

# MDS and Noise Figure Measurements of IF Rigs

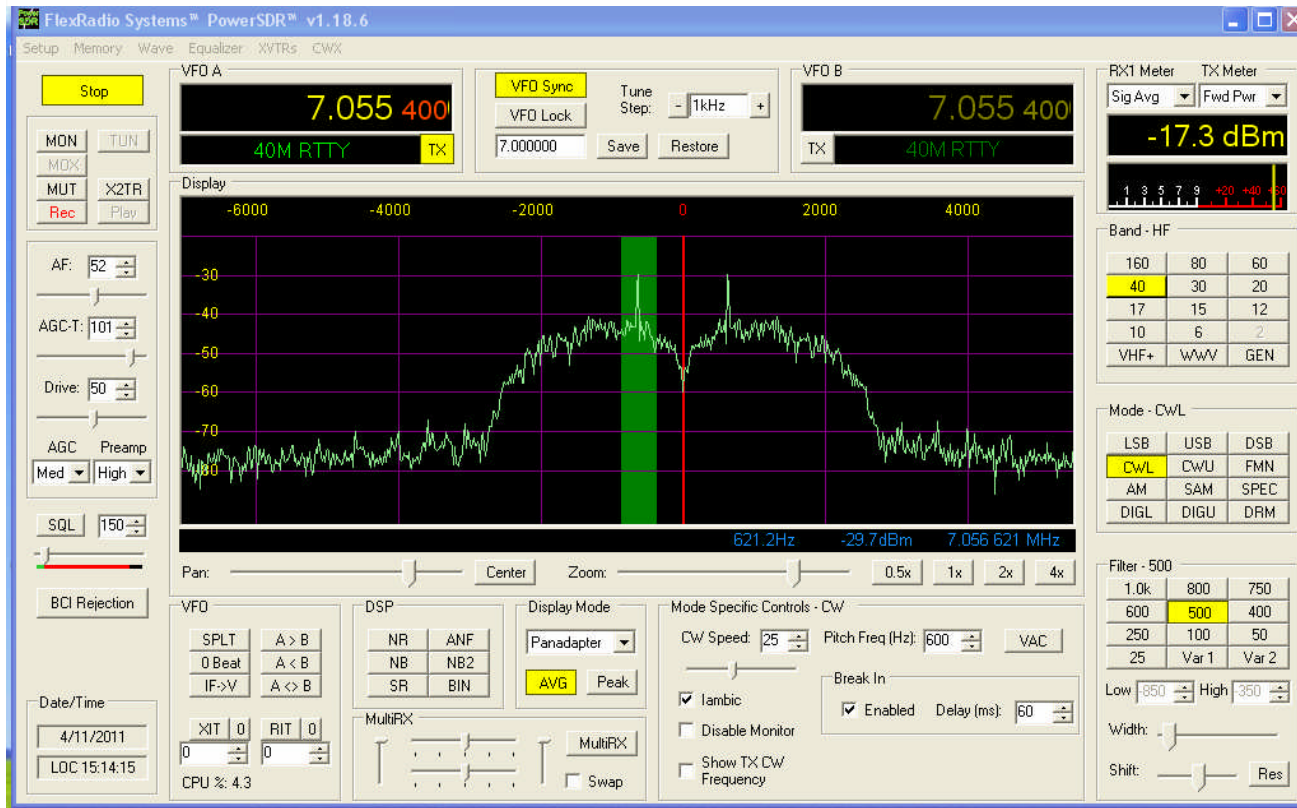
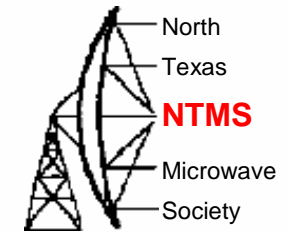
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May 4, 2011

