

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
	0.3566	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

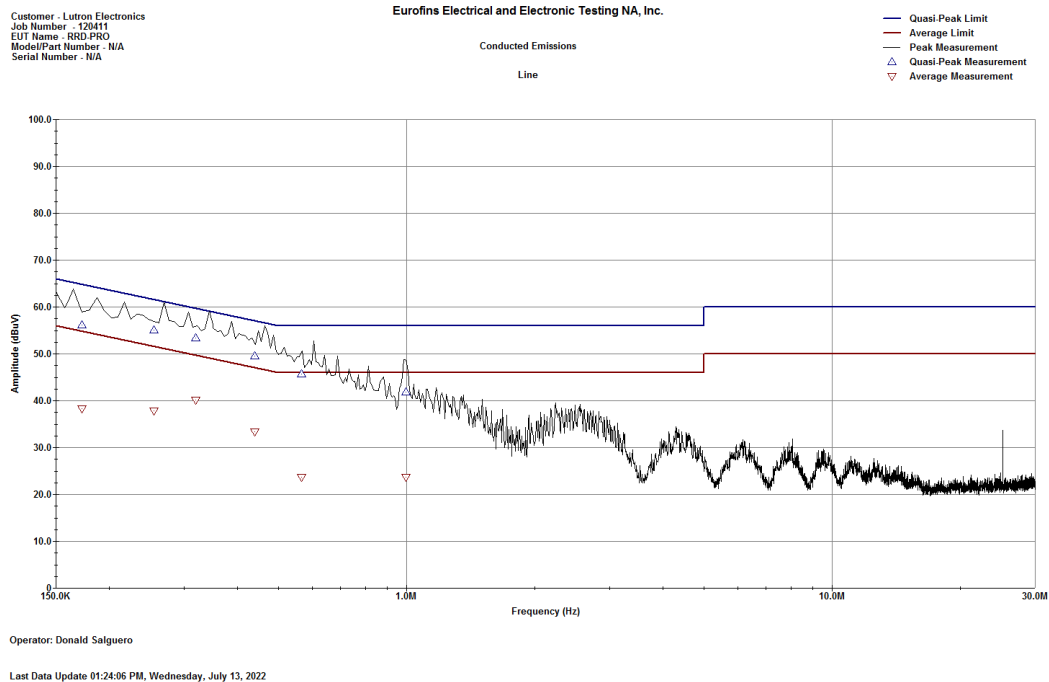


Figure 2. Line

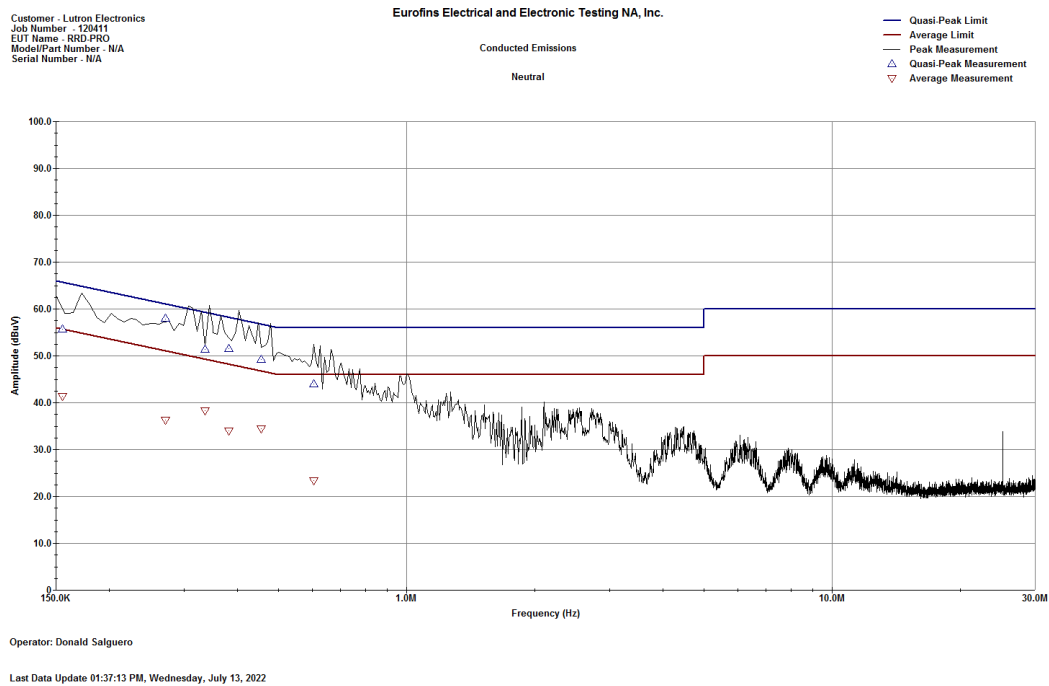


Figure 3. Neutral

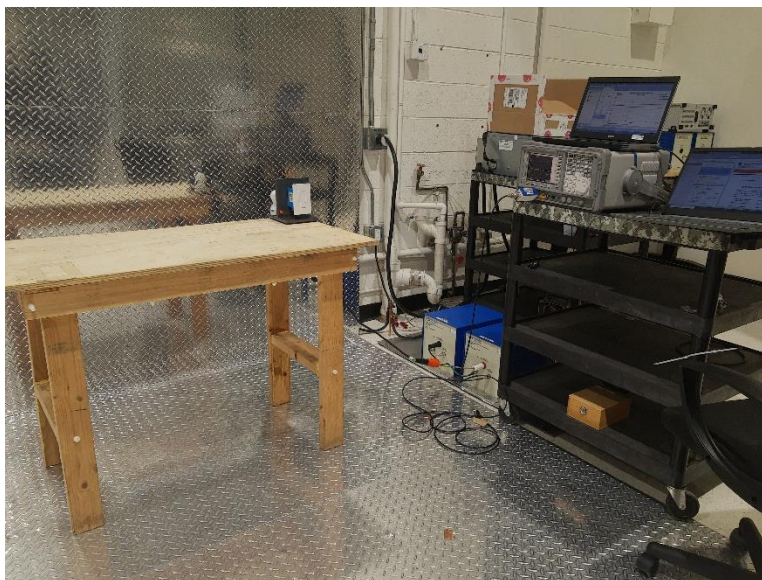
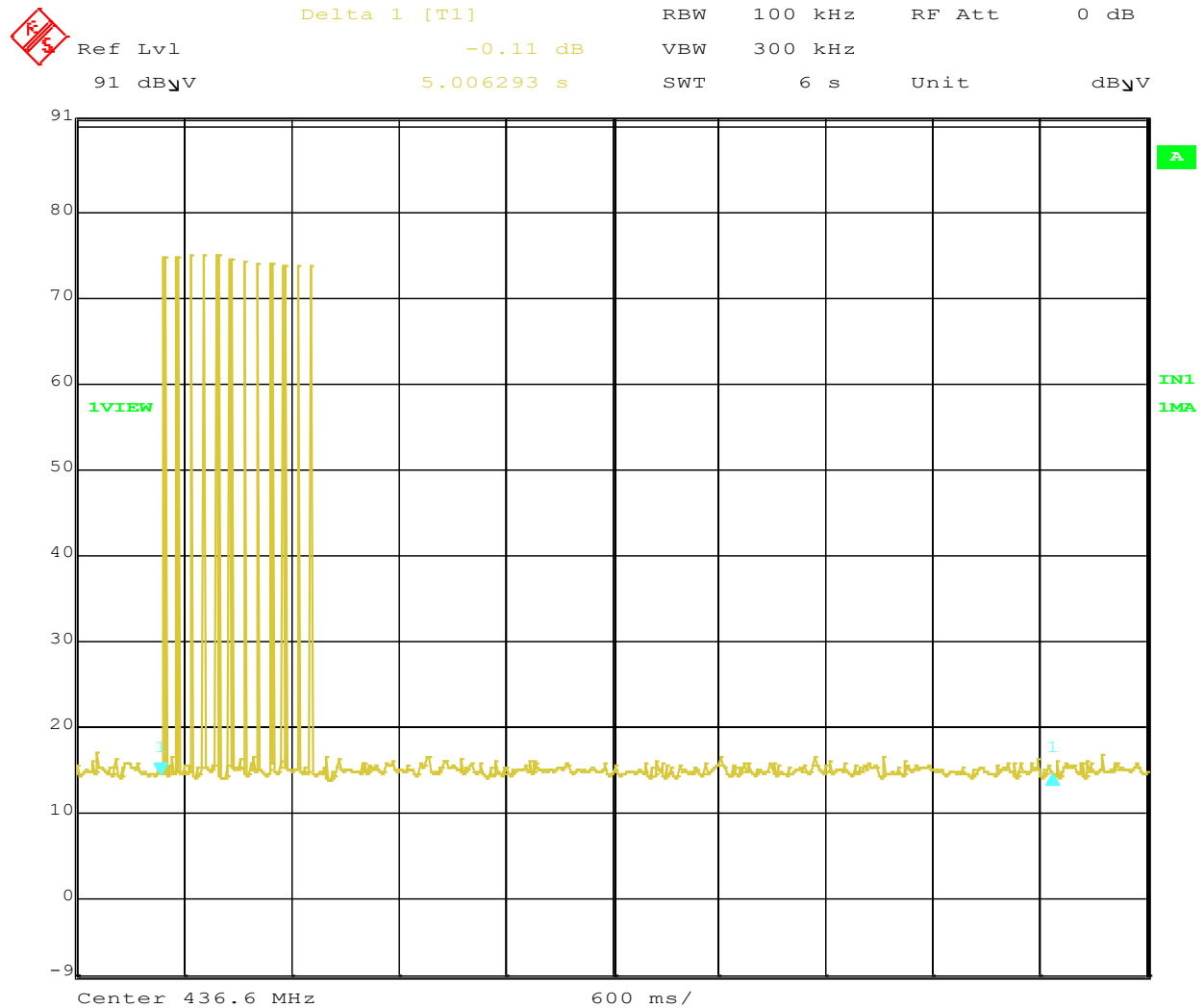


