



Sherwood Engineering Inc.

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

SE-3 Features	Hear the Difference	Interface Shortwave Radio to SE-3
Sherwood Engineering Inc. Home Page	Short Wave Listener Catalogue	Amateur Radio Products

Look in on part of SEI's Laboratory

Receiver Test Data

(Terms Explained: [DOC](#) [PDF](#))

Sorted by Third-Order Dynamic Range Narrow Spaced - or- ARRL RMDR (Reciprocal Mixing Dynamic Range) if Phase Noise Limited

Note: The term blocking only applies to a superhet radio. For a direct sampling radio the value in the blocking column is the ADC overload point reference receiver noise floor.

Updated 30 December 2020. Added Yaesu FTdx10.

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
LO Noise Corrected 05/10/19 Yaesu FTdx-101D	-127 -136 ^b -141 ⁶	4.5 1.6 ^b 0.58 ^{b1}	3	>147	0.60 0.20 ^b 0.12 ^{b1}	154 155	10 50	A Trk Presel	>115	110	20	110	2
Added 9/29/14 FlexRadio Systems 6700 Hardware Updated	-118 -135 ^{b2}	3.0 1.0 ^{b2}	Var	130 preamp Off	2.0 0.25 ^{b2}	145 155	10 50	B Band Pass	115	99	20&2	108 ^y	20&2
Added 12/30/20 Yaesu FTdx10	-126 -135 ^b -140 ⁶	4.2 1.46 ^b 0.54 ^{b1}	3	141	0.63 0.21 ^b 0.15 ^{b1}	152 153	10 50	B Half Octave	105	107	20	107	2
Added 02/11/18 Icom IC-R8600 Second sample S/N 02001177	-131 -142 ^b -130 ^{ab}	2.40 0.67 ^b	3	125	0.40 0.12 ^b 0.49 ^{ab}	144 148	10 50	B Half Octave	>100	109 ^{ab} 88 ^{ac}	20	107 ^{ab} 88 ^{ac}	2
Added 11/10/15 Elecraft K3S	-135 -138 ^b -145 ¹⁰	1.5 0.45 ^b	3	150	0.27 0.20 ^b 0.08 ¹⁰	144 146	10 50	B Band Pass	110	107 ^q	20	106 ^p 106 ^q	2
Added 3/17/17 Elecraft K3S 2nd Sample	-135 -138 ^b -145 ¹⁰	1.5 0.45 ^b	3	150	0.27 0.20 ^b 0.08 ¹⁰	144 146	10 50	B Band Pass	110	106 ^{ah}	20	105 ^{ah}	2

10 meter data													
Added 02/23/15 Elecraft K3 (RX Gain Recal) New Synthesizer	-136 -139 ^{bq}	1.0 0.3 ^b	3	141	0.27 0.20 ^b	145 147	10 50	B Band Pass	108	105 ^q	20	107 ^p 104 ^q	2
Added 04/25/16 Icom IC-7851	-123 -135 ^b -141 ^{b1}	8.5 1.85 ^b 1.16 ^{b1}	3	149	0.65 0.16 ^b 0.11 ^{b1}	148 153	10 50	A Trk Presel	100	110 ^{aa}	20	105 ^{aa}	2
Added 10/15/18 Kenwood TS-890S	-131 -140 ^b -141 ⁶	2.1 0.53 ^b 0.14 ^{b1}	3	>151	0.39 0.13 ^b 0.10 ^{b1}	155 156	10 50	B Half Octave	>118	106	20	105	2
Added 10/02/12 Hilberling PT-8000A Hardware Rev 2.00	-128 -141 ^b	5.4 1.0 ^b	3	142	0.45 0.11 ^b	144 149	10 50	A Trk Presel	100	105	20	105 ^w	2
Added 08/10/12 Elecraft KX3	-123 -138 ^{b2}	12 1.3 ^{b2}	3	138	0.9 0.09 ^{b2}	144	10	B Band Pass	110	105	20	104 ^t 96 ^u 65 ^v	2
Added 02/22/18 Apache ANAN-7000DLE	-131 -131 ^{ad} -140 ⁶	1.0 adjustable 2.2 ^{ae}	3	126	0.43 0.43 ^{ad} 0.16 ⁶	140 143	10 50	B Band Pass	>110	103	20	103 ^{ad}	2
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
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
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 ^{p f} 96 ^{q a} 95 ^r	2
Added 03/27/19 FlexRadio 6400	-112 -127 ^{b3} -136 ^{b4}	9 1.4 ^{b3} 0.44 ^{b4}	3	119	4.0 0.63 ^{b3} 0.22 ^{b4}	145 146	10 20	B Band Pass	115	100 ^{b3}	20&2	100 ^{b3}	20&2
Added 05/14/18 FlexRadio 6600M PLL update & 2 Hardware Upgrades	-111 -126 ^{b3} -136 ^{b4}	13 2.0 ^{b3} 0.35 ^{b4}	3	116	4.5 0.78 ^{b3} 0.26 ^{b4}	144 148	10 20	A- Band Pass	115	102 ^{b0}	20&2	99 ^{b3} 99 ^{aj}	20&2
Added 08/31/16 Apache ANAN-200D	-133 -132 ^{ad}	1.0 adjustable 3.0 ^{ae}	3	123	0.30 0.37 ^{ad}	131 137	10 50	B Band Pass	95	99	20	99 ^{af} 77 ^{ad} 64 ^{ac}	2

