Sherwood Engineering Inc.

1268 South Ogden Street Denver, Colorado 80210 USA

email Phone: 303-722-2257 FAX: 303-744-8876

9 a.m. - 5 p.m. MST Monday - Friday

Receiver Test Data

(Sorted by Dynamic Range Narrow Spaced)

Updated 15 June 2011

Device Under Test	Noise Floor (dBm)	AGC Thrshld (uV)	dB	100kHz Blocking (dB)	Sensitivity (uV)	LO Noise (dBc/Hz)	Spacing kHz	Front End Selectivity	Filter Ultimate (dB)	Dynamic Range Wide Spaced (dB)	kHz	Dynamic Range Narrow Spaced (dB)	kHz
Added 12/01/10 Yaesu FTdx-5000D	-123 -135[b] -141[b1]	4.6 1.2[b] 0.33[b1]	3	127[s]	1.1 0.27[b] 0.13[b1]	135	10	B Band Pass	90[f]	104	20	101[f]	2
Added 2/15/08 Elecraft K3	-130 -138[b]	2.1 0.6[b]	3	140[s]	0.33 0.19[b]	138	10	B Band Pass	105	104	20	101[pf] 96[qf] 95[r]	2
Updated 7/2/09 Perseus	-123 -125[b]	0.15 0.1[b]	3	125	0.8 0.6[b]	147	10	B Band Pass	109[f]	99	20	99	2
Added 2/15/08 FlexRadio Systems FLEX-5000A	-123 -135[b]	2.0 0.5[b]	3	123[s]	1.3 0.3[b]	123	10	B Band Pass	98	96	20	96	2
Added 4/16/06 Ten-Tec Orion II	-125 -133[b]	2.7 0.65[b]	3	130	0.75 0.3[b]	126	10	B Band Pass	100[f]	95[f]	20	95[i]	2
Updated 4/17/06 Ten-Tec Orion	-127 -135[b]	0.8	3	137	0.6 0.25[b]	130	10	B Band Pass	100[f]	96	20	93	2
Added 11/10/10 Ten-Tec Eagle	-124 -132[b]	2.5 0.6[b]	3	135[s]	0.7 0.3[b]	131	10	B Band Pass	90[f]	93[f]	20	90[f]	2
Added 8/20/09 FlexRadio Systems FLEX-3000	-123 -139[b]	2.1 0.13[b]	3	116[s]	1.35 0.16[b]	120	10	B Band Pass	90[f]	90[f]	20	90[f]	2
Added 12/30/10 Kenwood Down-conversion TS-590S on 20 meters	-128 -137[b]	1.8 0.5[b]	3	144[s]	0.43 0.15[b]	140	10	B Band Pass	92[f]	104	20	88[f]	2
Added 12/30/10 For Comparison Kenwood Up-conversion TS-590S on 17 meters	-132 -139[b]	1.4 0.42[b]	3	133[s]	0.28 0.13[b]	N.A.	10	B Band Pass	N.A.[f]	102	20	76[f]	2
Added 02/26/11 FlexRadio Systems FLEX-1500	-112to-116 -120to-129[b] -121to-136[b1]	3.1 1.0[b] 0.4[b1]	3	108	2.8 1.4[b] 0.3[b1]	131	10	B Band Pass	95	88	20	88	2
Added 2/15/08 Icom R9500	-127 -130[b] -135[b1]	1.1 0.25[b] 0.16[b1]	3	119	0.7 0.2[b] 0.11[b1]	134	10	B Band Pass	80	110[f]	20	85[f]	2
Drake R-4C/CF-600/6	-138	0.7	3	130	0.15	135	10	A- Preselector	130	85	20	84	2

