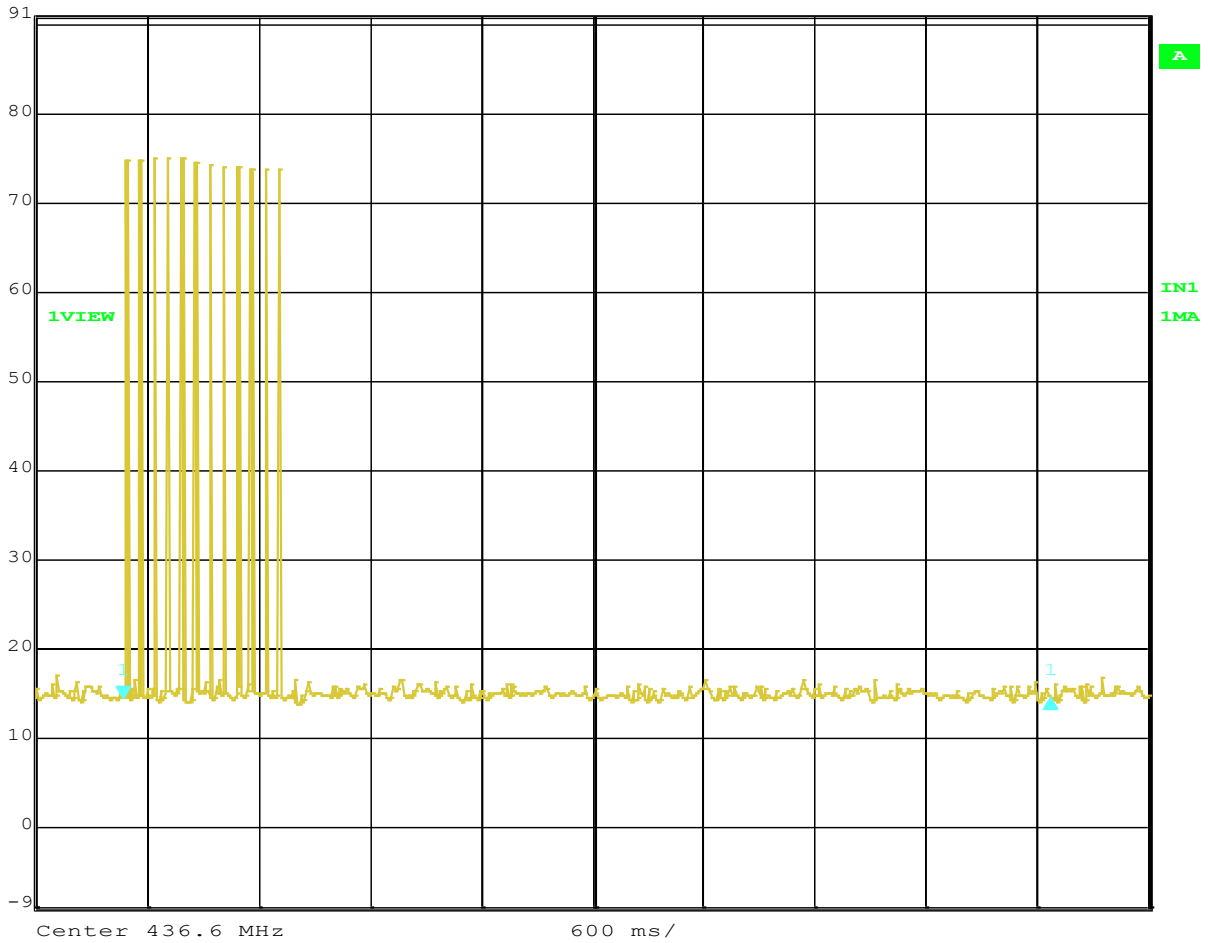


Figure 4. CEV Test Setup

### § 15.231 (a) Periodic Operation Requirements

	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	Ref Lvl	-0.11 dB	VBW	300 kHz	
	91 dB $\mu$ V	5.006293 s	SWT	6 s	Unit

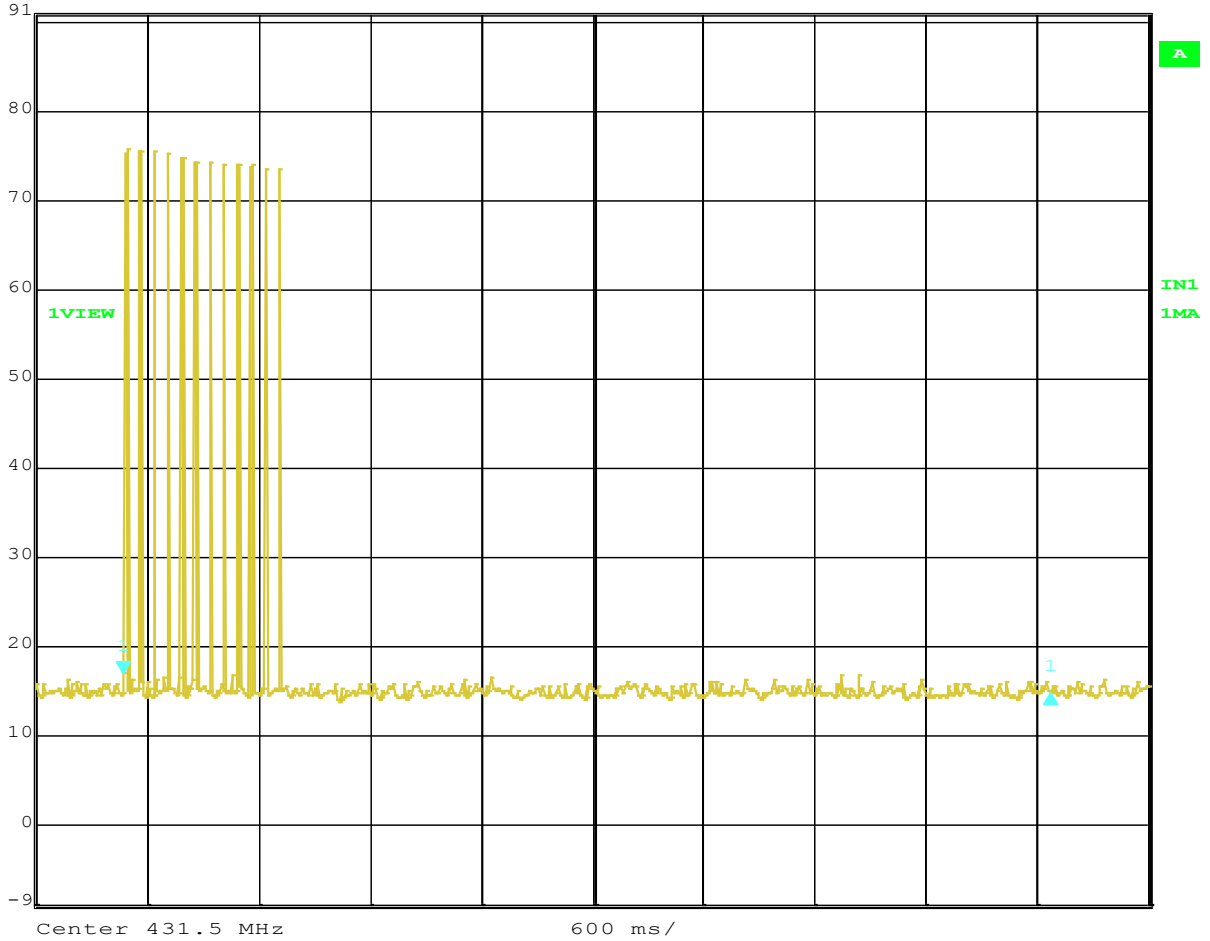


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**Figure 5. High Channel - 5s shutdown**



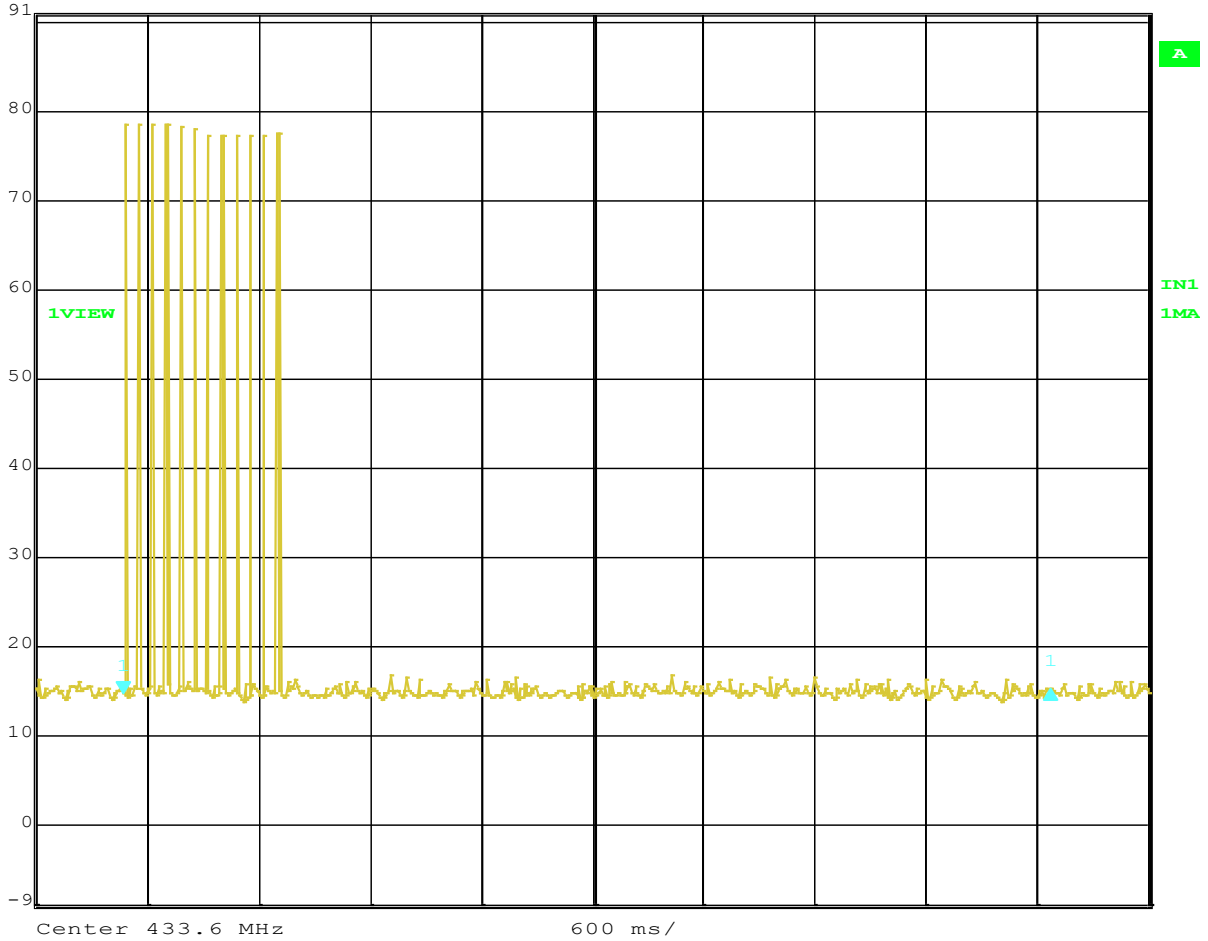
	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
Ref Lvl	-2.33 dB	VBW	300 kHz		
91 dB $\mu$ V	5.006293 s	SWT	6 s	Unit	dB $\mu$ V



