

2. TEST STATEMENT

2.1 TEST STATEMENT

TO whom it may concern,

This letter is to explain the test condition of this project.
The EUT be tested as the following status.

OSCILLATOR FREQUENCY : 11.0592MHz
OPERATING FREQUENCY : 115KHz

The data shown in this report reflects the worst-case data for the condition as listed above.

2. TEST STATEMENT

2.2 DEPARTURE FROM DOCUMENT POLICIES, PROCEDURE OR SPECIFICATIONS

DID HAVE
ANY DEPARTURE FROM DOCUMENT POLICIES
& PROCEDURES OR FROM SPECIFICATIONS.

YES _____ , NO N/A .

IF YES, THE DESCRIPTION AS BELOW.

2.3 TEST STATEMENT

1. THE CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY.
2. THE REPORT MUST NOT BE USED BY THE CLIENT TO CLAIM PRODUCT ENDORSEMENT BY NVLAP OR ANY AGENCY OF THE U.S. GOVERNMENT.

3. EUT MODIFICATIONS

THE FOLLOWING ACCESSORIES WERE ADDED TO THE EUT
DURING TESTING:

- 1) .C37 ADDED 100PF.
- 2) .U15 PIN 1 ADDED 100PF.
- 3) .R9,R40 CHANGE 4.7OHM.
- 4) .SHELDING THE UPPER & RIGHT & LEFT CIRCUIT DIAGRAM.

4. MODIFICATION LETTER

THIS SECTION CONTAINS THE FOLLOWING DOCUMENTS:

A. LETTER OF MODIFICATIONS

N/A

WinPal 富品科技股份有限公司

Winpal Electronics Corp.

8FL.NO.4 LANE 235, BAO CHIAO RD., HSIN TIEN, TAIPEI, TAIWAN, R.O.C.

台北縣新店市寶橋路 235 巷 4 號 8 樓 TEL: 886-2-29159670-2 FAX: 886-2-29183295

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

To whom it may concern:

This is to serve as proper notice that our company agrees to make all modifications to FCCID: N300P-1212N as listed in section 3.0 of the test report submitted by Spectrum Research and Testing Laboratory, Inc.

Respectfully,

Effective Dates:

Wilson Lin
(Name, Surname)

From '98/7 to '99/7

VP/Engineering
(Position/Title)

DATE: '98/7/10

5. CONDUCTED POWER LINE TEST

5.1 TEST EQUIPMENT

THE FOLLOWING TEST EQUIPMENT WAS USED DURING THE
CONDUCTED POWER LINE TEST :

EQUIPMENT/ FACILITIES	SPECIFICAT -IONS	MANUFACTURER	MODEL#/ SERIAL#	DATE OF CAL. & CAL.CENTER	DUE DATE
SPECTRUM ANALZER	9 KHz TO 1 GHz	HP	8590L/ 3624A01317	OCT, 1997 ETC	1Y
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 893517/013	OCT, 1997 ETC	1Y
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50- R24-BNC/ 951315	AUGUST, 1997 ETC	1Y
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50- R24-BNC/ 951318	AUGUST, 1997 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL, 1998 ITRI	1Y
POWER CONVERTER	0 TO 300 VAC 47 - 500 Hz	AFC	AFC-1KW/ 850510	APRIL, 1998 SRT	1Y

5.2 CONFIGURATION OF THE EUT

THE EUT WAS CONFIGURED ACCORDING TO ANSI C63.4 - 1992.
ALL INTERFACE PORTS WERE CONNECTED TO THE APPROPRIATE
PERIPHERALS. ALL PERIPHERALS AND CABLES ARE LISTED
BELOW.

-EUT

DEVICE	MANUFACTURER	MODEL #	FCCID
TABLET	WINPAL ELECTRONICS CORP.	OP-1212N	N301212N

-REMARK

-INTERNAL DEVICES

<u>DEVICE</u>	<u>MANUFACTURER</u>	<u>MODEL #</u>	<u>FCCID/DOC</u>
CURSOR	WINPAL	OP-1212N	N300P-1212N
STYLUS	WINPAL	OP-1212N	N300P-1212N
MAIN BOARD	WINPAL	OP-1212N	N300P-1212N

-PERIPHERALS

DEVICE	MANUFACTURER	MODEL# / SERIAL#	FCCID	CABLE
MONITOR	PHILIPS	4CM5299/71T	A3KM043	POWER-UNS DATA-S
PRINTER	HP	2225C	BS46XU2225C	POWER-UNS DATA-S
KEYBOARD	HP	SK-2502	GYUR41SK	DATA-UNS
MOUSE	HP	M-S34	DZL211029	DATA-UNS
PC	CPMPAQ	3431	EUN3431	POWER-UNS

-REMARK

- (1). CABLE - UNS : UNSHIELDED CABLE
S : SHIELDED CABLE
- (2). CABLES - ALL 1m OR GREATER IN LENGTH-
BUNDLED ACCORDING TO ANSI C63.4 - 1992.

