

EXHIBIT B

Test Report

Report No.

S3715981

Specifications
Test Method

FCC Part 15 - Cerification
ANSI C63.4 1992

Applicant
address

UNIT F-J, 5/F, BLOCK 2, KWAI TAK IND. CENTRE,
15-33 KWAI TAK STREET, KWAI CHUNG, N.T., HONG KONG

Applicant
Items tested
Model No.

STD MANUFACTURING LTD.
RF MODULATOR UNIT
P-056F

Results
Sample received
date

As detailed within this report
03 / 16 / 1998 (month / day / year)

Prepared by

project engineer

Authorized by

Vice General Manager
(Jacob Lin)

Issue date

(month / day / year)

Modifications

None

Tested by

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Open site at

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Conditions of issue:

- (1). This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.
- (2). This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.

★ FCC ID : KYIP-056F

Contents

Chapter 1 Introduction

Description of EUT.....	3
Configuration of Test Setup.....	4
List of Support Equipment.....	5

Chapter 2 Conducted Emission Test

Test Condition and Setup.....	6
Conducted Test Placement.....	7

Chapter 3 Radiated Emission Test

Test Condition and Setup.....	8
.Radiated Test Placement.....	9

Appendix A :

Conducted test result.....	10
----------------------------	----

Appendix B :

Radiated test result	12
----------------------------	----

Chapter 4 Output Signal Test

Test Condition and Setup.....	16
Test result.....	17

Chapter 5 Signal at Antenna input Test.....18

Chapter 1 Introduction

Description of EUT :

This product is a RF modulator unit for Sony playstation game console . It is connected between playstation and TV . There are two channels can be used : ch3 and ch4 . The video signal frequency of ch3 is 59.38 MHz and ch4 is 66.47 MHz. The audio signal frequency of ch3 is 63.79MHz and ch4 is 70.63MHz. The EUT contains a major unit and a transfer switch . The specification is according to FCC part 15.115.

Connection of EUT :

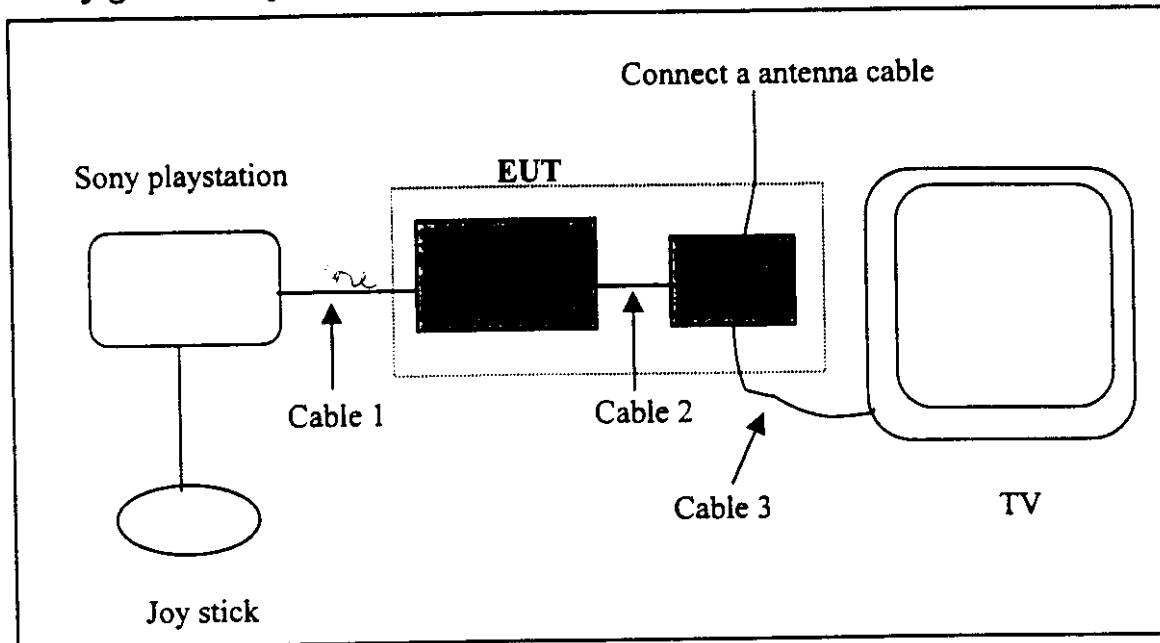
- (1)Connect the EUT's A/V port to the A/V multiout of Sony playstaion back .
- (2)Connect the TV port on the transfer switch to the antenna input of the TV with cable .
- (3)Connect the ANT port on the transfer switch to the outdoor antenna cable .

