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Harman Music Group  
8760 South Sandy Parkway  
Sandy, Utah 84070  
Phone 801-566-8800  
Fax 801-566-7005

# Harman Music Group

## EMI Test Report



*Audio Signal Processor Measurements  
and Results*

**Model: dbx260**

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**EN 55020 Test Data.**  
**Canadian ICES -003**

## SECTION I

# TEST REPORT

## Emission of Electromagnetic Disturbances

**Equipment:** dbx260 Loud Speaker Management System  
**Manufactured By:** Dbx  
**Test Report By:** Harman Music Group  
**Trade Mark:** Dbx  
**Types:** dbx260

Note: Product name may be suffixed by the letters EU, JA, UK, NP, PS.

**Rating:** 230V, 50Hz  
**Additional Information:** none

### STANDARDS AND REGULATIONS

EN 55013:1990  
EN 55020:1991

### MEASURED RESULTS

A/ Mains Terminal Disturbance Voltage see section III.  
B/ Disturbance Power of External Lead Radiation see section IV.

### SUMMARY

The equipment meets the limits in EN 55013 and the requirements of EN 55020.

Tested by Dbx Engineering on dates as noted in sections III and IV.

Compiled by:



Date: 12/10/02

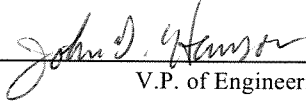
Reviewed by:



Compliance Engineer Manager

Date: 12/10/02

Reviewed by:



V.P. of Engineering

Date: 12/10/02

## INSTRUMENTATION

**A/**

### **Mains Terminal Disturbance voltage in the frequency range 9 kHz to 30 MHz**

Test Receiver	Agilent E7401A
In line Attenuator	HP 11947A Transient limiter
Artificial Mains Network, 50 S	LISN, Emco 3810/2

**B/**

### **Disturbance Power in the frequency range 30 MHz to 1000 MHz**

Test receiver	Agilent E7401A
Absorbing Clamp	Rohde & Schwarz Absorbing Clamp MDS-21

Note: For block diagram of instrumentation layout see section II.

## MEASUREMENTS AND MEASURING RESULTS

**A/**

### **Mains Terminal Disturbance Voltage in the frequency range 9 kHz to 30 MHz**

The Mains Disturbance Voltage was measured in a shielded room. Measurements were performed with a peak detector and, if required, with an average detector.

Permitted limits in the frequency range 9 kHz to 150 kHz are under consideration.

Test results are given in section III.

**B/**

### **Disturbance Power External Lead Radiation in the frequency range 30 MHz to 300 MHz**

The Radiated Disturbance Power of the external leads was measured in a shielded room with an absorbing clamp moved along the lead under test. Measurements were performed with a peak detector and, if required, with an average detector.

Permitted limits in the frequency range 300 MHz to 1000 MHz are under consideration.

