Please check pa0q.nl for the summary of HF-Transceivers or Receivers

QST Magazine Product Reviews - Key Measurements Summary - HF Power Amplifiers (page 1/3)

	Subject of measurement, HF	Driving Power, typical	Output Power	Spurious and harmonic suppression 3rd harmonic worst case	Transmit 3rd-order IMD (dBc, * means dB PEP)	Transmit 5th-order IMD (dBc, * means dB PEP)	Transmit 7th-order IMD (dBc, * means dB PEP)	Transmit 9th-order IMD (dBc, * means dB PEP)	TR switching time key to RF (key-to-unkey)	TR switching time un-key to power off (unkey-to-key)	Weight
HF Power Amplifiers sorted by 3rd-order IMD and if equal by 9th-order IMD											
1	**Alpha 8100, April 2007**	50-55 W	1500 W	-55 dBc	**-52 dB**	-48 dB	-53 dB	-61 dB	N/M	N/M	**31.3 kg**
2	**Ameritron AL-800H, September 1997**	41-61 W	1500 W	-50 dBc	**-49 dB**	-55 dB	N/M	N/M	N/M	N/M	**23.6 kg**
3	**AlphaPower 91b, September 1997**	45-80 W	1500 W	-52 dBc	**-45 dB**	-49 dB	N/M	N/M	N/M	N/M	**29.9 kg**
4	**Acom 1000, November 2002**	70 W	1000 W	-53 dBc	**-44 dB**	-55 dB	N/M	N/M	N/M	N/M	**22 kg**
5	**OM Power OM2500A, November 2014**	48-60 W	1500 W	-49 dBc	**-43 dB**	-44 dB	>-60 dB	-56 dB	10 ms	10 ms	**41.7 kg**
6	**QRO Technologies HF-2500DX, September 1997**	40-80 W	1500 W	-46 dBc	**-43 dB**	-40 dB	N/M	N/M	N/M	N/M	**40,8 kg**
7	**SPE Expert 1K-FA, September 2009**	28-32 W	900 W	-51 dBc	**-42 dB**	-43 dB	-49 dB	-56 dB	N/M	N/M	**20 kg**
8	**Acom 600S, August 2015**	22-28 W	600 W	>-60 dBc	**-42 dB**	-39 dB	-49 dB	-55 dB	12 ms	23 ms	**12 kg**
9	**Acom 500S, April 2024**	45 W	500 W	-58 dBc	**-41 dB ***	-45 dB *	-68 dB *	-64 dB *	28 ms	13.5 ms	**7.8 kg**
10	**Acom 1200S, July 2020**	49 W	1000 W	>-60 dBc	**-40 dB ***	-39 dB *	-53 dB *	-70 dB *	20 ms	15.2 ms	**14.5 kg**
11	**RM Italy HLA305V, April 2016**	3.3-14.4 W	200 W ***	-57/-70 dBc	**-40 dB *****	-40 dB	-50 dB	-63 dB	3 ms	4 ms	**4.4 kg**
12	**Elecraft KPA500, February 2012**	30-40 W	500 W	-51 dBc	**-40 dB ***	-59 dB *	-52 dB *	-60 dB *	N/M	N/M	**11.8 kg**
13	**FlexRadio Power Genius XL, January 2021**	46 W	1500 W @	-67 dBc	**-40 dB ***	-43 dB *	-53 dB *	-62 dB *	17 ms	13 ms	**18 kg**
14	**RF-KIT RF2K-S, November 2022**	50 W	1500 W @	-57/-62 dBc	**-39 dB ***	-47 dB *	-52 dB *	-62 dB *	3.8 ms	1.9 ms	**15.9 kg**
15	**Acom 1500, June 2013**	53-73 W	1500 W @	>-50 dBc	**-39 dB ***	-45 dB *	-56 dB *	-61 dB *	N/M	N/M	**26.5 kg**
16	**Ten-Tec Centaur Model 411, June 1997**	90-100 W	600 W	-48 dBc	**-39 dB**	-45 dB	N/M	N/M	N/M	N/M	**18 kg**
17	**Palstar LA-1K, firmware v1.02B, November 2018**	45-55 W	1000 W	-57 dBc	**-38 dB ***	-45 dB *	-54 dB *	-66 dB *	25 ms	24 ms	**12.25 kg**
18	**SPE Expert 2K-FA, November 2013**	36-48 W	1500 W	-49 dBc	**-38 dB ***	-45 dB *	-55 dB *	-66 dB *	7 ms	17 ms	**25 kg**
19	**Elecraft KXPA100, October 2014**	4-6 W	100 W	-42/-65 dBc	**-38 dB**	-34 dB	-42 dB	-52 dB	3 ms	8 ms	**2.4 kg**
20	**Ameritron ALS-1300, September 2011**	65-100 W	1200 W @	-49 dBc	**-38 dB**	-43 dB	-54 dB	-49 dB	N/M	N/M	**6.8 kg**
21	**Hardrock 50, December 2014**	2,4-5 W	50 W	-48 dBc	**-38 dB**	-33 dB	-38 dB	-46 dB	3.2 ms	3.8 ms	**1.4 kg**