Test method :

Turn on the Sony playstation and TV . Make sure the screen of TV show the picture and can play the game . The ch3 and ch4 all be tested .

(If the emission is close to the ambient, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

The testing configuration of test setup is shown on the next page.

Configuration of test setup**Connections :**

- Cable 1 is 30cm long with core which is mounted.
- Cable 2 is 3m long non-shielded.
- Cable 3 is 30cm long non-shielded .
- The antenna cable is 70cm long non-shielded.

List of support equipment**Conducted (Radiated) test :****Sony playstation :**

Model No : SCPH-5503
Serial No : E2898224
Power type : AC 110-240V 50/60 Hz
Power cord : Non-shielded

Television : AOC

Model No : TV-14RT
Serial No : 00775
Power type : AC 110V 60 Hz
Power cord : Non-shielded

Chapter 2 Conducted emission test

Test condition and setup :

All the equipment is placed and setup according to the ANSI C63.4 - 1992 .
The EUT is assembled on a wooden table which is 80 cm high , is placed 40 cm from the back-wall which is a vertical conducting plane . One LISN is for EUT ,the other LISN is for support equipment. They are all placed on the conductive ground .The EUT's LISN connect a line switch box for selecting L1 or L2 ,then connect to a preamplifier and spectrum.

The spectrum scans from 450KHz to 30MHz . Conducted emission levels are detected at max. peak mode . But if the max. peak mode failed ,it will be measured by CISPR's quasi-peak detection mode .

While testing, there is a the worst-emission plot printed at peak detection mode ,and there are more than 6 highest emissions relative to limit recorded. The plot is kept as the original data, not included in test report .

List of test Instrument :

Instrument Name	Model No.	Brand	Serial No.	<u>Calibration Date</u>	
				Last time	Next time
Spectrum analyzer	8591EM	H P	3619A00821	08/29/97	08/29/98
LISN (EUT)	3825/2	EMCO	9411-2284	05/15/97	05/15/98
Preamplifier	8447F	H P	2944A03706	05/13/97	05/15/98
Line switch box	AC1-003	TRC	-----	05/15/97	05/15/98
Line selector	AC1-002	TRC	-----	05/15/97	05/15/98

The level of confidence of 95% ,the uncertainty of measurement of conducted emission is ± 2.4 dB .

Test Result : Pass (Appendix A)

Chapter 3 Radiated emission test

Test condition and setup :

Pretest : Prior to the final test (OATS test) ,the EUT is placed in a shielded enclosure ,GTEM, and scan from 30MHz to 1GHz.This is done to ensure the radiation exactly emits form the EUT.

Final test : Final radiation measurements is made on a **3 - meter**, open-field test site. The EUT is placed on a nonconductive table which is 0.8 m height, the top surface is 1.0 x 1.5 meter. All the placement is according to ANSI C63.4 - 1992.

The spectrum is examined from 30 MHz to 1000 MHz measured by HP spectrum.

The EMCO whole range Antenna is used to measure frequency from 30 MHz to 1GHz.The final test is used the spectrum HP 8594EM .

Measure more than six top marked frequencies generated form pretest by computer step by step at each frequency . The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meter to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading .The spectrum analyzer's 6dB bandwidth is set to 120 K Hz , and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient ,the data will be rechecked by the tester and the corrected data will be written in the test data sheet. If the emission is just within the ambient ,the data from GTEM will be taken as the final data.

