
Receiver Test Data

Receiver Test Data
(Sorted by Dynamic Range Narrow Spaced)

Updated 15 February 2008

Device

Under Test
Noise

Floor

(dBm)
AGC

Thrshld

(uV)

dB
100kHz

Blocking

(dB)

Sensitivity

(uV)
LO Noise

Spacing

(dBc)

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

-138b
2.1

0.6b
3
140f
0.33

0.19b
138
10
B Band Pass
105
104
20
101f
2p

Added 2/15/08

Flex

5000A
-123

-135b
2.0

0.5b
3
123
1.3

0.3b
123
10
B Band Pass
98
96
20
96
2

Added 4/16/06

Ten-Tec

Orion II
-125

-133b
2.7

0.65b
3
130
0.75

0.3b
126
10
B Band Pass
100f
95f
20
95i
2

Updated 4/17/06

Ten-Tec

Orion
-127

-135b
0.8
3
137
0.6

0.25b
130
10
B Band Pass
100f
96
20
93
2

Added 2/15/08

Icom

R9500

-127

-130b

-135b1

1.1

0.25b

0.16b1

3

119

0.7

0.2b

0.11b1

134

10

B Band Pass

80

110f

20

85f

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

-128b

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

-140b
5.0

1.7b
3
143
0.26
130
10
B Band Pass
95f
102
20
81f 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
85f
84
20
81
2

Added 4/23/07

Ten-Tec

Omni VII

-130

-140b

0.8

0.2b

3

130

0.45

0.17b

124

10

B 0.5 Octave

100f

92

20

80

2

Added 10/3/04

Icom

IC-7800

-126

-136b

-139b1

4.5

1.2b

0.6b1

3

>135

0.60

0.15b

0.10b1

130

10

A Trk Presel

100f

102

20

80f

2

Added 10/3/04

Elecraft K2

s/n:3170

-129

-136g
10

1.7b
15
123

134h
0.35

0.20
123
10
B Band Pass
80f
98
20
80f
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
80f
3

Collins

R-390A
-137
N.A.

130
0.2
130
2
A+ Trk Presel
85
81
20
79
2

Ten-Tec Corsair
-131a
0.1
14
130
0.2
132
5
C Band Pass
90
93
20
79
3

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

-138b

2.2

0.5b

3

128

0.45

0.15b

90

20

77

2

Updated 4/16/06

Yaesu FT-1000

MP MKV Field

Inrad roofing filter mod

-133b

3.0b

3

135

0.2b

128

10

B 0.5 Octave

90f

91

20

77k

2

JRC

NRD-515

-138

3.5

4

103

0.1

118

10

C 0.8 Octave

80

95

20

77f

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
-120a
N.A.

123
0.5
N.A.

C Band Pass

95
76
20
76
2

Corrected 4/7/06

Icom

756 Pro III
-132

-140b

-142b1
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

-138b

-141b1
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

-140b
1.0

0.4b
3
145
0.28

0.15b
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

-136ab
0.11
3
123
0.23

0.13b
115
10
D Wideband
80
99
20
75
5

Added 4/7/06

Icom

706MkIIIG
-135

-140b

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

-138b
2.0

0.5b
3

0.5

0.18b
129
10
B 0.5 Octave
90f
94
20
73
2

Updated 4/18/06

Stock 781
-128

-135b
2.4

0.7b
3
131
0.5

0.22b

B 0.5 Octave
90
98
20
78
2

Updated 4/18/06

781 with Pin Diodes
-126

-134b
3.6

1.15b
3
134
0.54

0.21b

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
80f
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
85d
20
72
2

JRC

NRD-525
-132a
0.9
3
123
0.2
120
10
B Trk Presel
65
95
50
72
5

Added 10/3/04

Icom

756 Pro

-127

-136b

-139b1

3.5

1.0b

0.5b1

3
132
0.55

0.21b

0.14b1
127
10
B 0.5 Octave
90
86
20
71
2

Drake

R-8
-128

-131ab
0.6

0.3
3
130
0.25

0.18b
115
10
C 0.5 Octave
75f
90

85b
20
71
5

Icom

IC-R72
-127

-135a
3.1

1.2b
3
129
0.28

0.11b
122
10
C 0.5 Octave
75
87b
20
71
5

Icom

R-9000
-131a
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
80f
95
20
70
2