Tested 12/15/2015													
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 12/23/17 Icom IC-7610 S/N 12001056	-132 -140 ^b -142 ^{b1} -129 ^{ab}	2.7 1.20 ^b 1.16 ^{b1}	3	122 119 ^{ab}	0.36 0.15 ^b 0.125 ^{b1} 0.51 ^{ab}	146 >149	10 50	A Trk Presel	110	98 ^{ab} 90 ^{ac}	20	98 ^{ab} 90 ^{ac}	2
Added 12/23/17 Icom IC-R8600 S/N 04001188	-132 -142 ^b -130.5 ^{ab}	2.40 0.67 ^b	3	125	0.40 0.12 ^b 0.49 ^{ab}	144 148	10 50	B Half Octave	105	98 ^{ab} 78 ^{ac}	20	98 ^{ab} 78 ^{ac}	2
Added 02/11/18 Icom IC-7300 Second Sample S/N 02012272	-133 -140.5 ^b -141.5 ^{b1} -132 ^{ab}	1.9 0.85 ^b 0.50 ^{b1}	3	123	0.30 0.12 ^b 0.11 ^{b1} 0.35 ^{ab}	137 147	10 50	B Band Pass	>100	106 ^{ab} 84 ^{ac}	20	97 ^{ab} 84 ^{ac}	2
Added 3/17/17 FlexRadio Systems 6700 2nd Sample 10 meters	-116 -134 ^{b2}	3.0 1.0 ^{b2}	Var	130 preamp Off	2.0 0.25 ^{b2}	145 155	10 50	B Band Pass	115	99	20&2	96 ^{ag}	20&2
Added 05/21/18 Icom IC-7610 S/N 12001276 Second Sample	-132 -139 ^b -141 ^{b1} -128 ^{ab}	2.8 1.20 ^b 1.12 ^{b1}	3	122 119 ^{ab}	0.37 0.15 ^b 0.13 ^{b1} 0.53 ^{ab}	145 >148	10 50	A Trk Presel	110	96 ^{ab} 76 ^{ac}	20	96 ^{ab} 76 ^{ac}	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
Added 04/25/16 Icom IC-7300 S/N 02001408	-133 -141 ^b -142 ^{b1} -122 ^{ab}	1.9 0.85 ^b 0.50 ^{b1}	3	123	0.27 0.11 ^b 0.10 ^{b1} 1.0 ^{ab}	137 147	10 50	B Band Pass	>100	103 ^{ab} 81 ^{ac}	20	94 ^{ab} 81 ^{ac}	2
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
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 12/09/14 Kenwood TS-590SG Down Conversion Mode	-127 -135 ^b	2.2 0.65 ^b	3	137	0.42 0.17 ^b	139 141	10 50	B Bandpass	100 ^f	104	20	92 ^f	2
Added 06/22/13 Ten-Tec Argonaut VI	-125 -135 ^b	3.2 0.75 ^b	3	127	0.52 0.25 ^b	127 134	10 50	B Band Pass	95 ^f	95	20	92 ^f	2
Added 08/15/19 Aerial-51 ALT-512	-120 -136 ^b	9 0.75 ^b	3	122	1.1 0.2 ^b	133 131	10 50	B Band Pass	100	91	20	91	2
Added 11/10/10 Ten-Tec Eagle	-124 -132 ^b	2.5 0.6 ^b	3	129	0.7 0.3 ^b	131 143	10 50	B Band Pass	92 ^f	93	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
Updated 3/21/17 FlexRadio Systems 6300 Second Sample Preamp Updated	-117 -136 ^{b2}	3.0 1.0 ^{b2}	Var	125 preamp Off	2.1 0.23 ^{b2}	143 148	10 50	D High & Low Pass	110	89	20&2	89 ^{ai}	20&2
Added 11/07/20 Icom IC-705 S/N 12003232	-127 -137 ^b -139 ^{b1}	4.2 1.50 ^b 0.87 ^{b1}	3	122	0.67 0.20 ^b 0.16 ¹⁰	138 142	10 50	C 0.8 Octave	100	89	20	88	2
Added 12/30/10 Kenwood TS-590S on 20 meters Down- conversion Mode For Up- Conversion see Narrow Spaced at 76 dB	-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
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
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 06/02/13	-127	1.9	3	145	0.75	138 150	10 50	A Trk Preselec	90 ^f	111	20	87 ^x	2