Figure 4. CEV Test Setup

§ 15.231 (a) Periodic Operation Requirements



Date: 1.JAN.1997 02:02:10

Figure 5. High Channel - 5s shutdown

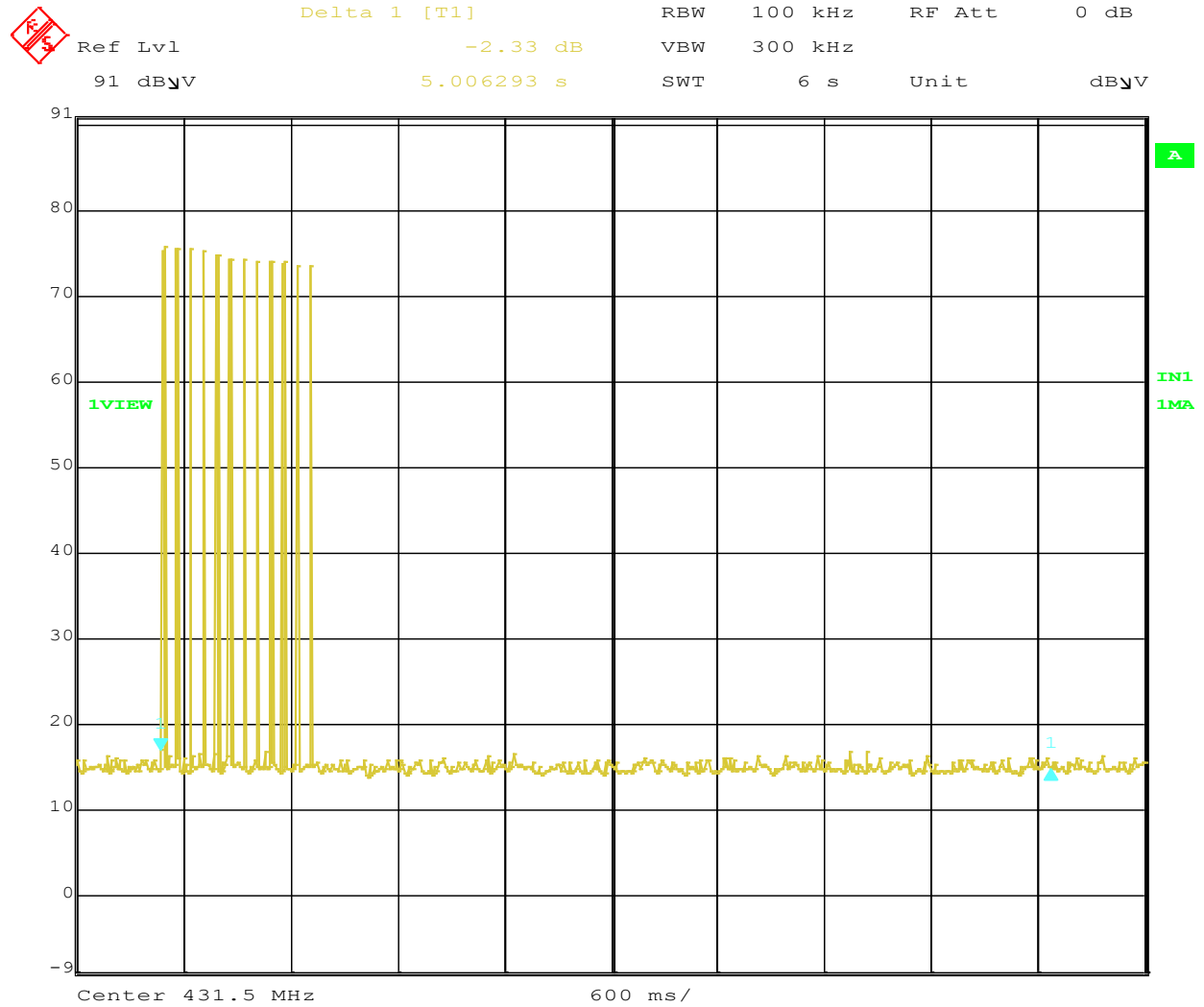


Figure 6. Low Channel - 5s shutdown

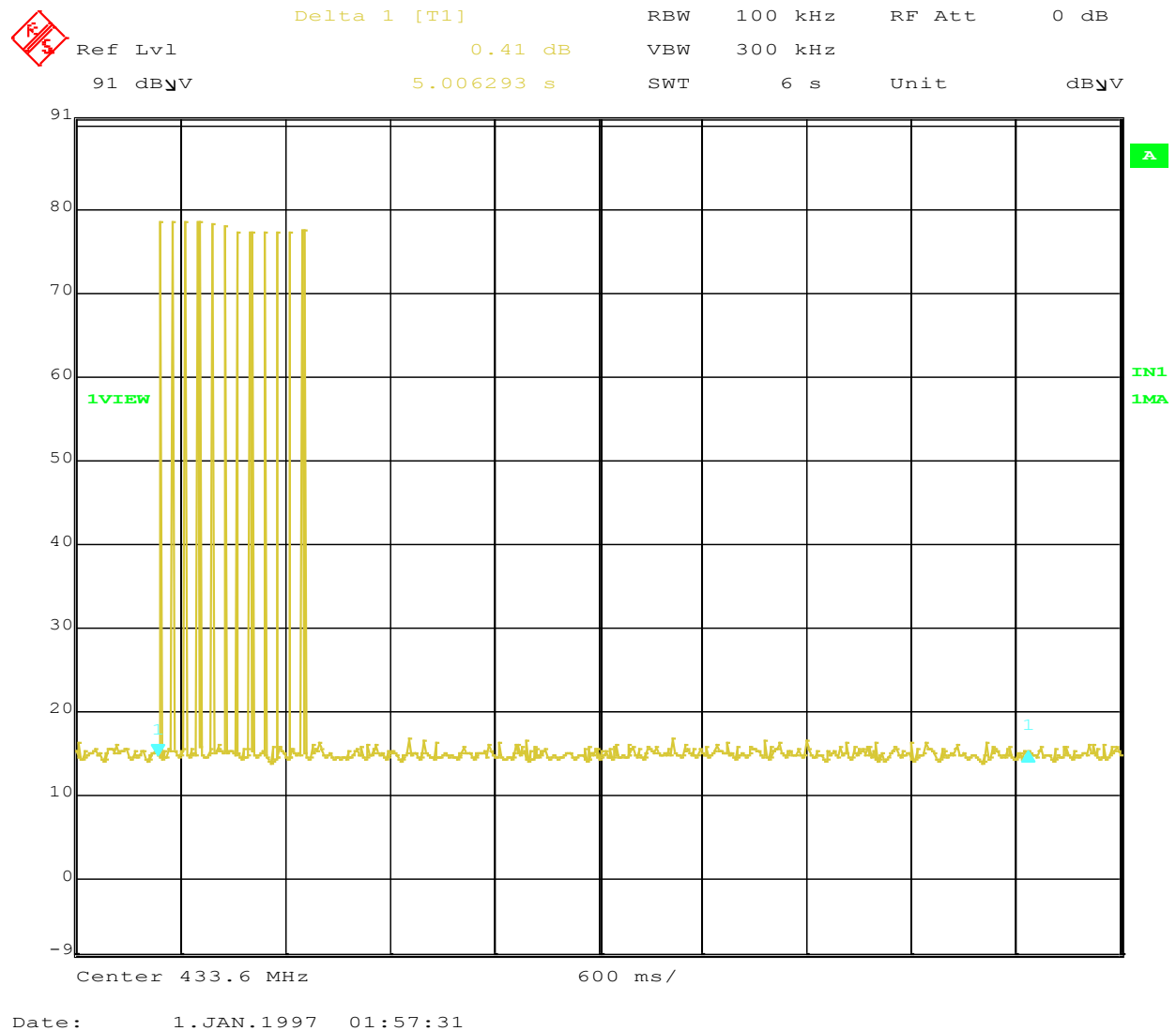


Figure 7. Mid Channel - 5s shutdown

§ 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 = $2 * 4.89ms = 9.78ms$

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

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

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

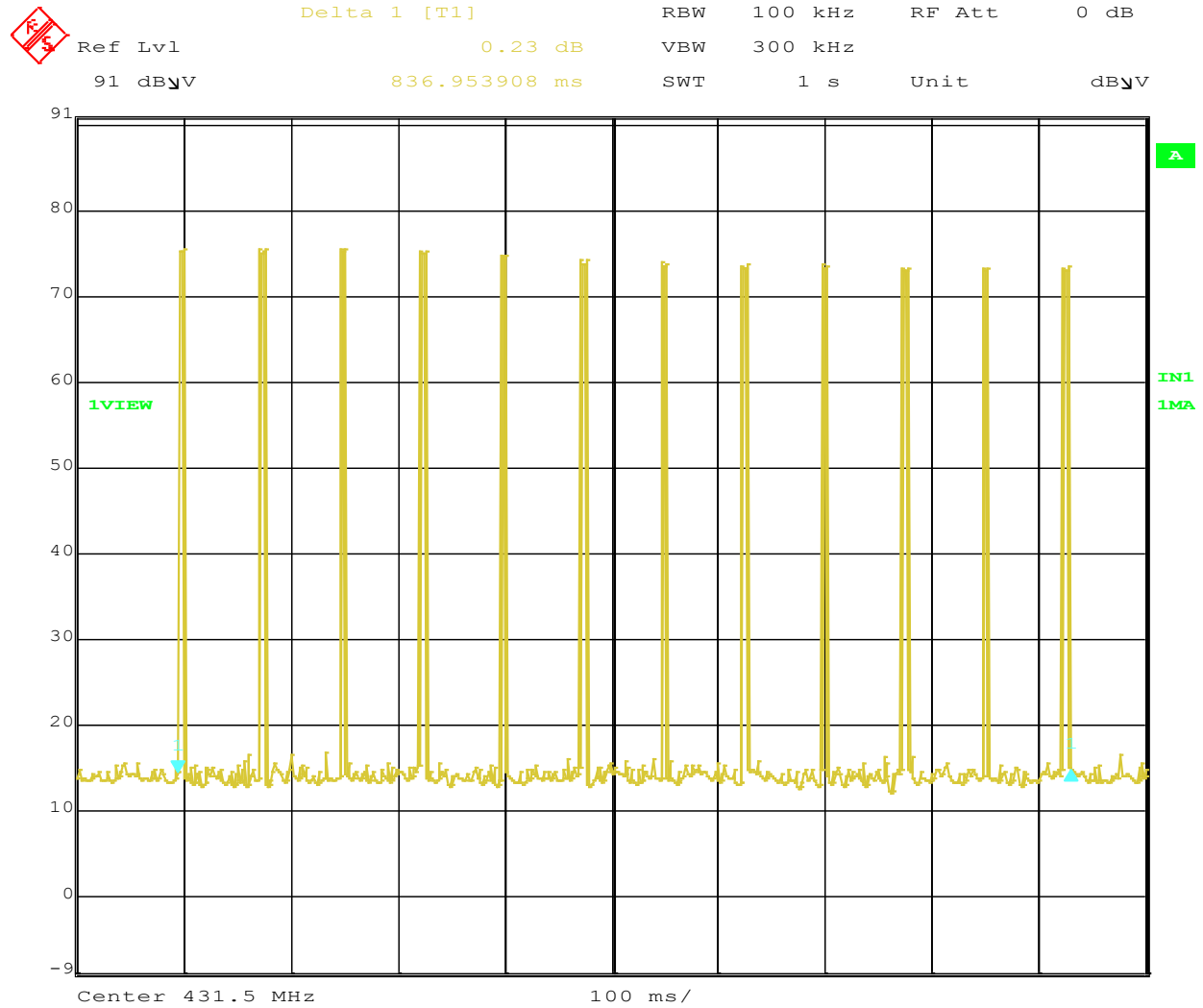
Figure 8. Fundamental Field Strength - Test Results