5.3 EUT OPERATING CONDITION

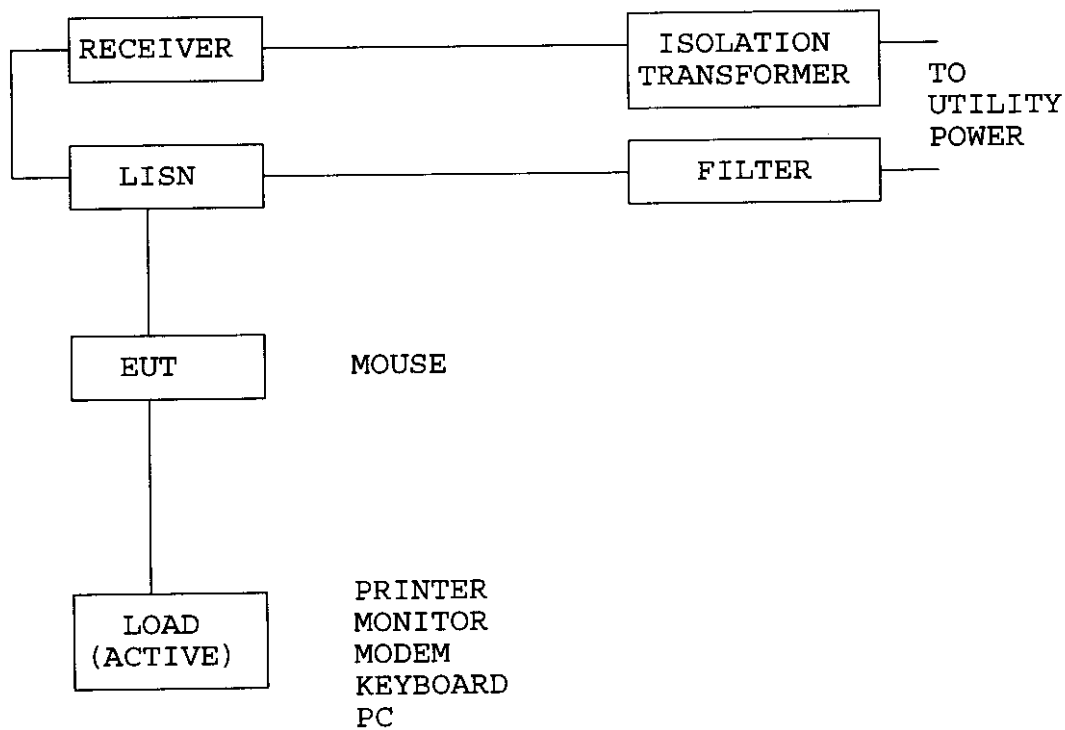
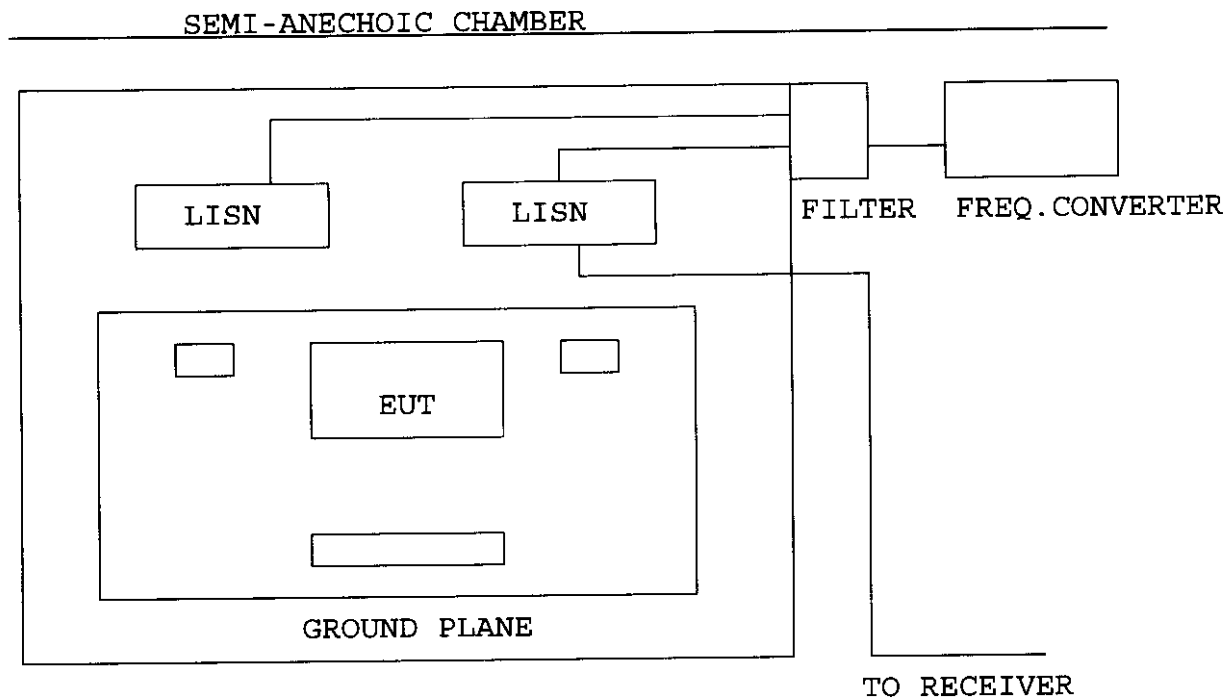
OPERATING CONDITION IS ACCORDING TO ANSI C63.4 - 1992.

