

APPENDIX E

DATA SHEETS



RADIATED EMISSIONS

DATA SHEETS



RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	UNIVERSAL ELECTRONICS, INC.	DATE	11/27 & 12/5 2002
EUT	RF REMOTE CONTROL	DUTY CYCLE	35.5 %
MODEL	URC-1033BJ0	PEAK TO AVG	-8.99543294 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	JAMES ROSS & MICHAEL CHRISTENSEN	LAB	A

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
433.9000	103.1	94.2 A	H			X	LOW	15.9	2.6	34.7	0.0	0.0	78.0	-2.8	80.8	
433.9000	84.5	A	H			Y	LOW	15.9	2.6	34.7	0.0	0.0	68.3	-12.5	80.8	
433.9000	101.8	92.9 A	H			Z	LOW	15.9	2.6	34.7	0.0	0.0	76.7	-4.1	80.8	
433.9000	82.3	A	V			X	LOW	15.9	2.6	34.7	0.0	0.0	66.1	-14.7	80.8	
433.9000	94.1	85.2 A	V			Y	LOW	15.9	2.6	34.7	0.0	0.0	69.0	-11.8	80.8	
433.9000	85.8	A	V			Z	LOW	15.9	2.6	34.7	0.0	0.0	69.6	-11.2	80.8	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

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867.8000	69.3	60.4	A	H		X	LOW	22.1	4.5	33.8	0.0	0.0	53.3	-7.5	60.8	
867.8000	57.9		A	H		Y	LOW	22.1	4.5	33.8	0.0	0.0	50.8	-10.0	60.8	
867.8000	64.7	55.8	A	H		Z	LOW	22.1	4.5	33.8	0.0	0.0	48.7	-12.1	60.8	
867.8000	55.9		A	V		X	LOW	22.1	4.5	33.8	0.0	0.0	48.8	-12.0	60.8	
867.8000	68.5	59.6	A	V		Y	LOW	22.1	4.5	33.8	0.0	0.0	52.5	-8.3	60.8	
867.8000	63.1	54.2	A	V		Z	LOW	22.1	4.5	33.8	0.0	0.0	47.1	-13.7	60.8	

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1301.7000	54.3	45.4 A	H			X	LOW	28.2	3.0	33.1	0.0	0.0	43.5	-10.5	54.0	
1301.7000	48.1	A	H			Y	LOW	28.2	3.0	33.1	0.0	0.0	46.2	-7.8	54.0	
1301.7000	51.4	42.5 A	H			Z	LOW	28.2	3.0	33.1	0.0	0.0	40.6	-13.4	54.0	
1301.7000	56.1	47.2 A	V			X	LOW	28.2	3.0	33.1	0.0	0.0	45.3	-8.7	54.0	
1301.7000	57.0	48.1 A	V			Y	LOW	28.2	3.0	33.1	0.0	0.0	46.2	-7.8	54.0	
1301.7000	56.2	47.3 A	V			Z	LOW	28.2	3.0	33.1	0.0	0.0	45.4	-8.6	54.0	

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1735.6000	46.3	A	H	1.5	90	X	LOW	30.7	3.7	32.3	0.0	0.0	48.4	-12.4	60.8	
1735.6000	47.7	A	H	1.8	180	Y	LOW	30.7	3.7	32.3	0.0	0.0	49.8	-11.0	60.8	
1735.6000	42.2	A	H	2.0	270	Z	LOW	30.7	3.7	32.3	0.0	0.0	44.3	-16.5	60.8	
1735.6000	43.5	A	V	2.0	90	X	LOW	30.7	3.7	32.3	0.0	0.0	45.6	-15.2	60.8	
1735.6000	46.9	A	V	2.3	0	Y	LOW	30.7	3.7	32.3	0.0	0.0	49.0	-11.8	60.8	
1735.6000	44.9	A	V	1.5	90	Z	LOW	30.7	3.7	32.3	0.0	0.0	47.0	-13.8	60.8	

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2169.5000	53.0	A	H	2.0	270	X	LOW	32.4	4.1	32.4	0.0	0.0	57.0	-3.8	60.8	
2169.5000	49.7	A	H	1.2	0	Y	LOW	32.4	4.1	32.4	0.0	0.0	53.7	-7.1	60.8	
2169.5000	55.3	46.4 A	H	2.5	270	Z	LOW	32.4	4.1	32.4	0.0	0.0	50.4	-10.4	60.8	
2169.5000	53.3	44.4 A	V	2.0	270	X	LOW	32.4	4.1	32.4	0.0	0.0	48.4	-12.4	60.8	
2169.5000	54.8	45.9 A	V	2.3	0	Y	LOW	32.4	4.1	32.4	0.0	0.0	49.9	-10.9	60.8	
2169.5000	53.7	44.8 A	V	2.0	90	Z	LOW	32.4	4.1	32.4	0.0	0.0	48.8	-12.0	60.8	