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

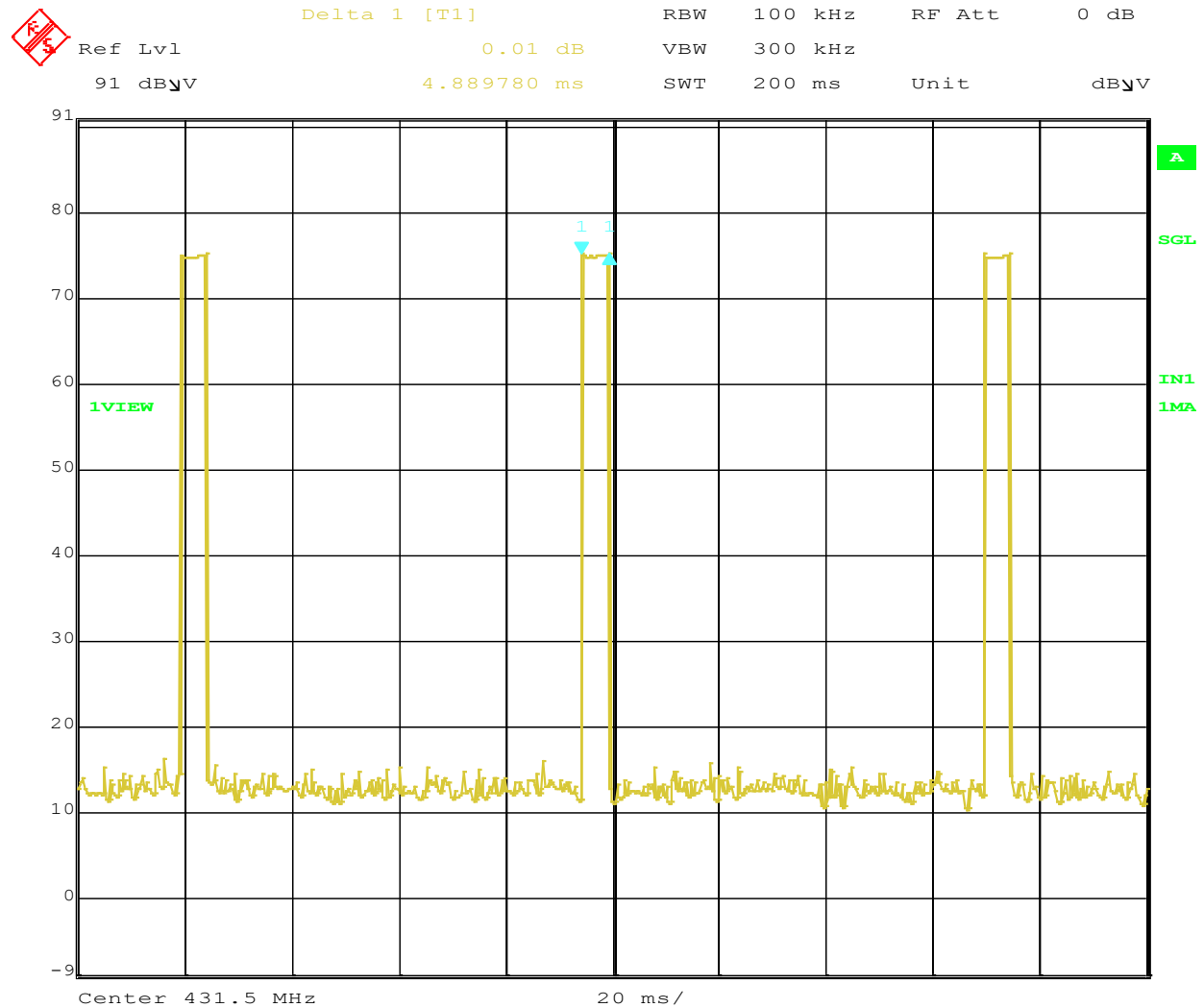
TX Channel	Frequency	Polarity	Antenna Height	Turntable Position	Measured	Correction Factor	Corrected Reading	Limit	Margin	Results	Measured	Correction Factor	Corrected Reading	Limit	Margin	Results
	GHz				dBuV	dB	dBuV/m	dBuV/m	dB		dBuV	dB	dBuV/m	dBuV/m	dB	
low	3.560	H	284.17	-0.50	43.33	-1.78	41.55	74.00	-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