Kenwood TS-990S on 20 meters 15 & 12 meters RMDR varies by band 17 meters is worst band 30 meters is best band	-138 ^b -138 ⁶	0.46 ^b			0.17 ^b 0.13 ⁶								
<i>1/12/17</i> FlexRadio Systems 6300 Preamp Updated	-117 -136 ^{b2}	3.0 1.0 ^{b2}	Var	125 preamp Off	2.2 0.24 ^{b2}	143 148	10 50	D High & Low Pass	110	86	20&2	86 ^{ak}	20&2
<i>Added 07/26/17</i> Elecraft KX2	-123 -136 ^b	31 3.4 ^b	3	N.A.	1.2 0.25 ^b	132 129	10 50	B Bandpass	90	93	20	86	3
<i>Added 2/15/08</i> 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	2.5	A- Preselector	130	85	20	84	2
<i>Added 12/13/2012</i> Yaesu FTdx-3000	-127 -138 ^b -142 ^{b1}	3.8 1.0 0.36	3	132	0.57 0.15 0.11	127	10	B 0.5 Octave	80	105 ^f	20	82 ^f	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
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
<i>Added 4/16/06</i> 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
<i>Added 10/03/14</i> Icom IC-703+	-126 ^a -135 ^{a b}	2.1 0.8 ^b	3	128	0.33 0.125 ^b	115 132	10 50	B Band Pass	85 ^f	96	20	81 ^a	5
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
<i>Added 4/23/07</i> 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
<i>Added 10/3/04</i> 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
<i>Added 10/3/04</i>	-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

Elecraft K2 s/n:3170													
<i>Added 2/27/04</i> Ten-Tec Omni VI+	-135	0.7	3	145	0.2	137	20	B Band Pass	80	97	20	80	2
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
Yaesu 901-DM	-135	1.6	3	124	0.15	109	2	C Preselector	85	87	20	80 ^f	3
<i>Added 10/18/20</i> Lab599 TX-500	-122 -138 ^b	16 1.8 ^b	3	112	2.0 0.25 ^b	135 134	10 50	B 0.5 Octave	100	79	20	79	2
<i>Added 8/10/12</i> Yaesu FT-950	-120 -132 ^b -138 ^{b1}	4.5 1.2 ^b 0.5 ^{b1}	3	125	1.1 0.31 ^b 0.15 ^{b1}	125	10	B	80 ^f	105	20	79 ^f	2
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
<i>Added 12/13/2012</i> Icom IC-7700	-127 -140 ^b -143 ^{b1}	6.5 1.6 0.8	3	140	0.69 0.15 0.10	129	10	A Trk Presel	90	105	20	78 ^f	2
<i>Added 9/3/09</i> 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
<i>Added 8/25/11</i> Icom IC-7410	-135 -142 ^b -144 ^{b1}	2.9 1.35 ^b 0.5 ^{b1}	3	135	0.3 0.12 ^b 0.1 ^{b1}	121	10	B	75 ^f	102	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
<i>Updated 4/17/06</i> 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
<i>Added 12/30/10</i> 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
Device Under Test	Noise Floor	AGC Thrshld	dB	100kHz Blocking	Sensitivity	LO Noise	kHz	Front End Selectivity	Filter Ultimate	Dynamic Range	kHz	Dynamic Range	kHz

