Sherwood Engineering HF Test Results

Model FTdx10 Serial # 0N010029 Test Date: 12/29/2020

IF BW 2400 –6 / -60, Hz	/	Ultimate	>100	dB
IF BW 500 –6 /-60, Hz	/	Ultimate	>105	dB

Front End Selectivity	Half Octave	
First IF rejection 9005 kHz	91	dB

Dynamic Range of radio, no preamp		
Dynamic Range 20 kHz	107	dB
Dynamic Range 10 kHz	107	dB
Dynamic Range 5 kHz	107	dB
Dynamic Range 2 kHz	107	dB

Dynamic Range with radio, Preamp 1		
Dynamic Range 20 kHz	106	dB
Dynamic Range 10 kHz	106	dB
Dynamic Range 5 kHz	106	dB
Dynamic Range 2 kHz	104	dB

Blocking above noise floor, 1uV signal @ 100 kHz, AGC On,	141*	dB
* Limited by phase noise		

Phase noise (normalized) at 2.5 kHz spacing:	-145	dBc/Hz
Phase noise (normalized) at 5 kHz spacing:	-150	dBc/Hz
Phase noise (normalized) at 10 kHz spacing:	-152	dBc/Hz
Phase noise (normalized) at 20 kHz spacing:	-153	dBc/Hz
Phase noise (normalized) at 30 kHz spacing:	-153	dBc/Hz
Phase noise (normalized) at 40 kHz spacing:	-153	dBc/Hz
Phase noise (normalized) at 50 kHz spacing:	-153	dBc/Hz
Phase noise (normalized) at 100 kHz spacing:	-153	dBc/Hz
Phase noise (normalized) at 200 kHz spacing:	-153	dBc/Hz
Phase noise (normalized) at 300 kHz spacing:	-154	dBc/Hz
Phase noise (normalized) at 400 kHz spacing:	-155	dBc/Hz
Phase noise (normalized) at 500 kHz spacing:	-155	dBc/Hz

RMDR at 2.5 kHz spacing:	118	dB
RMDR at 5 kHz spacing:	123	dB
RMDR at 10 kHz spacing:	125	dB
RMDR at 20 kHz spacing:	126	dB
RMDR at 50 kHz spacing:	126	dB
RMDR at 100 kHz spacing:	126	dB
RMDR at 200 kHz spacing:	126	dB
RMDR at 500 kHz spacing:	128	dB

Noise floor, SSB bandwidth 14 MHz, no preamp		-121	dBm
Noise floor, SSB bandwidth 14 MHz, Preamp 1 On		-130	dBm
Noise floor, SSB bandwidth 14 MHz, Preamp 2 On		-133	dBm
Sensitivity SSB at 14 MHz, no preamp		0.63	uV
Sensitivity SSB at 14 MHz, Preamp 1 On		0.21	uV
Sensitivity SSB at 14 MHz, Preamp 2 On		0.15	uV
Noise floor, 500 Hz, 14.2 MHz, no preamp		-126	dBm
Noise floor, 500 Hz, 14.2 MHz, Preamp 1 On		-135	dBm
Noise floor, 500 Hz, 14.2 MHz, Preamp 2 On		-138	dBm
Noise floor, SSB, 50.125 MHz, no preamp		-123	dBm
Noise floor, SSB, 50.125 MHz, Preamp 1		-133	dBm
Noise floor, SSB, 50.125 MHz, Preamp 2		-135	dBm
Sensitivity, SSB, 50.125 MHz, no preamp		0.42	uV
Sensitivity, SSB, 50.125 MHz, Preamp 1		0.15	uV
Sensitivity, SSB, 50.125 MHz, Preamp 2		0.14	uV
Noise floor, 500 Hz, 50.125 MHz, no preamp		-130	dBm
Noise floor, 500 Hz, 50.125 MHz, Preamp 1 On		-139.5	dBm
Noise floor, 500 Hz, 50.125 MHz, Preamp 2 On		-140	dBm
Signal for S9, no preamp	-67 dBm	100	uV
Signal for S9, Preamp 1	-76 dBm	35	uV
Signal for S9, Preamp 2	-85 dBm	12	uV
Gain of preamp(s)			
Preamp 1		9	dB
Preamp 2		18	dB
AGC threshold at 3 dB, no preamp		4.2	uV
AGC threshold at 3 dB, Preamp 1 On		1.46	uV
AGC threshold at 3 dB, Preamp 2 On		0.54	uV

Notes:

In order to see signals at the receiver noise floor with IPO selected (no preamp), scope gain has to be set at +30 dB.

In noisy Denver on 20m, I set the scope gain around +15 dB, dependent on the span. At +15, a -110 dBm signal reads about 1 division on the scope scale of 5 dB/division. These values are with IPO selected, which is no preamp.

Scope dynamic range is only 50 dB, unlike Icom at 10 dB per division.
This may be an advantage for many users as signals peak higher on the scale.
IC-7610 has a 100 dB scope dynamic range, while the IC-7300 is 80 dB.

The band scope / waterfall is more like an Icom than the FTdx-101D, which I consider an improvement. There is no extra gain inside the roofing filter which I found annoying.

I consider the band scope jumpy, needing averaging. When the scope gain is set for waterfall band noise to be barely blue, the band scope noise spikes are 1 to 2 divisions.

The current draw is more like an IC-7610 than an IC-7300, causing the cooling fan to cycle ON/OFF when in receiver mode only, as does the 7610.

Enabling preamp 1 does not increase noise output at the speaker, which is nice.

Receive audio on CW and SSB is excellent using an external front-facing speaker. As with any top cover mounted speaker, the high frequencies are attenuated.

Ergonomics is overall good, though I wish the AF/RF gain controls were interchanged with the notch/APF controls. Being right handed, I tend to bump the tuning when adjusting the volume.

While there is a selection of AGC decay speeds, they do not appear to be adjustable.

The rear larger tuning knob makes slewing the band very easy.

As with many noise blankers, it distorts the signal if turned up very high.

Noise reduction beyond a modest level has weird audio artifacts.

No dedicated power output knob, as with the 101D.

On the assumption that the price will eventually settle below $1500, the FTdx10 will be a very popular mid-price rig.

A USB mouse can access and click anywhere on the LCD screen.

Rev D