Date: 1.JAN.1997 02:17:23

Figure 11. DCCF - Pulse train duration



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

Figure 12. DCCF - Pulse width

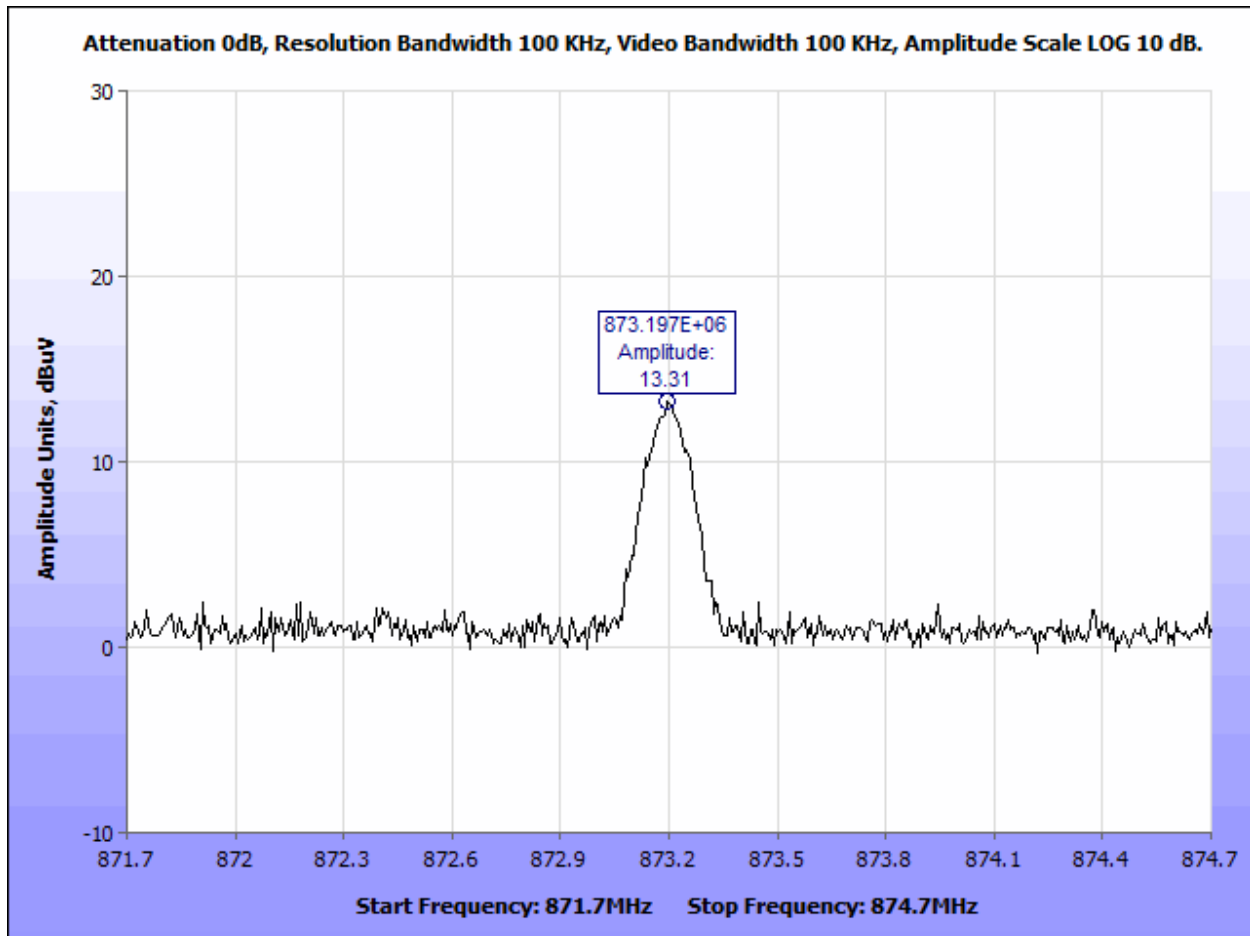


Figure 13. High Channel - Peak 2x Harmonic Emissions (Uncorrected) - Cumulative

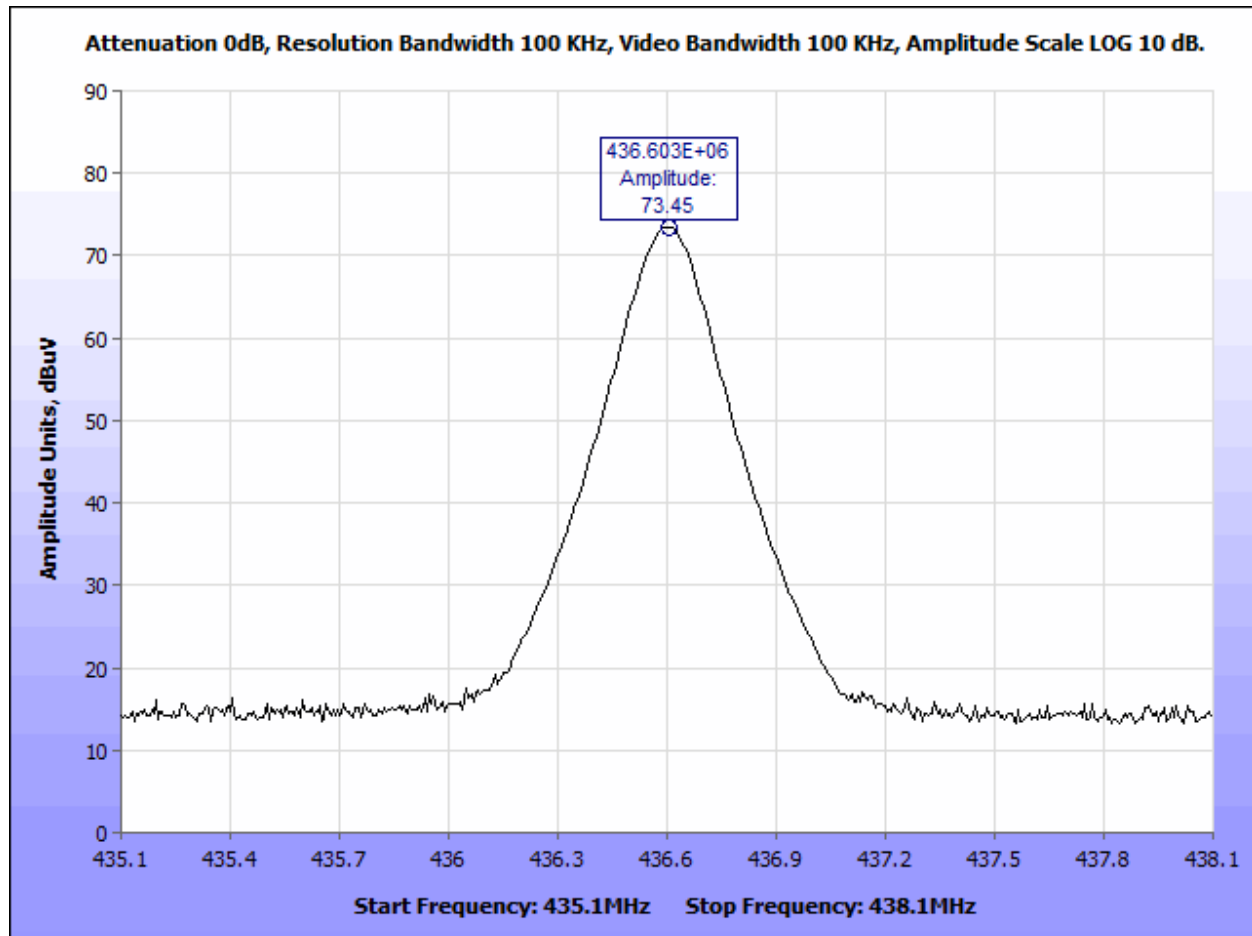


Figure 14. High Channel - Peak Fundamental Emissions (Uncorrected) - Vertical

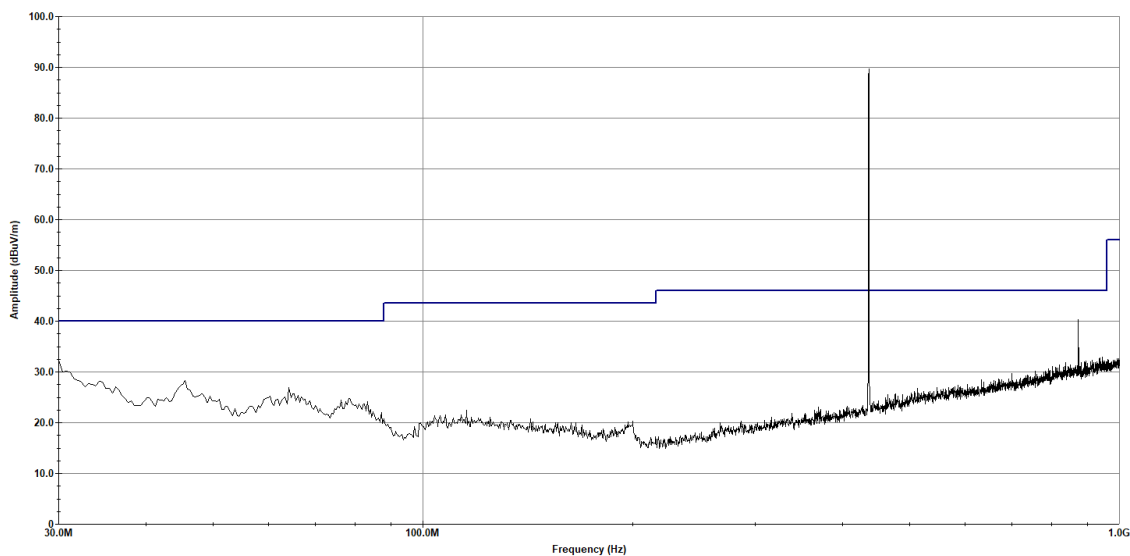
Customer - Lutron Electronics
Job Number - 120411
EUT Name - KRD-PRO
RF Channel - High

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

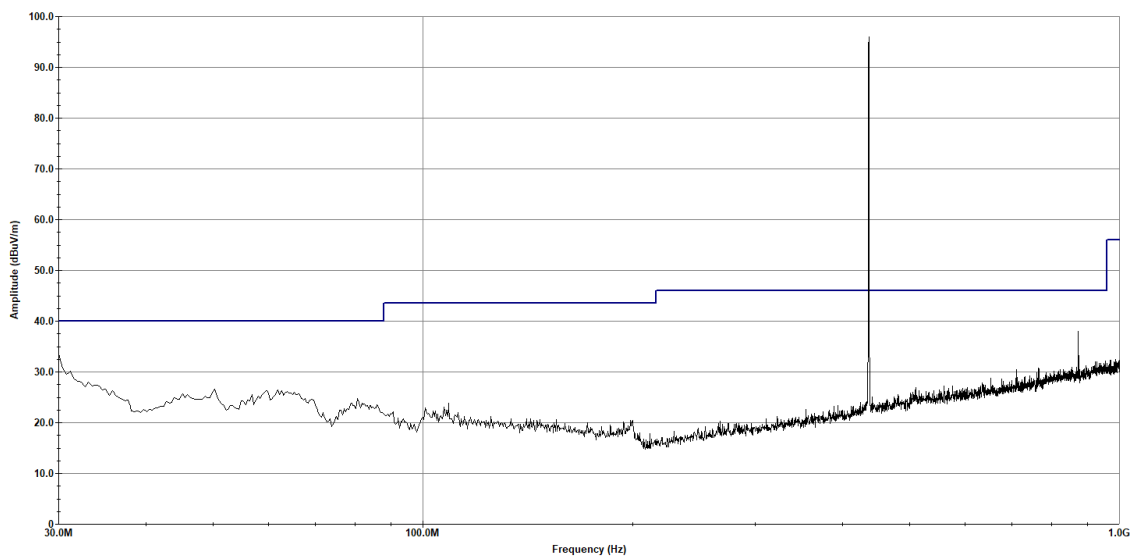
Customer - Lutron Electronics
Job Number - 120411
EUT Name - KRD-PRO
RF Channel - High

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 11:41:08 AM, Tuesday, July 12, 2022

Figure 16. High Channel_ Radiated Spurious Emissions 30-1000 MHz - Vertical

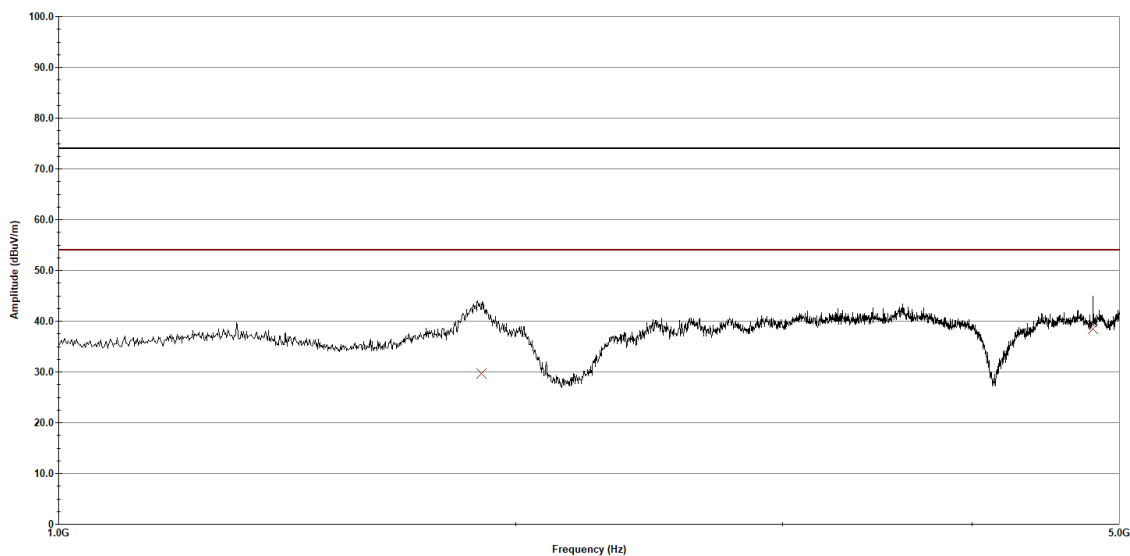
Customer - Lutron Electronics
Job Number - 120411
EUT Name - RRD-PRO
Model/Part Number - N/A
Serial Number - N/A

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

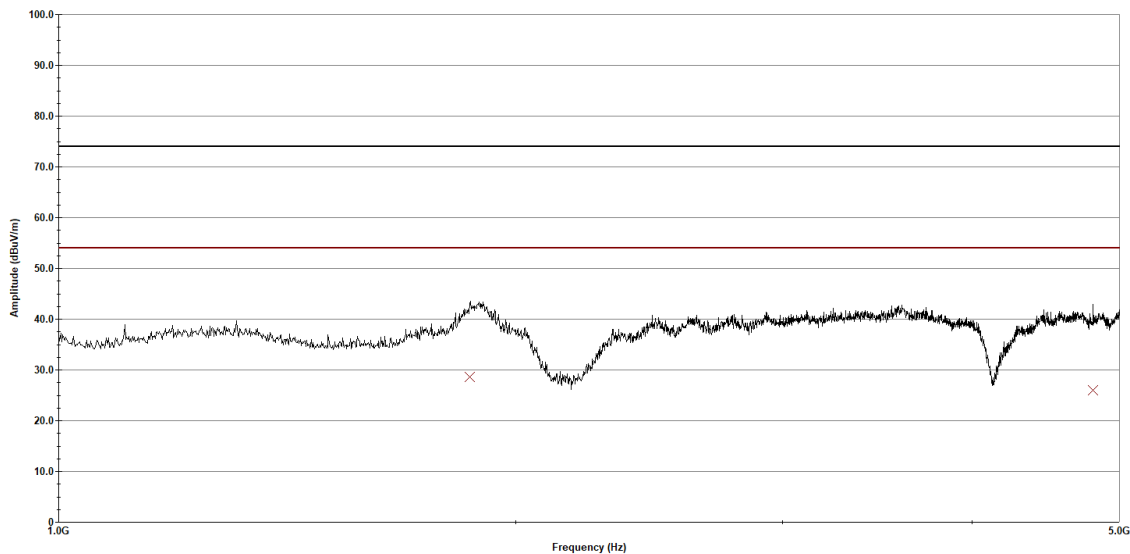
Customer - Lutron Electronics
Job Number - 120411
EUT Name - RRD-PRO
Model/Part Number - N/A
Serial Number - N/A

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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