QST Magazine Product Reviews - Key Measurements Summary - HF Power Amplifiers (page 2/3)

	Subject of measurement, HF	Driving Power, typical	Output Power	Spurious and harmonic suppression 3rd harmonic worst case	Transmit 3rd-order IMD (dBc, * means dB PEP)	Transmit 5th-order IMD (dBc, * means dB PEP)	Transmit 7th-order IMD (dBc, * means dB PEP)	Transmit 9th-order IMD (dBc, * means dB PEP)	TR switching time key to RF (key-to-unkey)	TR switching time un-key to power off (unkey-to-key)	Weight	
HF Power Amplifiers sorted by 3rd-order IMD and if equal by 9th-order IMD												
22	**Acom 1010, December 2006**	60 W	500 W	-53 dBc	**-37 dB**	-53 dB	-56 dB	-62 dB	N/M	N/M	**18 kg**	
23	**Ten-Tec 418, February 2013**	1-20 W	100 W	-52 dBc	**-37 dB**	-38 dB	-47 dB	-57 dB	N/M	N/M	**2.5 kg**	
24	**Ameritron ALS-1306, January 2016**	60-100 W	1100 W	-60 dBc	**-37 dB**	-40 dB	-54 dB	-56 dB	12 ms	29 ms	**5.4 kg**	
25	**SPE Expert 1.3K-FA, July 2016**	25-35 W	1300 W	>-60 dBc	**-37 dB ***	-44 dB *	- 63 dB *	-61 dB *	13 ms	5 ms	**9.5 kg**	
26	**Ameritron ALS-600, August 2001**	100 W	400 W	-49 dBc	**-37 dB**	-40 dB	N/M	N/M	N/M	N/M	**22 kg**	
27	**Acom 2000A, May 2000**	50-60 W	1500 W	-50 dBc	**-37 dB**	-60 dB	N/M	N/M	N/M	N/M	**35.8 kg**	
28	**Emtron DX-1d, December 2004**	40-60 W	750 W	-45 dBc	**-37 dB**	-46 dB	N/M	N/M	N/M	N/M	**20 kg**	
29	**Tokyo Hy-Power HL-1.2KFX, June 2008**	75-95 W	630 W	-55 dBc	**-36 dB**	-39 dB	-50 dB	-68 dB	N/M	N/M	**15 kg**	
30	**RM Italy BLA600, February 2019**	25-40 W	480 W	-56 dBc	**-36 dB ***	-42 dB *	-59 dB *	-65 dB *	4 ms	3 ms	**21.5 kg**	
31	**Elecraft KXPA1500, March 2019**	38-45 W	1500 W	-62 dBc	**-36 dB ***	-46 dB *	-54 dB *	-64 dB *	4.4 ms	6 ms	**10 & 7.7 kg**	
32	**Tokyo Hy-Power HL-550KFX, March 2013**	50-80 W	550 W	-55 dBc	**-36 dB ***	-49 dB *	-56 dB *	-63 dB *	N/M	N/M	**9.5 kg**	
33	**Tokyo Hy-Power HL-1.5KFX, September 2007**	85 W	900 W	-52 dBc	**-36 dB**	-39 dB	-50 dB	-57 dB	N/M	N/M	**20.6 kg**	
34	**SPE Expert 1.5K-FA, November 2019**	37-54 W	1500 W	-57 dB	**-36 dB ***	-44 dB *	-48 dB *	-59 dB *	12 ms	10 ms	**10 kg**	
35	**Icom IC-PW1, February 2001**	40 W	1000 W @	-60 dBc	**-36 dB**	-41 dB	N/M	N/M	N/M	N/M	**25 kg**	
NEW	36 **Icom IC-PW2, May 2026**	60 W	1000 W	>-70 dBc	**-32 dB ***	-49 dB *	-46 dB *	-52 dB *	2,5 ms	9,5 ms	**22 kg**	**NEW**
37	**Yaesu VL-1000, January 2002**	40 W	1000 W @	-60 dBc	**-32 dB**	-44 dB	N/M	N/M	N/M	N/M	**35.4 kg**	
38	**Ameritron ALS-600, March 2005**	100 W	400 W	-49 dBc	**-30 dB**	-40 dB	N/M	N/M	N/M	N/M	**10.2 kg**	
39	**Ten-Tec Titan III, March 2004**	75 W	1500 W	-43 dBc	**-30 dB**	-37 dB	N/M	N/M	N/M	N/M	**38.1 kg**	
40	**TenTec Titan II, September 2001**	60 W	1500 W	-43 dBc	**-29 dB**	-31 dB	N/M	N/M	N/M	N/M	**38.1 kg**	
41	**SGC SG-500, February 2006**	50 W	500 W	-49 dBc	**-28 dB**	-48 dB	-49 dB	-53 dB	N/M	N/M	**9.5 kg**	
42	**Xiegu XPA125B, February 2023**	5 W	100 W	>-61 dBc	**- 26 dB ***	- 35 dB *	-54 dB *	-54 dB *	**31 ms**	**30 ms**	**2,7 kg**	