AOR AR-7030	-122 -128[b]	2.2	3	130	0.5 0.22	130	10	D Hi/Lo Pass	90	100	20	82	2
Added 4/16/06 Icom IC-765	-134 -140[b]	5.0 1.7[b]	3	143	0.26	130	10	B Band Pass	95[f]	102	20	81[f j m]	2
Atlas 350-XL	-131	1.0	11	117	0.2	125	4	C Band Pass	95	81	20	81	2
Kenwood TS-830/YK88	-129	1.5	3	122	0.1	114	2	C Preselector	85[f]	84	20	81	2
Added 4/23/07 Ten-Tec Omni VII	-130 -140[b]	0.8 0.2[b]	3	130	0.45 0.17[b]	124	10	B 0.5 Octave	100[f]	92	20	80	2
Added 10/3/04 Icom IC-7800	-126 -136[b] -139[b1]	4.5 1.2[b] 0.6[b1]	3	>135	0.60 0.15[b] 0.10[b1]	130	10	A Trk Presel	100[f]	102	20	80[f]	2
Added 10/3/04 Elecraft K2 s/n:3170	-129 -136[g]	10 1.7[b]	15	123 134[h]	0.35 0.20	123	10	B Band Pass	80[f]	98	20	80[f]	2
Added 2/27/04 Ten-Tec Omni VI+	-135	0.7	3	145	0.2	137	20	B Band Pass	80	97	20	80	2
Yaesu 901-DM	-135	1.6	3	124	0.15	109	2	C Preselector	85	87	20	80[f]	3
Collins R-390A	-137	*N.A.*		130	0.2	130	2	A+ Trk Presel	85	81	20	79	2
Ten-Tec Corsair	-131[a]	0.1	14	130	0.2	132	5	C Band Pass	90	93	20	79	3
Added 9/3/09 Icom IC-7600	-130 -138[b] -141[b1]	5.3 2.35[b] 1.13[b1]	3	126	0.43 0.16[b] 0.11[b1]	121	10	B	78[f]	100	20	78[f]	2
Icom IC-720A	-137	1.6	3	138	0.15	117	10	C 0.5 Octave	80	93	50	78	3
Kenwood TS-820S	-137	0.4	3	115	0.2	125	10	C Preselector	80	79	20	78	3
Updated 4/17/06 Kenwood TS-850 Inrad-400s	-128 -138[b]	2.2 0.5[b]	3	128	0.45 0.15[b]					90	20	77	2
JRC NRD-515	-138	3.5	4	103	0.1	118	10	C 0.8 Octave	80	95	20	77[f]	2
Added 12/30/10 Kenwood Up-conversion TS-590S on 17 meters	-132 -139[b]	1.4 0.42[b]	3	133[s]	0.28 0.13[b]	N.A.	10	B Band Pass	N.A.[f]	102	20	76[f]	2
Ten-Tec Omni V	-134	1.2	6	135	0.18	134	10	C Band Pass	100	89	20	76	2
Atlas 210/215X	-120[a]	*N.A.*		123	0.5	*N.A.*		C Band Pass	95	76	20	76	2
Corrected 4/7/06 Icom 756 Pro III	-132 -140[b] -142[b1]	2.3 0.7 0.3	3	142	0.35 0.14 0.11	126	10	B 0.5 Octave	80	99	20	75	2
Added 4/7/06 Icom 756 Pro II	-133 -138[b] -141[b1]	2.1 0.65 0.26	3	138	0.32 0.15 0.11	124	10	B 0.5 Octave	80	98	20	75	2
Drake R-7	-135 -140[b]	1.0 0.4[b]	3	145	0.28 0.15[b]	114	10	B 0.5 Octave	85	97	100	75	2
Drake TR-7	-134	1.3	3	146	0.5	116	10	B 0.5 Octave	90	99	100	75	2
Heath SB-104	-123	*N.A.*		92	0.5	*N.A.*		C Band Pass	75	79	20	75	4

WJ HF-1000	-129 -136[b]	0.11	3	123	0.23 0.13[b]	115	10	D Wideband	80	99	20	75	5
Added 4/7/06 Icom 706MkIIG	-135 -140[b]	1.9 0.6	3	126	0.23 0.12	127	10	C Octave	80	87	20	74	2
Ten-Tec Omni-B	-136	0.2	25	129	0.15	130	10	C Preselector	80	87	20	74	2
Icom IC-730	-140	1.5	3	135	0.1	118	10	C 0.5 Octave	80	92	50	74	3
Kenwood R-820S	-125	4.0	3	125	0.35	123	10	C Preselector	75	74	20	74	4
Collins 75-S3B	-146	1.1	15	122	0.1	120	4	B+ Preselector	85	88	20	74	2
Icom IC-781	-127 -138[b]	2.0 0.5[b]	3		0.5 0.18[b]	129	10	B 0.5 Octave	90[f]	94	20	73	2
Updated 4/18/06 Stock 781	-128 -135[b]	2.4 0.7[b]	3	131	0.5 0.22[b]			B 0.5 Octave	90	98	20	78	2
Updated 4/18/06 781 with Pin Diodes	-126 -134[b]	3.6 1.15[b]	3	134	0.54 0.21[b]			B 0.5 Octave	90	98	20	72	2
Kenwood TS-930S	-135	2.0	3	143	0.15	115	10	B- 0.5 Octave	80[f]	86	20	73	3
Icom IC-701	-129	5.5	6	130	0.3	125	10	C Band Pass	75	81	50	73	4
Collins 75S-3C	-141	1.3	12	121	0.14	120	4	B+ Preselector	95	85[d]	20	72	2
Kenwood TS-480HX Without CW Xtal Filter	-135 -143[b]	3.0 0.6[b]	3	142	0.28 0.11[b]	121	10	B 0.5 Octave	80[f]	99	20	72	3
JRC NRD-525	-132[a]	0.9	3	123	0.2	120	10	B Trk Presel	65	95	50	72	5
Updated 4/13/09 Yaesu FT-1000 MP MKV Field Inrad roofing filter mod	-133[b]	3.0[b]	3	135	0.2[b]	128	10	B 0.5 Octave	90[f]	89	20	71[k]	2
Added 10/3/04 Icom 756 Pro	-127 -136[b] -139[b1]	3.5 1.0[b] 0.5[b1]	3	132	0.55 0.21[b] 0.14[b1]	127	10	B 0.5 Octave	90	86	20	71	2
Drake R-8	-128 -131[ab]	0.6 0.3	3	130	0.25 0.18[b]	115	10	C 0.5 Octave	75[f]	90 85[b]	20	71	5
Icom IC-R72	-127 -135[a]	3.1 1.2[b]	3	129	0.28 0.11[b]	122	10	C 0.5 Octave	75	87[b]	20	71	5
Icom R-9000	-131[a]	0.8	3	129	0.15	128	10	B 0.5 Octave	90	93	20	71	5
Added 2/27/04 Elecraft K2 s/n: 1140	-135	2.6	15	118	0.22	123	10	B Band Pass	80[f]	95	20	70	2
JRC NRD-535	-135[a]	0.9	3	114	0.1	117	10	B Trk Presel	70	92	50	70	5
Kenwood TS-830S	-136[a]	0.9	3	122	0.1	113	2	C Preselector	80	84	20	70	3
Icom IC-761	-131 -139[b]	2.0 0.7[b]	3	145	0.4 0.17[b]	129	10	B- 0.5 Octave	90[f]	87	20	70	2
Added 4/16/06 Kenwood TS-870S	-127 -137[b]	1.9 0.44[b]	3	137	0.5	121	10	C 0.5 Octave	90[f]	95	20	69	2
Added 10/3/04 Yaesu FT-1000 MP MKV Field	-133[b]	3.0[b]	3	135	0.2[b]	128	10	B 0.5 Octave	90[f]	88	20	69	2