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Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2603.4000	57.4	48.5 A	H	3.0	180	X	LOW	32.1	4.6	33.0	0.0	0.0	52.2	-8.6	60.8	
2603.4000	60.4	51.5 A	H	1.0	0	Y	LOW	32.1	4.6	33.0	0.0	0.0	55.2	-5.6	60.8	
2603.4000	54.1	45.2 A	H	2.2	45	Z	LOW	32.1	4.6	33.0	0.0	0.0	48.9	-11.9	60.8	
2603.4000	53.7	42.7 A	V	1.9	90	X	LOW	32.1	4.6	33.0	0.0	0.0	46.4	-14.4	60.8	
2603.4000	51.1	A	V	2.5	0	Y	LOW	32.1	4.6	33.0	0.0	0.0	54.8	-6.0	60.8	
2603.4000	58.9	50.0 A	V	2.6	90	Z	LOW	32.1	4.6	33.0	0.0	0.0	53.7	-7.1	60.8	

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3037.3000	59.5	50.6 A	H	3.0	270	X	LOW	31.4	6.1	31.7	0.0	0.0	56.5	-4.3	60.8	
3037.3000	58.7	49.8 A	H	1.0	180	Y	LOW	31.4	6.1	31.7	0.0	0.0	55.7	-5.1	60.8	
3037.3000	60.5	51.6 A	H	2.0	270	Z	LOW	31.4	6.1	31.7	0.0	0.0	57.5	-3.3	60.8	
3037.3000	58.4	49.5 A	V	2.1	270	X	LOW	31.4	6.1	31.7	0.0	0.0	55.4	-5.4	60.8	
3037.3000	55.8	46.9 A	V	3.0	0	Y	LOW	31.4	6.1	31.7	0.0	0.0	52.8	-8.0	60.8	
3037.3000	56.1	47.2 A	V	2.7	275	Z	LOW	31.4	6.1	31.7	0.0	0.0	53.1	-7.7	60.8	

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3471.2000	59.9	51.0 A	H	2.0	270	X	LOW	31.8	7.8	31.6	0.0	0.0	58.9	-1.9	60.8	
3471.2000	54.9	46.0 A	H	2.0	180	Y	LOW	31.8	7.8	31.6	0.0	0.0	53.9	-6.9	60.8	
3471.2000	57.8	48.9 A	H	2.0	270	Z	LOW	31.8	7.8	31.6	0.0	0.0	56.8	-4.0	60.8	
3471.2000	57.5	48.6 A	V	2.7	350	X	LOW	31.8	7.8	31.6	0.0	0.0	56.5	-4.3	60.8	
3471.2000	55.0	46.1 A	V	1.7	20	Y	LOW	31.8	7.8	31.6	0.0	0.0	54.0	-6.8	60.8	
3471.2000	57.6	48.7 A	V	2.7	165	Z	LOW	31.8	7.8	31.6	0.0	0.0	56.6	-4.2	60.8	

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3905.1000		A	H			X	LOW	31.2	6.5	31.3	0.0				54.0	NO EMISSION FOUND
3905.1000		A	H			Y	LOW	31.2	6.5	31.3	0.0				54.0	NO EMISSION FOUND
3905.1000		A	H			Z	LOW	31.2	6.5	31.3	0.0				54.0	NO EMISSION FOUND
3905.1000		A	V			X	LOW	31.2	6.5	31.3	0.0				54.0	NO EMISSION FOUND
3905.1000		A	V			Y	LOW	31.2	6.5	31.3	0.0				54.0	NO EMISSION FOUND
3905.1000		A	V			Z	LOW	31.2	6.5	31.3	0.0				54.0	NO EMISSION FOUND

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4339.0000	48.6	39.7 A	H	2.0	0	X	LOW	31.7	7.3	31.2	0.0	0.0	47.5	-6.5	54.0	
4339.0000	46.9	38.0 A	H	3.0	0	Y	LOW	31.7	7.3	31.2	0.0	0.0	45.8	-8.2	54.0	
4339.0000	48.7	39.8 A	H	2.0	270	Z	LOW	31.7	7.3	31.2	0.0	0.0	47.6	-6.4	54.0	
4339.0000	48.4	39.5 A	V	3.0	0	X	LOW	31.7	7.3	31.2	0.0	0.0	47.3	-6.7	54.0	
4339.0000	46.1	37.2 A	V	2.0	300	Y	LOW	31.7	7.3	31.2	0.0	0.0	45.0	-9.0	54.0	
4339.0000	47.3	38.4 A	V	2.1	45	Z	LOW	31.7	7.3	31.2	0.0	0.0	46.2	-7.8	54.0	