	(dBm)	(uV)		(dB)	(uV)	Spacing (dBc/Hz)			(dB)	Wide Spaced (dB)		Narrow Spaced (dB)	
<i>Corrected</i> 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
<i>Added</i> 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
<i>Added</i> 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
<i>Added</i> 04/11/19 Icom IC-9700	-131 -145 ²	0.7 0.18 ^b	3	111	0.35 0.082 ^b	130 138	10 50	B Bandpass	100	74	20	74	2
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
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
<i>Updated</i> 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
<i>Updated</i> 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
<i>Added 08/05/15</i> Yaesu FT-991	-123 -135 ^b -143 ^{b1}	5 1.2 ^b 0.33 ^{b1}	3	133	0.70 0.17 ^b 0.08 ^{b1}	120 137	10 50	B Bandpass	80 ^f	96	20	72	2
<i>Updated 4/13/09</i> 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
<i>Added 10/3/04</i> 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
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
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
<i>Added 04/25/16</i> Icom IC-9100	-133 -141 ^b -141 ²	2.4 1.0 ^b 0.39 ^{b1}	3	N.A.	0.36 0.15 ^b 0.130 ²	119 136	10 50	B Band Pass	N.A.	101 ^f	20	71 ^f 60 ⁷⁰	2
<i>Added 2/27/04</i> 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
<i>Added 7/8/15</i> Yaesu FTdx-1200	-122 -134 ^b -140 ^{b1}	5.5 1.4 0.4	3	137	1.0 0.26 0.14	123	10	B 0.5 Octave	83	102 ^f	20	70 ^z	2
<i>Added 07/26/17</i> Yaesu FT-891	-129 -140 ^b -138 ⁶	6.1 1.55 ^b	3	N.A.	0.44 0.11 ^b 0.15 ⁶	116 N.A.	10 50	B 0.5 Octave	80 ^f	92	20	70 ^f	2
<i>Added 08/05/15</i> Kenwood TS-570S	-131 -139 ^b	1.6 0.43 ^b	3	143	0.40 0.16 ^b	118 137	10 50	B Bandpass	75	99	20	69 ^f	2
<i>Added 4/16/06</i> 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
Device Under Test	Noise Floor	AGC Thrshld	dB	100kHz Blocking	Sensitivity	LO Noise	kHz	Front End Selectivity	Filter Ultimate	Dynamic Range	kHz	Dynamic Range	kHz

	(dBm)	(uV)		(dB)	(uV)	Spacing (dBc/Hz)			(dB)	Wide Spaced (dB)		Narrow Spaced (dB)	
<i>Added 10/3/04</i> 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
<i>Added 10/3/04</i> 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
<i>Added 10/3/04</i> 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
<i>Added 1/21/04</i> 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
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
Yaesu FT-736R 2 meters	-141	1.3	3	125	0.11	128 143	10 50	C Bandpass	80	88	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
<i>Added 11/01/19</i> Kenwood TS-2000X 2 meter data	-123 -140 ^b	2.8 0.45 ^b	3	124	1.0 0.15 ^b	113 131	10 50	B Band Pass	75 ^f	87	20	65 ^f	2
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

