



EMI/EMC CENTRE

NO.RCI/EMI/EMC/725/1661
DATE : 15-04-2003

TEST REPORT

EMI/EMC PERFORMANCE EVALUATION OF 2.0KVA RUGGED INVERTER
SL.NO. 200304001, DEVELOPED AND FABRICATED BY M/s ENERTECH UPS
LTD, PUNE, FOR PROJECT PJ-10

TEST ENGINEERS

EMI/EMC TEAM

DEVENDER

SHANTA SARVADE

D RAMESH

R. RAJYALAKSHMI

REPS. OF WORKCENTRE

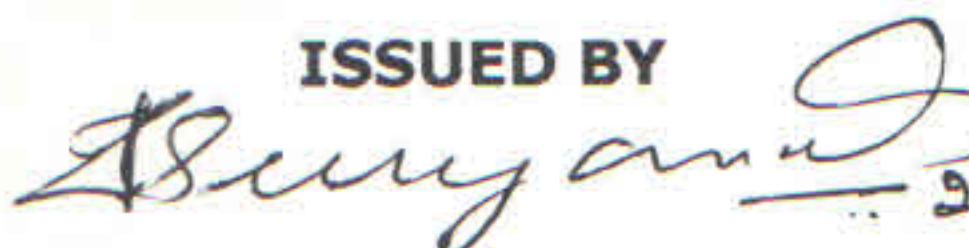
M.A. SAJJAN

MILIND PARATE

SRINIVASULU

} ENERTECH

ISSUED BY

 31.4.03

(K.SURYANARAYANA, Sc. 'E')
MANAGER, EMI/EMC CENTRE

JOB WORK UNDERTAKEN FOR
PROJECT PJ-10

RESEARCH CENTRE IMARAT

DEFENCE RESEARCH & DEVELOPMENT ORGANISATION

GOVERNMENT OF INDIA, MINISTRY OF DEFENCE

HYDERABAD - 500 069

TELEPHONE:040 - 24306240 FAX: 040 - 24306240, 24306117

INTRODUCTION:

The rugged Inverter will be used for ON board Helicopter. The load will be 2 KVA at output with 230V AC/50 Hz. Electronic equipment's like Telemetry receiver, DCM Data handling system, GP receiver and Industrial computers will be connected. Block diagram is shown in fig.1.

Input Specifications:

Input voltage	:	28V DC
Current No Load	:	30 Amp at 28V DC
Current full load	:	79 Amp at 28V DC / 1400W load
Efficiency	:	90% typical at 28V DC / 1400V load
Soft Start	:	10 seconds

Output Specifications:

Voltage	:	230V AC, single phase, adjustable internally
Regulation	:	$\pm 1\%$
Distortion	:	5% at unity power factor
Load	:	1400W / 1200V A at 0.7 lag
Overload	:	1540 / 2200V A for 10 seconds
Crest Factor	:	2.5 Max

The above unit has been brought to EMI/EMC Centre for EMI/EMC performance evaluation for the following tests.

(i) RE02 & (ii) CE03

EUT met all the test requirements and passed in all the above tests.

4

TEST RESULTS OF 2.0KVA RUGGED INVERTER SL.NO.200304001

S.NO.	DESCRIPTION	TEST RESULTS	REMARKS
01.	RADIATED EMISSION (RE02) TEST: The test was carried out on the EUT keeping Antennas at 1m distance in the frequency range of 14 KHz to 18 GHz for both Narrowband and Broadband emissions. Test configuration is shown in fig.2.	Narrowband and Broadband emissions were within the spec. limit as shown in figs. 3 & 4.	EUT PASSED
02.	CONDUCTED EMISSION (CE03) TEST: The test was carried out on EUT's 230V AC live line in the frequency range of 15 KHz to 50 MHz for both NB & BB emissions. Test configuration is shown in fig.5. (NOTE: Neutral line was grounded and hence test was not carried out).	Narrowband and Broadband emissions were within the spec. limit as shown in figs. 6 & 7.	EUT PASSED