Added 10/3/04 Yaesu FT-1000 D	-128[b1]	6.0[b1]	3	>131	0.3[b1]	121	10	B 0.5 Octave	90[f]	90	20	69	2
Lowe HF-150	-126[a]	0.7	3	126	0.3	113	10	F No Bandpass	75	84	20	69	5
Kenwood TS-430S	-136[a]	0.6	3	134	0.1	102	10	C 0.5 Octave	70	78	20	69	5
Added 10/3/04 Yaesu FT-1000 MP	-125 -134[b]	3.8 1.1[b]	3	>135	0.48 0.18[b]	128	10	B 0.5 Octave	90[f]	97	20	68	2
JRC NRD-545	-130[a]	2.0	6	127	0.2	118	10	B 0.5 Octave	65	96	100	68	5
Signal/One CX-11A	-122[a]	0.6	17	109	0.6	119	50	C 0.5 Octave	105	90	50	68	5[f]
Kenwood TS-180S	-139	0.9	3	115	0.15	120	10	C Preselector	80	70	20	68	3
Drake TR-4C	-124[a]	1.2	3	105	0.4	130	10	C Preselector	80	74	20	68	2
Icom IC-735	-126 -133[b]	1.5	12	135	0.35 0.18[b]	123	10	C 0.5 Octave	90[f]	83	20	68	2
Added 1/21/04 Icom IC-R75	-123[a] -130[b]	3.5 1.3[b]	3	119	0.5 0.2[b]	109	10	B 0.5 Octave	80	95	50	67	5
Drake SW8	-127[a]	0.9	3	125	0.32	113	10	*N.A.*	70	92	20	67	5
Racal 6790 GM	-128	0.3	1	145	0.7	130	10	D Broadband	85	95	20	66	2
Lowe HF-235	-126[a]	0.8	3	129	0.35	117	10	D Octave	80	71	20	66	5
AOR AR3030	-131[a]	2.0	10	130	0.16	117	10	C 0.5 Octave	85	90	20	66	5
Yaesu FRG-100	-133[a]	0.9	3	127	0.13	112	10	C 0.5 Octave	70	99	50	65	5
Kenwood R-5000	-131[a]	0.4	3	134	0.2	120	10	C 0.5 Octave	80[f]	86	20	65	5
Added 2/27/04 Palstar R-30	-123	2.6	3	130	0.35	116	10	C Octave	90	88	20	64	5
Yaesu FRG-7700	-130[a]	1.3	3	123	0.2	100	10	D Octave	65	83	50	64[f]	5[c]
Kenwood R-1000	-130[a]	0.9	3	119	0.2	107	10	D Octave	70	76	20	64[f]	3[c]
Heath SB-303	-134	*N.A.*		104	0.5	*N.A.*		C Preselector	70	66	20	64	4
Collins KWM-380	-127[a]	1.1	5	123	0.3	99	10	B 0.5 Octave	70[f]	94	50	64[f]	2
Icom IC-751	-127 -133[b]	6.3	3	138	0.4 0.2[b]	127	10	B- 0.5 Octave	90[f]	84	20	64	2
Added 3/27/06 Icom 7000	-129 -139[b]	4.5 1.0	3	119	0.45 0.13	122	10	C Octave	65	90	20	63	2
Added 9/22/07 Yaesu FT-2000	-122 -132[b] -140[b1]	5 1.3[b] 0.5[b1]	3	120	1.0 0.3[b] 0.14[b1]	122	10	B+ Bandpass + Trk	80[f]	81[n] 90[o]	20	63[n] 61[o]	2
Kenwood TS-520	-139	*N.A.*		116	0.15	*N.A.*		C Preselector	70	63	20	63	3
Yaesu FT-One	-135	1.0	3	130	0.2	99	10	C 0.5 Octave	80[f]	91	50	63[f]	2
Collins 75-S3 Wing	-145	1.0	14	105	0.1	*N.A.*		B Preselector	75	75	20	63	3