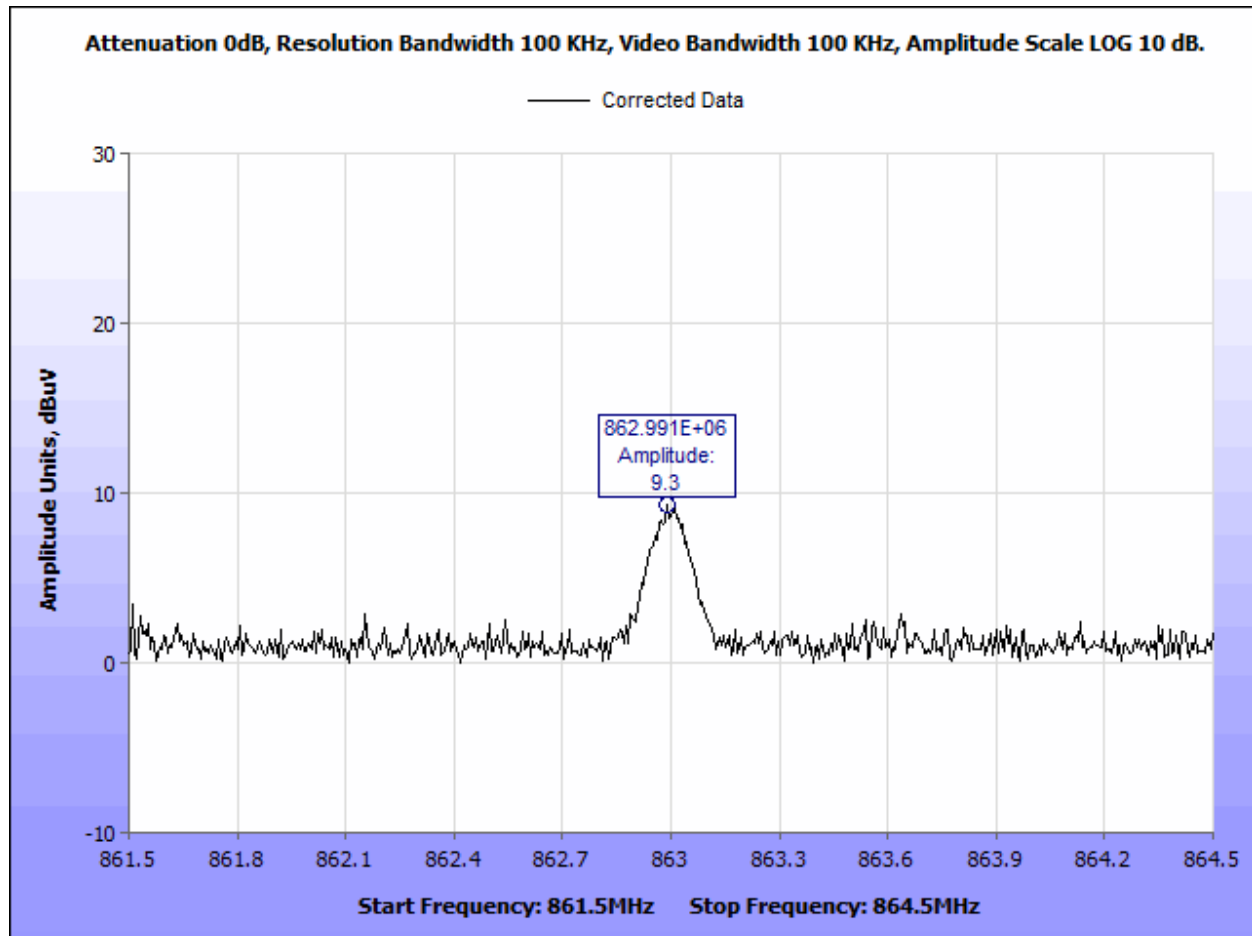


Figure 19. Low Channel - Peak 2x Harmonic Emissions (Uncorrected) - Cumulative

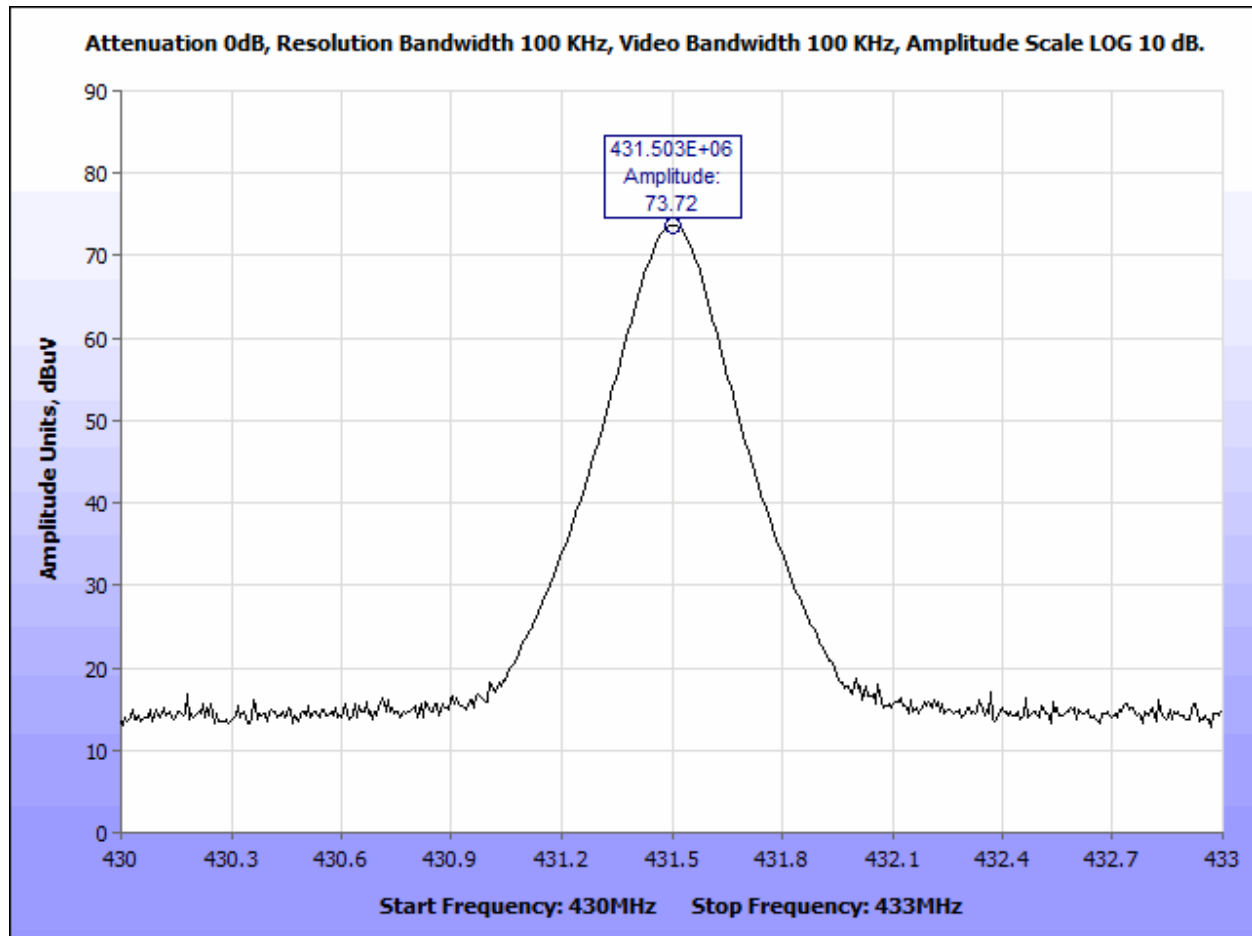


Figure 20. Low Channel - Peak Fundamental Emissions (Uncorrected) - Vertical

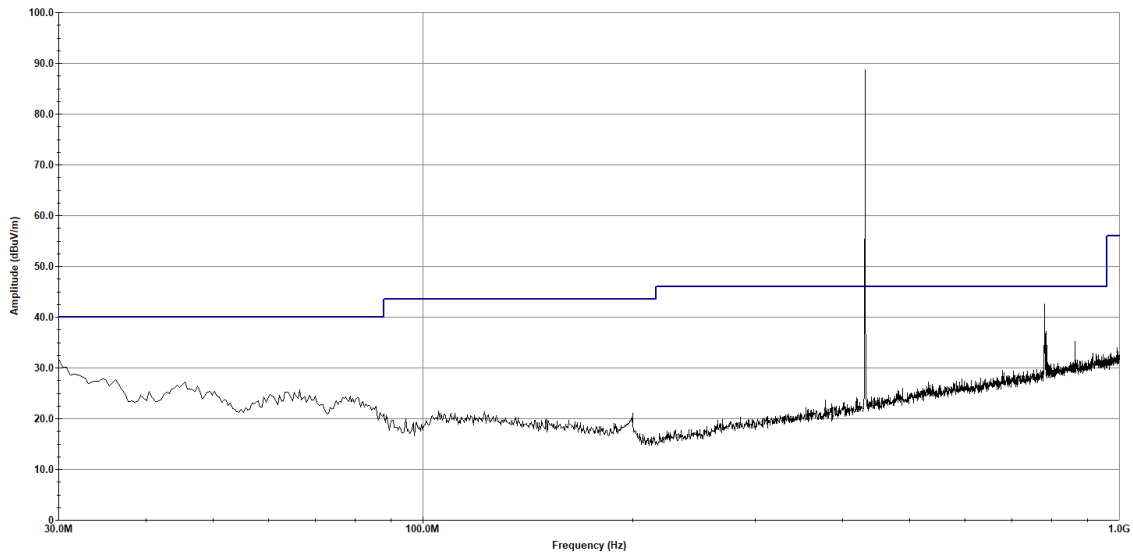
Customer - Lutron Electronics
Job Number - 120411
EUT Name - KRD-PRO
RF Channel - Low

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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

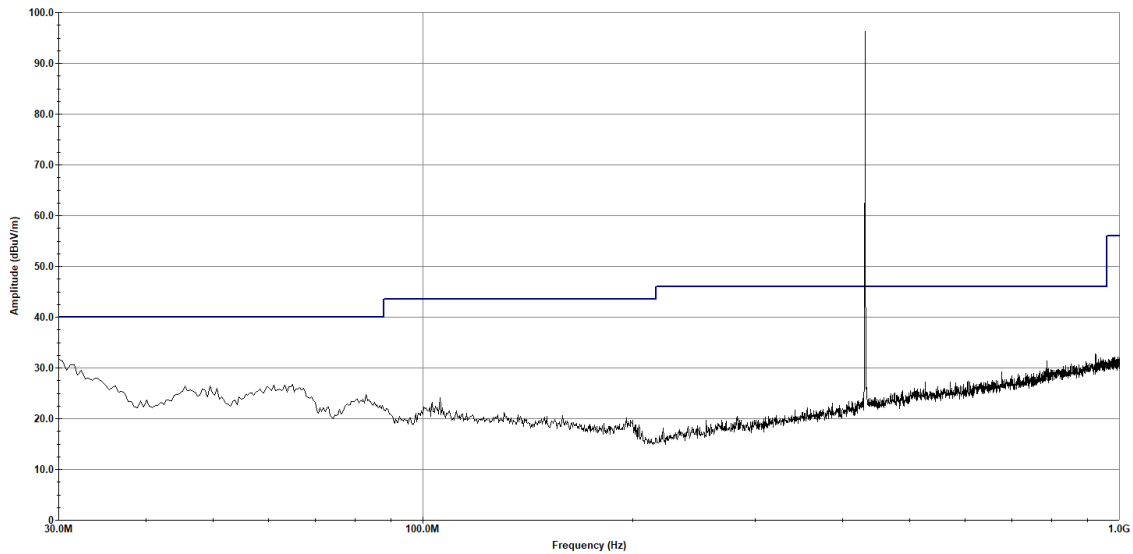
Customer - Lutron Electronics
Job Number - 120411
EUT Name - KRD-PRO
RF Channel - Low