<i>Added 2/27/04 Palstar R-30</i>	-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
<i>Added 3/27/06 Icom 7000</i>	-129 -139 ^b	4.5 1.0	3	119	0.45 0.13	122	10	C Octave	65	90	20	63	2
<i>Added 9/22/07 Yaesu FT- 2000</i>	-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
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
Icom IC-275H 2 meters	-136 ^a	0.25	3	122	0.11	124 141	10 50	B Bandpass	75	85	20	63	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
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	144	5	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	<i>FL.</i>	5
Yaesu FRG-8800	-132 ^a	0.6	3	122	0.18	<i>N.A.</i>		D Octave	70	87	20	<i>FL.</i>	5
AOR 5000	-124 -130 ^{a&b}	1.8 0.9	3	118	0.2 0.35	103	10	B 0.5 Octave	60	58	50	<i>f</i>	5
CommRadio CTX-10	-120 -134 ^b	5.5 0.7	3	49	5 1	<i>N.A.</i>	<i>N.A.</i>	C Octave	50	50	20	45	5
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

Receiver Table Legend:

3 dB blocking (gain compression) test done at 100 kHz to eliminate phase noise interaction

FL. = Filter limited, no measurement was possible due to signal leakage around filter

N.A. = Data not available

a Measured with SSB filter

b0 No preamp actuated

b Built-in Preamp actuated

b1 Built-in Preamp 2 actuated

b2 Built-in Preamp set at 20 dB. Adjustable to 10, 20 or 30 dB

b3 Built-in Preamp set at 16 dB

b4 Built-in Preamp set at 32 dB

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 = ARRL RMDR (Reciprocal Mixing Dynamic Range)

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

t with optional roofing filter

u without optional roofing filter

v At 1 kHz performance is opposite sideband rejection limited

w At 1 kHz dynamic range is 104 dB

x "Long Form" report available by e-mail request.

2-kHz RMDR: 6M=91dB, 10M=92dB, 12&15&20M=87dB, 17M=85dB, 30M=98dB, 40M=92dB, 80M=94dB & 160M=95dB

y DR3=108 dB with 20 dB preamp ON, and 99 dB with preamp OFF. Otherwise dynamic range independent of signal spacing.

NOTE: Tests in 2017 of a second 6700, and by the ARRL of a 6500, no longer measured a dynamic-range increase with the preamp ON. The 108 dB value is no longer valid. 2 kHz dynamic range is 99 dB, same as 6600M. As with any radio, only use a preamp if it improves copy, and usually only on 15m and up.

- z** The low-side dynamic range was 76 dB, while the high-side dynamic range was 70.
NOTE: This may imply the roofing filter was asymmetrical, and likely a sample variation.
- aa** Measured using 1.2 kHz roofing filter.
- ab** Measured with IP+ ON.
- ac** Measured with dither and random OFF
NOTE: Icom calls "dither and random" IP+. Noise floor may be affected by dither and random.
- ad** Measured with Dither and Random ON
NOTE: Dither and Random convert intermodulation products into broadband noise.
- ae** AGC threshold adjustable
NOTE: AGC threshold should be set about 6 dB above band noise.
- af** Measured with third test tone.
NOTE: ARRL may test dynamic range (DR3) of direct-sampling radios with a third test tone to approximate a crowded band. The validity of this test method is questionable.
- ag** DR3=96 dB with 20 dB Preamp ON. (99 dB Preamp OFF) Otherwise dynamic range independent of signal spacing.
NOTE: Testing of 2nd sample made on 10 meters while investigating IFSS* curves. Similar testing of 2nd sample of K3S, also made on 10 meters. * IFSS = Interference free signal strength.
- ah** NOTE: Testing of 2nd sample made on 10 meters while investigating IFSS* curves. Similar testing of 2nd sample of Flex Radio 6700, also made on 10 meters. * IFSS = Interference free signal strength.
- ai** NOTE: Dynamic range testing of a second 6300 sample resulted in a modestly higher dynamic range measurement.
- aj** NOTE: Test data for 6600M is after May 2018 PEN (Product Enhancement Notice). Due to the insertion loss of 7-pole bandpass filters on the contest bands, recommend +16 dB preamp during daytime on 80 -17 meters if in a quiet location. 15 - 6 meters may require +32dB preamp for an adequate noise floor. Tested with Alpha v. 2.2.7 software.
- ak** Some variation in dynamic range was noted after an extended warm-up.
- 6** 6 meter data, preamp ON
- 10** 10 meter data, preamp 2 ON
- 2** 2 meter data, preamp ON
- 70** 70cm, preamp ON. RMDR limited



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

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