Sherwood Engineering HF Test Results

Mode: Satellite E1 XM	Serial # 00106			Test Date: 8/7/2005	
IF BW 7 kHz –6 / -60, kHz	8.0 / 11.6	Ultimate	80	dB	phase noise limit
IF BW 4 kHz–6 / -60, kHz	5.0 / 8.1	Ultimate	80	dB	phase noise limit
IF BW 2.3 kHz –6 /-60, kHz	2.5 / 4.2	Ultimate	80	dB	phase noise limit
Front End Selectivity (A – F) Octave filters, excellent for portable radio					C
IF Rejection,10 MHz @ 455 kHz IF				>90	dB
First IF Rejection @ 45 MHz IF				75	dB
Dynamic Range 50 kHz		dB		IP3	dBm
Dynamic Range 20 kHz	88/87	dB	preamp off / on	IP3 +7/ -2	dBm
Dynamic Range 5 kHz	**57/55**	**dB**	**preamp off / on**	**IP3 -39 /-50**	**dBm**
Dynamic Range 2 kHz		dB		IP3	dBm
Dynamic Range 1 kHz		dB		IP3	dBm
Blocking above noise floor at 100 kHz spacing w/ 1.0 uV signal				123	dB
Phase noise (normalized) at 10 kHz spacing:				113	dBc
Noise floor, SSB bandwidth 14 MHz, preamp off / on				-125 / -132	dBm
Noise floor, CW bandwidth 14 MHz					dBm
Sensitivity at 14 MHz				0.33 / 0.17	uV
Noise floor, SSB, 10 MHz				-125 / -132	dBm
Noise floor, CW, 10 MHz					dBm
Sensitivity 10 MHz				0.28 / 0.18	uV
Noise floor, SSB, 5 MHz				-126 / -132	dBm
Noise floor, CW, 5 MHz					dBm
Sensitivity 5 MHz				0.28 / 0.15	uV
Noise floor, SSB, 2 MHz				-126 / -130	dBm
Noise floor, CW, 2 MHz					dBm
Sensitivity, 2 MHz				0.28 / 0.15	uV
Noise floor, SSB, 1 MHz				-126 / -129	dBm
Sensitivity, 1 MHz				0.30 /0.21	uV
Noise floor, SSB, 200 kHz				-121 / -126	dBm
Sensitivity, 200 kHz				0.70 / 0.35	uV
AGC Threshold at -3	dB			0.9 / 0.3	uV
Drift					Hz

Distortion:	SSB	AM	AM Sync
100 Hz	1.5%	4%	3.5%
200 Hz	1%	2%	1.5%
400 Hz	0.7%	2%	2.7%
1 kHz	1.5%	2%	2.7%
2 kHz	3%	2%	2.7%
3 kHz		2.7%	2.7%

Comments:

Harmonic distortion generally included several high order products. Not as clean as typical tabletop receiver. Beatnote on SSB was harsh at 1 and 2 kHz due to higher order distortion products.

The LCD was unusually accurate between S3 and S9 + 60 over. Except for the lack of fine granularity in an LCD-type of bar graph S meter, this unit is uncommonly accurate.

Lots of spurious, raspy sounds wondering around the LF portion, moving on and off frequency moderately rapidly. Though less on HF, some similar raspy spurious signals were heard were countered on HF, requiring making measurements on odd frequencies to avoid the spurs.

S9 = 50 uV with preamp off, and 16 uV with preamp.
Preamp = 10 dB
No attenuator
External antenna connector needs to be RCA or other standard connector.

The choice of AGC threshold is excellent.

Neither FM or XM were tested on this unit.

Radio generally meets published specs except for close-in IP3.

Outstanding features for a portable. Very easy menus to navigate.