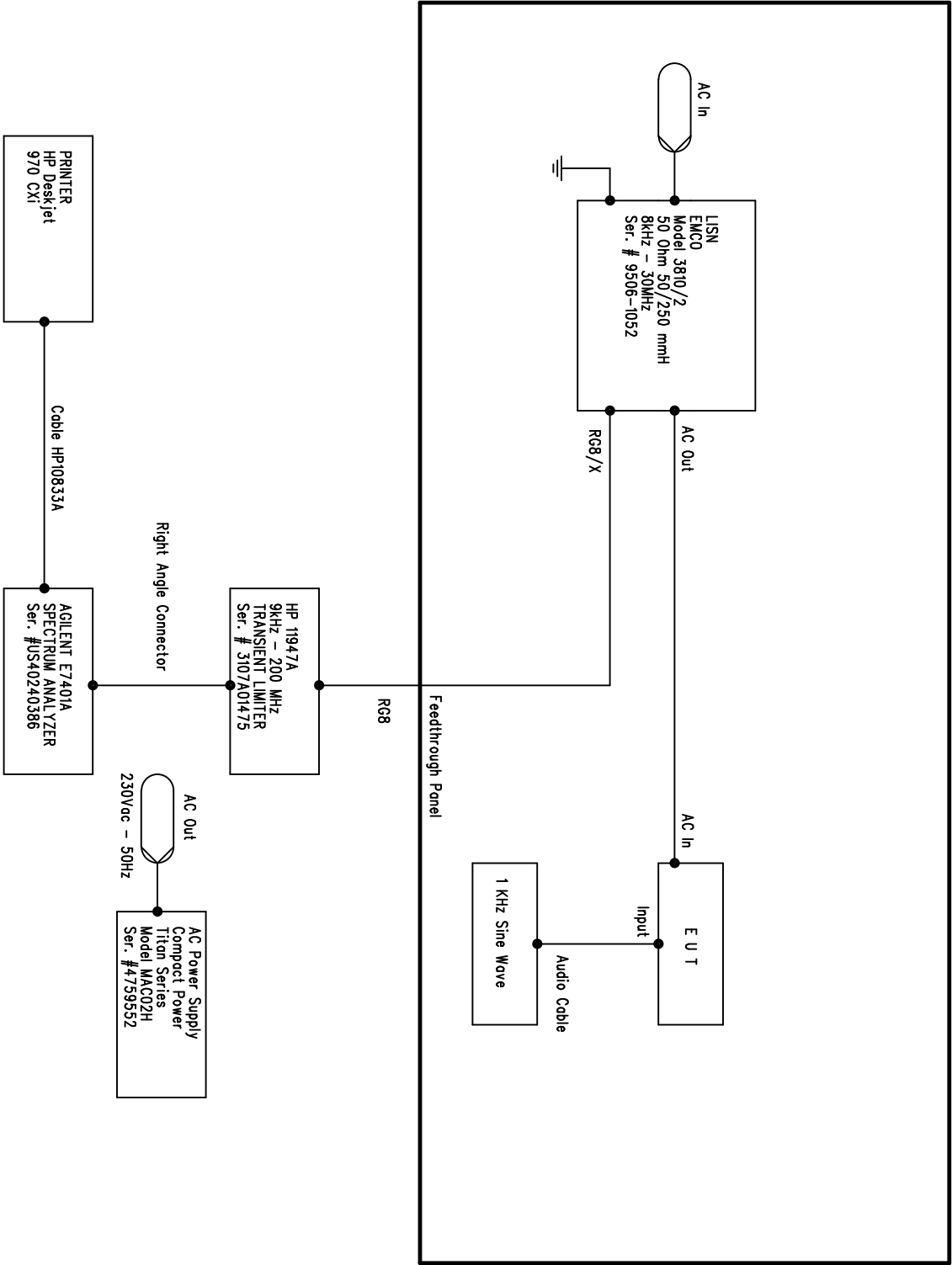
Test results are given in section IV.

## SECTION II

## INSTRUMENTATION LIST

<b><u>Brand</u></b>	<b><u>Model</u></b>	<b><u>Serial Number</u></b>
Rhode & Schwarz Absorbing Clamp	MDS21	828228/013
Agilent Spectrum Analyzer	E7401A	US40240386
Hewlett Packard Transient Limiter	11947A	3107A01475
Compact Power AC Power Supply	Titan Mac02H	4759552
EMCO LISN	3810/2	9506-1052

SHIELD ROOM



Dod Electronics Corp./ Harmon Music Group  
8760 South Sandy Parkway  
Sandy, Utah 84070