BLOCK DIAGRAM

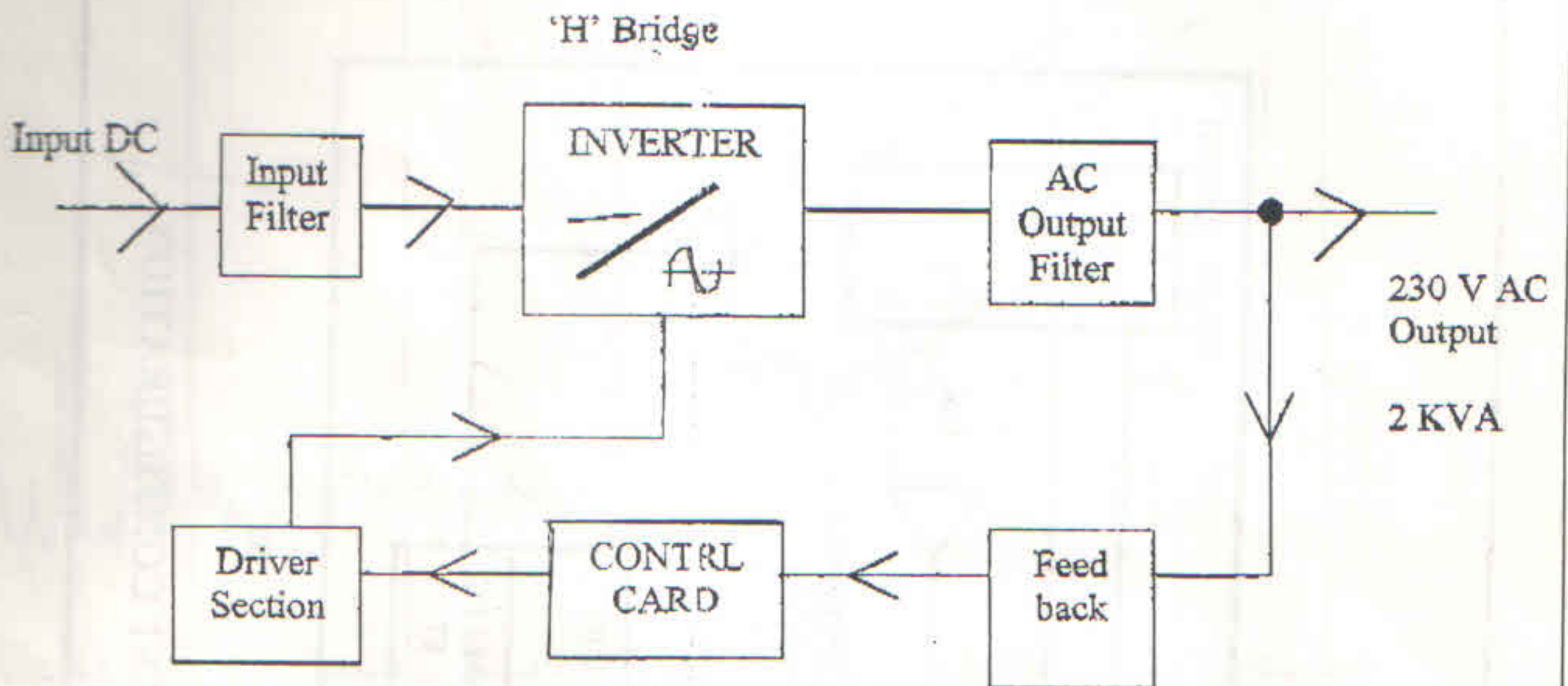


FIG-1

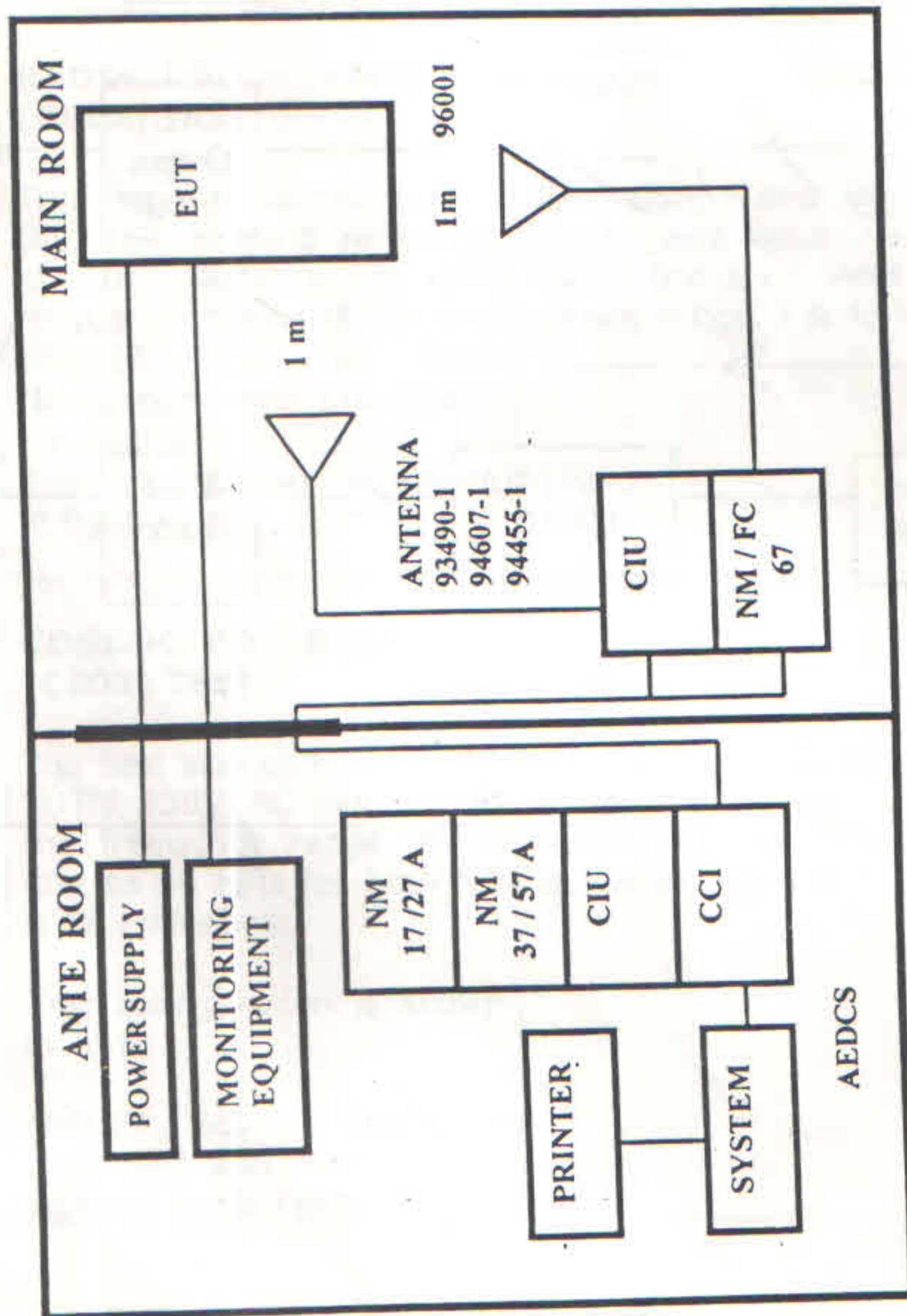