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Figure 6. Low Channel - 5s shutdown

	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	Ref Lvl	0.41 dB	VBW	300 kHz	
	91 dB $\mu$ V	5.006293 s	SWT	6 s	Unit



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Figure 7. Mid Channel - 5s shutdown

### § 15.231(b) Field Strength of Fundamental and Harmonics

$$DCCF = 20 * \log(T_{ON} / T)$$

Where,

$T_{ON}$  is ON Time

T is Period

Measured Pulse Train > 0.1s

Therefore,  $T = 0.1s = 100ms$

Pulse width = 4.89ms

Number of pulses within 100ms = 2

Total ON TIME =  $2 * 4.89ms = 9.78ms$

$$DCCF = 20 * \log(9.78ms/100ms)$$

$$DCCF = -20.19 \text{ dB}$$

TX Channel	Frequency (MHz)	Peak Measured Field Strength (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Corrected Peak Field Strength (dBuV/m)	DCCF (dB)	Average Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Low	431.5	73.72	20.8	2.03	96.55	-20.19	76.36	80.74	-4.38
Mid	433.6	77.09	20.8	2.03	99.92	-20.19	79.73	80.81	-1.08
High	436.6	73.45	21	2.03	96.48	-20.19	76.29	80.91	-4.62

Figure 8. Fundamental Field Strength - Test Results


TX Channel	Frequency (MHz)	Peak Measured Field Strength (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Corrected Peak Field Strength (dBuV/m)	DCCF (dB)	Average Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Low	862.991	9.3	26.9	2.53	38.73	-20.19	18.54	60.74	-42.2
Mid	867.185	13.25	27	2.53	42.78	-20.19	22.59	60.81	-38.22
High	873.197	13.31	26.9	3.12	43.33	-20.19	23.14	60.91	-37.77

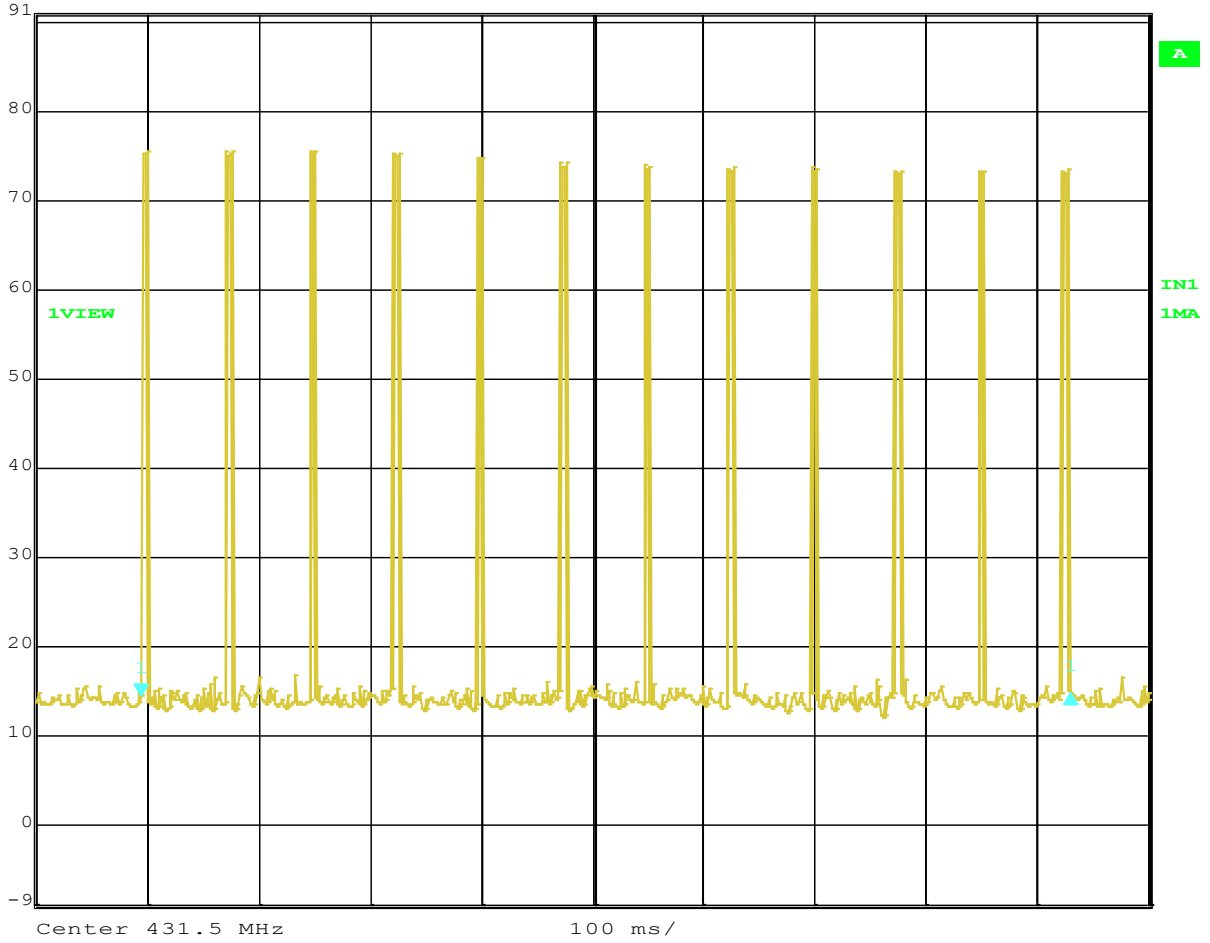
Figure 9. Harmonics Field Strength - Test Results

TX Channel	Frequency	Polarity	Antenna Height	Turntable Position	Measured	Correction Factor	Corrected Reading	Limit	Margin	Results	Measured	Correction Factor	Corrected Reading	Limit	Margin	Results
	GHz															
low	3.560	H	284.17	-0.50	43.33	-1.78	41.55	74.00	-32.45	PASS	30.08	-1.78	28.31	54.00	-25.69	PASS
low	1.892	H	253.17	276.20	44.00	-0.59	43.41	74.00	-30.59	PASS	30.42	-0.59	29.83	54.00	-24.17	PASS
low	4.710	V	144.52	-0.10	40.63	0.01	40.64	74.00	-33.36	PASS	27.64	0.01	27.65	54.00	-26.35	PASS
low	1.902	V	107.56	82.60	43.22	-0.17	43.04	74.00	-30.96	PASS	29.98	-0.17	29.81	54.00	-24.19	PASS
mid	3.590	H	185.00	12.30	43.29	-1.24	42.04	74.00	-31.96	PASS	29.94	-1.25	28.70	54.00	-25.30	PASS
mid	1.882	H	260.00	33.50	43.85	-1.09	42.76	74.00	-31.24	PASS	30.68	-1.09	29.59	54.00	-24.41	PASS
mid	3.585	V	166.91	69.90	44.21	-1.35	42.86	74.00	-31.14	PASS	29.87	-1.35	28.52	54.00	-25.48	PASS
mid	1.896	V	216.17	15.10	43.19	-0.33	42.86	74.00	-31.14	PASS	30.19	-0.33	29.86	54.00	-24.14	PASS
high	4.803	H	192.21	181.60	45.14	-0.27	44.87	74.00	-29.13	PASS	38.69	-0.27	38.42	54.00	-15.58	PASS
high	1.900	H	102.86	23.20	43.06	-0.18	42.89	74.00	-31.11	PASS	29.86	-0.18	29.69	54.00	-24.31	PASS
high	4.804	V	108.65	160.50	41.38	-0.39	41.00	74.00	-33.01	PASS	26.36	-0.39	25.97	54.00	-28.03	PASS
high	1.866	V	298.17	81.20	45.34	-2.13	43.20	74.00	-30.80	PASS	30.81	-2.13	28.68	54.00	-25.32	PASS

Figure 10. Spurious Emissions - Test Results



	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	Ref Lvl	0.23 dB	VBW	300 kHz	
	91 dB $\mu$ V	836.953908 ms	SWT	1 s	Unit

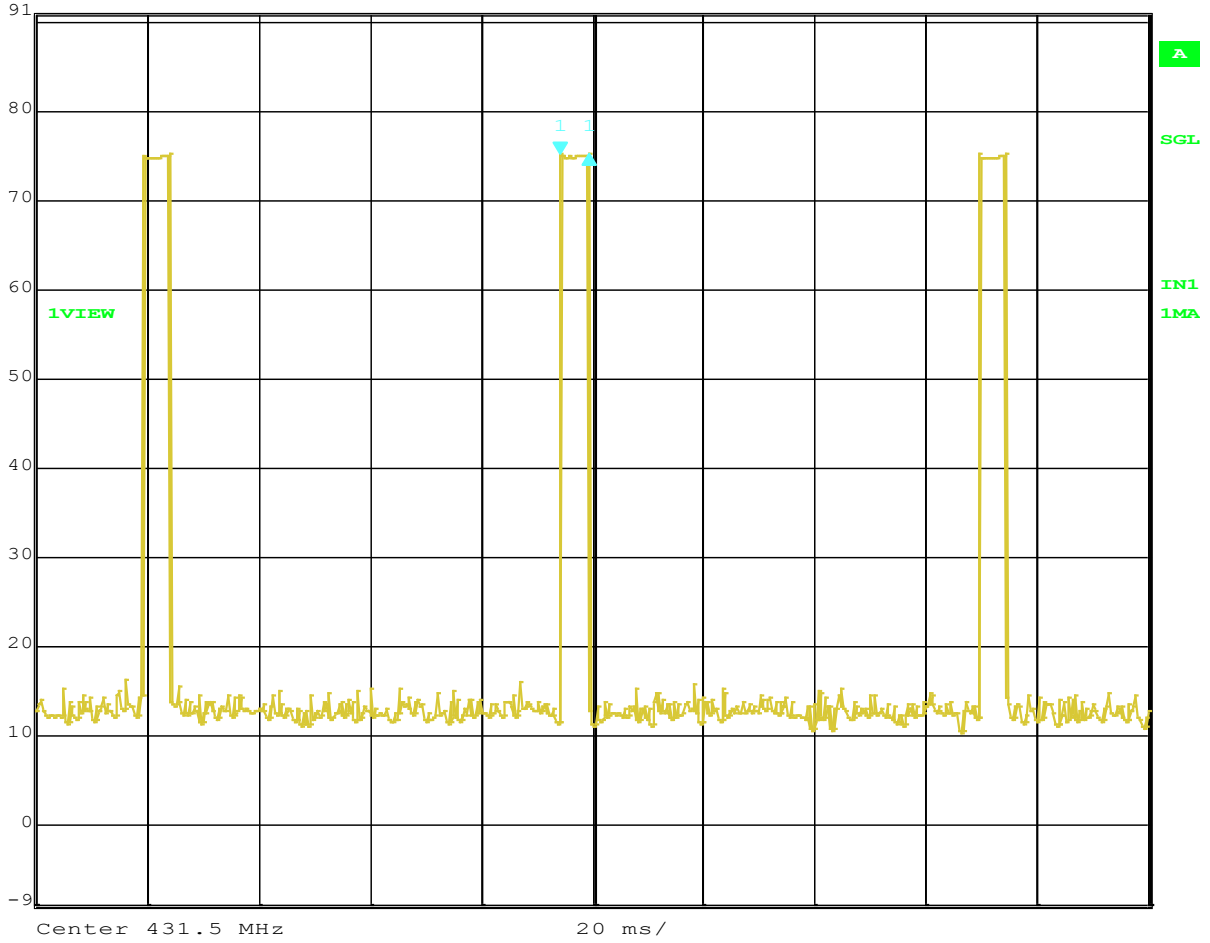


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Figure 11. DCCF - Pulse train duration