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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

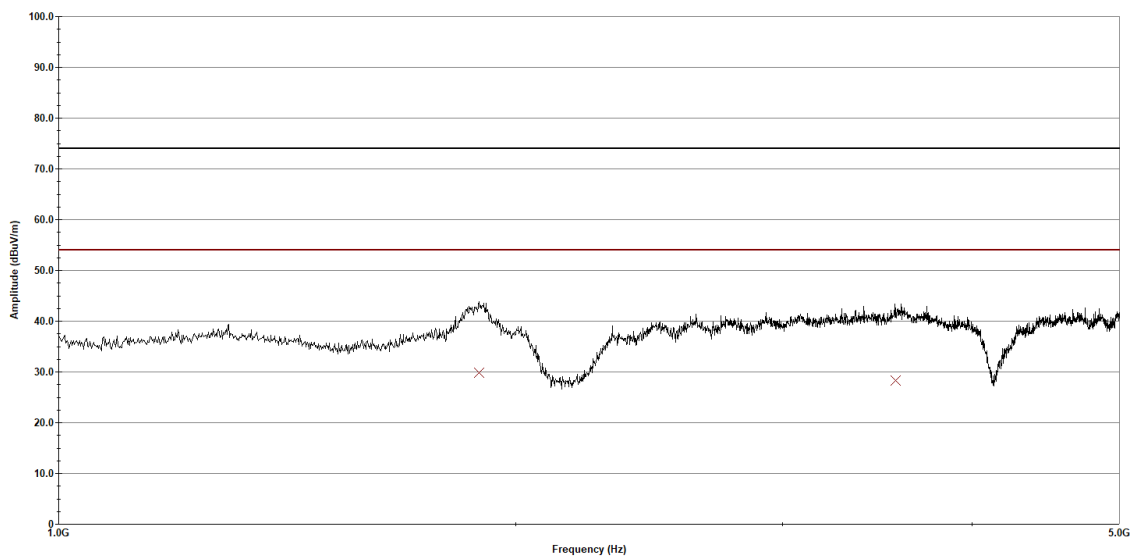
Customer - Lutron Electronics
Job Number - 120411
EUT Name - KRD-PRO
Model/Part Number - N/A
Serial Number - N/A

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

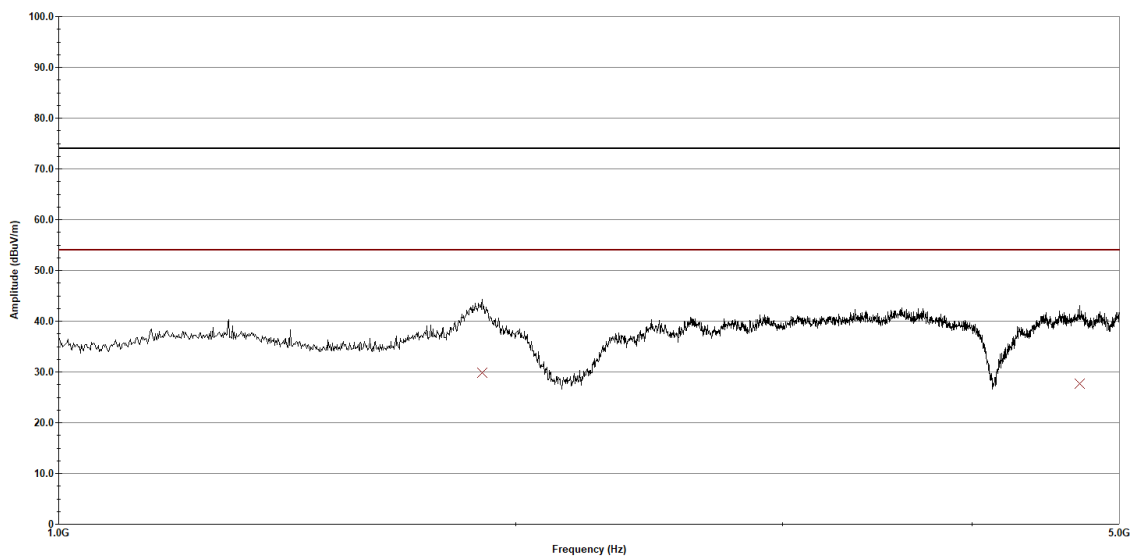
Customer - Lutron Electronics
Job Number - 120411
EUT Name - RRD-PRO
Model/Part Number - N/A
Serial Number - N/A