FIG. 2 RE02 TEST CONFIGURATION

DATE 9 Apr 2003

Maximum Scan Data : RE02 NB 10K TO 18G

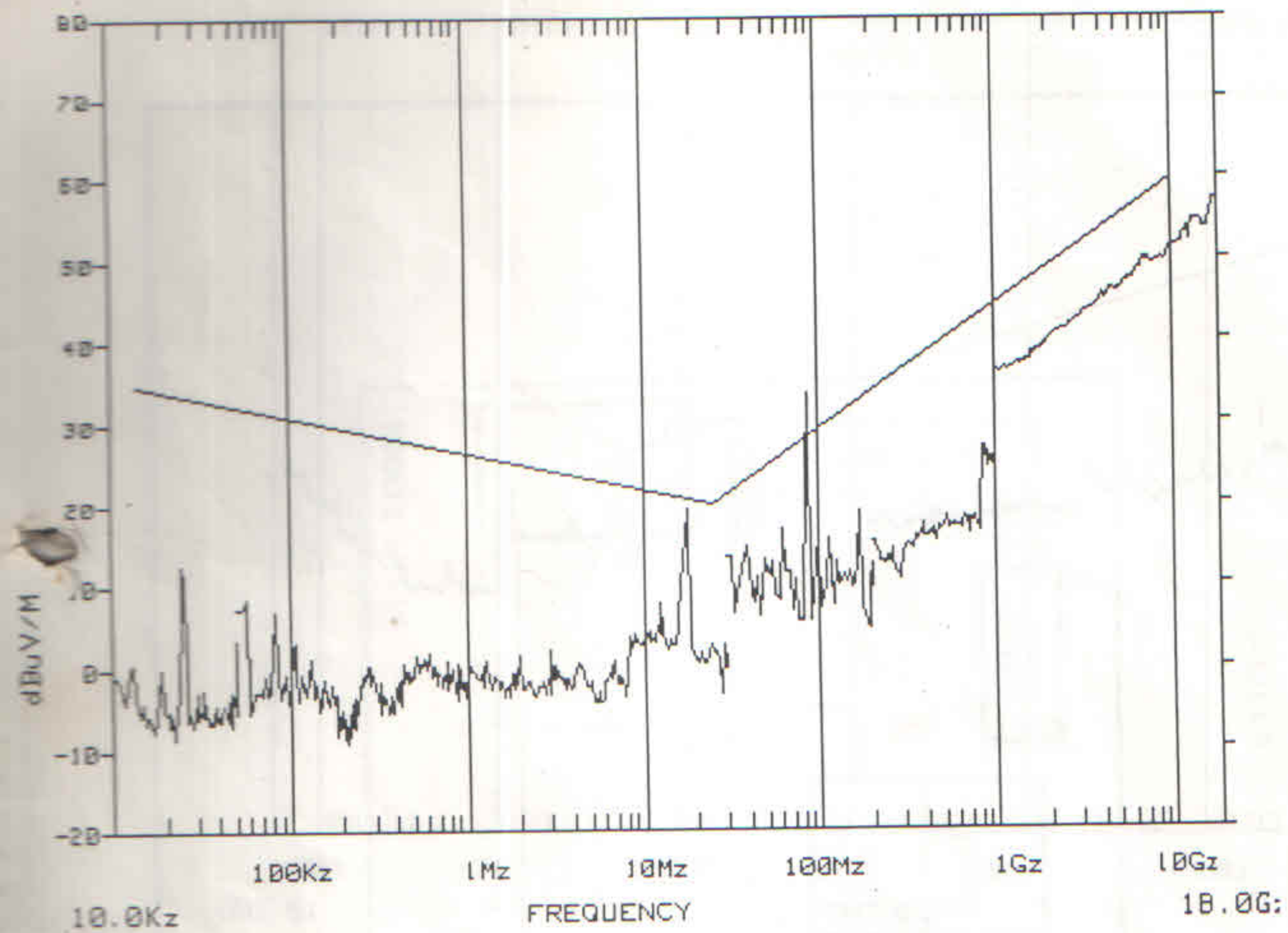


Fig-3

E.U.T. : 2 KVA RUGGED INVERTER

COMMENTS :

REMARKS :

