Sherwood Engineering HF Test Results

Model FTdx-1200 Serial # 3N090050 Test Date: 5/12/2015

IF BW 2400 –6 / -60, Hz	/	Ultimate	@ 2kHz offset	67	dB
IF BW 500 –6 /-60, Hz	/	Ultimate	@ 5 kHz offset	83	dB

Front End Selectivity (A – F)
First & second IF rejection +/- kHz dB

Dynamic Range with radio, no preamp (IPO)

Dynamic Range 20 kHz	102*	dB	RMDR	IP3	dBm
Dynamic Range 10 kHz	96*	dB	RMDR	IP3	dBm
Dynamic Range 5 kHz	90*	dB	RMDR	IP3	dBm
Dynamic Range 2 kHz	70#	dB		IP3	dBm

Combination of phase noise and 3rd order product
* Consisted of phase noise only

Dynamic Range with radio, Preamp 1

Dynamic Range 20 kHz	dB	IP3	dBm
Dynamic Range 5 kHz	dB	IP3	dBm
Dynamic Range 2 kHz	dB	IP3	dBm

Combination of phase noise and 3rd order product
* Consisted of phase noise only

Dynamic Range with radio, 2nd radio

Dynamic Range 20 kHz	dB	IP3	dBm
Dynamic Range 2 kHz	dB	IP3	dBm

Dynamic Range with radio, alternate conversion scheme

Dynamic Range 20 kHz	dB	IP3	dBm
Dynamic Range 2 kHz	dB	IP3	dBm

Blocking above noise floor, 1uV signal @ 100 kHz, AGC On >137 dB
^ See notes below on blocking.

Phase noise (normalized) at 2.5 kHz spacing:		dBc / Hz
Phase noise (normalized) at 5 kHz spacing:		dBc / Hz
Phase noise (normalized) at 10 kHz spacing:	123	dBc / Hz
Phase noise (normalized) at 20 kHz spacing:		dBc
Phase noise (normalized) at 30 kHz spacing:		dBc
Phase noise (normalized) at 40 kHz spacing:		dBc
Phase noise (normalized) at 50 kHz spacing:		dBc
Phase noise (normalized) at 80 kHz spacing:		dBc
Phase noise (normalized) at 100 kHz spacing:		dBc
Phase noise (normalized) at 200 kHz spacing:		dBc

Phase noise (normalized) at 300 kHz spacing:	dBc	
Phase noise (normalized) at 400 kHz spacing:	dBc	
Phase noise (normalized) at 500 kHz spacing:	dBc	
Noise floor, SSB bandwidth 14 MHz, no preamp	-116	dBm
Noise floor, SSB bandwidth 14 MHz, Preamp 1 On	-128	dBm
Noise floor, SSB bandwidth 14 MHz, Preamp 2 On	-134	dBm
Sensitivity SSB at 14 MHz, no preamp	1.0	uV
Sensitivity SSB at 14 MHz, Preamp 1 On	0.26	uV
Sensitivity SSB at 14 MHz, Preamp 2 On	0.14	uV
Noise floor, 500 Hz, 14.2 MHz, no preamp	-122	dBm
Noise floor, 500 Hz, 14.2 MHz, Preamp 1 On	-134	dBm
Noise floor, 500 Hz, 14.2 MHz, Preamp 2 On	-140	dBm
Noise floor, SSB, 50.125 MHz, no preamp		dBm
Noise floor, SSB, 50.125 MHz, Preamp 1		dBm
Noise floor, SSB, 50.125 MHz, Preamp 2		dBm
Sensitivity, SSB, 50.125 MHz, no preamp		uV
Sensitivity, SSB, 50.125 MHz, Preamp 1		uV
Sensitivity, SSB, 50.125 MHz, Preamp 2		uV
Noise floor, 500 Hz, 50.125 MHz, no preamp		dBm
Noise floor, 500 Hz, 50.125 MHz, Preamp 1 On		dBm
Noise floor, 500 Hz, 50.125 MHz, Preamp 2 On		dBm
Signal for S9, no preamp	100	uV
Signal for S9, Preamp 1	25	uV
Signal for S9, Preamp 2	7	uV
Gain of preamp(s)		
Preamp 1	12	dB
Preamp 2	23	dB
AGC threshold at 3 dB, no preamp	5.5	uV
AGC threshold at 3 dB, Preamp 1 On	1.4	uV
AGC threshold at 3 dB, Preamp 2 On	0.4	uV

Notes:

The FTdx-1200 is significantly phase-noise limited (RMDR) closer in than 20 kHz.

The third-order DR3 at 2 kHz is mostly IMD with some phase noise at 70 dB.

Considering that Elecraft has just released a superb synthesizer upgrade for under $200 that is state-of-the-art, it is unfortunate how the FTdx-1200 is so seriously hampered by phase noise (RMDR). At 2 kHz from a 500-Hz CW bandwidth, filter ultimate rejection is limited to less than 70 dB due to phase noise.

Rev A