



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 1 November 2019. Added Kenwood TS-2000X 2m data. 70cm and 23cm available in long form report.

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
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<i>LO Noise Corrected</i> <i>05/10/19</i> 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
<i>Added 9/29/14</i> 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
<i>Added 02/11/18</i> 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
<i>Added 11/10/15</i> 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
<i>Added 3/17/17</i> Elecraft K3S 2nd Sample 10 meter data	-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
<i>Added 02/23/15</i> 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
<i>Added 04/25/16</i> 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

<i>Added 10/15/18</i> 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
<i>Added 10/02/12</i> 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
<i>Added 08/10/12</i> 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
<i>Added 02/22/18</i> 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
<i>Added 12/01/10</i> 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
<i>Added 2/15/08</i> 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
<i>Added 03/27/19</i> 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 Tested 12/15/2015	-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
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

<i>Added 05/21/18</i> 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
<i>Added 2/15/08</i> 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
<i>Added 4/16/06</i> 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
<i>Added 04/25/16</i> 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
<i>Updated 4/17/06</i> 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
<i>Added 12/09/14</i> 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

<i>Added 06/22/13</i> 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
<i>Added 08/15/19</i> 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
<i>Added 11/10/10</i> 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
<i>Added 8/20/09</i> 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
<i>Updated 3/21/17</i> 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
<i>Added 12/30/10</i> 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

<i>Added 02/26/11</i> 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
<i>Added 06/02/13</i> Kenwood TS-990S on 20 meters 15 & 12 meters RMDR varies by band 17 meters is worst band 30 meters is best band	-127 -138 ^b -138 ⁶	1.9 0.46 ^b	3	145	0.75 0.17 ^b 0.13 ⁶	138 150	10 50	A Trk Preselec	90 ^f	111	20	87 ^x	2
<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 ^{fjm}	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> 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

<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 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 (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>Corrected 4/7/06</i> 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 4/7/06</i> 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 4/7/06</i> Icom 706MkIIIG	-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 04/11/19</i> 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 4/18/06</i> 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 4/18/06</i> 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 (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 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</i> 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
<i>Added 3/27/06</i> Icom 7000	-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</i> 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
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>F.L.</i>	5
Yaesu FRG-8800	-132 ^a	0.6	3	122	0.18	<i>N.A.</i>		D Octave	70	87	20	<i>F.L.</i>	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	<i>f</i>	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

F.L. = 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 dyanmic 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