DATE 9 Apr 2003

Maximum Scan Data : RE02 BB 10K TO 18G

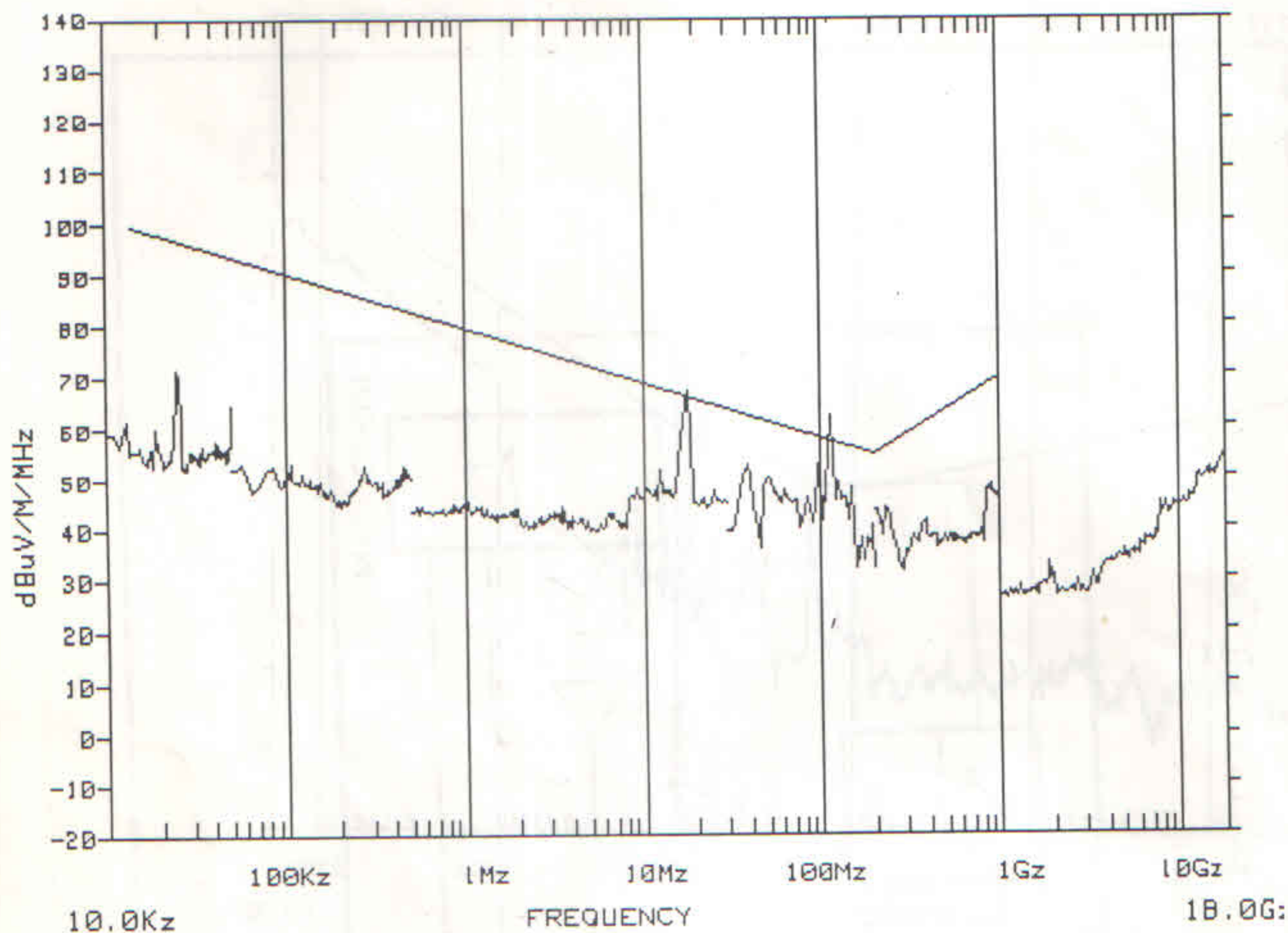


FIG-4

E.U.T. : 2 KVA RUGGED INVERTER

COMMENTS :

REMARKS :