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

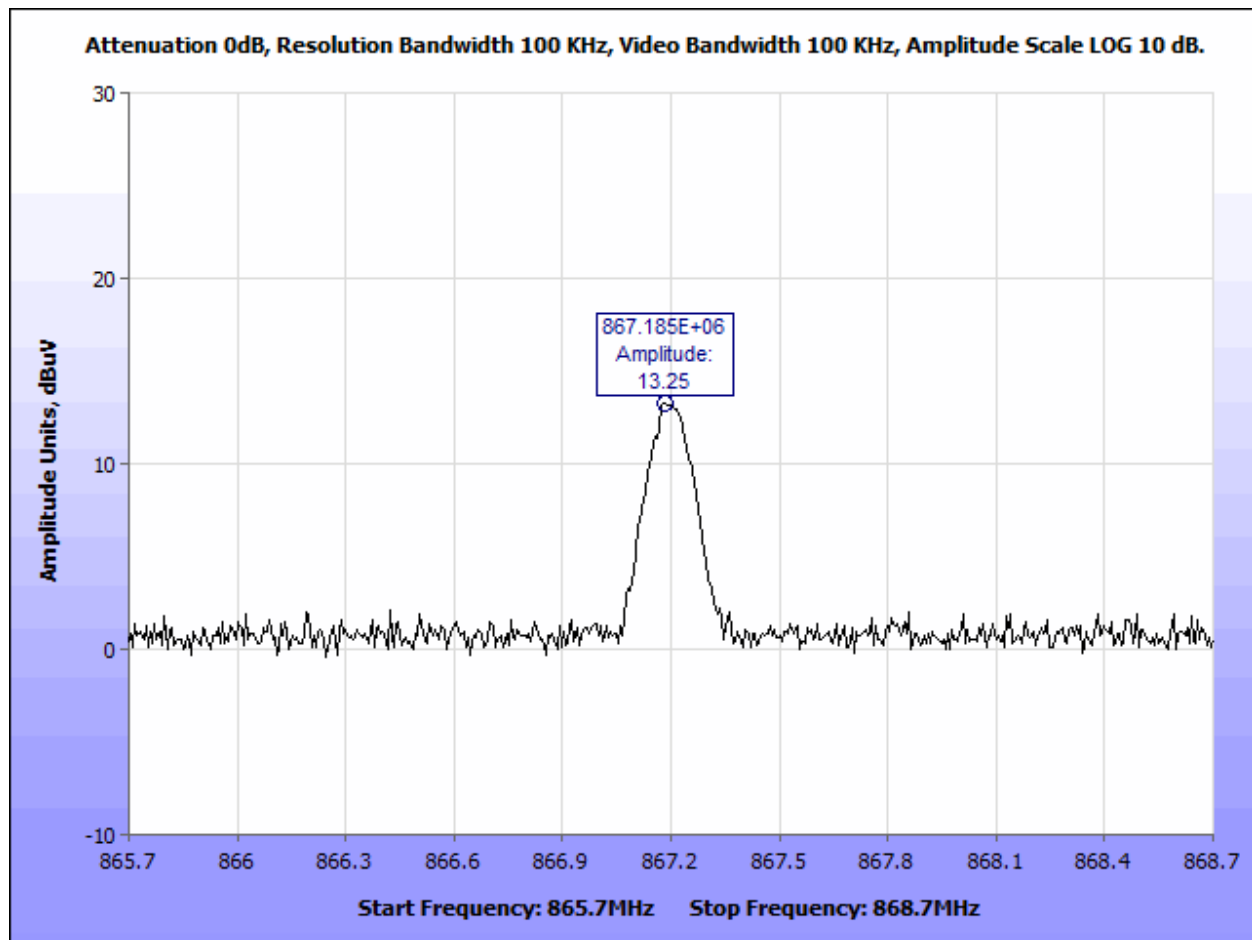


Figure 25. Mid Channel - Peak 2x Harmonic Emissions (Uncorrected) - Cumulative

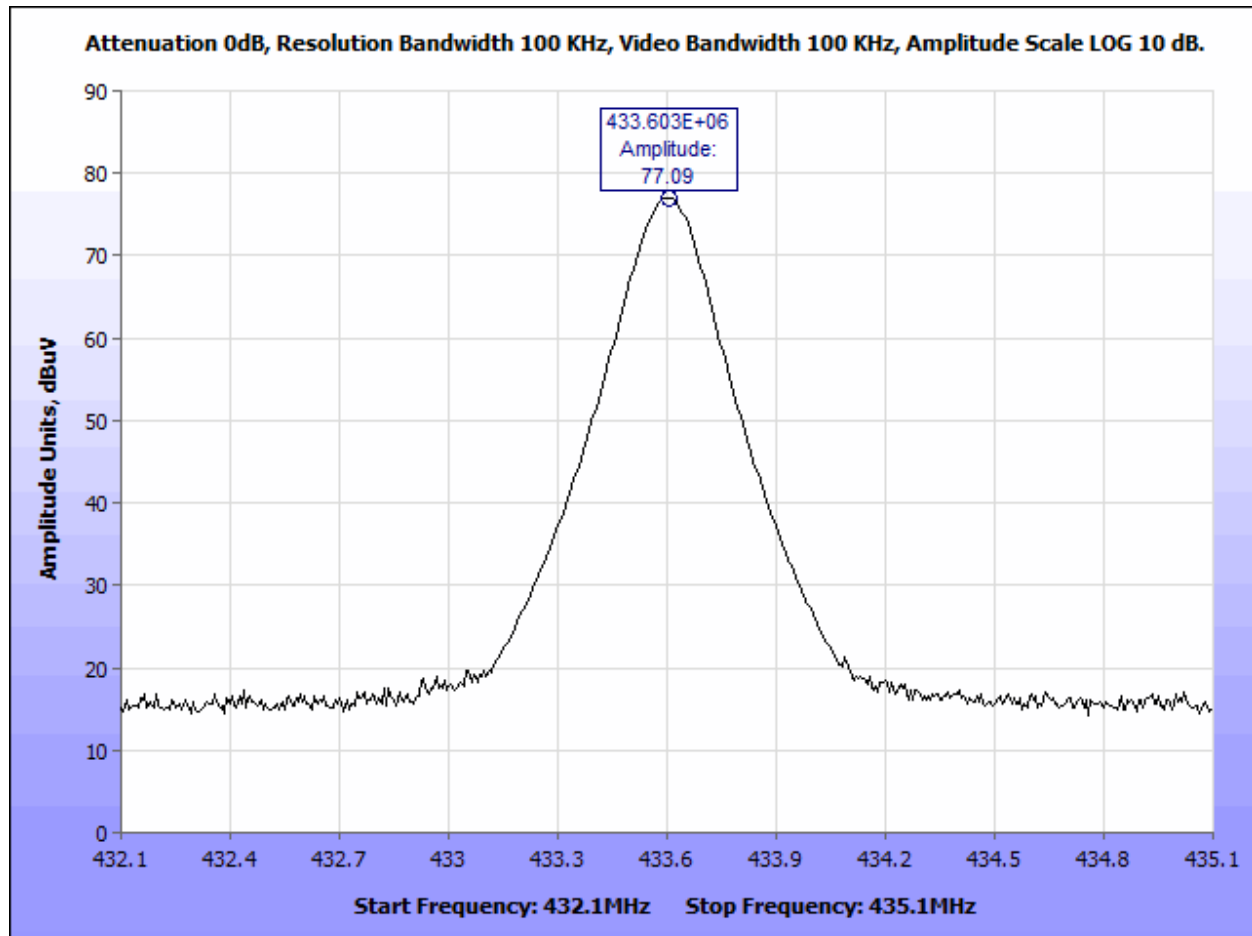


Figure 26. Mid Channel - Peak Fundamental Emissions (Uncorrected) - Vertical

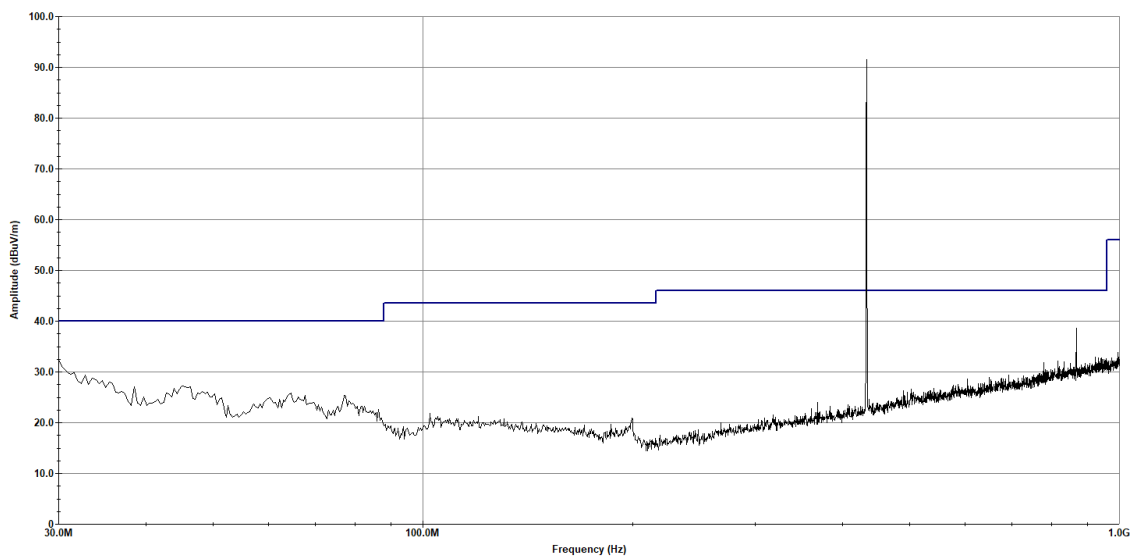
Customer - Lutron Electronics
Job Number - 120411
EUT Name - RRD-PRO
RF Channel - Mid

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 11:14:00 AM, Tuesday, July 12, 2022

Figure 27. Mid Channel_ Radiated Spurious Emissions 30-1000 MHz - Horizontal

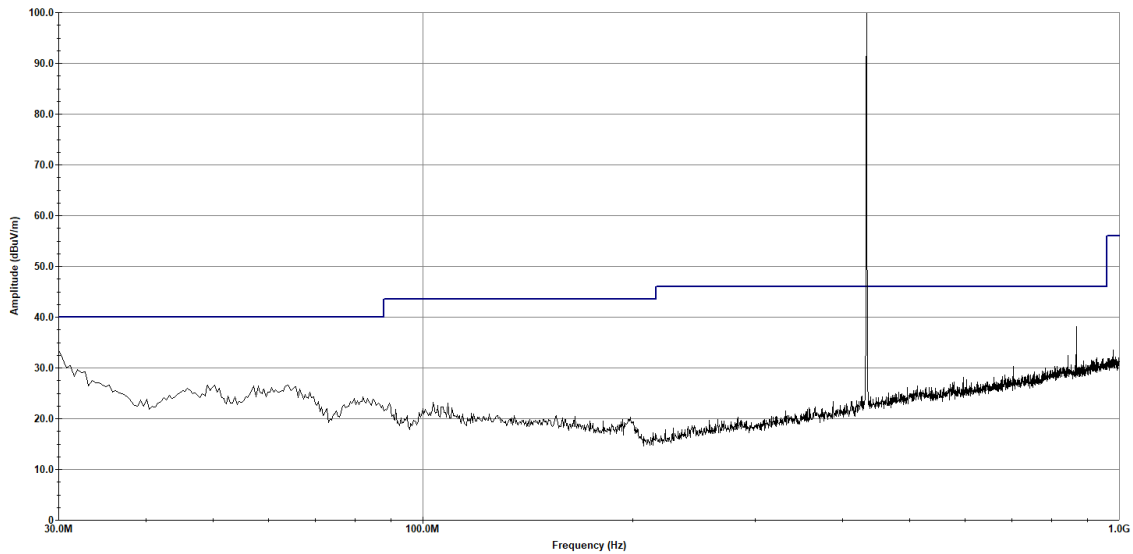
Customer - Lutron Electronics
Job Number - 120411
EUT Name - RRD-PRO
RF Channel - Mid

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 11:21:18 AM, Tuesday, July 12, 2022

Figure 28. Mid Channel_ Radiated Spurious Emissions 30-1000 MHz - Vertical

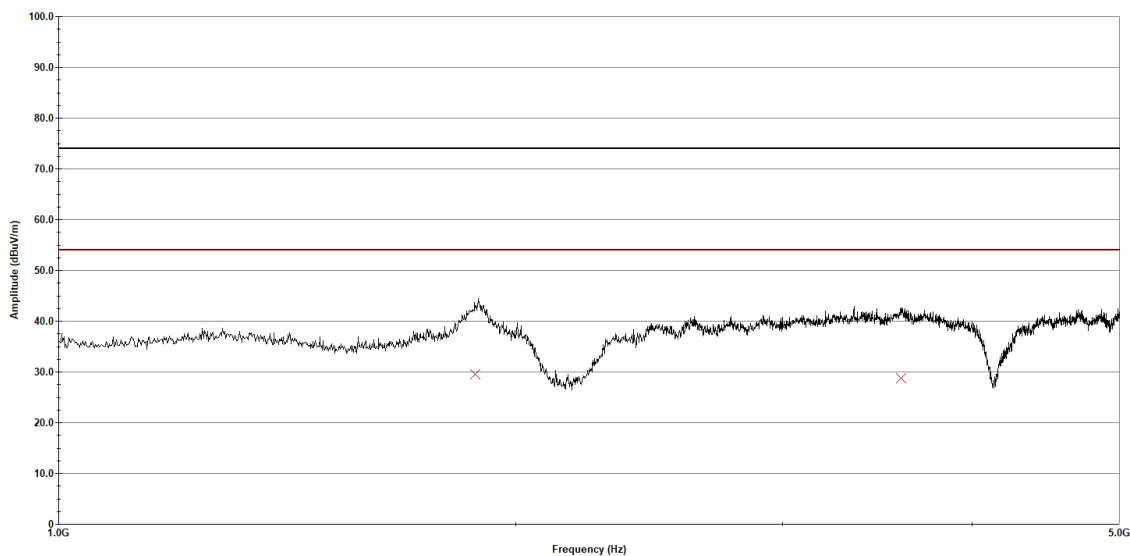
Customer - Lutron Electronics
Job Number - 120411
EUT Name - KRD-PRO
Model/Part Number - N/A
Serial Number - N/A

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

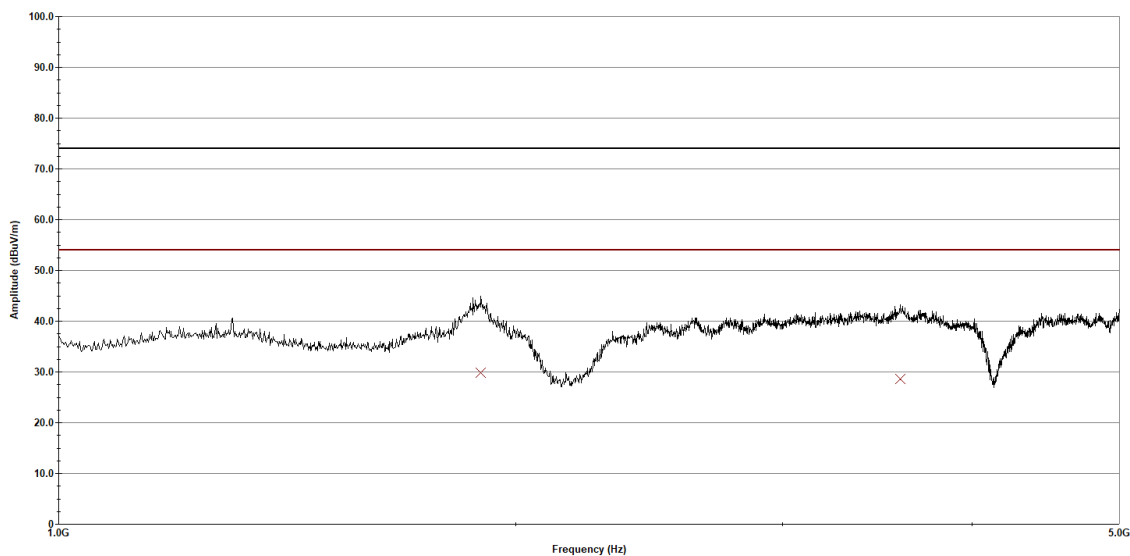
Customer - Lutron Electronics
Job Number - 120411
EUT Name - RRD-PRO
Model/Part Number - N/A
Serial Number - N/A

