

Summary of Data from QST Reviews of Amateur HF Transceivers

Note!: There is typically a variation of several dB between any two units of the same model number for each test parameter. Keep this in mind when comparing test results of similar radios. Also note that some of this data does not warrant direct comparison (Example: radios that do not have a preamplifier can't be fairly compared to those that do when the preamp is on for those tests. Another example: transmit spurious and transmit IMD as listed in this table are worst case for all radios. A radio with a fair worst case can be worse on other bands than a radio with a poor worst case). Whenever possible, obtain expanded reports for those radios under consideration so that a full set of data can be compared. Note that the 1997 ARRL Periodicals CD-ROM contains a copy (in Adobe PDF form) of all of the expanded test result reports for 1996 and 1997. Also note that 1996 was the first year expanded test result reports were available.

Updated August 24, 1998

Manufacturer Model	Bands (160/80/40/30/20/17/15/12/10 standard)	Typical Output Power (Watts)	Worst Case Xmit Spurious (dBc)	Worst Case Xmit IMD 3rd/5th (dB PEP)	
Date of QST Product Review	Modes (CW/SSB standard)	MDS 80M/20M 6M/2M (dBm)	BDR 80M/20M 6M/2M (dB)	IMDDR 80M/20M 6M/2M (dB)	Notes
Alinco					
DX-70T	+6 M	100 (10 on 6M)	-56	29/51	
12/95	AM,FM	-138/-136 -140	129*/126* 125*	90/92 86	4
DX-77T		100	-52	30/41	
6/98	AM,FM, WBFM	-140/-136	110*/112*	93*/95*	4
Atlas					
350XL	--	--	--	--	99
--	--	-131	117	81	
210/215X	--	--	--	--	99
--	--	-120	123	76	
Collins					
KWM-380		100	-59	33/40	
10/82	AM	-131/-131	nl/nl ₁	nl/nl ₁	
Cubic					
Ast102		100	-49	28/39	
12/81		-125/-129	nl ₁ /nl ₁	90/84	

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Drake					
TR-4C	--	--	--	--	99
--	--	-124	105	74	
TR-7	-WARC	100	-46	32/36	
5/79	AM	-133/-133	120/120	84/90	
Heathkit					
HW-5400	-160	100	-48	30/31	
10/84		-135/-133	110/112	82/90	
HW-9	-160,- WARC	5	-42	n/a	
7/85	CW only	-130/-128	124/122	98/88	
HW-99	-160,-20, -WARC	50	n/a	n/a	3
3/86	CW only	-124/-116	117/112	91/87	
HW-104		100	n/a	40/	
12/76		-125	94	71	
SB-104	--	--	--	--	99
--	--	-123	92	79	
SB-1400		100	-53	30/44	
10/89	AM	-136/-136	113/113	nl/nl	
SS-9000		100	-55	29/44	
2/84		-138/-140	119/118	90/92	
ICOM					
IC-701	-WARC	100	-45	45/49	
4/79		-133/-133	nl/nl ₁	89/87	
IC-706	+6M, +2M	100 HF,6M; 10 2M	-50	33/31 HF 25/33 VHF	
3/96	AM,FM, WBFM	-140/-139 -139/-143	106*/104* 103*/99*	88*/87* 86*/84*	4
IC-706 MKii	+6M, +2M	100 HF,6M; 20, 2M	-42	26/42 HF 29/40 VHF	
1/98	AM, FM, WBFM	-140/-141 -141,-143	110*/109* 105*/102*	86*/87* 84*/81*	4
IC-707		100	-55	28/36	
4/94	AM,FM	-138/-138	115*/128*	93/87	4
IC-720A		100	-58	28/52	
8/82	AM	-132/-132	nl/nl ₁	97/92	

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Date of QST Product Review	Modes (CW/SSB standard)	MDS 80M/20M 6M/2M (dBm)	BDR 80M/20M 6M/2M (dB)	IMDDR 80M/20M 6M/2M (dB)	Notes
ICOM cont					
IC-725		100	-56	35/38	
3/90		-138/-138	nl/nl ₁	92/91	4
IC-728		100	-50	39/40	
2/93	FM	-137/-137	116*/123*	91/92	4
IC-729	+6M	100	n/a	48/44	12
2/93	FM	-141	111*	85	4, 12
IC-730	-160	100	-50	40/46	
12/82	AM	-140/-140	nl/nl ₁	nl ₁ /96	
IC-735		100	-65	33/39	
1/86	AM,FM	-134/-133	nl/nl ₁	92/88	4
IC-736	+6 M	100	-49	24/37	12
4/95	AM,FM	-139/-139 -142/	118*/130* 111*/	92/92 82/	4
IC-737		100	-58	39/48	
8/93	AM,FM	-139/-137	118/118	94/95	4
IC-738		100	-53	40/40	
4/95	AM,FM	-138/-139	116*/119*	93/94	4
IC-740		100	-63	30/40	5
9/83		-141/n/a	125/n/a	94/n/a	4
IC-745		100	-65	34/40	
9/85	AM,FM	-140/-144	115/116	92/94	4
IC-746	+6M, +2M	100	-58	23/37 HF 22/36 VHF	
9/98	AM,FM, FSK	-143/-143 -141/-139	115/113 116/116	96/92 96/93	4
IC-751		100	-60	36/44	
1/85	AM,FM	-142/-138	nl/nl ₁	91/93	4
IC-756	+6M	100	-55	24/34 HF 37/33 VHF	
5/97	AM, FM	-139/-142 -141/	132/128 118*/	101/100 94/	4
IC-761		100	-56	38/45	
9/88	AM,FM	-140/-139	120/122	95/96	4
IC-765		100	-64	40/44	
12/90	AM,FM	-142/-142	148/146	98/96	4