1. EUT POWER ON.
2. "H" PATTERN SENT TO THE FOLLOWING PERIPHERALS:
 - PRINTER
 - MONITOR
 - MODEM
3. OSCILLATOR FREQUENCY : 11.0592MHz
OPERATING FREQUENCY :115KHz

5.4 TEST PROCEDURE

THE EUT WAS TESTED ACCORDING TO ANSI C63.4 - 1992. THE CONDUCTED TEST WAS PERFORMED ACCORDING TO ANSI C63.4 7.2 TEST PROCEDURES. THE FREQUENCY SPECTRUM FROM 0.45 MHz TO 30 MHz WAS INVESTIGATED. THE LISN USED WAS 50 ohm / 50 uHenry AS SPECIFIED BY SECTION 5.1 OF ANSI C63.4 - 1992. CABLES AND PERIPHERALS WERE MOVED TO FIND THE MAXIMUM EMISSION LEVELS FOR EACH FREQUENCY.

5.5 TEST SETUP



5.6 CONDUCTED POWER LINE EMISSION LIMIT

FREQUENCY RANGE (MHz)	CLASS A	CLASS B
0.045 - 1.705	1000 uV	250 uV
1.705 - 30	3000 uV	250 uV

NOTE : IN THE ABOVE TABLE, THE TIGHTER LIMIT
APPLIES AT THE BAND EDGES.

5.7 CONDUCTED POWER LINE TEST RESULT

THE FREQUENCY SPECTRUM FROM 0.45 MHz TO 30 MHz WAS INVESTIGATED. ALL READINGS ARE QUASI-PEAK VALUES WITH A RESOLUTION BANDWIDTH OF 9 KHZ.

TEMPERATURE : 28 C

HUMIDITY : 78 %RH

FREQUENCY (MHz)	LINE 1 (uv)	LINE 2 (uv)	LIMIT (uv)
0.97	44.16	54.95	250
3.66	92.26	141.3	250
3.93	133.4	*	250
6.47	*	146.2	250
11.0	*	103.5	250

- REMARKS : (1) . * = MEMENT DOES NOT APPLY FOR THIS FREQUENCY
 (2) . UNCERTAINTY IN CONDUCTED EMISSION MEASURED IS <+/-2dB
 (3) . TEST CONFIGURATION PLEASE SEE 4.2
 (4) . TEST EQUIPMENT PLEASE SEE 4.1
 (5) . ANY DEPARTURE FROM SPECIFICATION : N/A
 (6) . STYLES

SIGNED BY TESTING ENGINEER :

Carrie

5.7 CONDUCTED POWER LINE TEST RESULT

THE FREQUENCY SPECTRUM FROM 0.45 MHz TO 30 MHz WAS INVESTIGATED. ALL READINGS ARE QUASI-PEAK VALUES WITH A RESOLUTION BANDWIDTH OF 9 KHZ.

TEMPERATURE : 28 C

HUMIDITY : 78 %RH

FREQUENCY (MHz)	LINE 1 (uv)	LINE 2 (uv)	LIMIT (uv)
0.96	45.19	54.95	250
3.66	124.5	144.5	250
3.73	133.4	141.3	250
6.97	*	154.9	250
11.3	91.20	*	250

- REMARKS : (1) . * = MEMENT DOES NOT APPLY FOR THIS FREQUENCY
 (2) . UNCERTAINTY IN CONDUCTED EMISSION MEASURED IS <+/-2dB
 (3) . TEST CONFIGURATION PLEASE SEE 4.2
 (4) . TEST EQUIPMENT PLEASE SEE 4.1
 (5) . ANY DEPARTURE FROM SPECIFICATION : N/A
 (6) . CURSOR

SIGNED BY TESTING ENGINEER : Carrie

6. RADIATED EMISSION TEST

6.1 TEST EQUIPMENT

THE FOLLOWING TEST EQUIPMENT WAS USED DURING THE
RADIATED EMISSION TEST :

EQUIPMENT / FACILITIES	SPECIFICAT -IONS	MANUFACTUR -ER	MODEL#/ SERIAL#	DATE OF CAL. & CAL. CENTER	DUE DATE
RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS 30/ 841977/003	APRIL, 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3019A05294	OCT , 1997 ETC	1Y
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	APRIL, 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1000 MHz	IFR	A-7550/ 2684/1248	JULY, 1998 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL, 1998 ITRI	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9003-535	DEC, 1997 SRT	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9611-1239	DEC, 1997 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/ 96081-1073	DEC, 1997 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/ 9509-1152	DEC, 1997 SRT	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A08402	APRIL, 1998 ITRI	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A06412	OCT, 1997 ETC	1Y
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9012-3619	DEC, 1997 SRT	1Y

6.2 CONFIGURATION OF THE EUT

SAME AS SECTION 5.4 OF THIS REPORT.

6.3 EUT OPERATING CONDITION

SAME AS SECTION 5.3 OF THIS REPORT.