List of test Instrument :

Instrument name	Model No.	Brand	Serial No.	<u>Calibration Date</u>	
				Last	Next
Spectrum analyzer	8568B	H P	3004A18617	05/15/97	05/15/98
Quasi-peak Adapter	85650A	H P	2521A00984	05/15/97	05/15/98
RF Pre-selector	85685A	H P	2947A01011	05/15/97	05/15/98
Spectrum analyzer	8594EM	H P	3619A00198	08/07/97	08/07/98
Antenna(30M-2G Hz)	3142	EMCO	9610-1094	10/30/97	10/30/98
Open test side (Antenna ,Amplify, cable calibrated together)				05/15/97	05/15/98

The level of confidence of 95% ,the uncertainty of measurement of radiated emission is ± 4.96 dB .

Test Result : Pass (Appendix B)

Appendix A**Conducted Emission Test Result (CH 3)**

Testing room : Temperature : 24 ° C Humidity : 40 % RH

Line 1

<i>Frequency (MHz)</i>	<i>Amplitude (dBuV)</i>	<i>Limit (dBuV/m)</i>	<i>Margin (dB)</i>
1.410	44.87	48	-3.13
2.001	38.81	48	-9.19
2.665	37.29	48	-10.71
3.476	35.98	48	-12.02
4.509	31.01	48	-16.99
7.749	31.92	48	-16.08
8.190	33.33	48	-14.67
8.558	32.02	48	-15.98
25.248	30.05	48	-17.95
28.015	29.41	48	-18.59

Line 2

<i>Frequency (MHz)</i>	<i>Amplitude (dBuV)</i>	<i>Limit (dBuV)</i>	<i>Margin (dB)</i>
1.410	45.41	48	-2.59
1.927	40.94	48	-7.06
2.886	35.62	48	-12.38
3.476	32.93	48	-15.07
4.140	28.29	48	-19.71
7.455	28.63	48	-19.37
8.043	32.28	48	-15.72
8.558	30.11	48	-17.89
13.406	33.18	48	-14.82

Conducted Emission Test Result (CH 4)**Line 1**

Frequency (MHz)	Amplitude (dBuV)	Limit (dBuV/m)	Margin (dB)
1.336	41.63	48	-6.37
1.927	34.97	48	-13.03
3.108	33.06	48	-14.94
3.698	31.27	48	-16.73
7.675	27.20	48	-20.8
24.082	28.59	48	-19.41
25.613	27.09	48	-20.91
26.559	27.30	48	-20.7
28.015	31.04	48	-13.96
28.815	27.65	48	-20.35

Line 2

Frequency (MHz)	Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
1.336	41.91	48	-6.09
1.927	40.19	48	-7.81
3.034	36.18	48	-11.82
3.476	35.59	48	-12.41
4.140	31.30	48	-16.7
4.877	28.09	48	-19.91
8.190	26.26	48	-21.74
24.082	28.26	48	-19.74
26.778	28.42	48	-19.58

Appendix B

Radiated Emission Test Result : (CH3 Horizontal)

Test Conditions:

Testing room : Temperature : 28° C Humidity : 47% RH

Testing site : Temperature : 29 ° C Humidity : 62 % RH

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

59.415	42.31	4	312	-13.79	28.52	40	-11.48
119.330	38.26	1	160	-13.23	25.03	43.5	-18.47
135.476	42.80	1	168	-13.06	29.74	43.5	-13.76
169.346	40.28	1	220	-11.40	28.88	43.5	-14.62
304.820	55.99	1	135	-11.60	44.39	46	-1.61
440.296	48.04	1	95	-16.60	31.44	46	-14.56
643.508	43.96	1	243	-9.02	34.94	46	-11.06
778.982	46.67	1	179	-6.71	39.96	46	-6.04

Note:

1. Margin = Amplitude - limit, *if margin is minus means under limit.*

2. Corrected Amplitude = Reading Amplitude - Correction Factors

3. Correction factor = Antenna factor + (Cable Loss - Amplitude gain)

(For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)