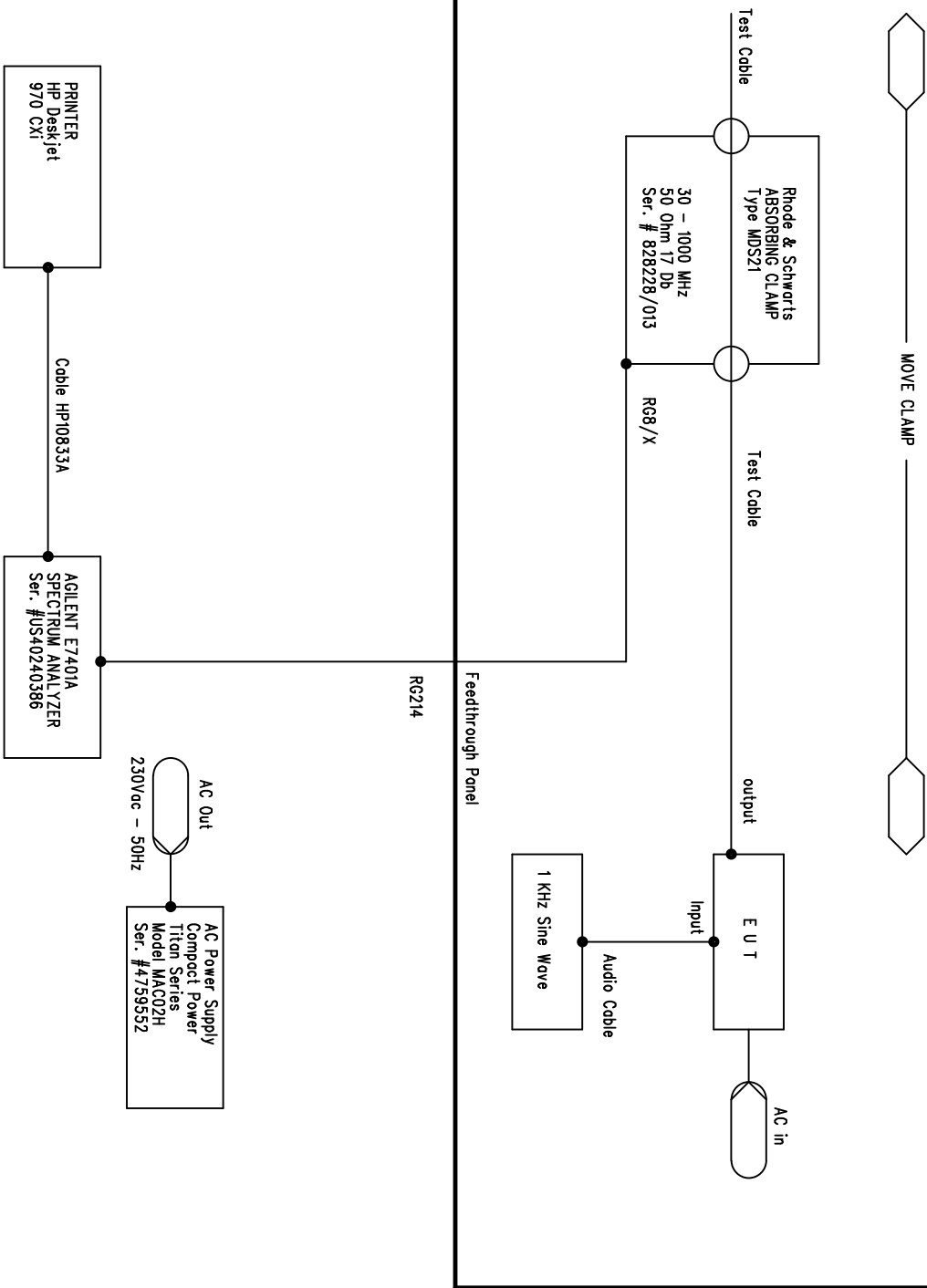
Conducted Setup for Testing Under EN - 55013

Date: Feb. 12, 2001

By: DWB



SHIELD ROOM



Dod Electronics Corp./ Harmon Music Group  
8760 South Sandy Parkway  
Sandy, Utah 84070