	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
Ref Lvl	0.01 dB	VBW	300 kHz		
91 dB $\mu$ V	4.889780 ms	SWT	200 ms	Unit	dB $\mu$ V



Date: 1.JAN.1997 02:26:53

Figure 12. DCCF - Pulse width

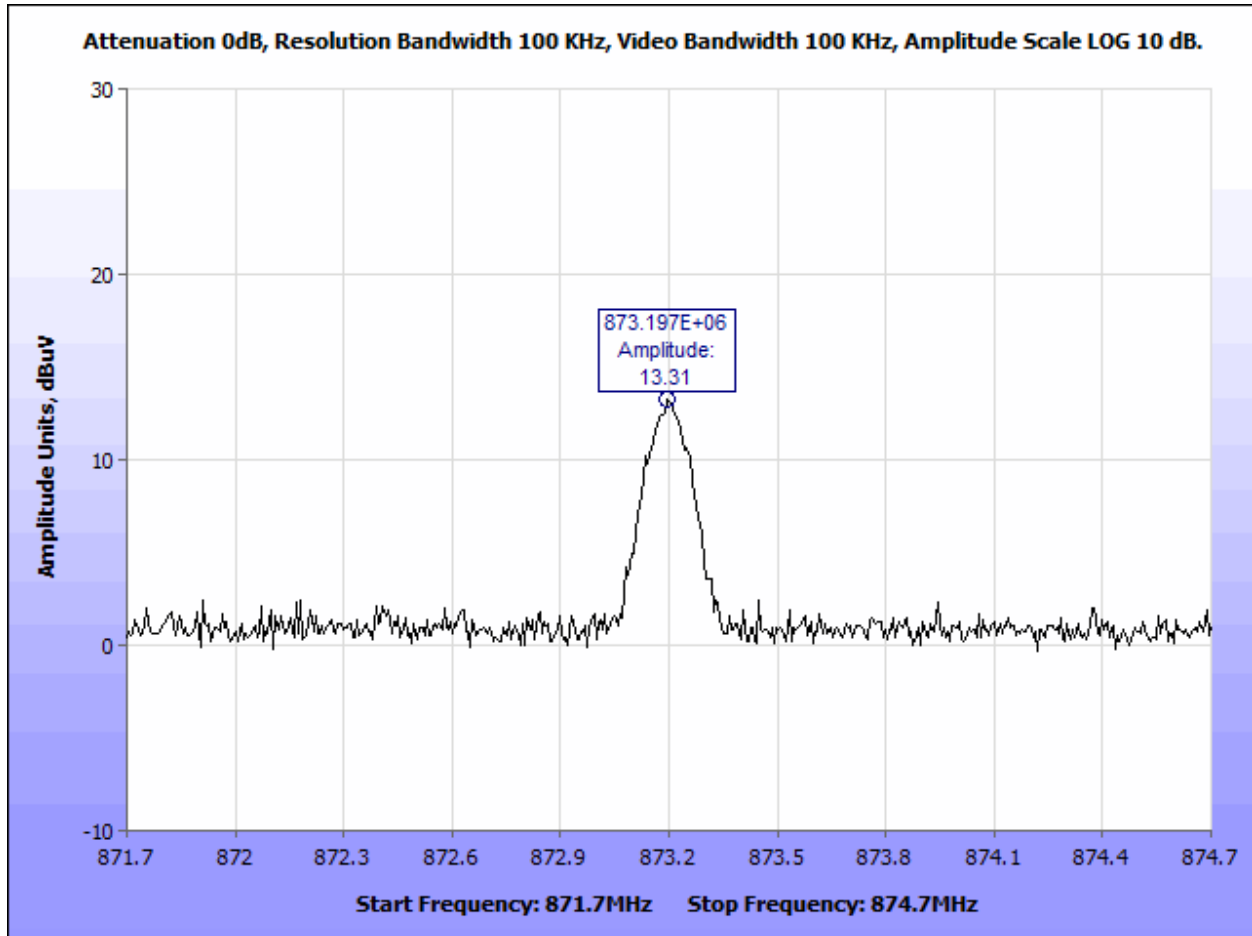


Figure 13. High Channel - Peak 2x Harmonic Emissions (Uncorrected) - Cumulative

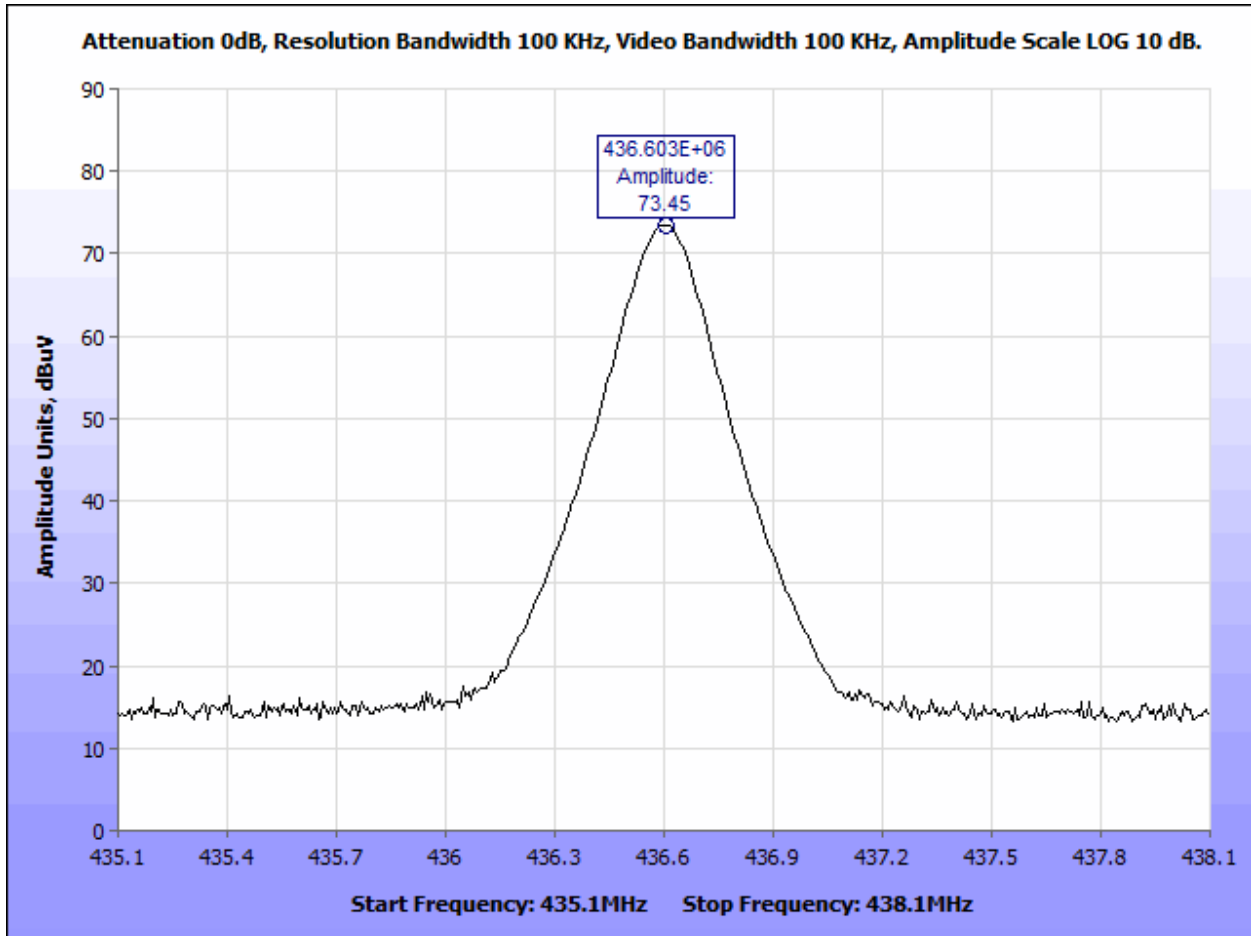


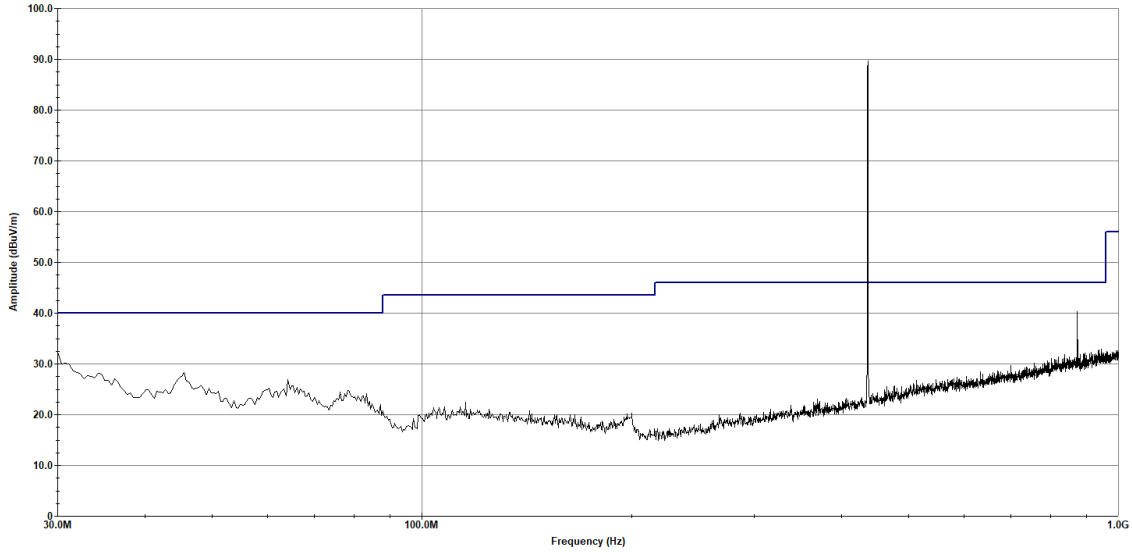
Figure 14. High Channel - Peak Fundamental Emissions (Uncorrected) - Vertical