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Test Location : Compatible Electronics **Page** : 1/1
Customer : Universal Electronics, Inc. **Date** : 12/06/2002
Manufacturer : Universal Electronics, Inc. **Time** : 9:39:16
Eut name : RF Remote Control **Lab** : X
Model : URC-1033BJ0 **Test Distance** : 3.0 Meters
Serial # : N/A
Specification : FCC Class B
Distance correction factor (20 * log(test/spec)) : 0.00
Test Mode : Radiated Spurious Emissions 10 kHz to 1000 MHz
Vertical and Horizontal Polarization
Temperature 65 Degrees F., Relative Humidity 45%
Tested By: Kyle Fujimoto

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
V	30.032	38.60	0.70	11.69	33.20	17.79	40.00	-22.21
V	36.216	37.60	0.70	11.03	33.20	16.13	40.00	-23.87
V	109.106	33.40	1.28	11.23	33.16	12.75	43.50	-30.75
V	201.197	33.60	1.71	16.96	33.09	19.17	43.50	-24.33
V	452.228	37.10	2.71	14.89	32.69	22.01	46.00	-23.99
V	472.253	33.70	2.79	15.72	32.61	19.60	46.00	-26.40
V	940.838	37.00	4.95	22.31	31.72	32.53	46.00	-13.47
Switch to Horizontal Polarization								
H	30.058	45.00	0.70	11.69	33.20	24.19	40.00	-15.81
H	36.242	29.90	0.70	11.03	33.20	8.43	40.00	-31.57
H	109.132	30.30	1.28	11.23	33.16	9.65	43.50	-33.85
H	201.223	33.90	1.71	16.96	33.09	19.47	43.50	-24.03
H	452.254	36.60	2.71	14.89	32.69	21.51	46.00	-24.49
H	472.279	33.20	2.79	15.72	32.61	19.10	46.00	-26.90
H	940.864	35.90	4.95	22.31	31.72	31.44	46.00	-14.56



Test Location : Compatible Electronics **Page** : 1/1
Customer : Universal Electronics, Inc. **Date** : 12/06/2002
Manufacturer : Universal Electronics, Inc. **Time** : 15:27:44
Eut name : RF Remote Control **Lab** : A
Model : URC-1033BJ0 **Test Distance** : 3.0 Meters
Serial # : N/A
Specification : FCC Class B
Distance correction factor ($20 * \log(\text{test/spec})$) : 0.00
Test Mode : Radiated Spurious Emissions 1000 MHz to 4500 MHz
Horizontal and Vertical Polarizations
No Spurious Emissions Found Above 1000 MHz in Either Polarization
Temp. 62 Degrees F., Rel. Humidity 62% - Tested By: Kyle Fujimoto

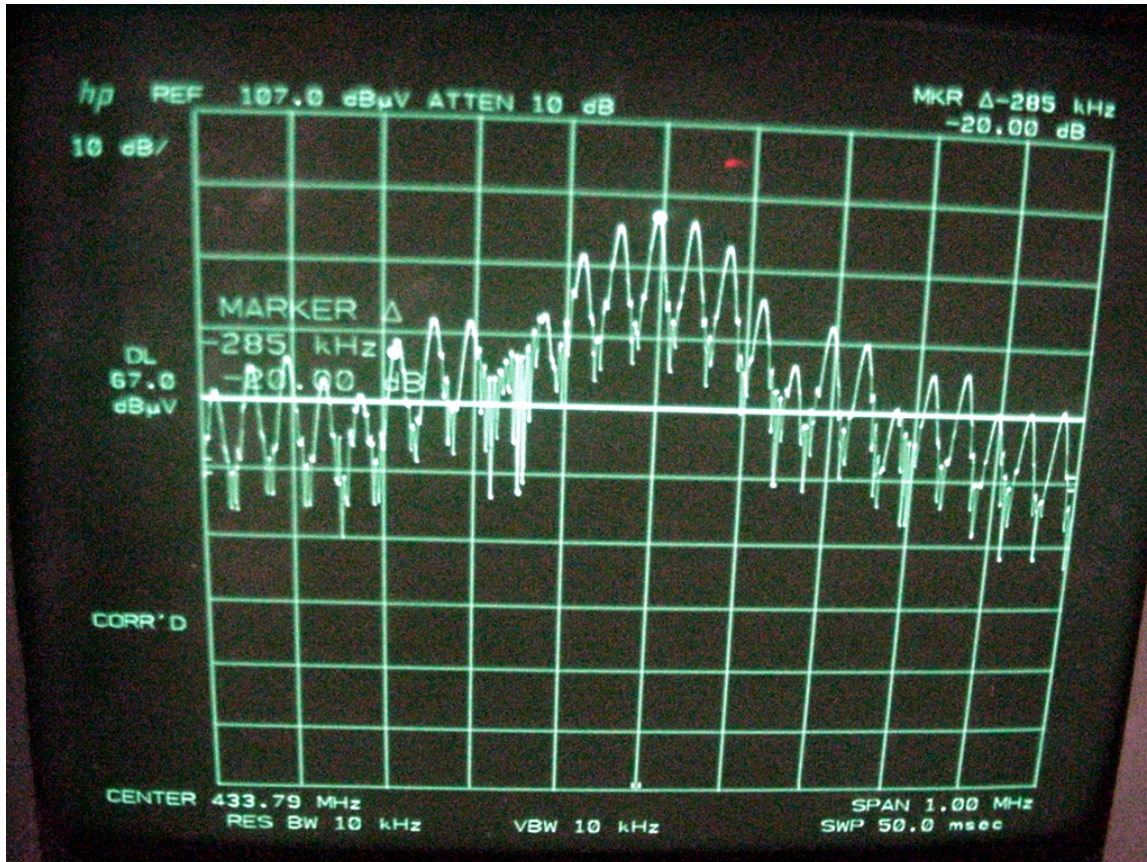
Pol	Freq	Rdng	Cable loss	Ant factor	Amp gain	Cor'd rdg = R	Limit = L	Delta
	MHz	dBuV	dB	dB	dB	dBuV	dBuV/m	R-L dB