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Date of QST Product Review	Modes (CW/SSB standard)	MDS 80M/20M 6M/2M (dBm)	BDR 80M/20M 6M/2M (dB)	IMDDR 80M/20M 6M/2M (dB)	Notes
ICOM					
IC-775DSP		200	-60	30/45	
1/96	AM,FM, RTTY	-143/-143	135/132	104/103	4
IC-781		150	-63	37/39	
1/90	AM,FM	-137/-134	133/133	97/100	4
Index					
QRP-Plus		5	-31	25/38	
9/96		-132/	111*/111*	96*/93*	
JRC					
JST-135HP		150	-63	30/43	
3/92	AM,FM	-132/-132	121*/117*	95/91*	
JST-245	+6 M	150	-58	39/56 HF 31/48 VHF	
9/95	AM,FM	-138/-138 -140/	123*/126* 118*/	92/95 87/	4
Kachina					
505DSP		100	-53	36/44	
6/98	AM	-140/-142	100/103	94/97	4
Kenwood					
TS-120S	-160, -WARC	100	-49	39/40	6
2/80		-139	108	75	5
TS-130S	-160	100	-45	38/39	
7/81		-138/-138	109/110	79/78	
TS-140S		100	-46	30/42	
6/88	AM,FM	-137/-137	115/114	92/91	4, 7
TS-180S		100	-50	40/42	
5/80		-139/-139	112/114	82/83	
TS-430S		100	-51	31/34	
3/84	AM	-138/-137	nl/nl ₁	95/89	
TS-440S		100	-43	28/46	
12/86	AM,FM	-140/-139	112/111	89/89	

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Kenwood					
TS-450S		100	-50	35/49	
4/92	AM,FM	-140/-141	109/108	70/71	4
TS-50S		100	-50	30/42	
9/93	AM,FM	-139/-139	110/109	86/88	4
TS-520S	-WARC	100	-48	36/47	8
5/78		n/a /-133	n/a /104	n/a /69	
TS-530S		100	-42	28/40	
3/82		-135/-136	112/120	88/90	
TS-570D		100	-58	28/42	
1/97	AM,FM, FSK	-140/-139	119*/115*	99/98*	
TS-680S	+6M	100 HF 10 VHF	-45	32/43 HF 29/44 VHF	
10/88	AM,FM	-140/-140 -142/	108/107 103/	92/95 88	4
TS-690S	+6M	100	-50	32/38 (6M)	
4/92	AM,FM	-133/-138 -139/	112/116 109/	72*/74 77/	4
TS-820	-WARC	100	-45	39/45	8
9/76		n/a /-136	n/a /114	n/a /85	4
TS-830S		100	-45	32/50	
5/81		-136/-136	129/nl ₁	83/82	
TS-850S		100	-64	28/40	
7/91	AM,FM	-143/-141	141/148	100/99	
TS-870S		100	-60	32/47	
2/96	AM,FM	-141/-139	124/123	95/95	4
TS-930S		100	-50	35/42	
1/84	AM	-139/-139	nl/nl ₁	88/87	
TS-940S		120	-54	37/43	
2/86	AM,FM	-140/-139	141/138	93/97	
TS-950SD		150	-55	42/46	
1/91	AM,FM	-143/-142	139/139	99/101	
TS-950SDX		150	-40	35/41	
12/92	AM,FM	-139/-138	132/132	93/94	4

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MFJ					
MFJ-9017	17M only	4	n/a	n/a	
7/93	CW only	-130	101	80	
Oak Hills Research					
QRP-40	40 M only	3	-39	n/a	
5/92	CW only	-129	108	83	
Patcomm					
PC-16000		100	-43	25/33	
2/98	AM	-123/-128	96*/103*	79*/86*	
Radio Shack					
HTX-100	10 M only	25	-53	30/44	
2/92	CW, USB only	-136	98	75	
Ranger					
RCI-2950	10 M only	25	-47	21/37	
2/92	AM,FM	-130	80	62	
S&S Engineering					
ARK-40	40 M only	5	-41	n/a	
5/94	CW only	-127	95*	94	
Swan					
Astro-150	-160, -WARC	100	-44	29/39	
7/80		-127/-131	114/118	84/86	
Ten Tec					
Argonaut II		5	-53	30/36	
1/92	FM, AM	-139/-137	109/120	82/84	
Argosy	-160,-17,-12	50	-48	31/46	
10/82		-133/-133	99/98	64/64	
Century 22	-160,-17,-12	20	-46	n/a	
5/85	CW only	-131/-128	112/109	82/81	
Corsair	--	--	--	--	99
--	--	-131	130	93	