6.4 TEST PROCEDURE

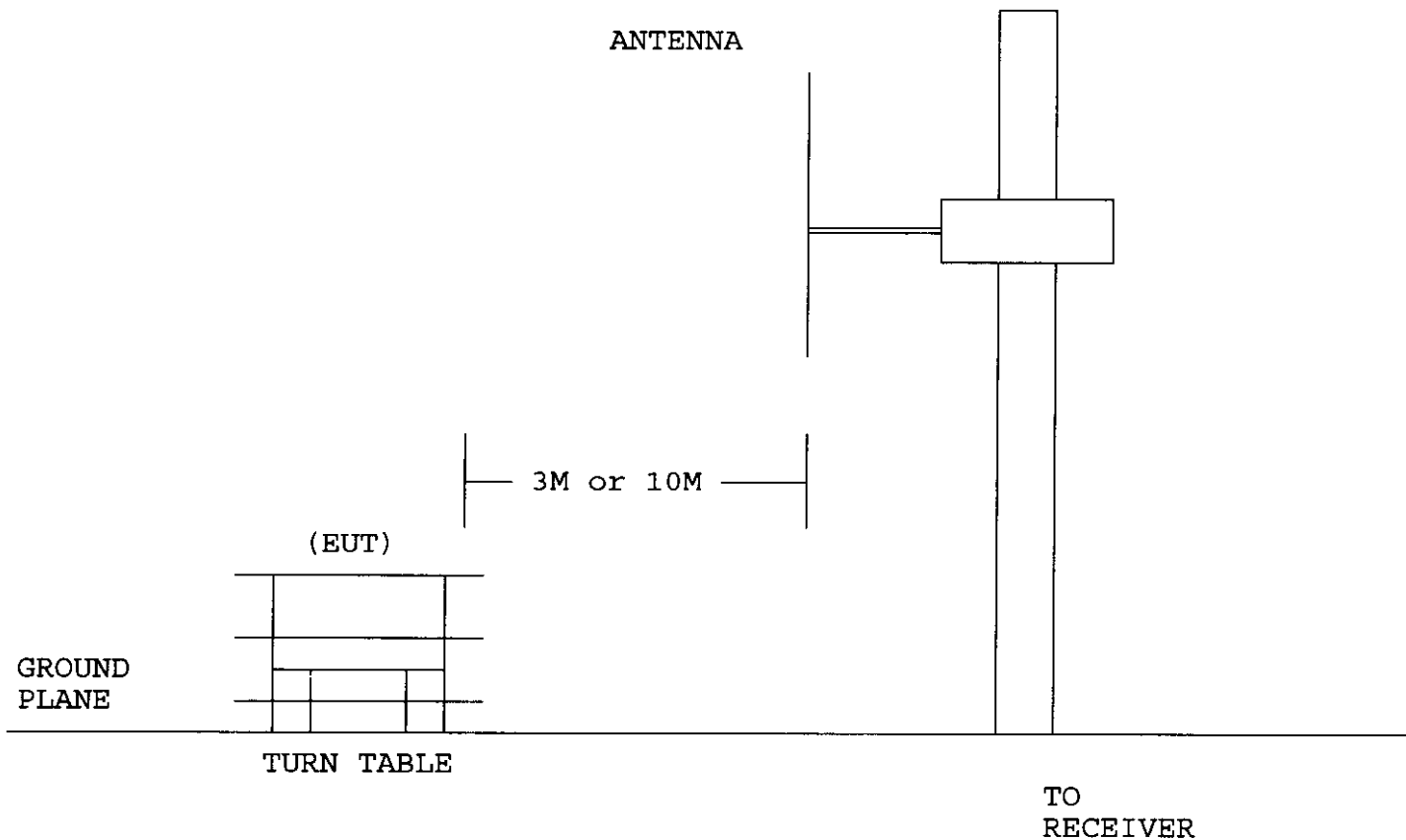
THE EUT WAS TESTED ACCORDING TO ANSI C63.4 - 1992. THE RADIATED TEST WAS PERFORMED AT SRT LAB'S OPEN SITE. THIS SITE IS ON FILE WITH THE FCC LABORATORY DIVISION, REFERENCE 31040/SIT.

THE FREQUENCY SPECTRUM FROM 30 MHz TO 1 GHz WAS INVESTIGATED. MEASUREMENTS WERE MADE AT THREE METERS WITH AN ADJUSTABLE DIPOLE ANTENNA. PERIPHERALS, CABLES, EUT ORIENTATION, AND ANTENNA HEIGHT WERE VARIED TO FIND THE MAXIMUM EMISSION FOR EACH FREQUENCY.

THE FREQUENCY SPECTRUM FROM 30 MHz TO 2 GHz WAS INVESTIGATED. THE MEASUREMENTS UNDER 1 GHz WITH RESOLUTION BANDWIDTH OF 120 KHz ARE QUASI-PEAK READING MADE AT THREE METERS USING AN ADJUSTABLE DIPOLE ANTENNA. PERIPHERALS, CABLES, EUT ORIENTATION, AND ANTENNA HEIGHT WERE VARIED TO FIND THE MAXIMUM EMISSION FOR EACH FREQUENCY.

THE MEASUREMENTS ABOVE 1 GHz WITH A RESOLUTION BANDWIDTH OF 1 MHz ARE PEAK READING AT A DISTANCE OF THREE METERS WITH A HORN ANTENNA.