-20 dB BANDWIDTH

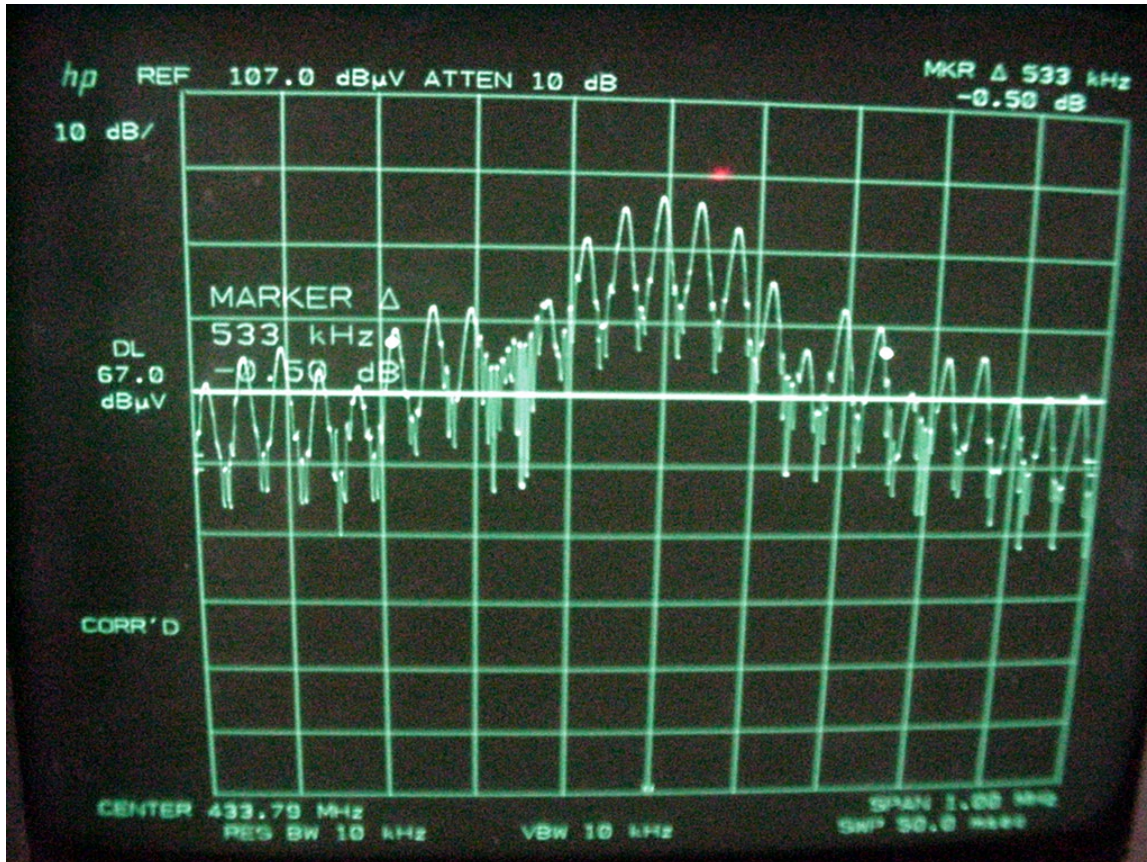
DATA SHEETS





**PHOTOGRAPH SHOWING WHERE THE -20 dB POINT ON THE
FUNDAMENTAL IS**





PHOTOGRAPH SHOWING THE -20 dB BANDWIDTH OF THE FUNDAMENTAL