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 RF Channel - High

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Horizontal Polarization

— Test Limit - Quasi-Peak  
 — Measured - Peak  
 × Measured - Quasi-Peak



Operator: Donald Salguero

Last Data Update 11:34:38 AM, Tuesday, July 12, 2022

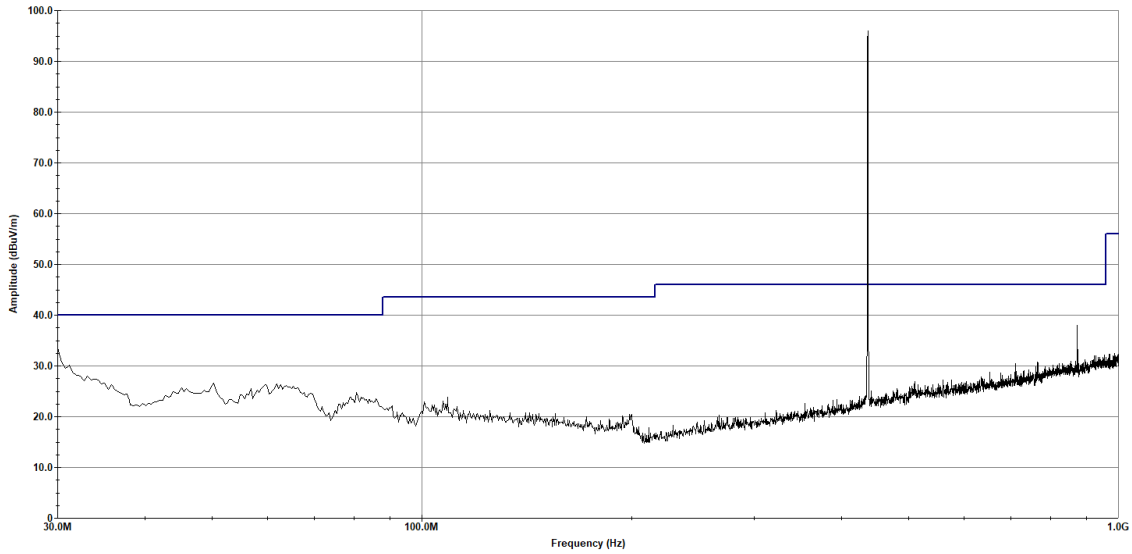
**Figure 15. High Channel\_ Radiated Spurious Emissions 30-1000 MHz - Horizontal**

Customer - Lutron Electronics  
Job Number - 120411  
EUT Name - RRD-PRO  
RF Channel - High

Eurofins Electrical and Electronic Testing NA, Inc.

Radiated Emissions  
Vertical Polarization

— Test Limit - Quasi-Peak  
— Measured - Peak  
× Measured - Quasi-Peak



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Last Data Update 11:41:08 AM, Tuesday, July 12, 2022

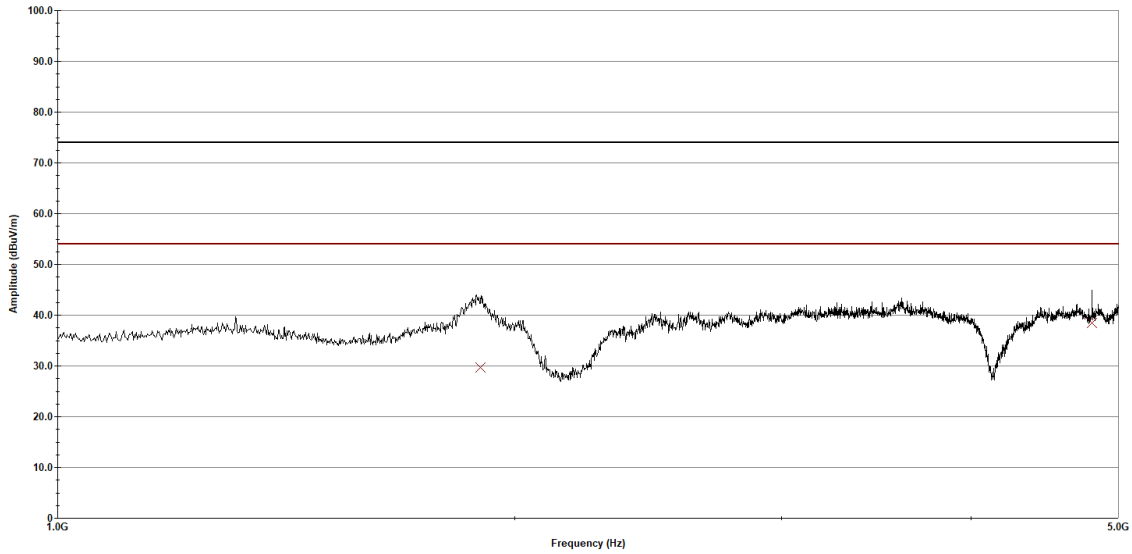
Figure 16. High Channel\_ Radiated Spurious Emissions 30-1000 MHz - Vertical

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 Model/Part Number - N/A  
 Serial Number - N/A

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Horizontal Polarization

— Test Limit - Peak  
 — Test Limit - Average  
 — Measured - Peak  
 × Measured - Average



Operator: Donald Salguero

Last Data Update 11:47:28 AM, Wednesday, July 13, 2022

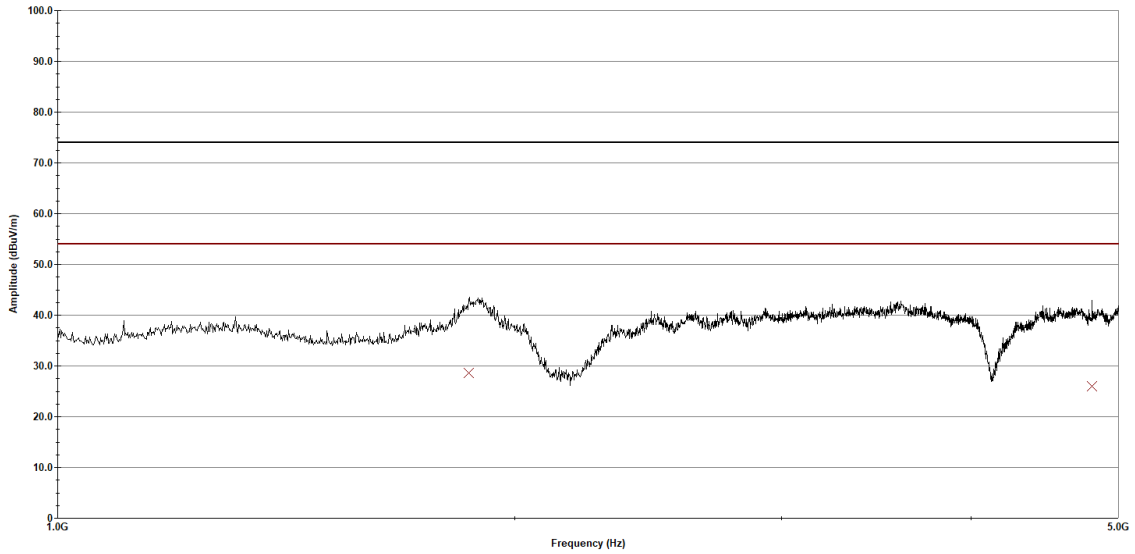
**Figure 17. High Channel\_ Radiated Spurious Emissions 1-5 GHz - Horizontal**

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 Model/Part Number - N/A  
 Serial Number - N/A

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Vertical Polarization

— Test Limit - Peak  
 — Test Limit - Average  
 — Measured - Peak  
 × Measured - Average