Radiated Emission Test Result :(Vertical)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

59.415	40.84	1	194	-13.79	27.05	40	-12.95
119.330	43.42	1	96	-13.23	30.19	43.5	-13.31
135.476	43.81	1	107	-13.06	30.75	43.5	-12.75
169.346	41.29	1	238	-11.40	29.89	43.5	-13.61
304.820	49.05	1	78	-11.60	37.45	46	-8.55
440.296	52.01	1	335	-16.60	35.41	46	-10.59
643.508	44.99	1	279	-9.02	35.97	46	-10.03
778.982	43.04	1	12	-6.71	36.33	46	-9.67

Radiated Emission Test Result : (CH4 Horizontal)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

66.525	45.07	1	84	-14.32	30.75	43.5	-12.75
132.916	39.50	1	166	-13.11	26.39	43.5	-17.11
199.762	43.94	1	132	-9.81	34.13	43.5	-9.37
265.112	42.47	1	249	-6.62	35.58	46	-10.42
332.416	40.32	1	308	-18.99	31.33	46	-14.67
440.941	49.89	1	272	-16.58	33.31	46	-12.69

Note:

4. Margin = Amplitude - limit, *if margin is minus means under limit.*

5. Corrected Amplitude = Reading Amplitude - Correction Factors

6. Correction factor = Antenna factor + (Cable Loss - Amplitude gain)

(For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)

Radiated Emission Test Result :(Vertical)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

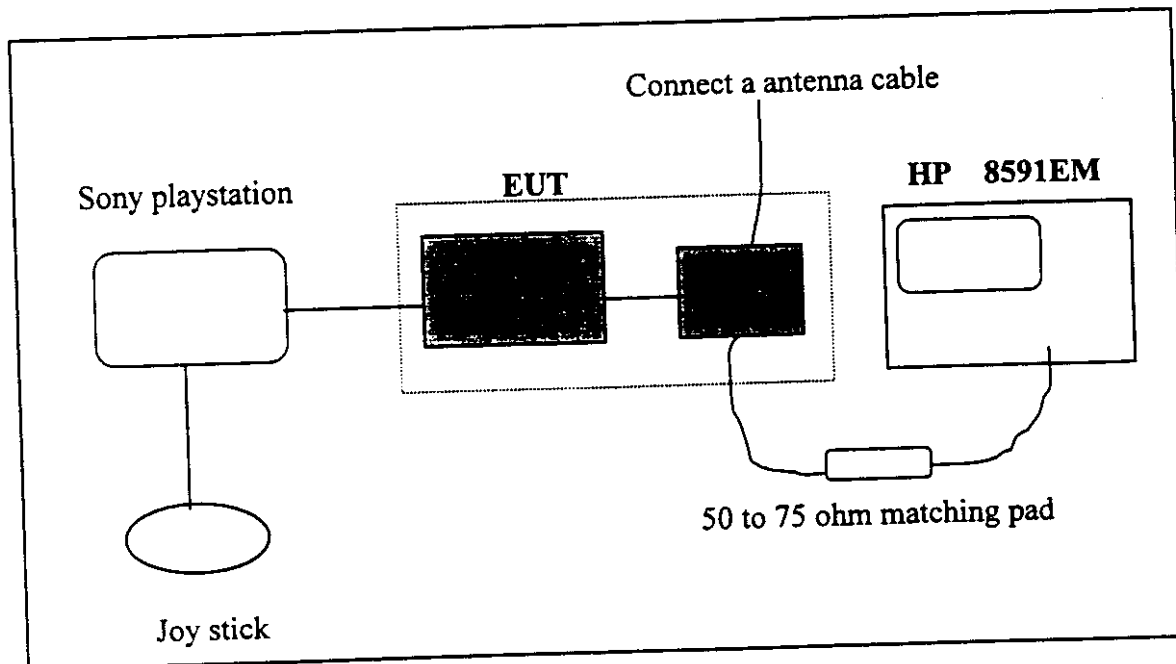
66.525	46.73	1	181	-14.32	32.41	43.5	-11.09
132.916	41.33	1	287	-13.11	28.11	43.5	-15.39
199.762	47.92	1	240	-9.81	38.11	43.5	-5.39
265.112	43.01	1	302	-6.62	36.39	46	-9.61
332.416	42.98	1	34	-18.99	33.99	46	-12.01
440.941	51.34	1	71	-16.58	34.76	46	-11.24