Device Under Test	Noise Floor (dBm)	AGC Thrshld (uV)	dB	100kHz Blocking (dB)	Sensitivity (uV)	LO Noise Spacing (dBc/Hz)	kHz	Front End Selectivity	Filter Ultimate (dB)	Dynamic Range Wide Spaced (dB)	kHz	Dynamic Range Narrow Spaced (dB)	kHz
JRC NRD-93	-141	1.6	3	128	0.15	133	10	A+ Trk Presel	80	94	20	63	2
Yaesu FT-980	-136	1.8	3	140	0.12	106	10	C 0.5 Octave	62[f]	96	50	63	2
Icom IC-R70/R-71A	-129 -135[b]	3.1 1.4[b]	3	132	0.4 0.2[b]	128	10	B- 0.5 Octave	90[f]	86	20	62	3
Grundig Satellite 700	-127[a]	1.6	3	106	0.3	118	10	*N.A.*	85	76	20	62	5
KWZ-30	-130	1.0	3	120	0.8	118	10	[d]	80	100	20	60	5
Collins 51S1	-134	1.0	7	117	0.13	146	10	A Trk Presel	100	84[e]	100	60	5
Icom R-8500	-135[a]	0.45	3	132	0.11	131	10	B 0.5 Octave	75	81	20	59	5
Yaesu FT-101E	-141	*N.A.*		102	0.15	*N.A.*		C Preselector	70	60	20	59	3
Drake R-4C Stock	-139	0.7	3	130	0.15	135	10	A- Preselector	70	85	20	58	2
Yaesu FT-757	-120 -134[b]	1.6	3	130	0.7 0.15[b]	109	10	C 0.5 Octave	70[f]	86	20	56	3
Ten-Tec 340	-123 -133[b]	0.5 0.13	3	109	0.4 0.14	113	10	B 0.5 Octave	70	93	100	46	5
Kenwood R-2000	-130[a]	1.4	3	115	0.15	105	10	D Octave	70	71	20	45	5
Kenwood R-600	-130[a]	0.8	3	109	0.2	99	10	D Octave	65	68	20	*F.L.*.	5
Yaesu FRG-8800	-132[a]	0.6	3	122	0.18	*N.A.*		D Octave	70	87	20	*F.L.*	5
AOR 5000	-124 -130[ab]	0.9 1.8	3	118	0.2 0.35	103	10	B 0.5 Octave	60	58	50	f	5

Receiver Table Legend:

1 dB blocking (gain compression) test done at 100 kHz to eliminate phase noise interaction
F.L. = Filter limited, no measurement was possible due to signal leakage around filter
N.A. = Data not available

a Measured with SSB filter
b Built-in Preamp actuated
b1 Built-in Preamp 2 actuated
c Readings would have been lower if 2-kHz spacing had been possible
d Dynamic Range is 90-dB at 100-kHz spacing
e 20-kHz Dynamic Range is 66-dB
f Measurement was Phase-Noise Limited
g Audio DSP Enabled
h AGC Off
i At 1 kHz dynamic also 95 dB but with 300 Hz roofing filter enabled
j At 1 kHz, noise limited to 68 dB
k At 1 kHz dynamic range was 66 dB
l (lowercase L) Reserved
m Receiver was optimized by Malcom Technical Support for best dynamic range
n Measured with 3 kHz roofing filter
o Measured with 6 kHz roofing filter
p with 200 Hz 5-pole filter
q with 400 Hz 8-pole filter
r with 500 Hz 5-pole filter
s Using ARRL 3-Hz bandwidth blocking method

Sherwood Engineering Inc.
1268 South Ogden Street Denver, Colorado 80210 USA
email Phone: 303-722-2257 FAX: 303-744-8876
9 a.m. - 5 p.m. MST Monday - Friday