Operator: Donald Salguero

Last Data Update 11:59:00 AM, Wednesday, July 13, 2022

**Figure 18. High Channel\_ Radiated Spurious Emissions 1-5 GHz - Vertical**



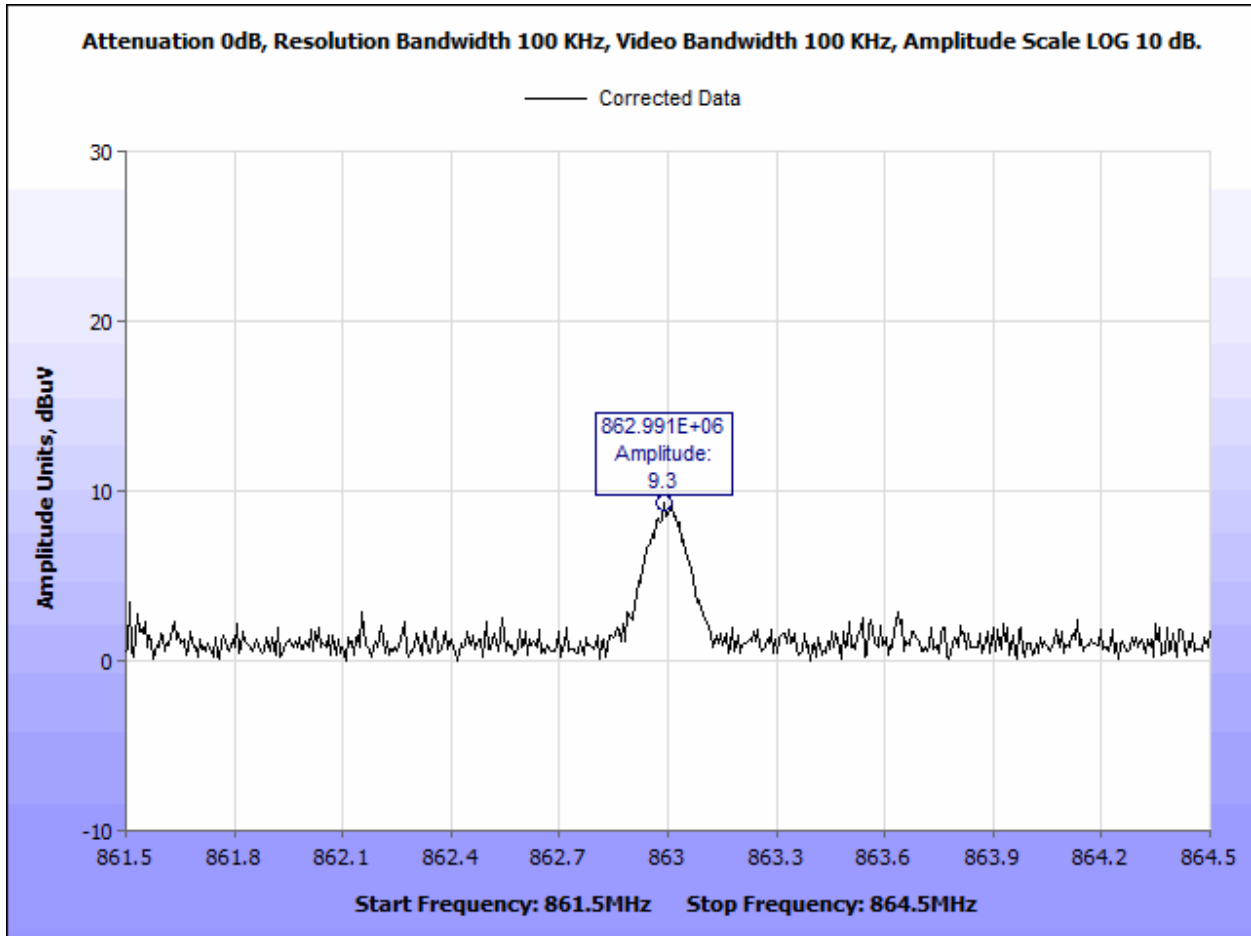


Figure 19. Low Channel - Peak 2x Harmonic Emissions (Uncorrected) - Cumulative

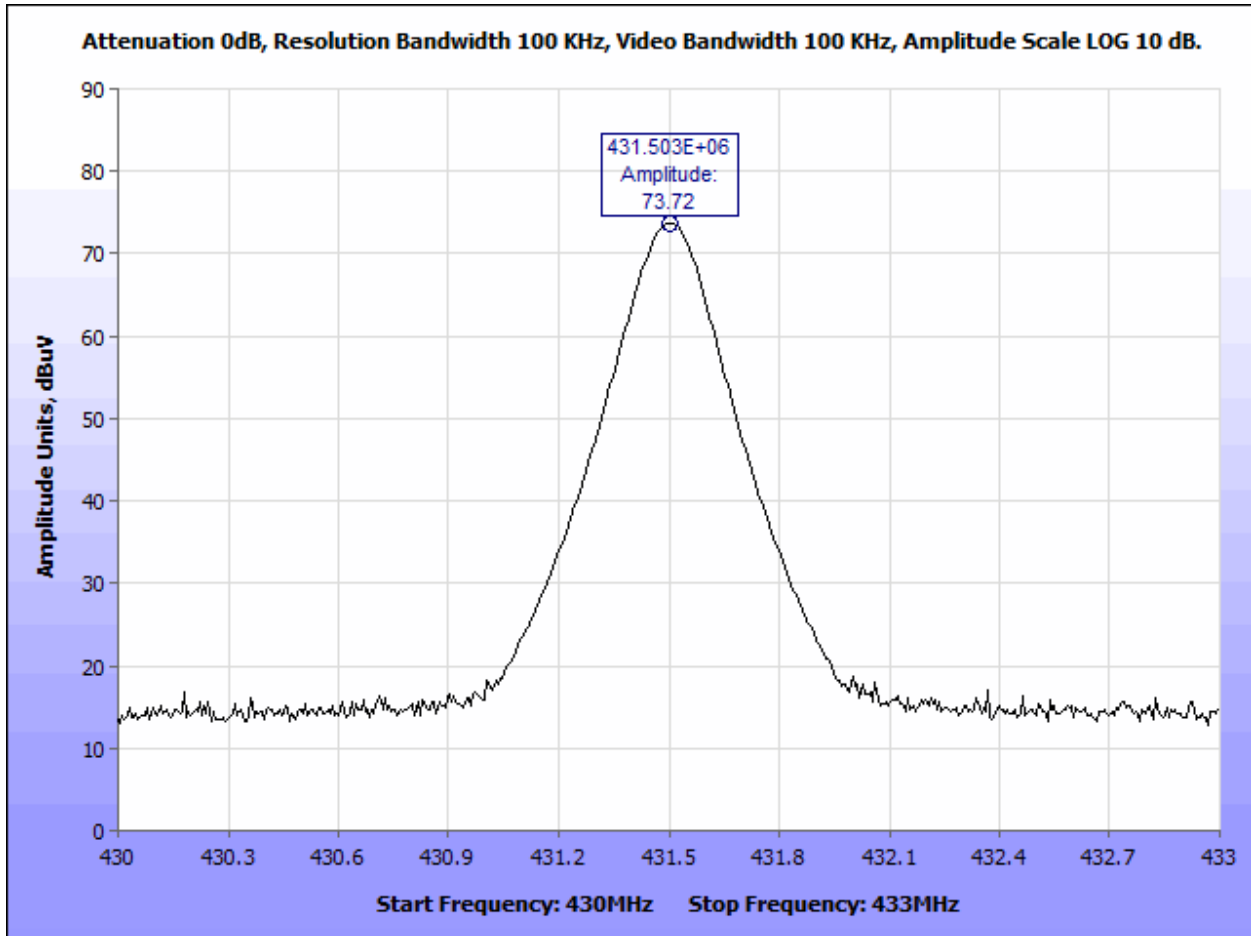


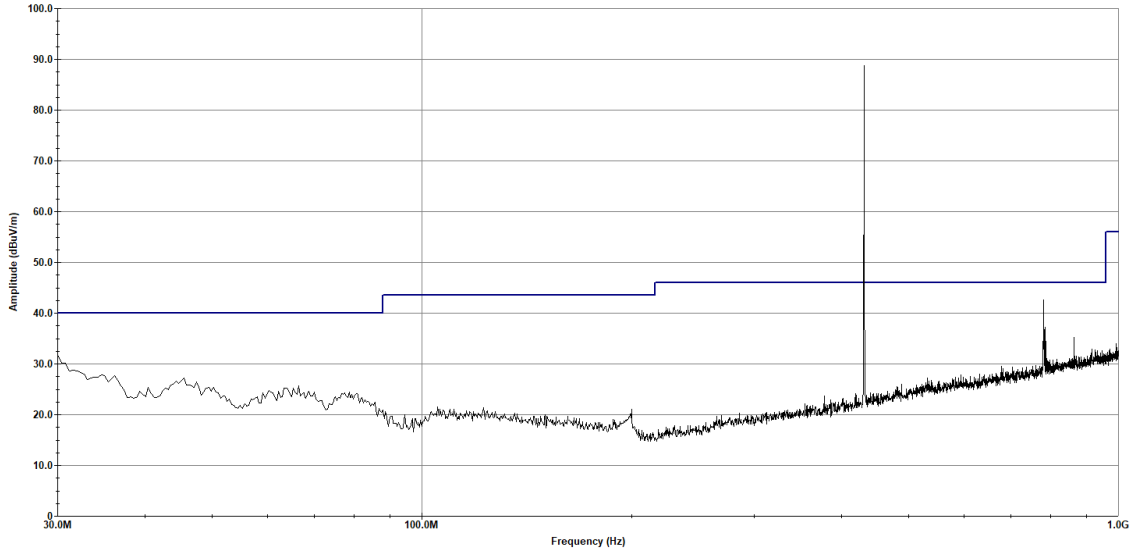
Figure 20. Low Channel - Peak Fundamental Emissions (Uncorrected) - Vertical

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 RF Channel - Low

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Horizontal Polarization

— Test Limit - Quasi-Peak  
 — Measured - Peak  
 × Measured - Quasi-Peak



Operator: Donald Salguero

Last Data Update 10:54:13 AM, Tuesday, July 12, 2022

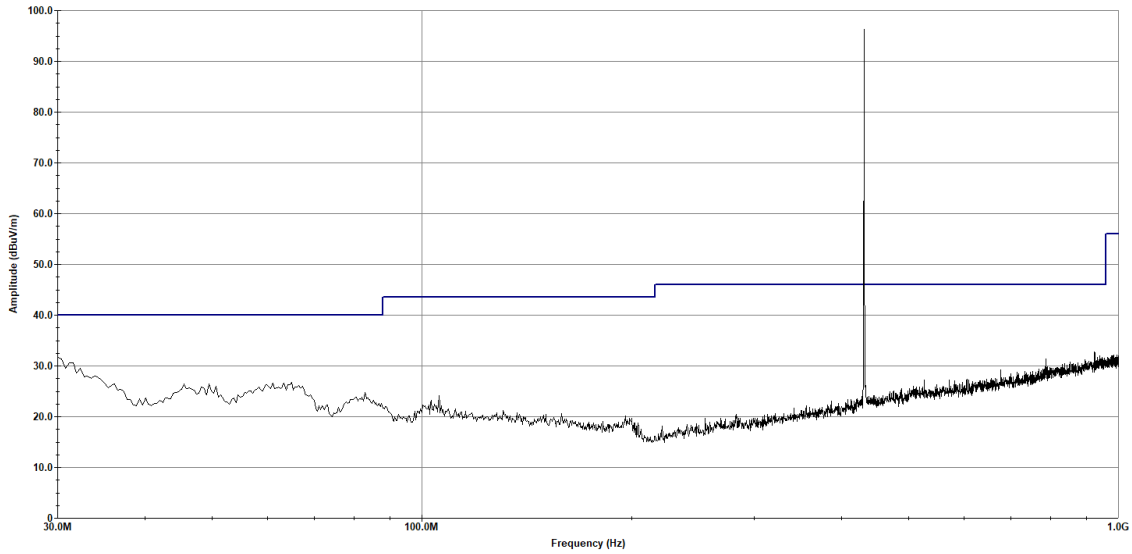
**Figure 21. Low Channel\_ Radiated Spurious Emissions 30-1000 MHz - Horizontal**

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 RF Channel - Low

Eurofins Electrical and Electronic Testing NA, Inc.

Radiated Emissions  
 Vertical Polarization

— Test Limit - Quasi-Peak  
 — Measured - Peak  
 × Measured - Quasi-Peak



Operator: Donald Salguero

Last Data Update 11:00:12 AM, Tuesday, July 12, 2022

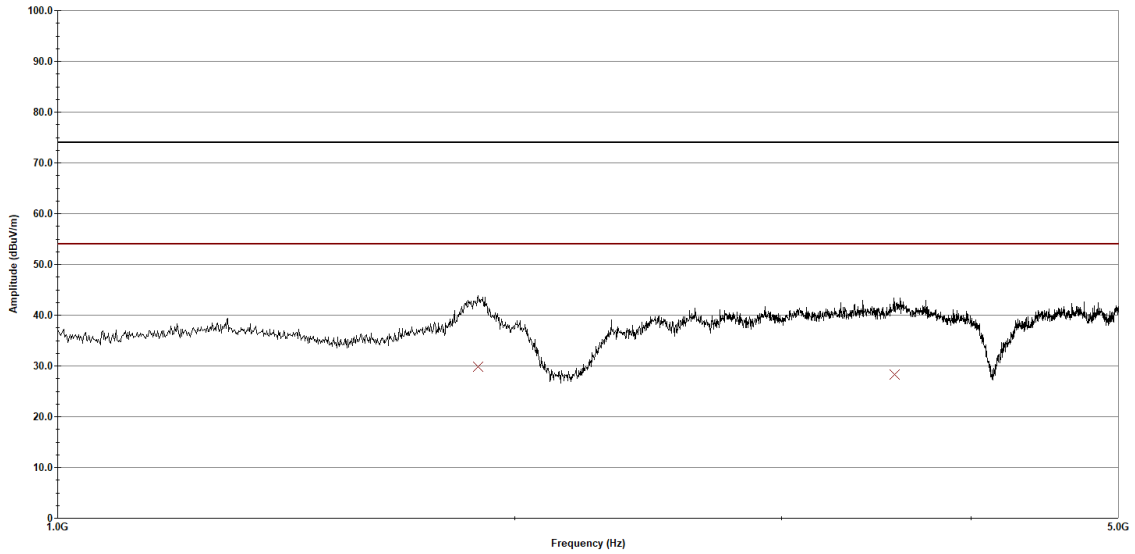
Figure 22. Low Channel\_Radiated Spurious Emissions 30-1000 MHz - Vertical