Chapter 4 Output Signal Test

Test condition and setup :

During test , the setup is as Chapter 1 . Connect the TV port of the transfer switch to the HP spectrum analyzer 8591EM . There is a 50 to 75 ohm matching pad used here . The insertion loss of matching pad is 5.7 dB .The video , audio signal and emissions more than 4.6 MHz below or 7.4 MHz above the video carrier frequency all be tested by max peak mode .

The Configuration of Output Signal test :



Test Report

The test result of output signal :

Video signal :

CH	Frequency	Read Amplitude	Factor	Corrected Amplitude	Limit	Margin
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
3	59.38	58.28	5.7	63.98	70	-6.02
4	66.47	58.35	5.7	64.05	70	-5.95

graph
graph

Audio Signal :

CH	Frequency	Read Amplitude	Factor	Corrected Amplitude	Limit	Margin
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
3	63.793	41.40	5.7	47.10	56.5	-9.4
4	70.635	41.44	5.7	47.14	56.5	-9.36

graph
graph

Note :

1. The three pages of test plot follow this page is no page number.
2. Corrected Amplitude = Read Amplitude + Factor

Emission more than 4.6MHz below or 7.4MHz above the carrier frequency:

CH	Total Amplitude	Limit	Margin
	dBuV/m	dBuV/m	dB
3	31.53	39.5	-7.97
4	26.41	39.5	-13.09

Note :

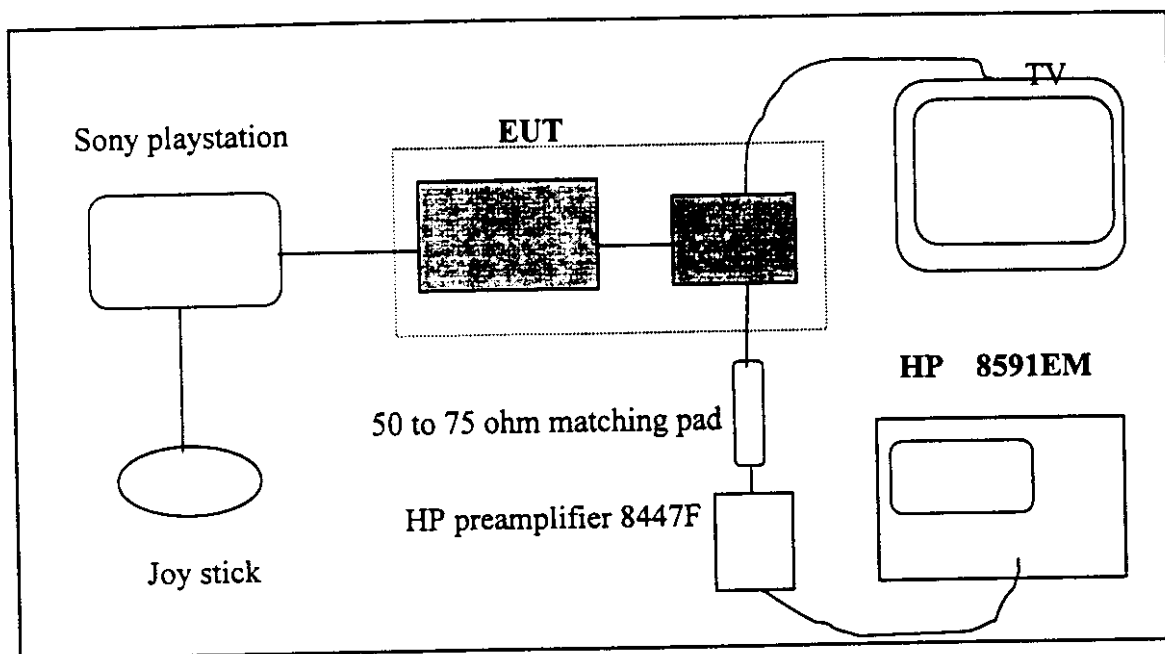
1. Total Amplitude = $20 \times \log \sqrt{(v_1^2 + v_2^2 + \dots + v_n^2)}$