Radiated Setup for Testing under EN – 55013

Date: Feb. 12, 2001

By: DWB







### **SECTION III**

# EN55013 Associated Equip. - Mains Terminal

## Test Header

Description: Loud Speaker Management System

Setup Name: HMG Conducted EN55013

Customer Name: Harman Music Group

Project Number: 12302258

Operator Name: E. Morales

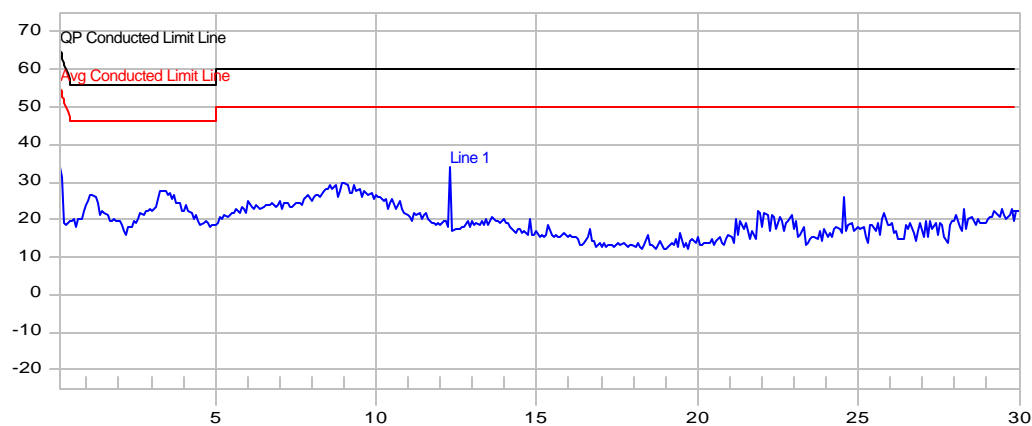
EUT Name: dbx260

Date Created: 12/3/02 2:48:30 PM

Date Modified: 12/3/02 3:00:27 PM

## Line 1

dBuV



12/3/02 2:58:19 PM

(Start = 0.15, Stop = 30.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
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## Line 2

dBuV



12/3/02 2:59:36 PM

(Start = 0.15, Stop = 30.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
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## Equipment Table

Device	Model	Serial Number	Last Cal Date	Cal Due Date
HP-E7401A	HP-E7401A	US40240386	8/29/01 2:58:37 PM	8/29/02 2:58:37 PM
HP 11947A; Transient Limiter			6/8/99 9:48:46 AM	6/8/99 9:48:46 AM
HP 11967D; LISN (10 A)			5/20/99 3:54:49 PM	5/20/99 3:54:49 PM

## Limit Lines

QP Conducted Limit  
Average Conducted Limit

## Measure Settings

Measure From List: Measure selected signals  
Frequency search: Yes  
Tune and listen: No  
Prompt before measure: No  
Update Signals: Always update signal  
Signal Path: HMG EN55013 Conducted

Receiver PreAmp: Yes  
Autorange Sweep Time: 0.200000 sec  
Peak Detector Settings  
    Dwell Time: 2.000000 sec  
    RBW: Auto  
    VBW: Auto  
    Attenuation: Auto

## Sweep Settings

Trace Name: Untitled Trace  
Use CISPR 16 Settings: Yes  
Interpolation: Linear  
Detector: Peak  
Segment Overlap %: 20.000000  
Number of Sweeps: 1  
Receiver PreAmp: Yes  
Video Average: No

Signal Path: HMG EN55013 Conducted  
Start Frequency: 0.150000 MHz  
Stop Frequency: 30.000000 MHz  
RBW: Auto  
VBW: Auto  
Ref Level: Auto  
Attenuation: Auto  
Sweep Time: Auto  
Segment Size: Auto  
Input:

## Signal Paths

HMG EN55013 Conducted  
    Receiver : HP-E7401A  
    Other Devices : HP 11947A; Transient Limiter  
    LISN : HP 11967D; LISN (10 A)

## LISN 2 - HP 11967D; LISN (10 A) Corrections

Frequency Scale : Linear

Frequency Units : MHz

**Frequency   Amplitude**

0.01	7.7
0.01	6.8
0.02	3.4
0.04	1.8
0.06	1.4
0.08	1.3
0.10	1.2
0.20	1.1
0.40	1.0
1.00	1.0
2.00	1.1
4.00	1.2
6.00	1.2
8.00	1.3
10.00	1.4
20.00	1.7
30.00	2.4

## Other Devices 1 - HP 11947A; Transient Limiter Corrections

Frequency Scale : Linear

Frequency Units : MHz

**Frequency   Amplitude**

0.01	10.0
0.01	9.9
0.03	9.8
0.10	9.8
1.00	9.8
10.00	9.9
30.00	9.9
100.00	10.2
150.00	10.4
200.00	10.8



## SECTION IV

# EN55013 Associated Equip. - Radiated Measurements

## Test Header

Description: Loud Speaker Management System

Setup Name: HMG Radiated EN55013

Customer Name: Harman Music Group

Project Number: 120302226

Operator Name: E. Morales

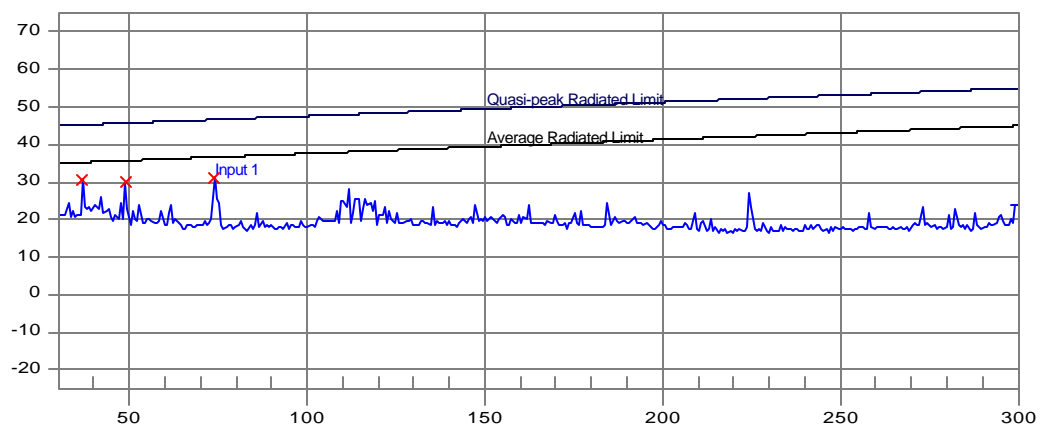
EUT Name: dbx260

Date Created: 11/18/02 11:25:24 AM

Date Modified: 12/3/02 2:47:52 PM

## Input 1

dBuV



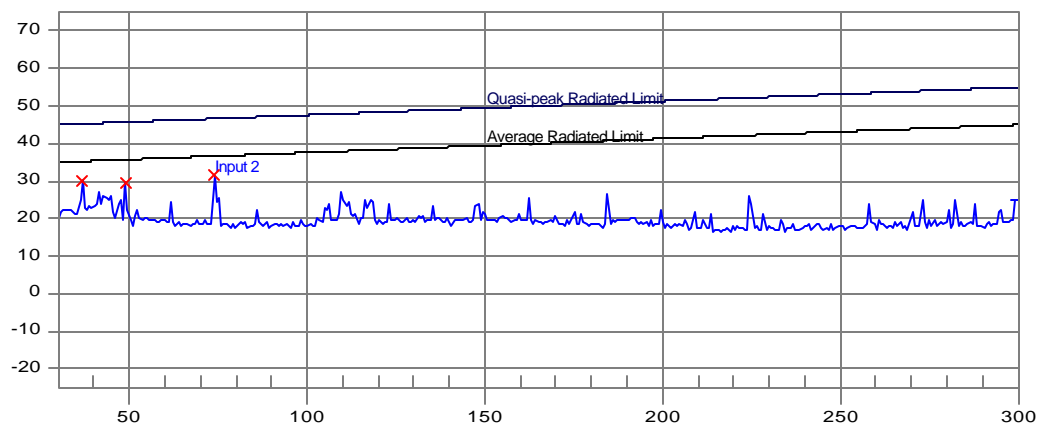
12/3/02 2:28:43 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	30.7	-4.6		
48.900	29.9	-5.8		
73.875	31.2	-5.4		

## Input 2

dBuV



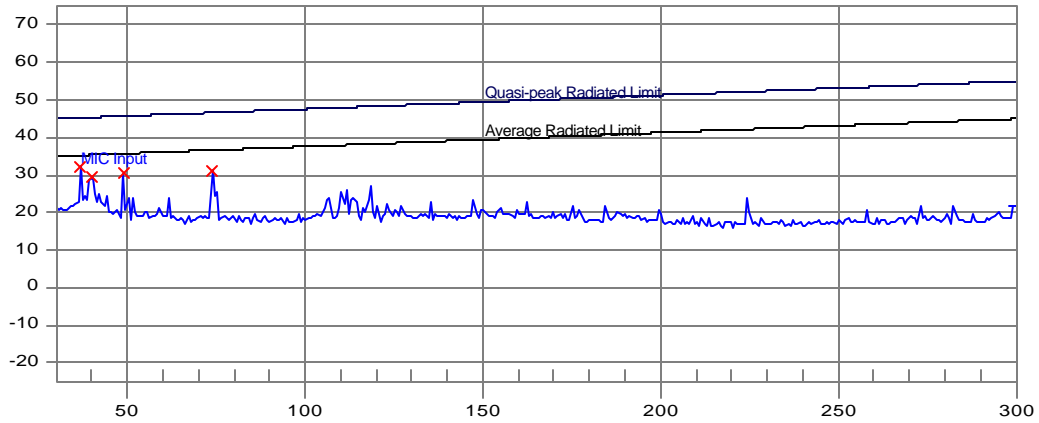
12/3/02 2:29:25 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	30.0	-5.2		
48.900	29.6	-6.1		
73.875	31.4	-5.2		