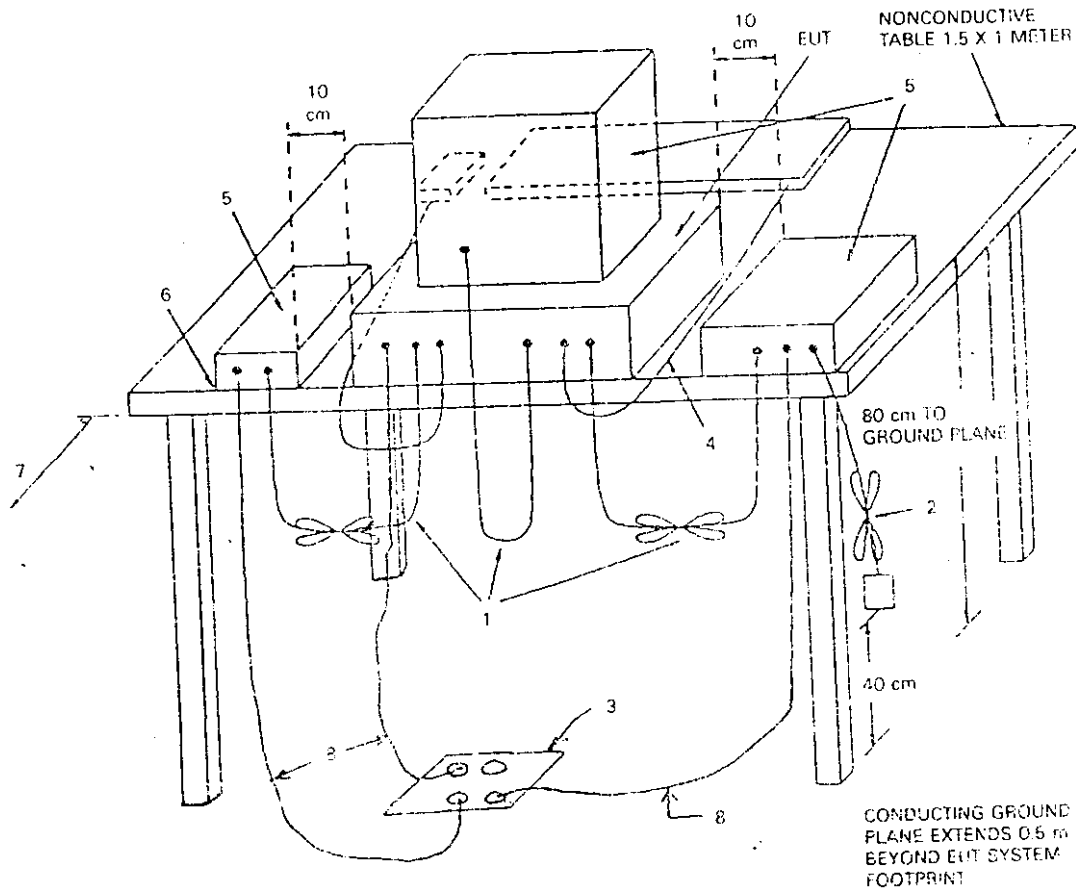
6.5 RADIATED TEST SETUP



6.5 RADIATED TEST SETUP

ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE RANGE OF 9 KHz TO 40 GHz

ANSI
C63.4-1992



LEGEND:

1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between ground plane and table.
2. I/O cables that are connected to a peripheral shall be bundled in center. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.
3. If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground plane with the receptacle flush with the ground plane.
4. Cables of hand-operated devices, such as keyboards, mouses, etc., have to be placed as close as possible to the controller.
5. Non-EUT components of EUT system being tested.
6. The rear of all components of the system under test shall be located flush with the rear of the table.
7. No vertical conducting wall used.
8. Power cords drape to the floor and are routed over to receptacle.

6.6 RADIATED EMISSION LIMIT

ALL EMISSION FROM A DIGITAL DEVICE, INCLUDING ANY NETWORK OF CONDUCTORS AND APPARATUS CONNECTED THERETO, SHALL NOT EXCEED THE LEVEL OF FIELD STRENGTH SPECIFIED BELOW :

CLASS B

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dBuV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
ABOVE 960	3	54.0

CLASS B (OPEN CASE)

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (uV/m)
30 - 88	300	199.5
88 - 216	300	298.5
216 - 960	300	398.1

CLASS A

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (uV/m)
30 - 88	300	316.3
88 - 216	300	473.2
216 - 960	300	613.0
ABOVE 960	300	1000.0

- NOTE : 1. IN THE EMISSION TABLES ABOVE, THE TIGHTER LIMIT APPLIES AT THE BAND EDGES.
2. DISTANCE REFERS TO THE DISTANCE BETWEEN MEASURING INSTRUMENT, ANTENNA, AND THE CLOSEST POINT OF ANY PART OF THE DEVICE OR SYSTEM.

6.7 RADIATED EMISSION TEST RESULT (OPERATING FREQUEREY)

THE FREQUENCY SPECTRUM FROM 0.009 MHz TO 1.705 M WAS INVESTIGATED. RESOLUTION BANDWIDTH OF 10 KHZ.

MEASUREMENTS WERE MADE AT 1 METERS.

TEMPERATURE : 28 C

HUMIDITY : 78 %RH

FREQ. (KHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
115.0	0.1	19	53.98	42.85	73.08	61.95	75.93
230.0	0.1	19	32.38	20.98	51.48	40.08	55.93
345.0	0.1	19	20.06	12.03	39.16	31.13	66.39
460.0	0.1	19	*	*	*	*	63.89
575.0	0.1	19	*	*	*	*	61.95
690.0	0.1	19	*	*	*	*	60.37
805.0	0.1	19	*	*	*	*	59.03

REMARKS : (1) * MEASUREMENT DOES NOT APPLY FOR THIS FREQUENCY.