JRC

NRD-535
-135a
0.9
3
114
0.1
117
10
B Trk Presel
70
92
50
70
5

Kenwood

TS-830S
-136a
0.9
3

122
0.1
113
2
C Preselector
80
84
20
70
3

Icom

IC-761
-131

-139b
2.0

0.7b
3
145
0.4

0.17b
129
10
B- 0.5 Octave
90f
87
20
70
2

Added 4/16/06

Kenwood

TS-870S
-127

-137b
1.9

0.44b
3
137
0.5
121
10
C 0.5 Octave
90f
95
20
69
2

Added 10/3/04

Yaesu FT-1000

MP MKV Field

-133b
3.0b
3
135
0.2b
128
10
B 0.5 Octave
90f
88
20
69
2

Added 10/3/04

Yaesu

FT-1000 D

-128b1
6.0b1
3
>131
0.3b1
121
10
B 0.5 Octave
90f
90
20
69
2

Lowe

HF-150

-126a
0.7
3
126
0.3
113
10
F No Bandpass
75
84
20
69
5

Kenwood

TS-430S

-136a
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

-134b
3.8

1.1b
3
>135
0.48

0.18b
128
10
B 0.5 Octave
90f
97
20
68
2

JRC

NRD-545
-130a
2.0
6
127
0.2
118
10
B 0.5 Octave
65
96
100
68
5

Signal/One

CX-11A
-122a
0.6
17
109
0.6
119
50
C 0.5 Octave

105
90
50
68
5f

Kenwood

TS-180S
-139
0.9
3
115
0.15
120
10
C Preselector
80
70
20
68
3

Drake

TR-4C
-124a
1.2
3
105
0.4
130
10
C Preselector
80
74
20
68
2

Icom

IC-735
-126

-133b
1.5
12
135
0.35

0.18b
123
10
C 0.5 Octave
90f
83
20
68
2

Added 1/21/04

Icom

IC-R75
-123a

-130b
3.5

1.3b
3
119
0.5

0.2b
109
10
B 0.5 Octave
80
95
50
67
5

Drake SW8

-127a

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

-126a

0.8
3
129
0.35
117
10
D Octave
80
71
20
66
5

AOR

AR3030
-131a
2.0
10
130
0.16
117
10
C 0.5 Octave
85
90
20
66
5

Yaesu

FRG-100
-133a
0.9
3
127
0.13
112
10
C 0.5 Octave
70
99
50
65
5

Kenwood

R-5000
-131a
0.4
3
134
0.2
120
10
C 0.5 Octave
80f
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
-130a
1.3
3
123
0.2
100
10
D Octave
65
83
50
64f
5c

Kenwood

R-1000
-130a
0.9
3
119
0.2
107
10
D Octave
70
76
20
64f
3c

Heath

SB-303
-134
N.A.

104
0.5
N.A.

C Preselector

70
66
20
64
4

Collins

KWM-380

-127a

1.1

5

123

0.3

99

10

B 0.5 Octave

70f

94

50

64f

2

Icom

IC-751

-127

-133b

6.3

3

138

0.4

0.2b

127

10

B- 0.5 Octave

90f

84

20

64

2

Added 3/27/06

Icom 7000

-129

-139b

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

-132b

-140b1

5

1.3b

0.5b1

3

120

1.0

0.3b

0.14b1

122

10

B+ Bandpass

+ Trk

80f

81n

9 0o

20

63n

61o

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

80f

91

50

63f

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
62f
96
50
63
2

Icom

IC-R70/R-71A
-129

-135b
3.1

1.4b
3
132
0.4

0.2b
128
10
B- 0.5 Octave
90f
86
20
62
3

Grundig Satellite 700

-127a
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
84e
100
60
5

Icom

R-8500
-135a
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

-134b
1.6
3
130
0.7

0.15b
109
10
C 0.5 Octave
70f
86
20
56
3

Ten-Tec

340
-123

-133ab
0.5

0.13
3
109
0.4

0.14
113
10
B 0.5 Octave
70
93
100
46
5

Kenwood

R-2000
-130a
1.4
3
115
0.15
105
10
D Octave

70
71
20
45
5

Kenwood

R-600
-130a
0.8
3
109
0.2
99
10
D Octave
65
68
20
F.L..
5

Yaesu

FRG-8800
-132a
0.6
3
122
0.18
N.A.

D Octave

70
87
20
F.L..
5

AOR

5000
-124
-130ab
0.9

1.8
3
118
0.2

0.35
103
10
B 0.5 Octave

60
58
50
f
5

Device

Under Test
Noise

Floor

(dBm)
AGC

Thrshld

(uV)

dB
100kHz

Blocking

(dB)

Sensitivity

(uV)
LO Noise

Spacing

(dBc)

kHz
Front End

Selectivity
Filter

Ultimate

(dB)
Dynamic Range

Wide Spaced

(dB)

kHz
Dynamic Range

Narrow Spaced

(dB)

kHz

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

i

At 1 kHz dynamic also 95 dB but with 300 Hz roofing filter enabled

b

Built-in Preamp actuated

j

At 1 kHz, noise limited to 68 dB

b1

Built-in Preamp 2 actuated

k

At 1 kHz dynamic range was 66 dB

c

Readings would have been lower if 2-kHz spacing had been possible

l

(lowercase L) Reserved

d

Dynamic Range is 90-dB at 100-kHz spacing

m

Receiver was optimized by Malcom Technical Support for best dynamic range

e

20-kHz Dynamic Range is 66-dB

n

Measured with 3 kHz roofing filter

f

Measurement was Phase-Noise Limited

o

Measured with 6 kHz roofing filter

g
Audio DSP Enabled
p
with 200 Hz 5-pole filter

h
AGC Off

Original and data's from: