

TEST REPORT
LINEAR POWER AMPLIFIER EMTRON DX-1d
MANUFACTURER: Emona Electronics
MODEL: DX-1d
UNIT TESTED: Serial Number 10326
TEST PERFORMED BY: Rudolf Breznik, Dan Voican
DATE: March - April 2003

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	30m	20m	17m	15m
Input Drive [W]	57	56	54	54	53	50	54
Output Power [W]	750	750	750	750	750	750	750
Gain	13.16	13.4	13.9	13.9	14.15	15	13.9
Gain [dB]	11.2	11.3	11.4	11.4	11.5	11.8	11.4

Summary:

Maximum RF output: 750 – 900 W, depending on the band (Nominal 750 W)

Minimum input drive for 750 W output: 50 - 57 W, depending on the band

Maximum gain: 11.8 dB (<15dB)

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 100 W (Gain 3 dB <6 dB)

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

27 MHz operation: Input 50 W, Output 20 W (Gain <0 dB)

28 MHz operation: Input 50 W, Output 10 W (Gain <0 dB)

30 MHz operation: Input 50 W, Output 5 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 900 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	10.125	14.2	18.1	21.2
A0 [dBm]	-5.80	-6.72	-6.16	-6.27	-6.38	-6.66	-6.80
$\Delta A1$ [dB]	-49.33	-49.28	-49.69	-51.53	-52.67	-48.36	-54.64
$\Delta A2$ [dB]							-60.95
$\Delta A3$ [dB]							-53.19
NOTE: Values $\Delta A1$ to $\Delta A4$ are dB readings below the carrier A0 level							
A1 [mW]	8.75	8.85	8.05	5.27	4.05	10.9	2.58
A2 [mW]							0.6
A3 [mW]							3.6

NOTE: See Spectrum Analyser screen pictures, next pages.