(2) . SAMPLE CALCULATION

$20 \text{ LOG (EMISSION) } \mu\text{V/m} = \text{CABLE LOSS (dB)} + \text{FACTOR (dB)} + \text{READING (dBuV/m)}$

(3) . TEST EQUIPMENT PLEASE SEE 5.1

(4) . UNCERTAINTY IN RADIATED EMISSION MEASURED IS $\pm 4\text{dB}$

(5) . ANY DEPARTURE FROM SPECIFICATION: N/A

(6) . STYLES

SIGNED BY TESTING ENGINEER : Cornie

6.7 RADIATED EMISSION TEST RESULT (OPERATING FREQUENCY)

THE FREQUENCY SPECTRUM FROM 0.009 MHz TO 1.705 M WAS INVESTIGATED. RESOLUTION BANDWIDTH OF 10 KHZ. MEASUREMENTS WERE MADE AT 1 METERS.

TEMPERATURE : 28 CHUMIDITY : 78 %RH

FREQ. (KHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
115.0	0.1	20	54.83	43.74	74.93	63.84	75.93
230.0	0.1	20	34.54	24.63	54.64	44.73	69.91
345.0	0.1	20	20.60	15.50	40.70	35.60	66.39
460.0	0.1	20	*	*	*	*	63.89
575.0	0.1	20	*	*	*	*	61.95
690.0	0.1	20	*	*	*	*	60.37
805.0	0.1	20	*	*	*	*	59.03

REMARKS : (1) * MEASUREMENT DOES NOT APPLY FOR THIS FREQUENCY.

(2). SAMPLE CALCULATION

$$20 \text{ LOG (EMISSION) } \mu\text{V/m} = \text{CABLE LOSS (dB)} + \text{FACTOR (dB)} + \text{READING (dBuV/m)}$$

(3). TEST EQUIPMENT PLEASE SEE 5.1

(4). UNCERTAINTY IN RADIATED EMISSION MEASURED IS $\pm 4\text{dB}$ (5). ANY DEPARTURE FROM SPECIFICATION: N/A

(6). CURSOR

SIGNED BY TESTING ENGINEER :

Carrie

6.7 RADIATED EMISSION TEST RESULT

THE FREQUENCY SPECTRUM FROM 30 MHz TO 1 GHz WAS INVESTIGATED. ALL READINGS FROM 30 MHz TO 1 GHz ARE QUASI-PEAK VALUES WITH A RESOLUTION BANDWIDTH OF 120 KHZ. ALL READINGS ARE ABOVE 1 GHz, PEAK VALUES WITH A RESOLUTION BANDWIDTH OF 1 MHz. MEASUREMENTS WERE MADE AT 3 METERS.

TEMPERATURE : 28 C HUMIDITY : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
31.94	0.10	14.4	19.80	19.30	34.30	33.80	40.0
120.0	0.90	7.50	26.50	26.30	34.90	34.70	43.5
176.0	1.10	9.80	25.00	25.11	35.90	36.01	43.5
206.5	0.90	10.9	25.10	21.71	36.90	33.51	43.5
419.9	1.80	17.0	21.38	17.99	40.18	36.79	46.0

REMARKS : (1)* MEASUREMENT DOES NOT APPLY FOR THIS FREQUENCY.

(2). SAMPLE CALCULATION

$20 \text{ LOG (EMISSION) } \mu\text{V/m} = \text{CABLE LOSS (dB)} + \text{FACTOR (dB)} + \text{READING (dBuV/m)}$

(3). TEST EQUIPMENT PLEASE SEE 5.1

(4). UNCERTAINTY IN RADIATED EMISSION MEASURED IS $<+/-4\text{dB}$

(5). ANY DEPARTURE FROM SPECIFICATION: N/A

(6). STYLES

SIGNED BY TESTING ENGINEER : Carrie

6.7 RADIATED EMISSION TEST RESULT

THE FREQUENCY SPECTRUM FROM 30 MHz TO 1 GHz WAS INVESTIGATED. ALL READINGS FROM 30 MHz TO 1 GHz ARE QUASI-PEAK VALUES WITH A RESOLUTION BANDWIDTH OF 120 KHZ. ALL READINGS ARE ABOVE 1 GHz, PEAK VALUES WITH A RESOLUTION BANDWIDTH OF 1 MHz. MEASUREMENTS WERE MADE AT 3 METERS.

TEMPERATURE : 28 CHUMIDITY : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
31.94	0.10	14.4	19.80	19.30	34.30	33.80	40.0
120.0	0.90	7.50	26.50	26.30	34.90	34.70	43.5
176.3	1.10	9.80	25.00	25.11	35.90	36.01	43.5
206.5	0.90	10.9	25.10	21.71	36.90	33.51	43.5
420.0	1.80	17.0	21.38	17.99	40.18	36.79	46.0

REMARKS : (1)* MEASUREMENT DOES NOT APPLY FOR THIS FREQUENCY.

(2). SAMPLE CALCULATION

$$20 \text{ LOG (EMISSION) } \mu\text{V/m} = \text{CABLE LOSS (dB)} + \text{FACTOR (dB)} + \text{READING (dBuV/m)}$$

(3). TEST EQUIPMENT PLEASE SEE 5.1

(4). UNCERTAINTY IN RADIATED EMISSION MEASURED IS $\pm 4\text{dB}$ (5). ANY DEPARTURE FROM SPECIFICATION: N/A

(6). CURSOR

SIGNED BY TESTING ENGINEER : Camie

6.8 BARD WITH

THE BARDWITH OF THE POERATING FREQ IS MEET THE FCC STANDARD.
(PLEASE SEE ATTACHED PLATTER)

11:59:38 JUL 30. 1998

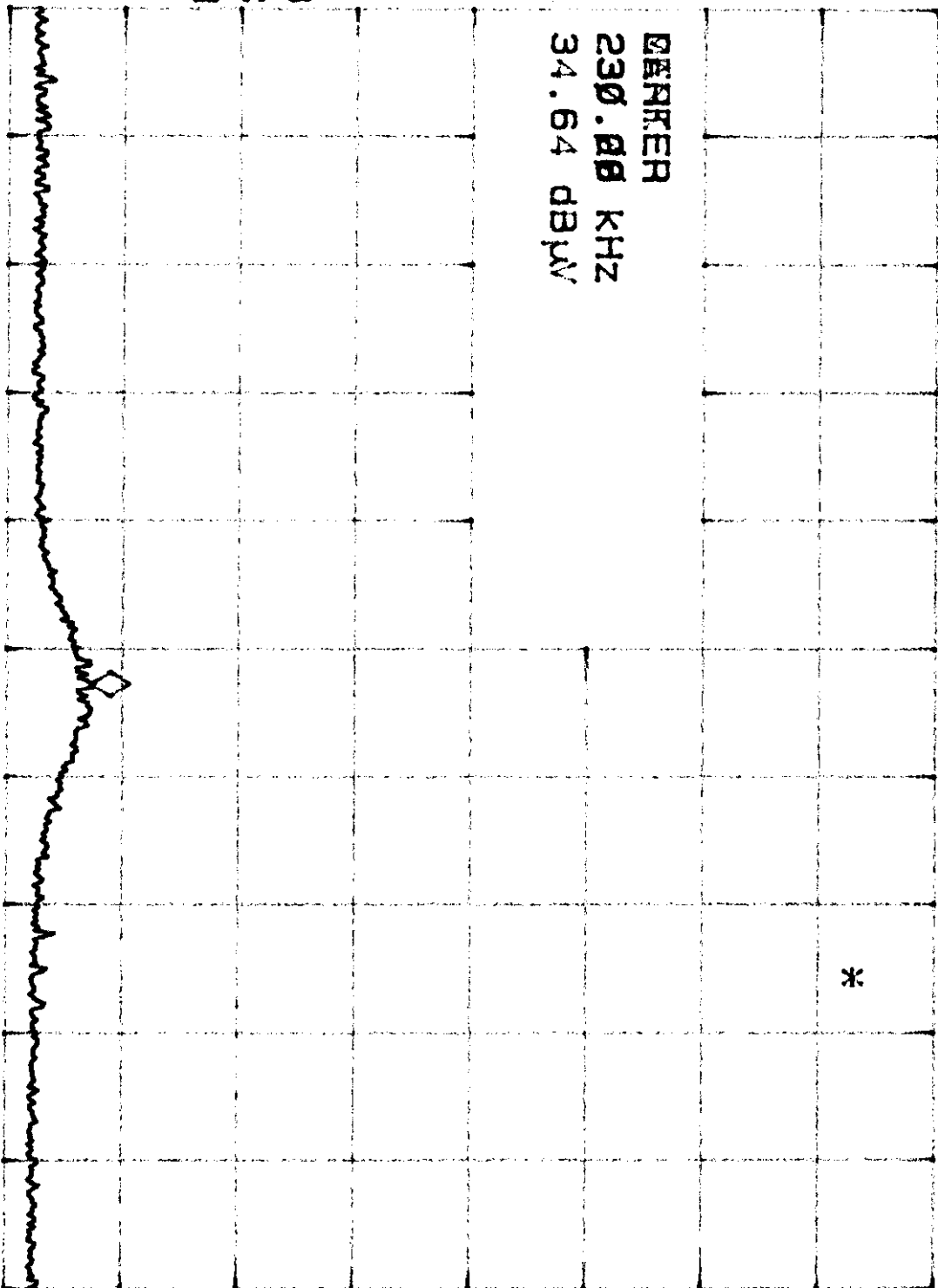
REF 107.2 dBμV AT 20 dB

MKR 230.28 KHZ
34.64 dBμV

PEAK
LOG
10
dB/

DEAFER
230.00 KHZ
34.64 dBμV

VA SB
SC FC
CORR



CENTER 230.00 KHZ
#RES BW 1.0 KHZ

#VBW 1 KHZ

SPAN 10.00 KHZ
SWP 300 msec

Styles Pa 12/2 (Pa)

