



EDUCATIONAL MEDIA FOUNDATION

# Intermodulation Interference Measurement

W248BF  
Granville WV  
97.5 MHz  
ERP 0.010kW  
FCC FIN 140169

W230AY  
Westover WV  
93.9 MHz  
ERP 0.085kW  
FCC FIN 140163

All measurements made by Alex Mackensen

Date of Measurements 03/08/2024



## W248BF Results

### Equipment Tested

Transmitter  
Crown FM150  
SN 150E94-5  
EMF 1021975

### Transmitter Power

Transmitter Voltage: 18.4 V  
Transmitter Current: 3.22 A  
Transmitter Efficiency: 56.7%  
Indirect Power Calculation: 0.0336 kW  
Transmitter Power Meter Reading: 0.034 kW  
TPO: 0.034 kW

### Frequency Check

Assigned Frequency: 97.5 MHz  
Actual Frequency: 97.5000141 MHz  
Variance: 14.1 Hz  
Tolerance Allowed: 2,000 Hz

### Harmonic Distortion

Harmonics	Frequency	Measured Readings	FCC Limit = -53.00 dBc		
			Probe & Filter Gain or Loss	dBc	Clearance dB
X1	97.5	-0.9	0.0	0.00	
X2	195.0	-99.0	0.02	-98.04	45.0
X3	292.5	-100.5	-1.06	-98.51	45.5
X4	390.0	-98.7	-3.00	-94.75	41.8
X5	487.5	-98.4	-5.56	-91.93	38.9
X6	585.0	-97.6	-8.34	-88.32	35.3
X7	682.5	-97.2	-10.66	-85.64	32.6
X8	780.0	-101.5	-13.05	-87.52	34.5
X9	877.5	-100.0	-14.84	-84.22	31.2



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## W230AY Results

### Equipment Tested

Transmitter  
Crown FM500  
SN A135575  
EMF 1102450

### Transmitter Power

Transmitter Voltage: 35.2 V  
Transmitter Current: 10.52 A  
Transmitter Efficiency: 78%  
Indirect Power Calculation: 0.2888 kW  
Transmitter Power Meter Reading: 0.291 kW  
TPO: 0.291 kW

### Frequency Check

Assigned Frequency: 93.9 MHz  
Actual Frequency: 93.8993605 MHz  
Variance: 639.5 Hz  
Tolerance Allowed: 2,000 Hz

### Harmonic Distortion

			FCC Limit = -62.29 dBc		
Harmonics	Frequency	Measured Readings	Probe & Filter Gain or Loss	dBc	Clearance dB
X1	93.9	-0.8	0.0	0.00	
X2	187.8	-95.9	0.02	-95.05	32.8
X3	281.7	-94.7	-1.06	-92.83	30.5
X4	375.6	-96.0	-3.00	-92.14	29.9
X5	469.5	-94.3	-5.56	-87.88	25.6
X6	563.4	-94.2	-8.34	-85.01	22.7
X7	657.3	-94.1	-10.66	-82.56	20.3
X8	751.2	-96.5	-13.05	-82.65	20.4
X9	845.1	-96.7	-14.84	-81.02	18.7

## Intermodulation Measurement

W230AY ERP Based Limit: -53 dB Below Carrier

W230AY Measured Carrier: -20.92 dB

Adjusted ERP Based Limit Line: -73.92 dB

W248BF ERP Based Limit: -62.29 dB Below Carrier

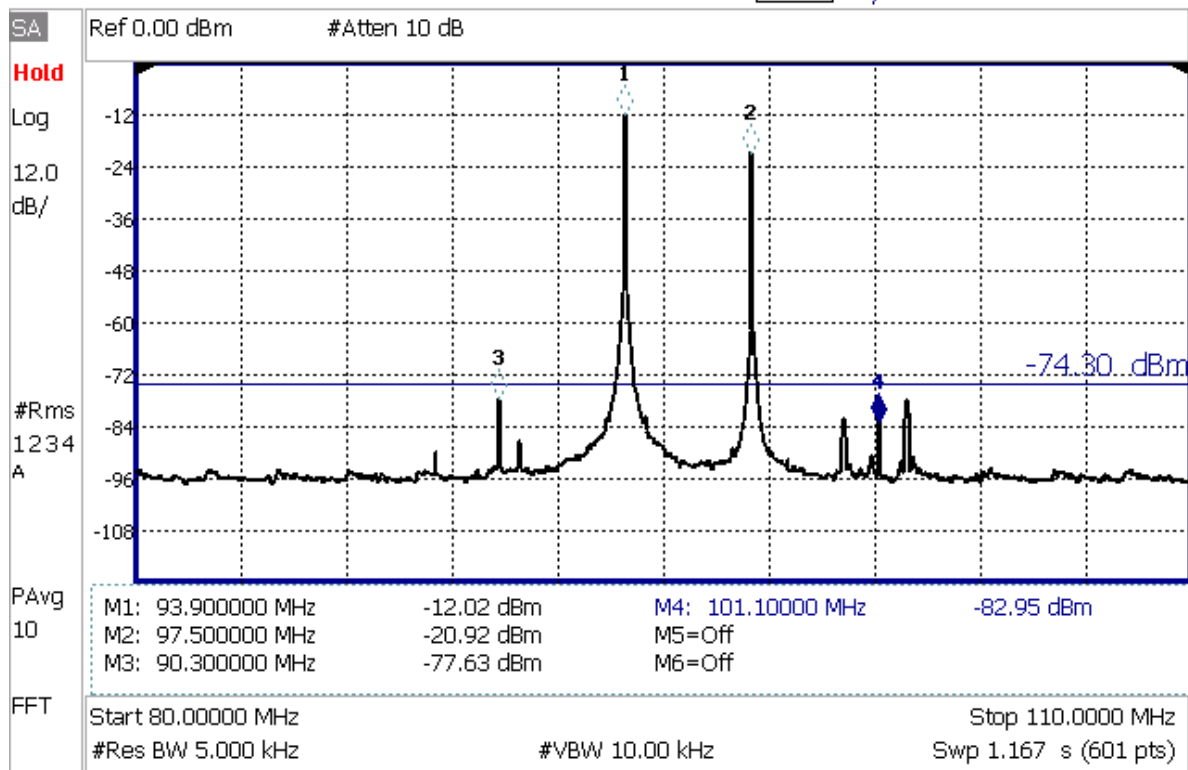
W248BF Measured Carrier: -12.02 dB

Adjusted ERP Based Limit Line: -74.32 dB

### W248BF and W230AY - On

Keysight Technologies: N9912A, SN: MY50022693

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## Conclusion

All Harmonics and Intermodulation Products are within FCC Limits