Rev C

# Power SDR v1.18.6 SoftRock Mode

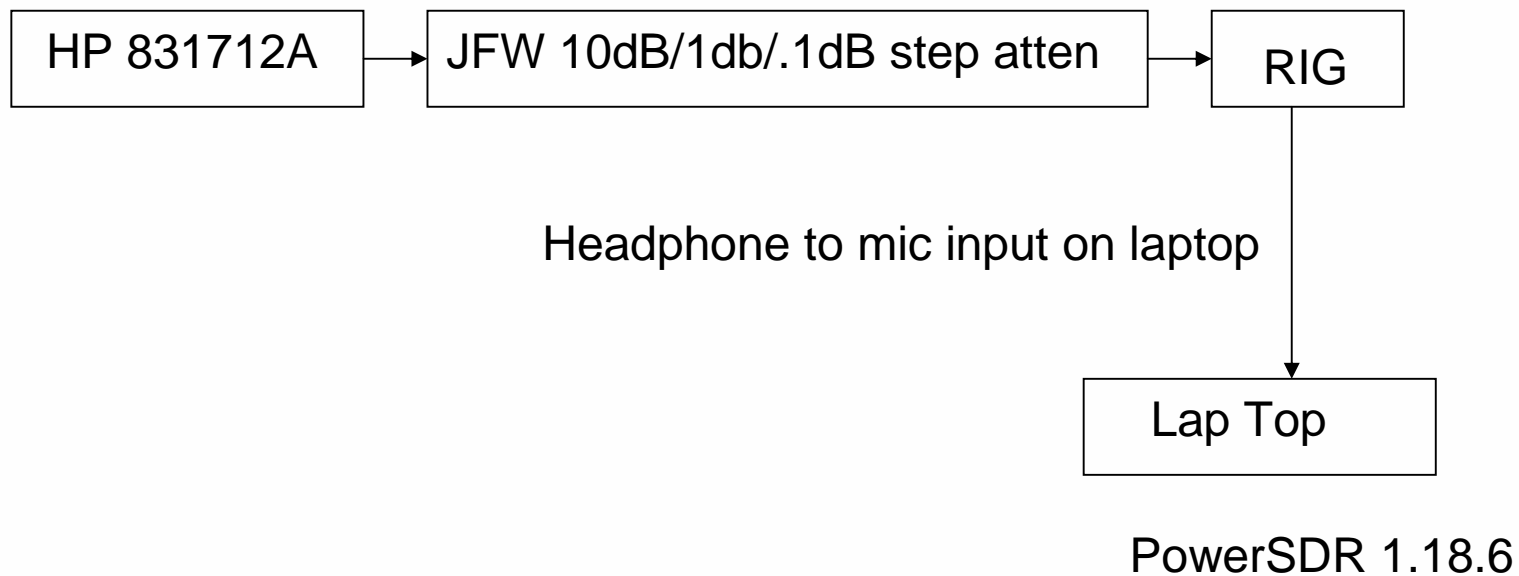
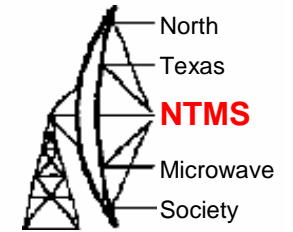


Using S Meter  
Level=-20dBm no signal  
Level=-17dBm with signal  
MDS= -90+-52.5 = -142.5 dBm  
IF BW = 500Hz

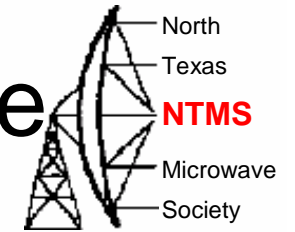
Sensitivity (MDS) = -142.5  
dBm  
= -174dBm/Hz + NF(dB) + 10  
log BW (Hz)  
= -174 dBm + NF (dB) + 27 dB

Therefore NF = -142.5 +174 -  
27 = 4.5dB NF (FT-847 with  
preamp on at 144.2 MHz)

# MDS Test Set Block Diagram



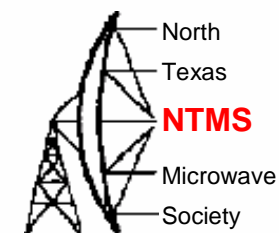
# Power SDR v1.18.6 SoftRock Mode



The "PowerSDR Setup" dialog box is shown with the "Audio" tab selected. It contains several sections for configuring the sound card. The "Primary Sound Card Setup Details" section includes dropdown menus for Driver (MME), Input (IDT Audio), Output (Microsoft Sound Mapper - Du), Mixer (IDT Audio), Receive (Line In), and Transmit. The "Sound Card Selection" section has a dropdown menu set to "Unsupported Card" and an "Expert" checkbox. The "Buffer Size" is set to 2048, "Line In Gain" to 20, and "Channels" to 2. The "Sample Rate" is 48000 and "Mic In Gain" is 50. The "Output Voltage" is 2.23, with a "Test" button next to it. A "Mic Boost" checkbox is currently unchecked. At the bottom, there are buttons for "Reset Database", "Import Database...", "OK", and "Cancel".