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

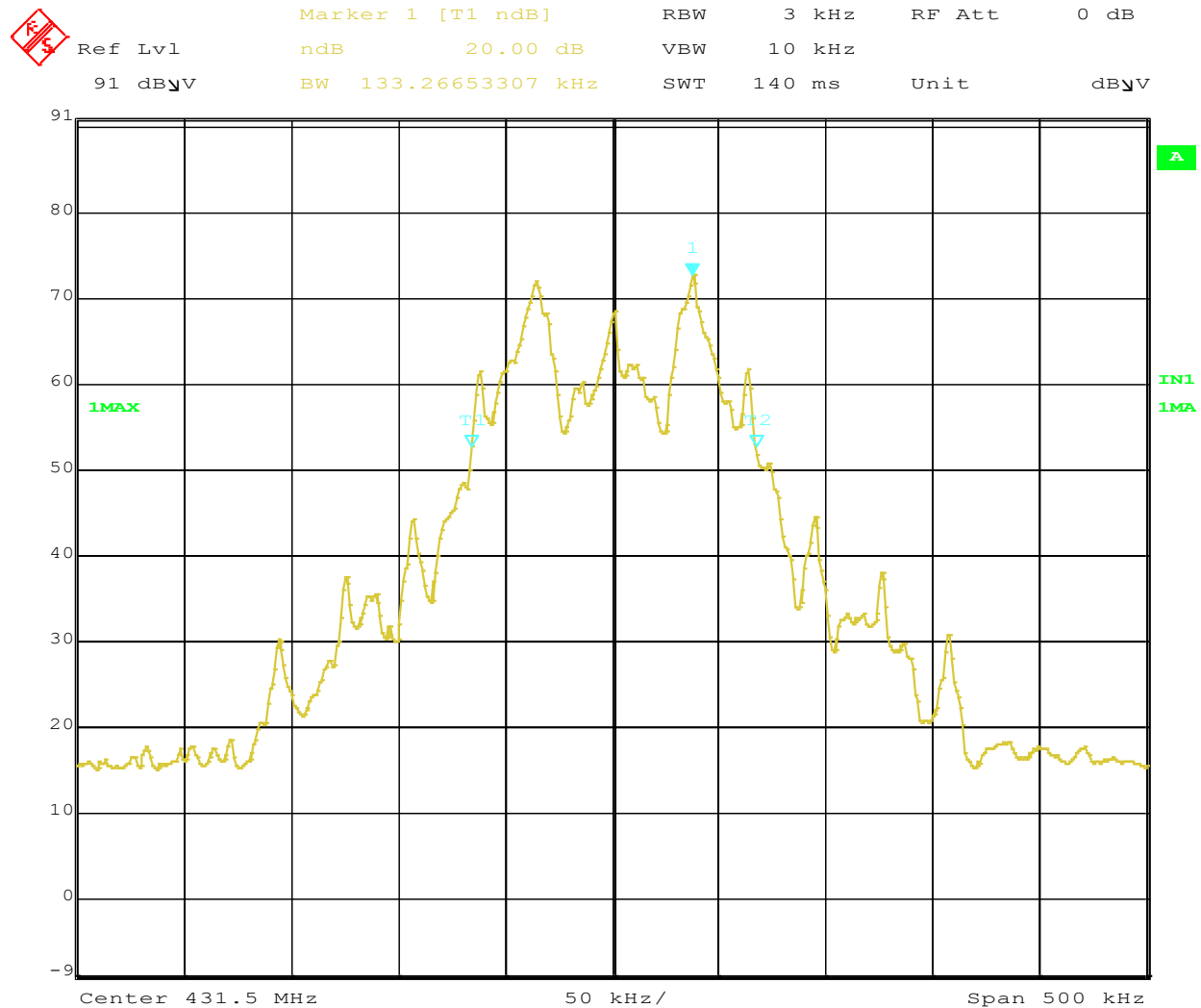


Figure 32. REE Test Setup 1-5 GHz

§ 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

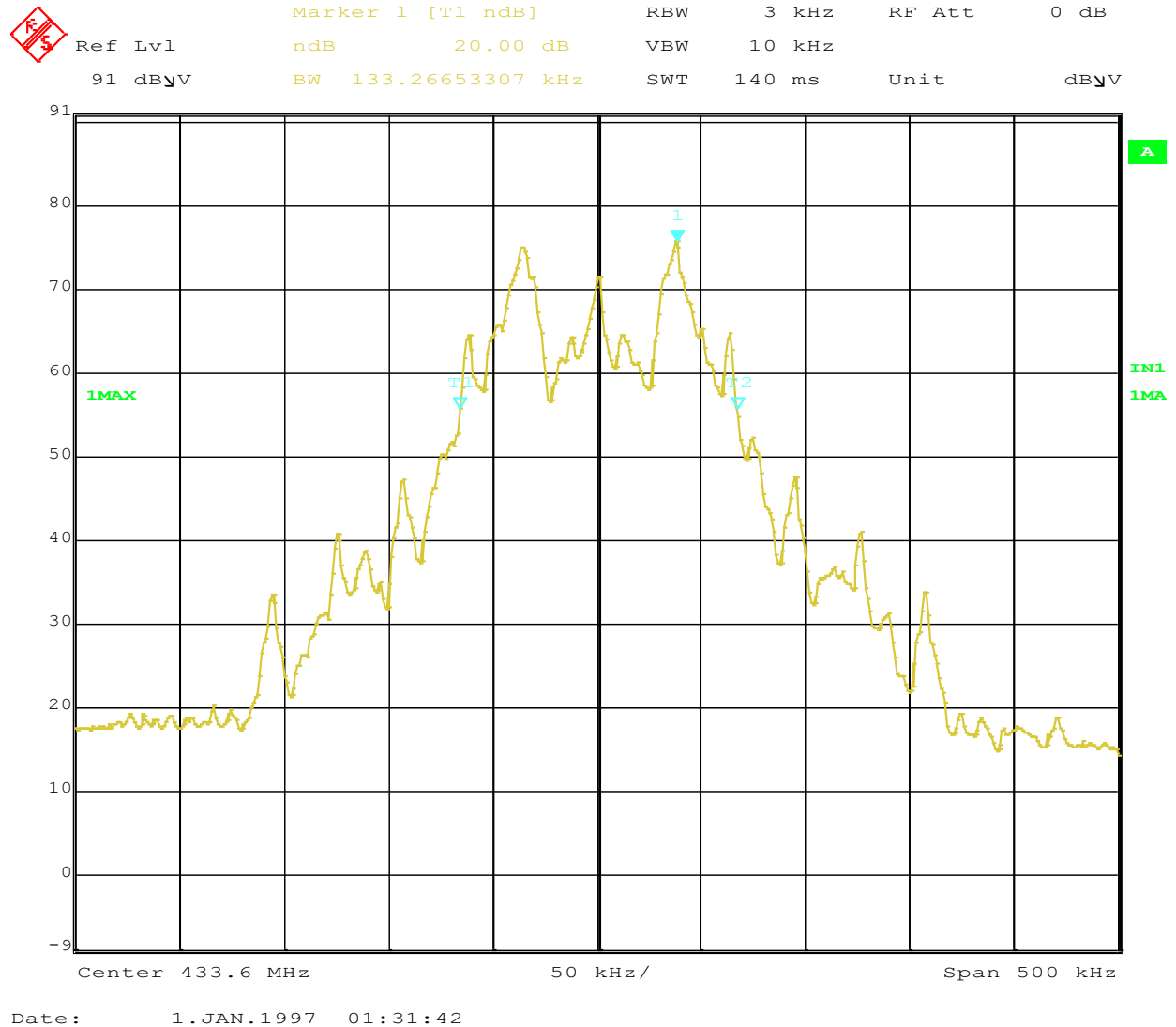


Figure 35. OBW - Mid Channel

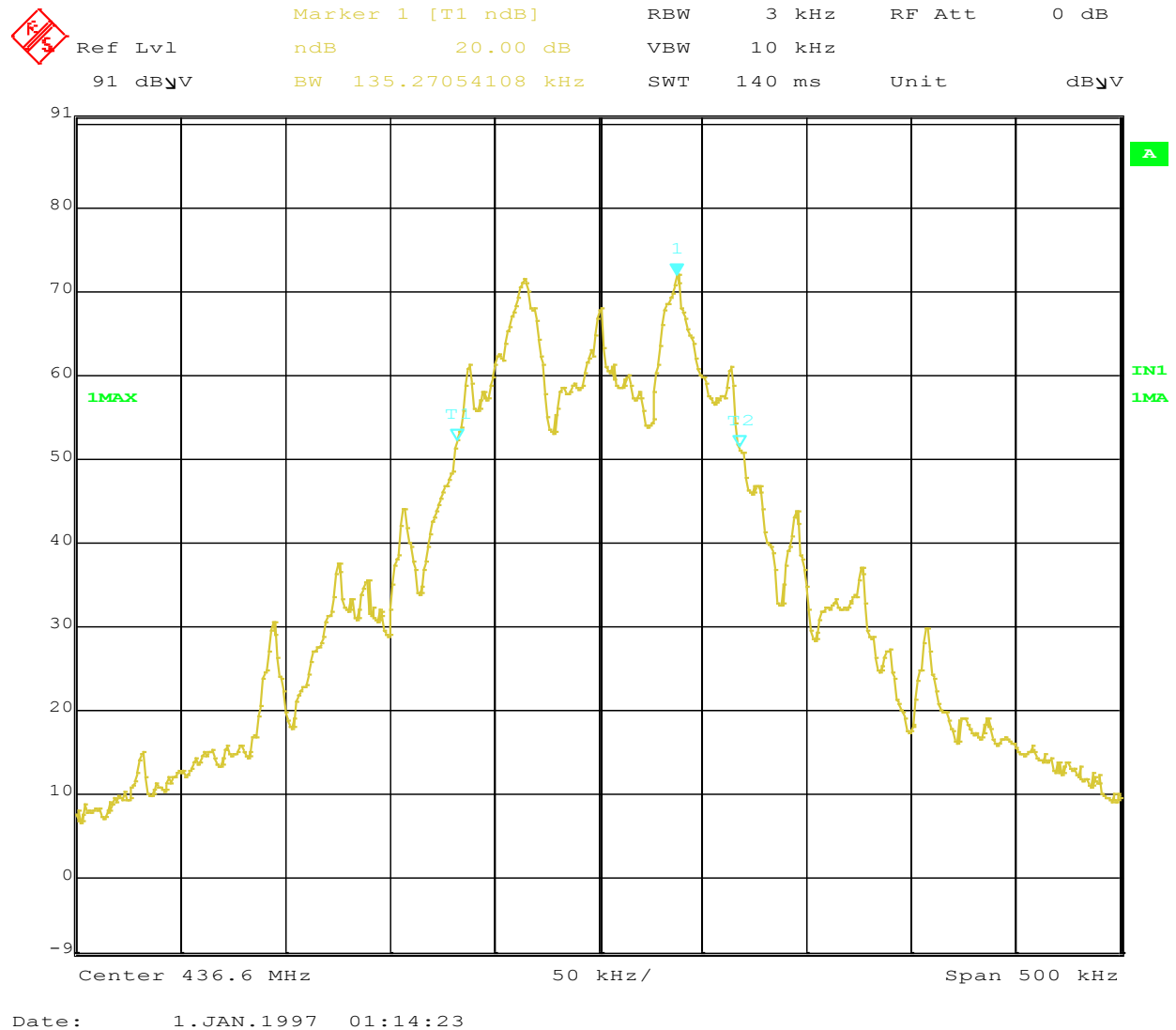


Figure 36. OBW - High Channel