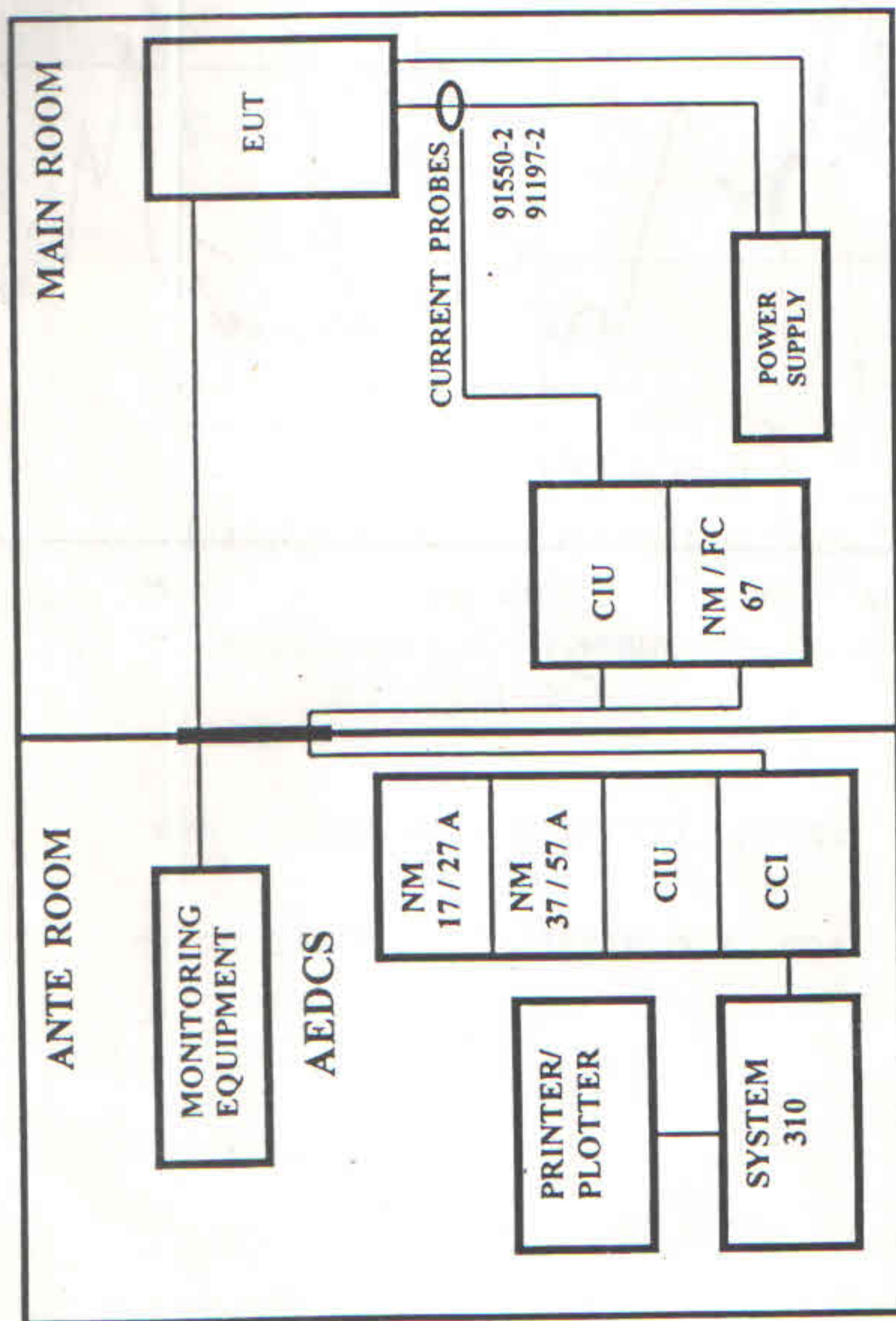


FIG. 5 CE03 TEST CONFIGURATION

DATE 10 Apr 2003

Maximum Scan Data : 461B-CE03/NB (15kHz-50MHz)

