

TEST REPORT
LINEAR POWER AMPLIFIER EMTRON DX-2
MANUFACTURER: Emona Electronics
MODEL: DX-2

UNIT TESTED: Serial Number 10340

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A. Equipment used

1. Spectrum Analyser LG Model SA-9270A
2. Spectrum Analyser Model HP141T + HP8552B + HP 8553B
3. RF Power Meter Coaxial Dynamics Model 83000-A
4. RF Power Meter EINS Model PHP-101
5. RF Power Meter EINS Model PHP-101
6. Dummy Load with 30dB built-in attenuator
7. Attenuator GW Model GAT-669
8. Attenuator Lark Engineering Co. Inc. Model FSC 33174
9. Transceiver Kenwood Model TS-680S
10. Transceiver JRC Model JST-100
11. Transceiver ICOM Model IC706
12. Two-Tone Generator (built in-house)
13. Audio Generator GW Model GAG-808G
14. Audio Generator GW Model GAG-809/810
15. Oscilloscope Tektronix Model TDS 220

B. Test Results

1. Maximum RF output, Maximum Input power, Maximum Gain

BAND:	160m	80m	40m		20m	17m	15m
Input Drive [W]	57	53	52		50	52	49
Output Power [W]	1500	1500	1500		1500	1500	1550
Gain	26.3	28.3	28.8		30	28.8	33.7
Gain [dB]	14.2	14.5	14.6		14.8	14.6	15.0

Summary:

Maximum RF output: 1500 – 1550 W, depending on the band

Minimum input drive for 1500 W output: 50 – 58 W, depending on the band

Maximum gain: 14.1 – 14.8 dB (<15dB)

On 15m the gain is 15.0 dB, but the input drive is 1 W under the 50 W limit.

2. Operation between 26 MHz – 35 MHz

Conditions of measurement: 17m band, “PLATE” and “LOAD” capacitors completely open
Input: 50 W

24 MHz operation: Input 50 W, Output 47 W (Gain <0 dB)

26 MHz operation: Input 50 W, Output 46 W (Gain <0 dB)

27 MHz operation: Input 50 W, Output 46 W (Gain <0 dB)

28 MHz operation: Input 50 W, Output 47 W (Gain <0 dB)

30 MHz operation: Input 50 W, Output 43 W (Gain <0 dB)

3. Spurious emissions: Inter-Modulation Distortion (IMD)

The IMD at the output of the transceiver only (the linear amplifier bypassed) was 28 – 33 dB below the carrier, depending on which transceiver was used.

Adding the linear amplifier, no degradation in the IMD readings was noticed at output powers of 1500 W. However, we could not measure the IMD introduced by the amplifier only, due to the lack of performance of the rest of the equipment used (transceivers, audio generators).

4. Spurious emissions: Harmonics

HARMONICS: relative and absolute levels

BAND	160m	80m	40m	30m	20m	17m	15m
fo [MHz]	1.85	3.6	7.07		14.2	18.1	21.2
A0 [dBm]	-2.82	-2.94	-2.80		-2.74	-2.65	-2.93
ΔA1 [dB]	-52.11	-47.28	-58.44		-55.50	-59.53	-45.56
ΔA2 [dB]					-54.47	-56.34	
ΔA3 [dB]						-57.23	
NOTE: Values ΔA1 to ΔA4 are readings below the carrier A0 level							
A1 [mW]	9.2	28	2.1		4.2	1.7	42
A2 [mW]					5.3	3.5	
A3 [mW]						2.8	

NOTE: See Spectrum Analyser screen pictures, next pages.