Chapter 5 Signal at antenna input test

Test condition and setup :

During test , the setup is as Chapter 1 . Connect the TV port of the transfer switch to a TV. The antenna port connect to the HP spectrum analyzer 8591EM . There is a 50 to 75 ohm matching pad and HP preamplifier 8447F used here . The insertion loss of matching pad is 5.7 dB . The gain of preamplifier is 25 dB.

The Configuration of Output Signal test :



Test result :

CH	Frequency	Read Amplitude	Factor	Corrected Amplitude	Limit	Margin
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
3	59.375	21.66	-19.3	2.36	9	-6.64
4	66.260	24.13	-19.3	4.83	9	-4.17

Note :

1. The test plot follow this page is no page number .
2. Factor = match pad loss - preamplifier gain
3. Corrected Amplitude = Read Amplitude + Factor

Final statement :

This test report, measurements made by TRC are traceable to the NIST.

Video Signal

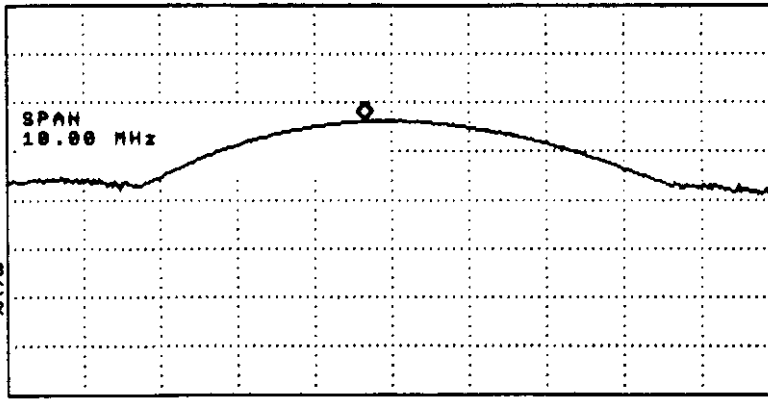
09:28:29 APR 21, 1998

REF 82.0 dBμV AT 10 dB

MR 59.88 MHz
58.28 dBμV

PEAK
LOG
10
dB/

MA SB
SC FC
CORR



CENTER 59.73 MHz
RES BW 3.0 MHz
VBW 1 MHz
SPAN 10.00 MHz
SWP 20.0 msec

MARKER
+ HIGH

MARKER
+ CF

NEXT
PEAK

NEXT PK
RIGHT

NEXT PK
LEFT

More
1 of 3

CH3

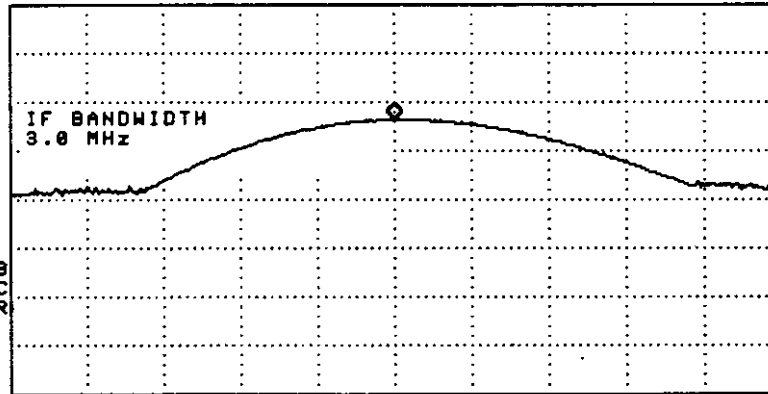
09:26:15 APR 21, 1998

REF 82.0 dBμV AT 10 dB

MR 66.47 MHz
58.35 dBμV

PEAK
LOG
10
dB/

MA SB
SC FC
CORR



CENTER 66.47 MHz
RES BW 3.0 MHz
VBW 1 MHz
SPAN 10.00 MHz
SWP 20.0 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