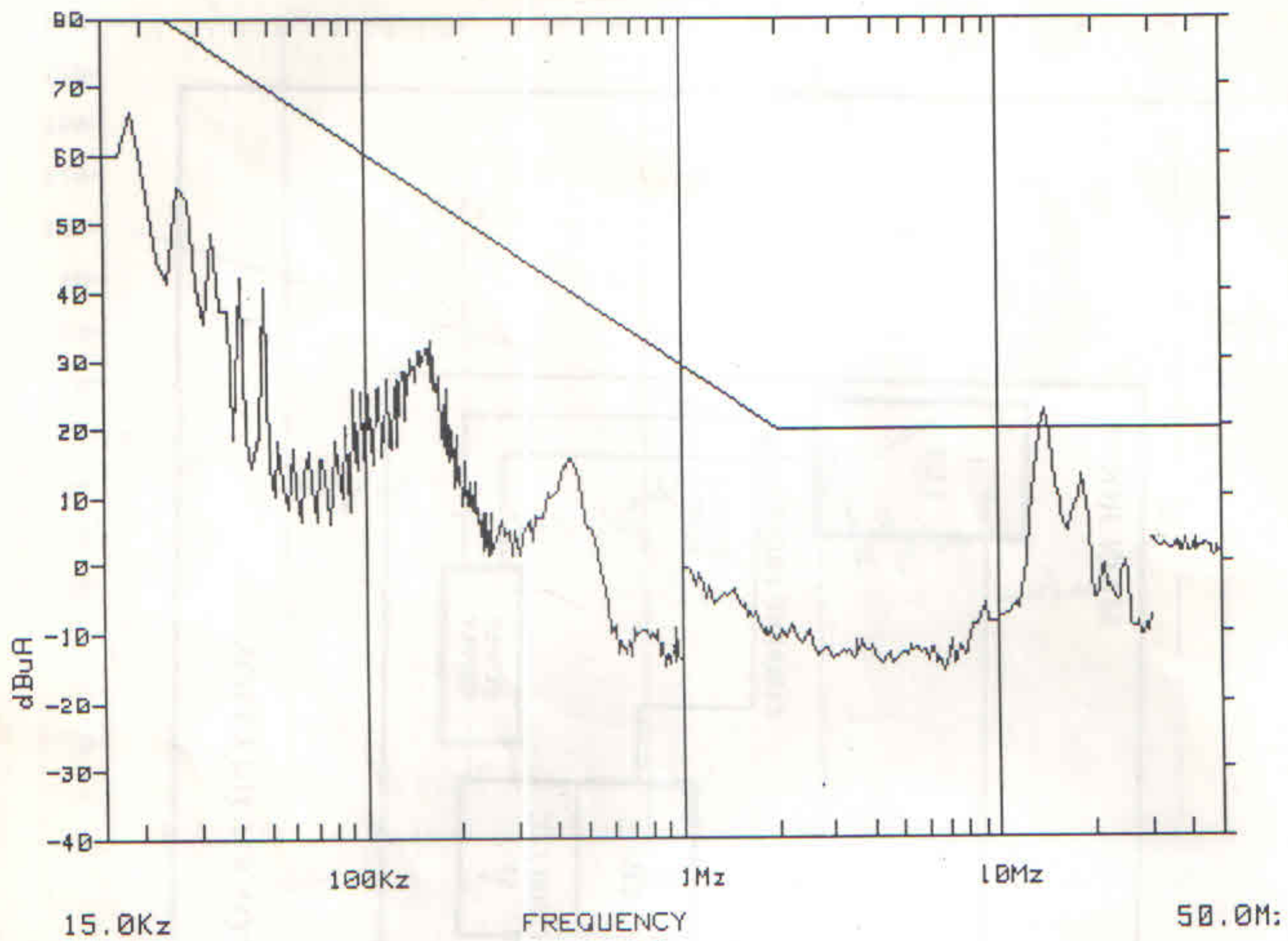


FIG-6

E.U.T.	: 2KVA INVERTER
COMMENTS	: CP ON O/P 230V LIVE LINE
REMARKS	:

DATE 10 Apr 2003

Maximum Scan Data : 461B-CE03/BB (14kHz-50MHz)