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Ten Tec					
Corsair II		100	-45	29/48	10
8/87		-127/-124	117/ n/a	84/80	
Delta II		100	-47	33/44	
1/92	FM,AM	-134/-130	109*/104	98/88	
OMNI B	--	--	--	--	99
--	--	-136	129	87	
OMNI D	-17/-12	100	-48	30/36	
1/80		-128/-139	115/125	94/90	
OMNI V		95	-48	30/45	
11/90		-135/-136	135/135	95/97	
OMNI VI		100	-41	39/39	
1/92	FM,FSK	-134/-136	124*/128*	95/100	
OMNI VI Plus		100	-43	26/43	
11/97	FM,FSK	-135/-133	123*/123*	98/97	
Paragon		100	-56	33/49	
5/88	AM	-140/-137	138/136	102/101	
Scout	Note 13	50	-43	25/35	
12/93		-129/-125	119/119	86/87	
Yaesu					
FT-1000D		200	-45	36/42	
3/91	AM,FM	-136/-136	137/154	94/98	4
FT-1000MP		100	-55	27/45	14
4/96	AM,FM	-130/-135	139/137	91/94	4
FT-101ZD	-WARC	100	-45	38/47	8
12/79		n/a /-139	n/a /112	n/a /78	
FT-101E	-WARC	100	n/a	35/33	8
9/76		n/a /-141	n/a /108	n/a /81	
FT-102		100	-44	40/40	
10/83		-127/-127	nl/nl ₁	97/98	
FT-107M		100	-47	32/41	
4/81	AM	-133/-133	nl/nl ₁	82/90	
FT-301S/D	-WARC	100	-55	40/46	5
10/77	AM	-133	100	75	

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Yaesu					
FT-600		100	-53	28/44	
2/97	AM,FSK	-137/-139	109*/112*	90*/95	4
FT-650	6M, 10M, 12M only	100	-46	31/42 VHF	
10/91	AM,FM	-138/-139 -139	114 10M 104 VHF	82 10M 82 VHF	4
FT-707	-160	120	-49	34/44	
7/81	AM	-126/-127	nl/nl ₁	77/83	
FT-747GX		100	-54	32/45	
8/89	AM	-136/-136	110/120	90/92	
FT-757GX		100	-58	34/45	
12/84	AM,FM	-140/-137	nl/nl ₁	90/89	4
FT-767GX		100	-56	40/45	
9/87	AM,FM	-131/-136	117/115	92/85	4
FT-77	-160	100	-54	35/44	
11/83	AM,FM	-140/-140	99/99	92/94	
FT-840		100	-50	28/49	
5/94	AM,FM	-137/-138	108*/113*	90/90	
FT-847	+6M, 2M, 70CM	100 HF, 6M 50 2M, 440	-50	28/51 HF 28/46 UHF	
7/98	AM,FM	-137/-136 -140/-142 -141 (440)	109/109* 112*/96^ 98* (440)	90/89 90/94 83 (UHF)	4
FT-890		100	-50	30/46	4
9/92	AM,FM	-138-137	127*/127*	93/96	
FT-900AT		100	-46	35/43	
2/95	AM,FM	-138/-137	120*/124*	91/99	4
FT-901DM	-WARC	100	-46	38/43	
11/78	AM,FM	-137/-137	114/118	85/90	
FT-920	+6M	100	-53	25/31	
10/97	AM,FM	-139/-138 -137	129/129 120	96/97 99	4
FT-980		100	-56	37/45	
11/84	AM,FM	-137/-138	nl/nl ₁	nl/nl ₁	
FT-990		100	-49	38/47	
11/91	AM,FM	-133/-129	130*/131*	94/92	
FT-ONE		100	-53	38/40	
8/83	AM	-133/-138	nl/nl ₁	nl/nl ₁	

Legend:

- * indicates that the measurement was noise limited at the value shown.
- nl indicates that the measurement was noise limited. The level at which it was noise limited is not known.
- indicates that data are not available.

Notes:

1. The test was noise limited. Test records do not indicate at what level the noise limiting occurred.
2. The test was noise limited at the value shown. This is the level of dynamic range at which the noise increased by 1 dB.
3. This unit was tested on 15M instead of 20M.
4. Test data was taken with the preamplifier on. For Kenwood rigs with the AIP feature, this is equivalent to AIP off.
5. Test frequencies are unknown.
6. Not tested on 20M.
7. IMD DR measured at 30 kHz spacing.
8. Not tested on 80M.
9. Also has 6 meter coverage.
10. BDR not performed on 20 M.
11. AM receive only
12. Measured on 6M only.
13. All HF bands available with optional plug-in modules.
14. Transmit IMD data taken on 24.950 MHz
99. Measured by outside laboratory.

Since most HF equipment covers all HF bands, only exceptions are noted. A – sign indicates that a band is not present. –WARC indicates that 30M,17M and 12M are not present. A + sign indicated that the radio has an additional band. CW, USB and LSB are assumed for modes. If any additional modes are available, they are indicated.