Notes, Version and Disclaimer (page 3/3)

*** = 6 dB added, because of the PEP as the reference for the carrier level in third-order IMD performance over the industry (dB PEP otherwise dBc)**
**** = Below/above measurable levels**
***** = Stick with the low power (200 W) setting for the cleanest signal. On HI setting (250 W) 3rd-order IMD = -29 dB**
@ = PEP
N/A = Not applicable
N/M = Not measured

Please take into account that there might be a difference in the numbers when comparing the older product reviews compared to the later product reviews, due to changes in the testing methodology, measurements filters, etcetera.

Dark green = awesome
Green = excellent
Light green = good
Yellow = average
Orange = moderate
Red = poor
Dark red = bad

Transmit 3rd and 9th order IMD:
All measurements in dB are below PEP output, except note *.
Transmit two-tone intermodulation distortion, or two-tone IMD, is a measure of spurious output close to the desired audio of a transmitter being operated in SSB mode. This spurious output is often created in the audio stages of a transceiver, but any amplification stage can contribute!
If you have ever heard someone causing "splatter", the noisy audio that extends beyond a normal 3 kHz nominal SSB bandwidth, then you have heard the effects of transmit IMD.
Frequencies close to the transmit signal are affected the most, but depending on the amount of IMD, large portions of the band can suffer from one poor transmitter!

Understanding Third Order Intercept: Test & Measurement Fundamentals by Rohde Schwarz
This video provides a general technical introduction to the concept of third order intercept: https://youtu.be/m-2H8ddSwTI

For more information (including what the numbers really mean) please read ARRL's QST Magazine August 2004 and January 2006 very interesting articles, and the ARRL Lab Test Procedures Manual, available at the ARRL website www.arrl.org.

Version August 11, 2026
Please send me an e-mail (to hans@pa0q.nl) if you have corrections, remarks, etc. Thank you!

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