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 Model/Part Number - N/A  
 Serial Number - N/A

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Horizontal Polarization

— Test Limit - Peak  
 — Test Limit - Average  
 — Measured - Peak  
 × Measured - Average



Operator: Donald Salguero

Last Data Update 11:12:36 AM, Wednesday, July 13, 2022

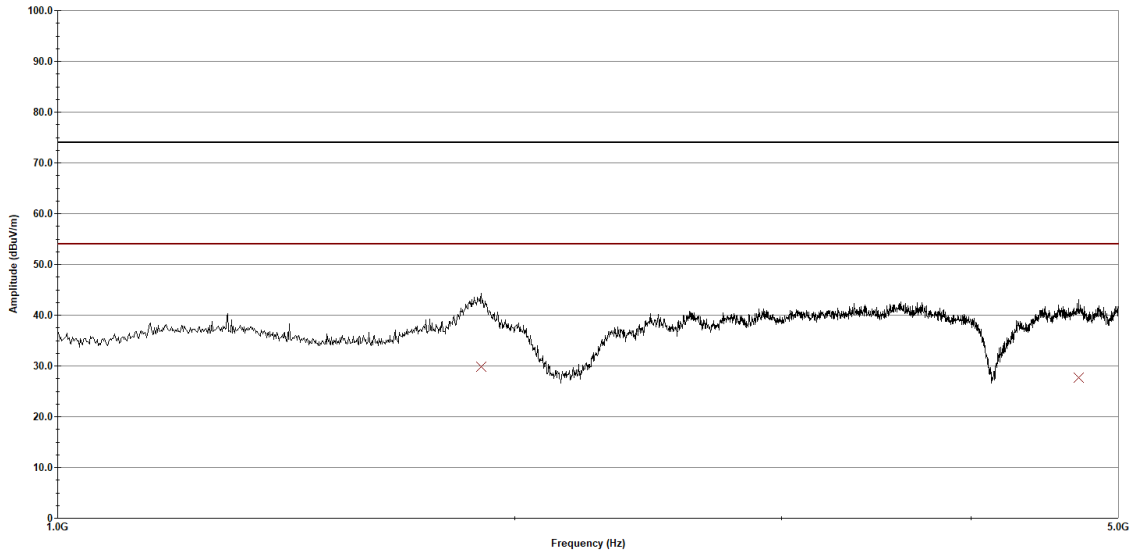
**Figure 23. Low Channel\_ Radiated Spurious Emissions 1-5 GHz - Horizontal**

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 Model/Part Number - N/A  
 Serial Number - N/A

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Vertical Polarization

— Test Limit - Peak  
 — Test Limit - Average  
 — Measured - Peak  
 × Measured - Average