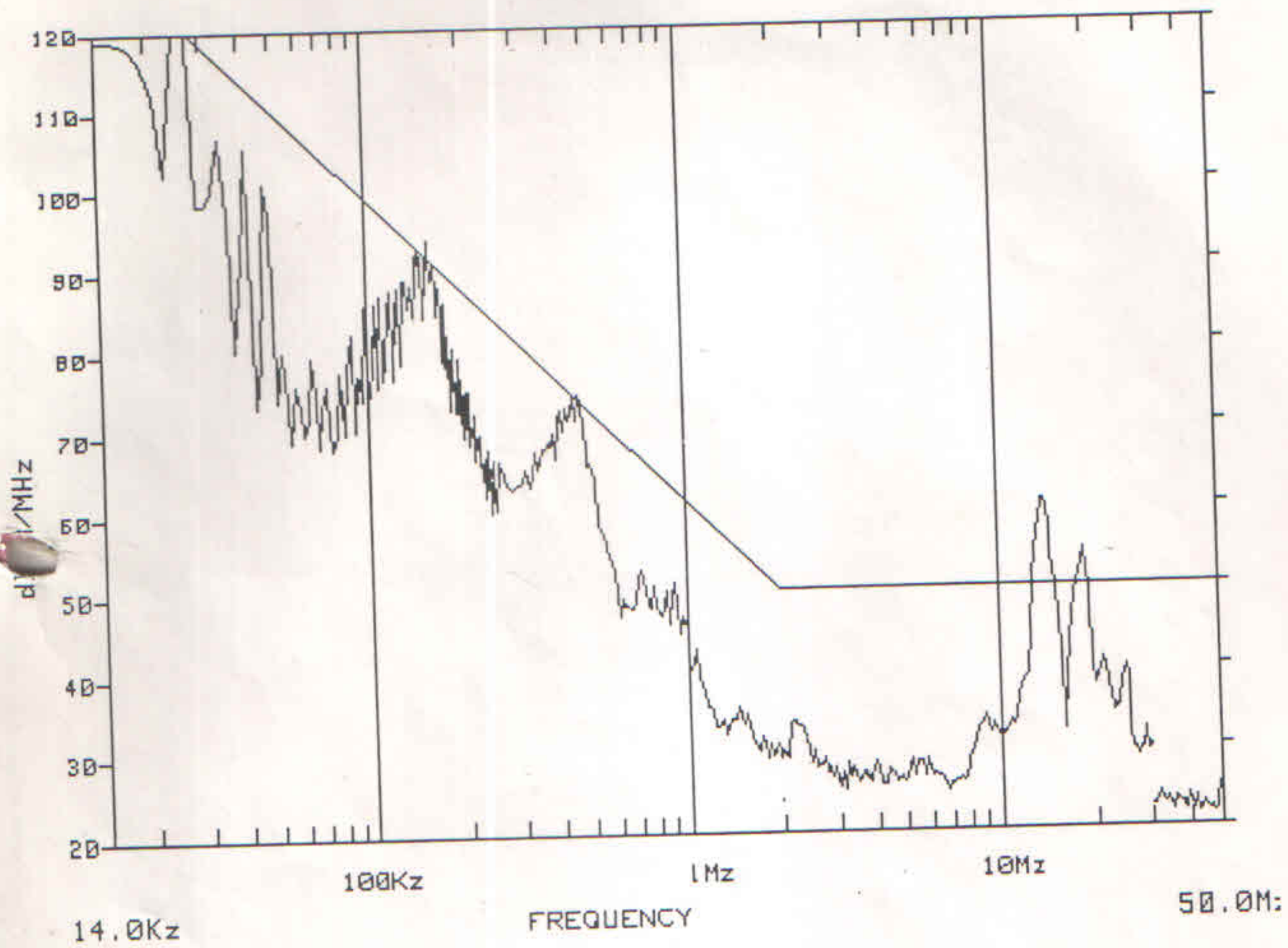


FIG-7

E.U.T. : 2KVA INVERTER

COMMENTS : CP ON O/P 230V LIVE LINE

REMARKS :