11:17:16 JUL 27. 1998

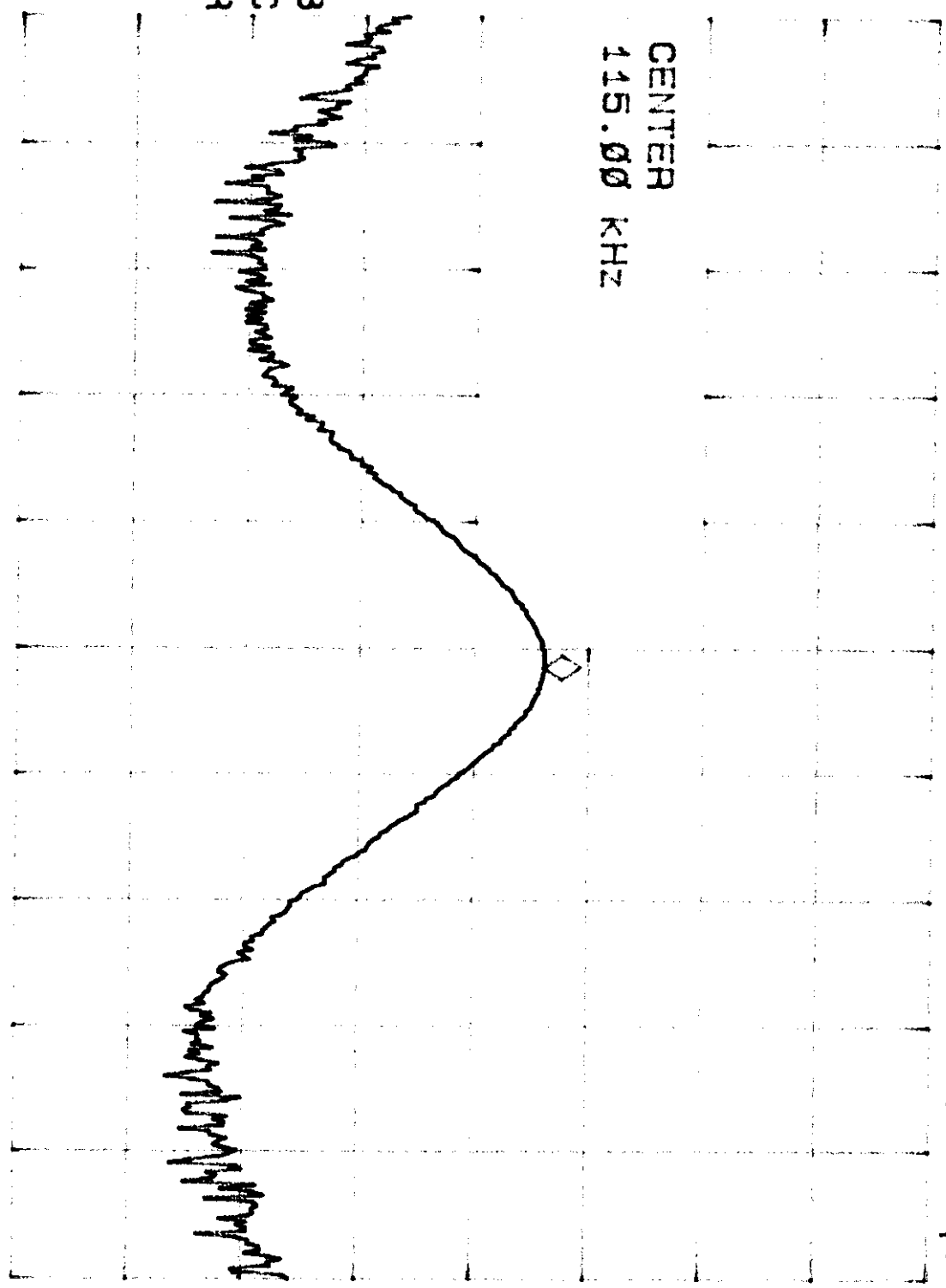
REF 87.0 dBμV AT 10 dB

MKR 115.15 KHZ 53.08 dBμV

PEAK
LOG
10
dB/

CENTER
115.00 KHZ

VA SB
SC FC
CORR



CENTER 115.00 KHZ
#RES BW 1.0 KHZ
SPAN 10.00 KHZ
SWP 300 msec

10:20:14 JUL 27, 1998

REF 87.0 dBμV AT 10 dB

MKR 230.45 KHz
31.48 dBμV

PEAK

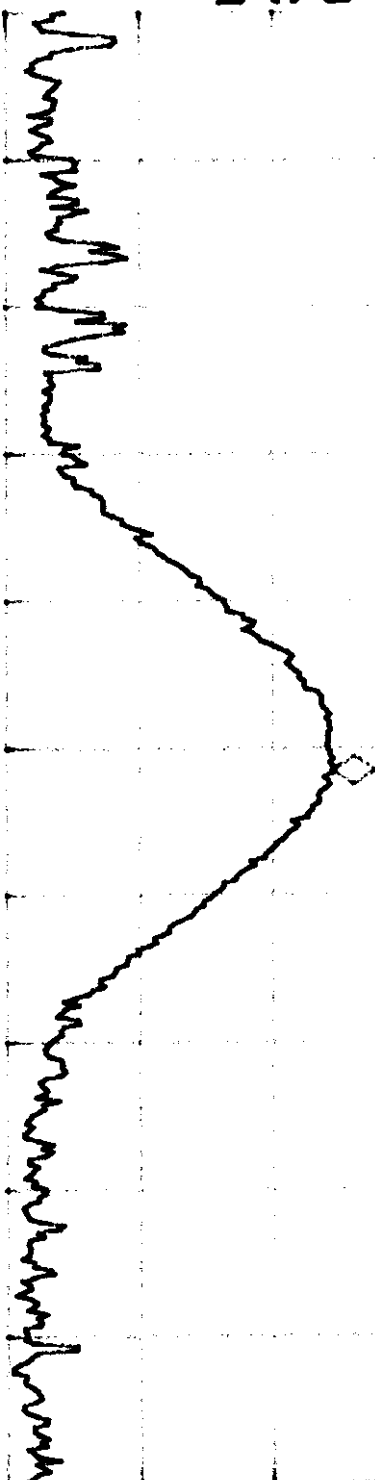
LOG

10
dB/

MARKER

230.45 KHz
31.48 dBμV

VA SB
SC FC
CORR



CENTER 230.30 KHz

#RES BW 1.0 KHz

#VBW 300 Hz

SPAN 10.00 KHz

SMP 300 msec