Operator: Donald Salguero

Last Data Update 11:20:04 AM, Wednesday, July 13, 2022

**Figure 24. Low Channel\_ Radiated Spurious Emissions 1-5 GHz - Vertical**

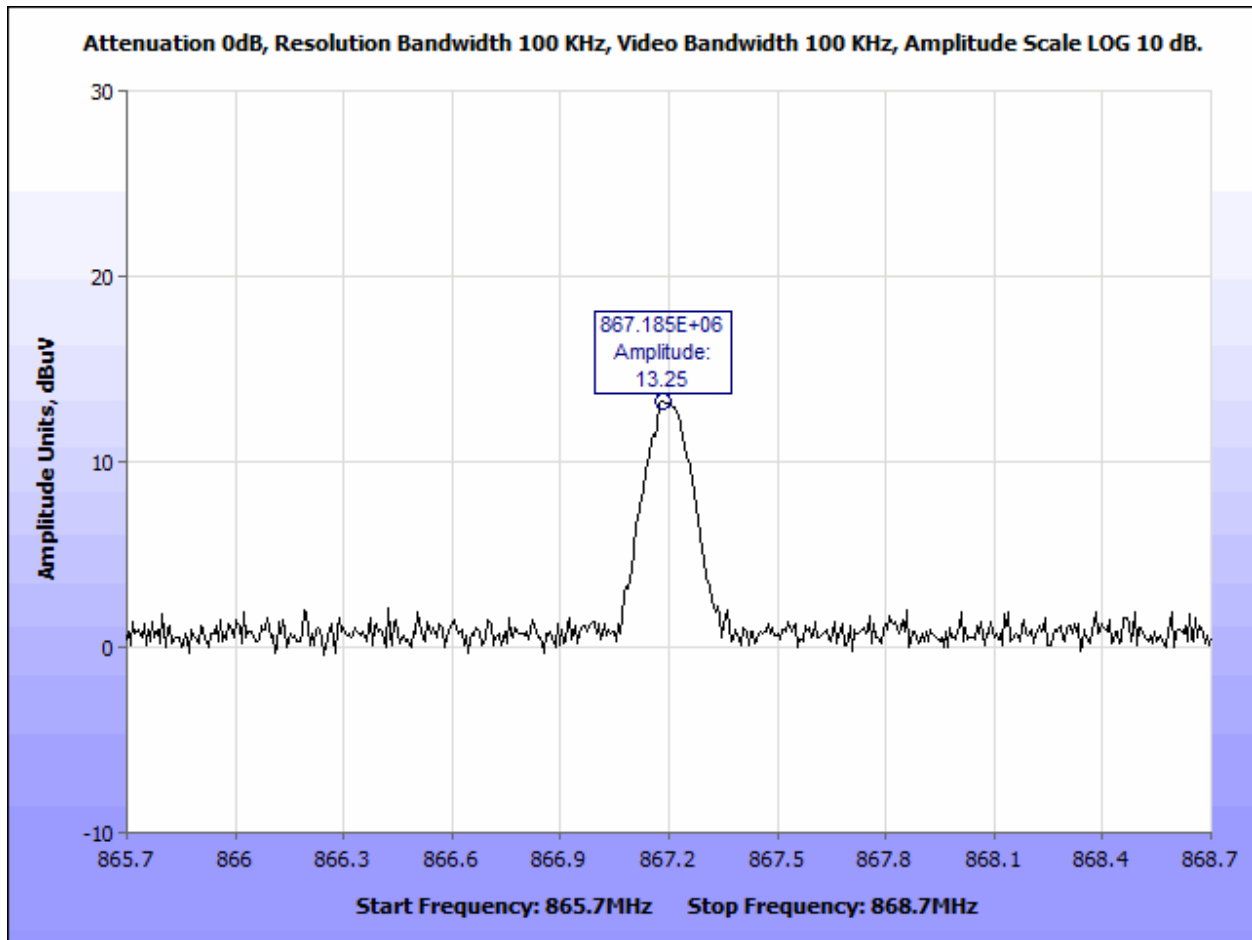


Figure 25. Mid Channel - Peak 2x Harmonic Emissions (Uncorrected) - Cumulative

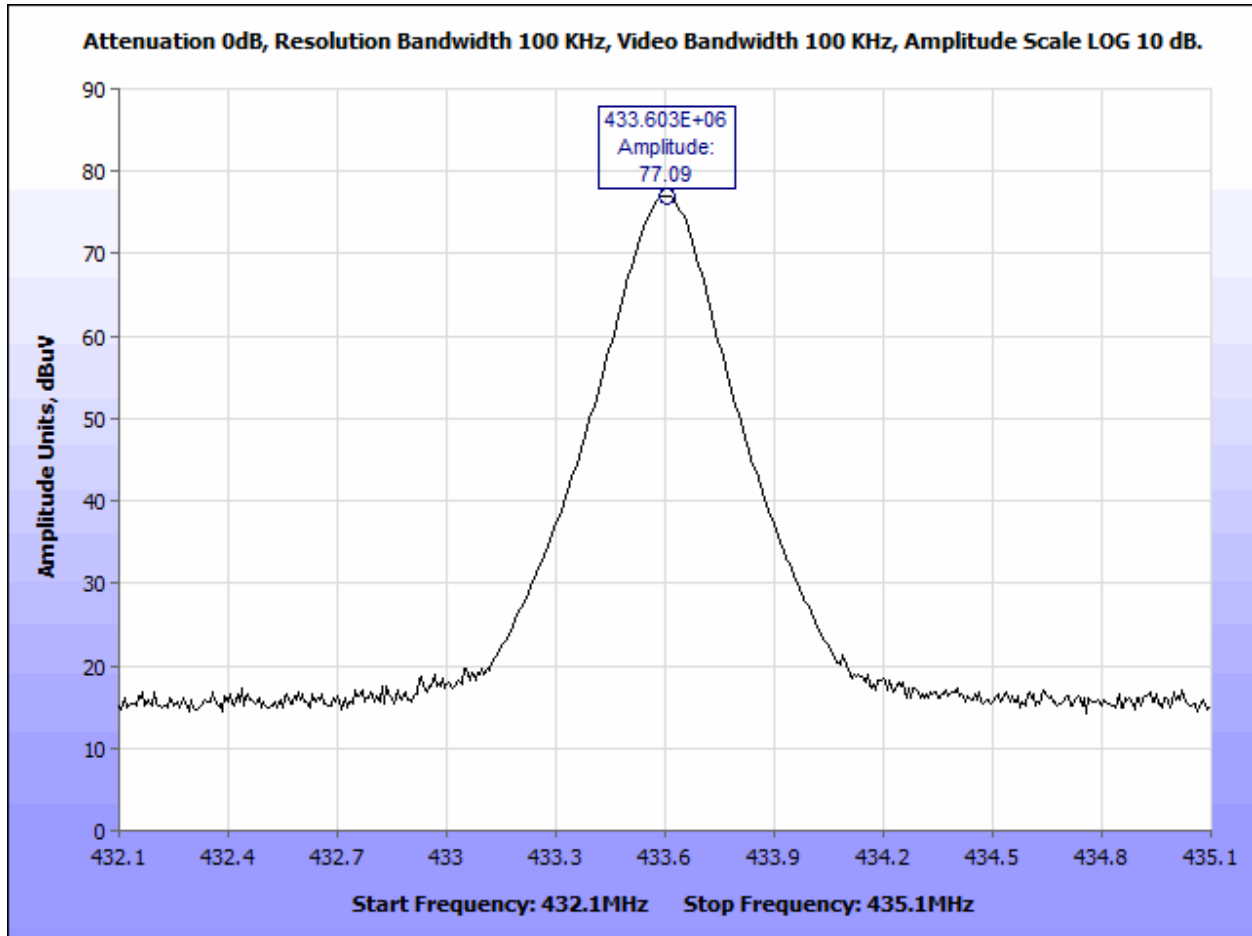


Figure 26. Mid Channel - Peak Fundamental Emissions (Uncorrected) - Vertical

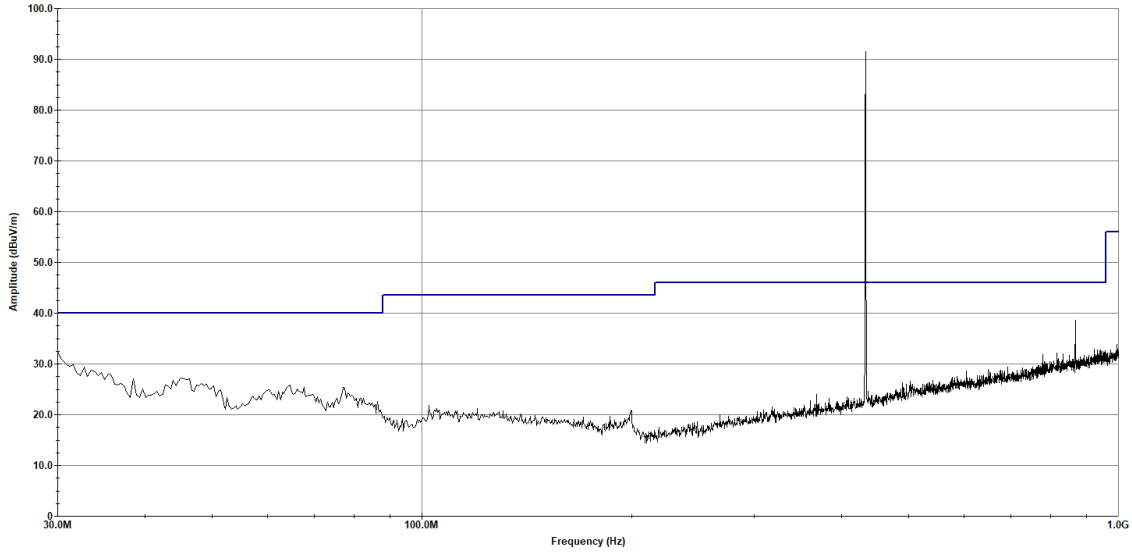


Customer - Lutron Electronics  
Job Number - 120411  
EUT Name - RRD-PRO  
RF Channel - Mid

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Radiated Emissions  
Horizontal Polarization

— Test Limit - Quasi-Peak  
— Measured - Peak  
× Measured - Quasi-Peak



Operator: Donald Salguero

Last Data Update 11:14:00 AM, Tuesday, July 12, 2022

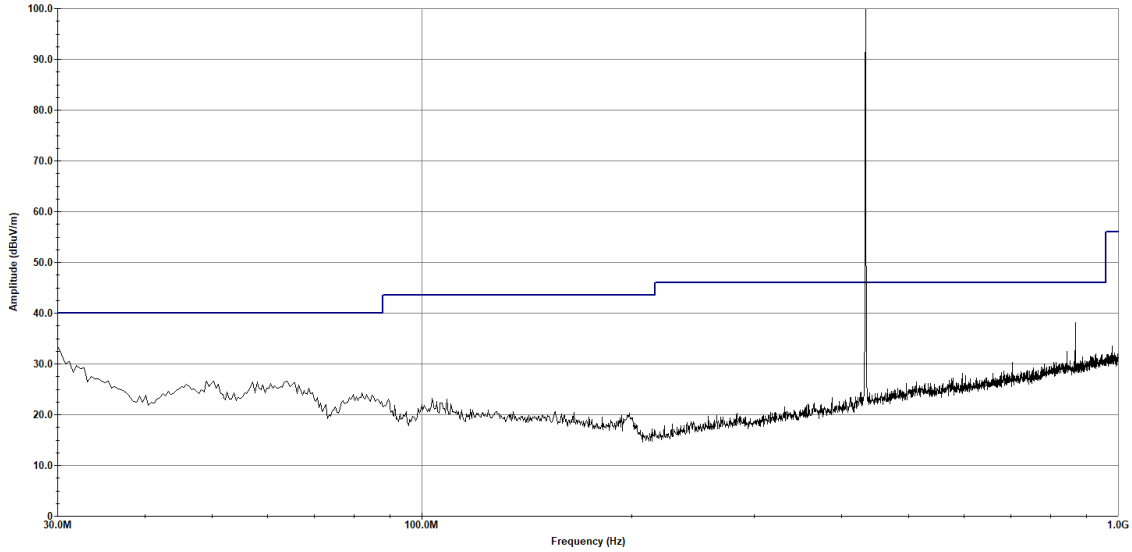
Figure 27. Mid Channel\_ Radiated Spurious Emissions 30-1000 MHz - Horizontal

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 RF Channel - Mid

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Radiated Emissions  
 Vertical Polarization

— Test Limit - Quasi-Peak  
 — Measured - Peak  
 × Measured - Quasi-Peak



Operator: Donald Salguero

Last Data Update 11:21:18 AM, Tuesday, July 12, 2022

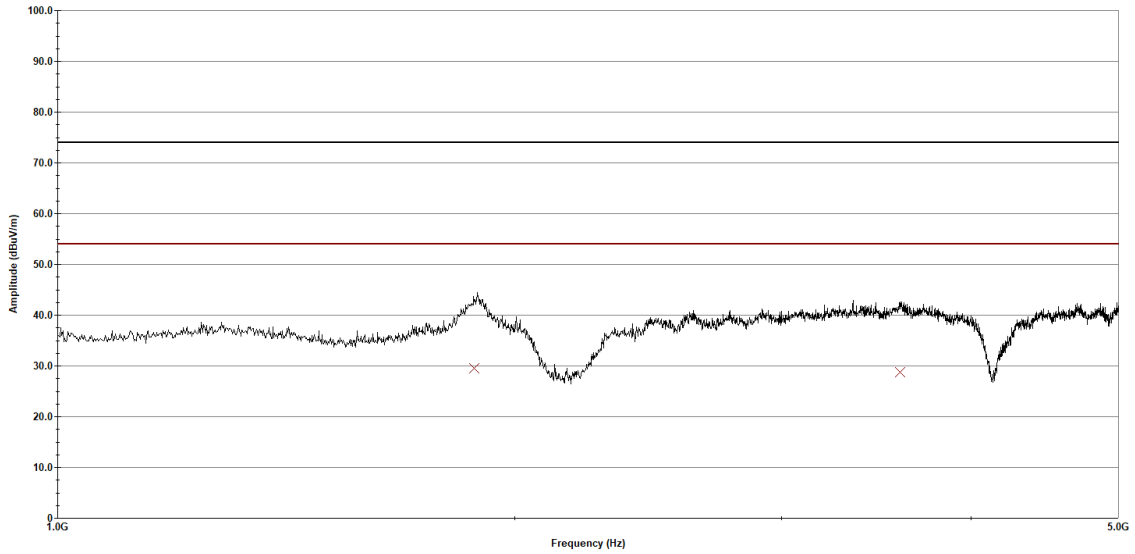
**Figure 28. Mid Channel\_ Radiated Spurious Emissions 30-1000 MHz - Vertical**

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 Model/Part Number - N/A  
 Serial Number - N/A

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Horizontal Polarization

— Test Limit - Peak  
 — Test Limit - Average  
 — Measured - Peak  
 × Measured - Average



Operator: Donald Salguero

Last Data Update 09:57:30 AM, Wednesday, July 13, 2022

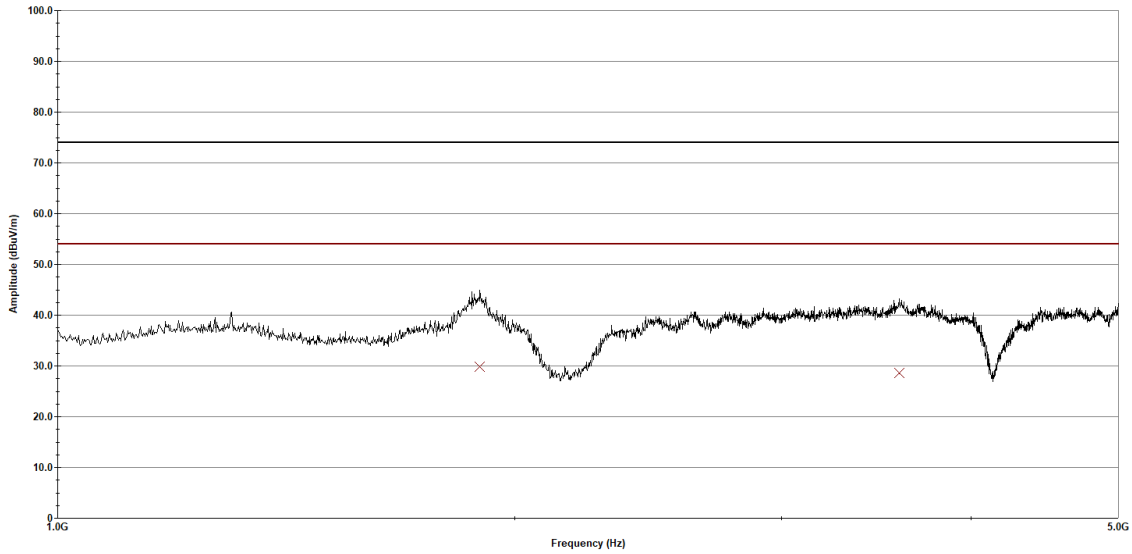
**Figure 29. Mid Channel\_ Radiated Spurious Emissions 1-5 GHz - Horizontal**

Customer - Lutron Electronics  
 Job Number - 120411  
 EUT Name - RRD-PRO  
 Model/Part Number - N/A  
 Serial Number - N/A

**Eurofins Electrical and Electronic Testing NA, Inc.**

Radiated Emissions  
 Vertical Polarization

— Test Limit - Peak  
 — Test Limit - Average  
 — Measured - Peak  
 × Measured - Average