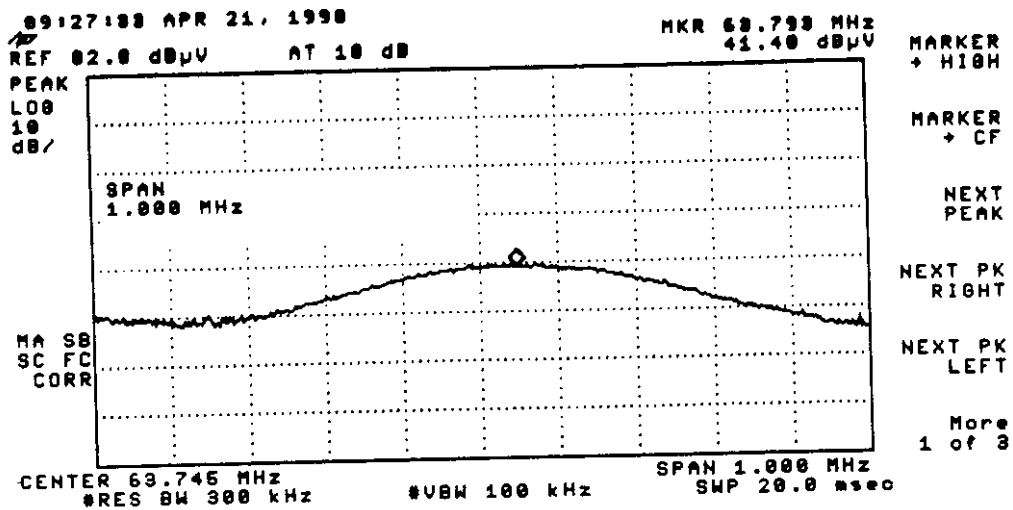
BLANK A

Trace
A B C

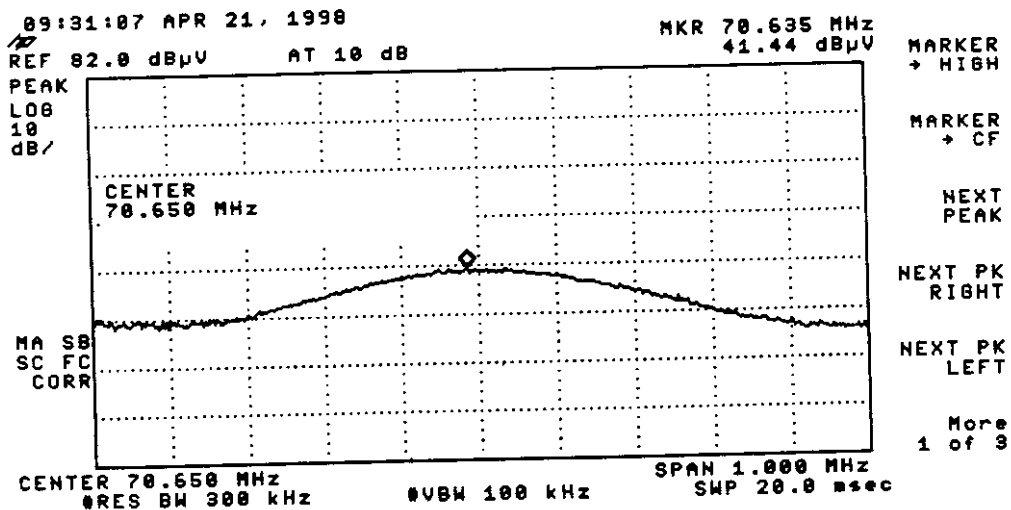
More
1 of 4

CH4

Audio signal



CH 3



CH 4

11:24:25 APR 23, 1998

CENTER
59.380 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 59.375 MHz
21.66 dBμV