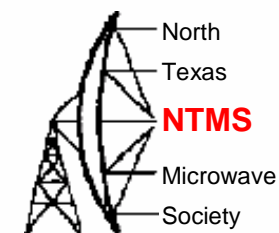
The "Recording Control" dialog box is overlaid on the setup window. It features a menu bar with "Options" and "Help". Below the menu bar, there are five columns representing different audio sources: "Rec. Playback", "Line In", "Digital Mic", "Dock Mic", and "Jack Mic". Each column contains a "Balance" control with a slider and a "Volume" control with a vertical slider. At the bottom of each column is a "Select" checkbox. The "Jack Mic" checkbox is checked, while the others are not. The "IDT Audio" label is visible at the bottom left of the dialog.

# 50 MHz MDS NF Results



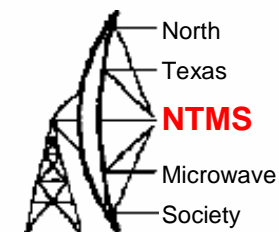
Owner	Radio	Freq (MHz)	MDS (dBm) in 500 Hz BW	NF (dB)	Notes
W5LUA	Flex-5000	50.125	-143.3	3.7	ext LNA
WA5YWC	IC-746	50.125	-141.5	5.5	
W5BL	IC-7000	50.125	-141	6	LNA on
W5LUA	FT-920	50.125	-140.3	6.7	
K5MRA	FT-857D	50.125	-138.7	8.3	
WA5YWC	IC706	50.125	-138.5	8.5	
K5MRA	Flex-3000	50.125	-138	9	
W5LUA	Flex-1500	50.125	-137.5	9.5	
W5LUA	FT-847	50.125	-137.5	9.5	
W5BL	IC-7000	50.125	-135.3	11.7	LNA off
NM5M	K3	50.125	-133.5	13.5	
W5LUA	Flex-5000	50.125	-125.3	21.7	Internal LNA

# 144 MHz MDS NF Results



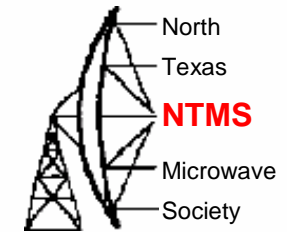
Owner	Radio	Freq (MHz)	MDS (dBm) in 500 Hz BW	NF (dB)	Notes	
W5BL	IC-910H	144.2	-143.5	3.5		
WA5YWC	IC-746	144.2	-143.3	3.7		
W5BL	IC-7000	144.2	-143.2	3.8	LNA on	
WA5YWC	IC-910H	144.2	-143.1	3.9		
KA2UPW	Fun Cube Dong	144.2	-143.1	3.9		
W5LUA	FT-847	144.2	-142.5	4.5		
W5LUA	IC-271A	144.2	-141.9	5.1	LNA on	
K5MRA	FT-857D	144.2	-141.8	5.2		
KA2UPW	FT-290 RII	144.2	-140.8	6.2	Front ant conn	
WA5VJB	VR-5000	144.2	-140.2	6.8		
KA2UPW	FT-290 RII	144.2	-140.1	6.9	Rear ant conn	
WA5VJ B	IC-R10	144.2	-140.1	6.9		
KA2UPW	FT-817	144.2	-139	8		
WA5YWC	IC706	144.2	-138.1	8.9		
W5BL	IC-7000	144.2	-136.2	10.8	LNA off	

# 432 MHz MDS NF Results



Owner	Radio	Freq (MHz)	MDS (dBm) in 500 Hz BW	NF (dB)
W5BL	IC-910H	432.1	-142.1	4.9
K5MRA	FT-857D	432.1	-141.7	5.3
W5LUA	FT-847	432.1	-141.5	5.5
WA5YWC	IC-910H	432.1	-141.5	5.5
KA2UPW	Fun Cube	435	-140.3	6.7
KA2UPW	Fun Cube D	435	-139.4	7.6
W5BL	IC-7000	432.1	-138.9	8.1

# 1296 MHz MDS NF Results



Owner	Radio	Freq (MHz)	MDS (dBm) in 500 Hz BW	NF (dB)	Notes
WA5YWC	IC-910H	1296.1	-144.1	2.9	W6pql mod
W5BL	IC-910H	1296.1	-143.5	3.5	
KA2UPW	Fun Cube	1296	-141.6	5.4	
WA5VJB	VR-5000	1296	-131.1	15.9	
WA5VJ B	IC-R10	1296.1	-127	20	