Operator: Donald Salguero

Last Data Update 11:32:09 AM, Wednesday, July 13, 2022

**Figure 30. Mid Channel\_ Radiated Spurious Emissions 1-5 GHz - Vertical**



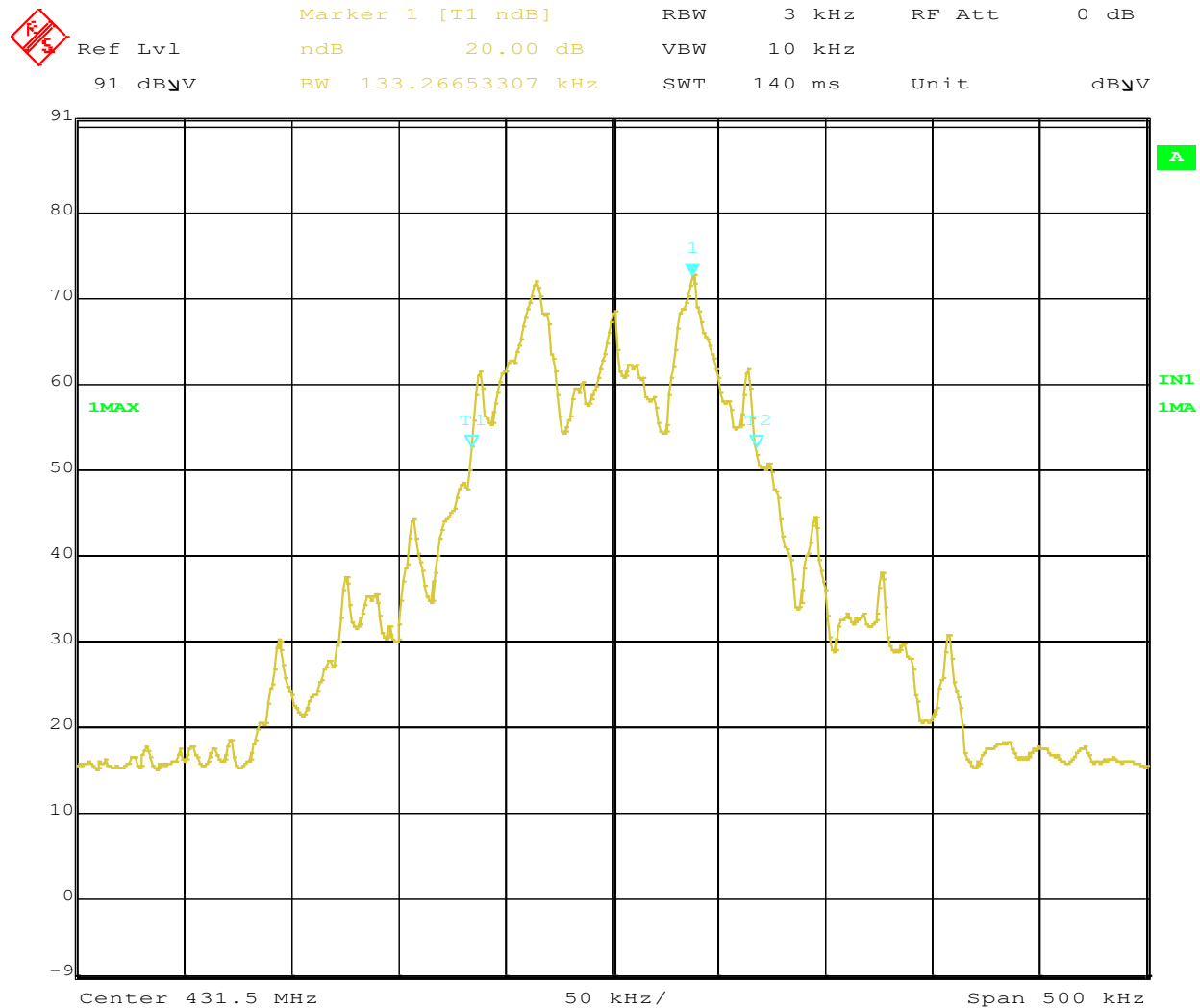
**Figure 31. REE Test Setup 30-1000 MHz**



**Figure 32. REE Test Setup 1-5 GHz**


**§ 15.231(c) 20 dB Bandwidth**

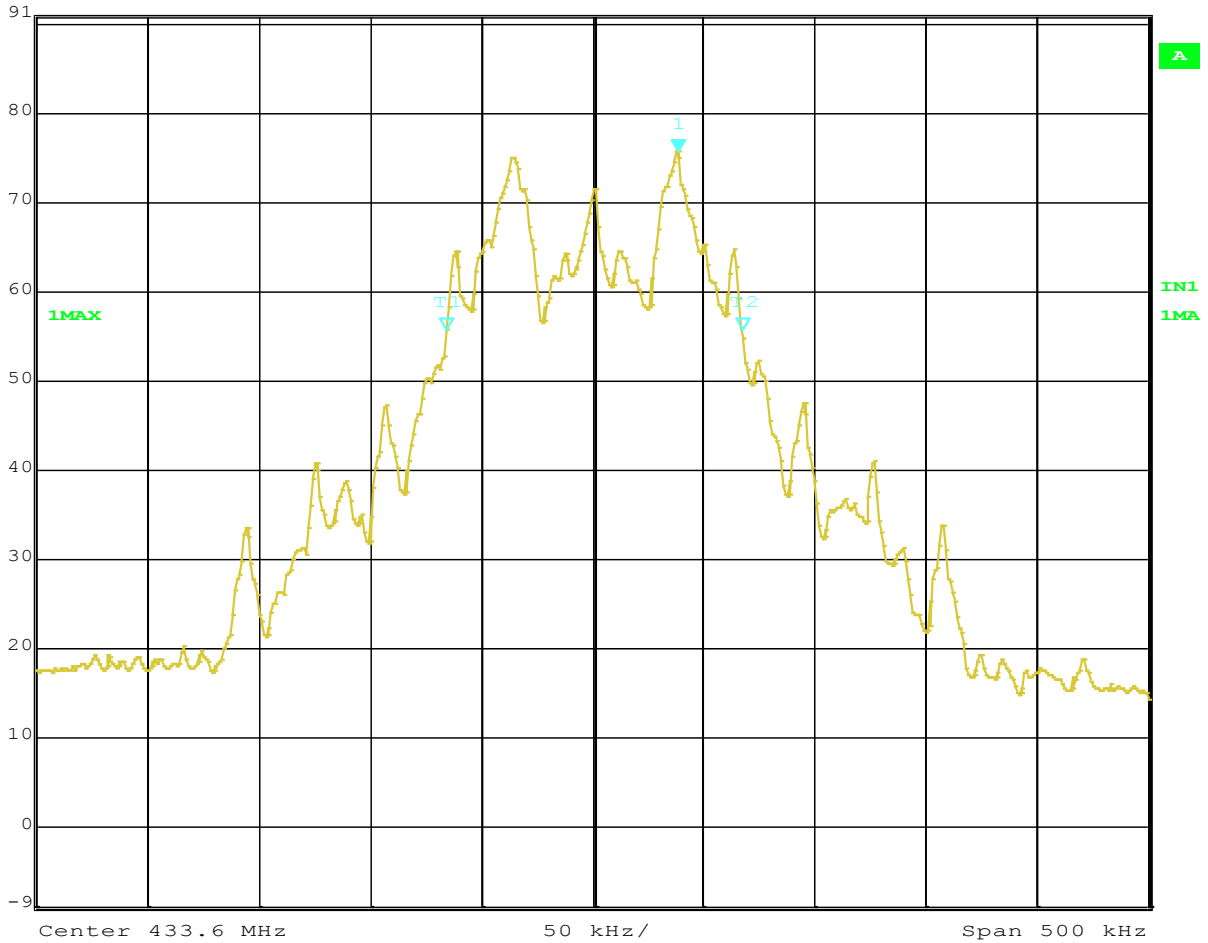
TX Channel	Frequency (MHz)	Measured OBW (kHz)	Limit (kHz)	Note
Low	431.5	133.26	1078.75	Pass
Mid	433.6	133.26	1084	Pass
High	436.6	135.27	1091.5	Pass

**Figure 33. OBW Test Results**


Date: 1.JAN.1997 01:19:43

**Figure 34. OBW - Low Channel**

	Marker 1 [T1 ndB]	RBW	3 kHz	RF Att	0 dB	
	Ref Lvl	ndB	20.00 dB	VBW	10 kHz	
	91 dB $\mu$ V	BW	133.26653307 kHz	SWT	140 ms	Unit

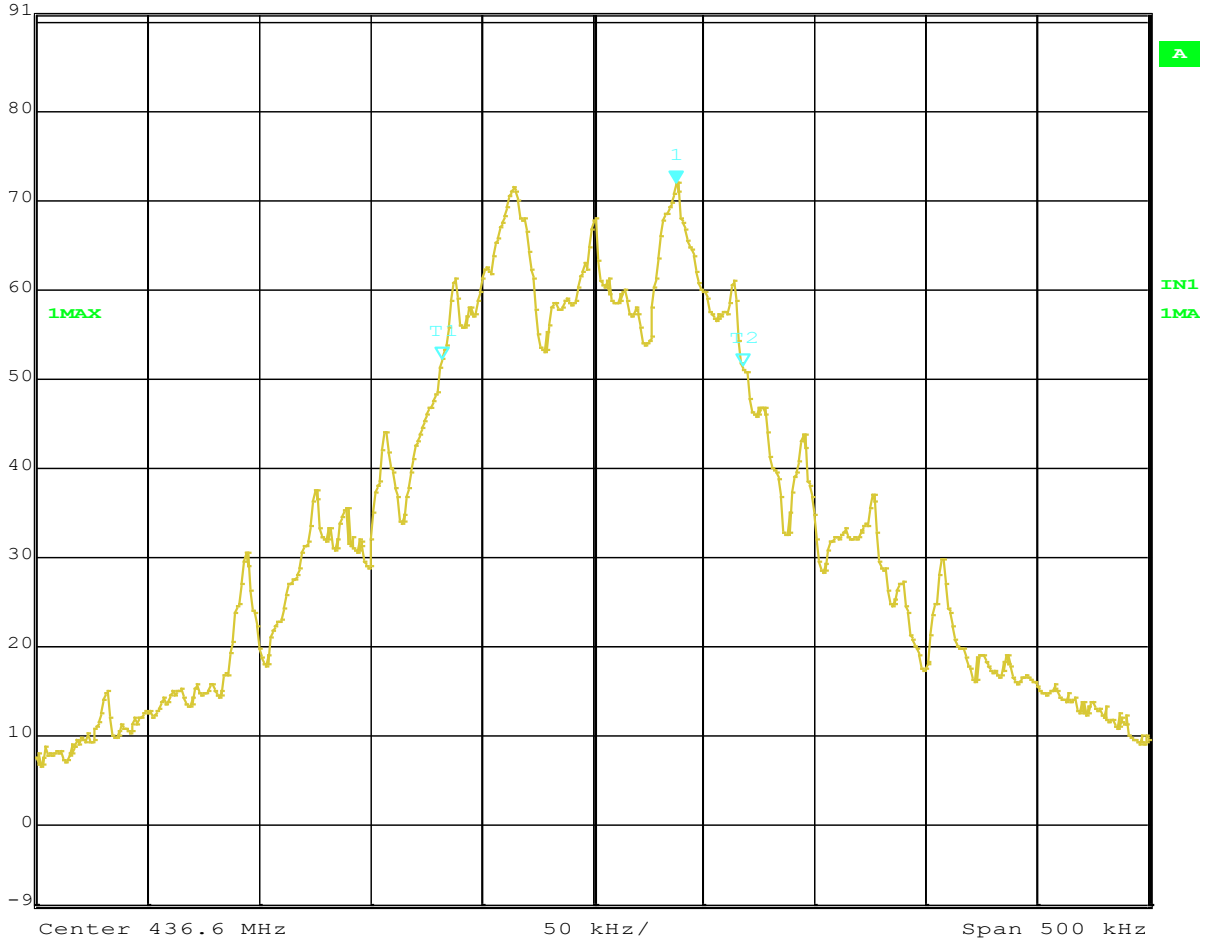


Date: 1.JAN.1997 01:31:42

**Figure 35. OBW - Mid Channel**



Ref Lvl	Marker 1 [T1 ndB]	RBW	3 kHz	RF Att	0 dB
91 dB $\mu$ V	ndB 20.00 dB	VBW	10 kHz		
	BW 135.27054108 kHz	SWT	140 ms	Unit	dB $\mu$ V



Date: 1.JAN.1997 01:14:23

Figure 36. OBW - High Channel