MARKER
+ HIGH

MARKER
+ CF

NEXT
PEAK

NEXT PK
RIGHT

NEXT PK
LEFT

More
1 of 3

LOG REF 33.8 dBμV
2
dB/
#ATH
0 dB

MA SB
SC FC
ACORR

CENTER 59.380 MHz SPAN 2.000 MHz
L #IF BW 1.0 MHz #AVG BW 100 Hz SWP 500 msec

11:25:46 APR 23, 1998

CENTER
66.195 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 66.260 MHz
24.13 dBμV

MARKER
+ HIGH

MARKER
+ CF

NEXT
PEAK

NEXT PK
RIGHT

NEXT PK
LEFT

More
1 of 3

LOG REF 33.8 dBμV
2
dB/
#ATH
0 dB

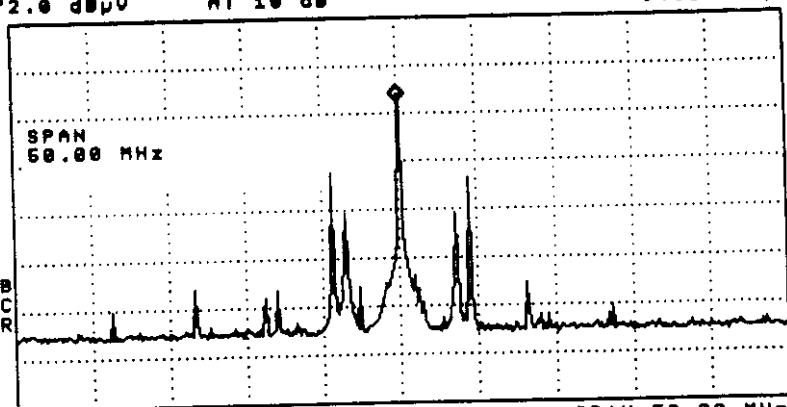
MA SB
SC FC
ACORR

CENTER 66.195 MHz SPAN 2.000 MHz
L #IF BW 1.0 MHz #AVG BW 100 Hz SWP 500 msec

11:31:51 APR 15, 1998
REF 72.0 dBμV AT 10 dB

MR 59.32 MHz
54.69 dBμV

PEAK
LOG
10
dB/



CENTER 59.32 MHz SPAN 50.00 MHz
#RES BW 10 kHz #VBW 1 kHz SWP 15.0 sec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

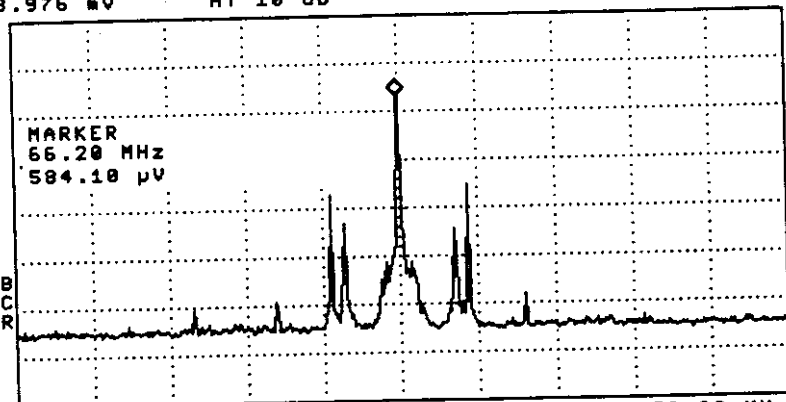
Trace
A B C

More
1 of 4

11:37:02 APR 15, 1998
REF 3.976 mV AT 10 dB

MR 66.20 MHz
584.10 μV

PEAK
LOG
10
dB/



CENTER 66.32 MHz SPAN 50.00 MHz
#RES BW 10 kHz #VBW 1 kHz SWP 15.0 sec

MARKER
A

MARKER
AMPTD

SELECT
1 2 3 4

MARKER 1
ON OFF

More
1 of 3