## MIC Input

dBuV



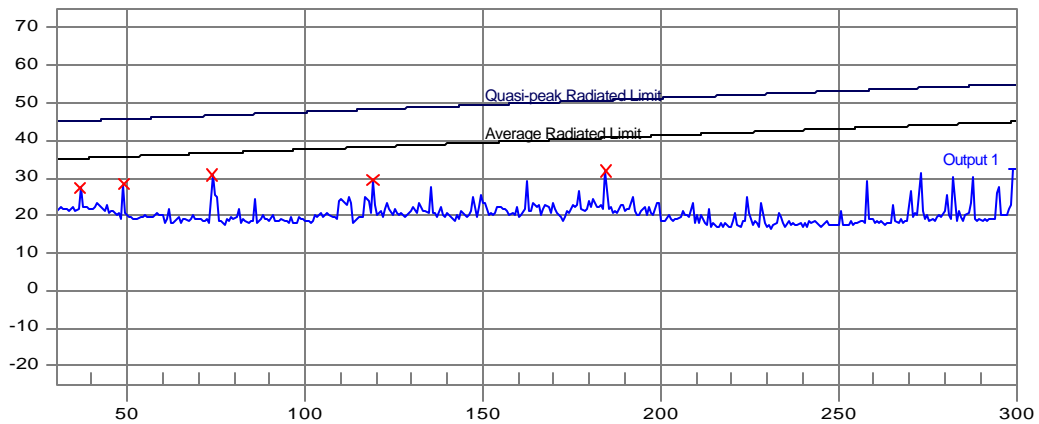
12/3/02 2:27:56 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	32.3	-3.0		
40.125	29.4	-6.0		
48.900	30.5	-5.2		
73.875	31.1	-5.5		

## Output 1

dBuV



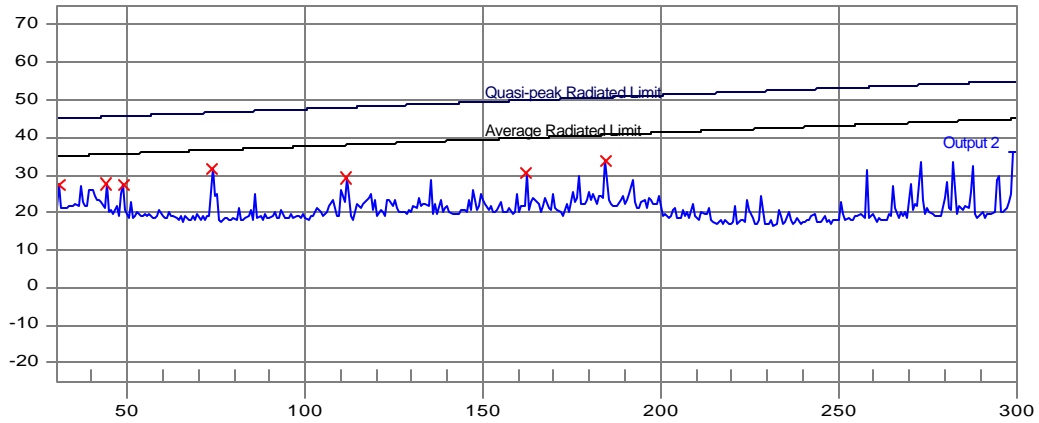
12/3/02 2:30:27 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	27.4	-7.8		
48.900	28.3	-7.4		
73.875	30.8	-5.9		
119.100	29.3	-9.0		
184.575	31.8	-8.9		

## Output 2

dBuV



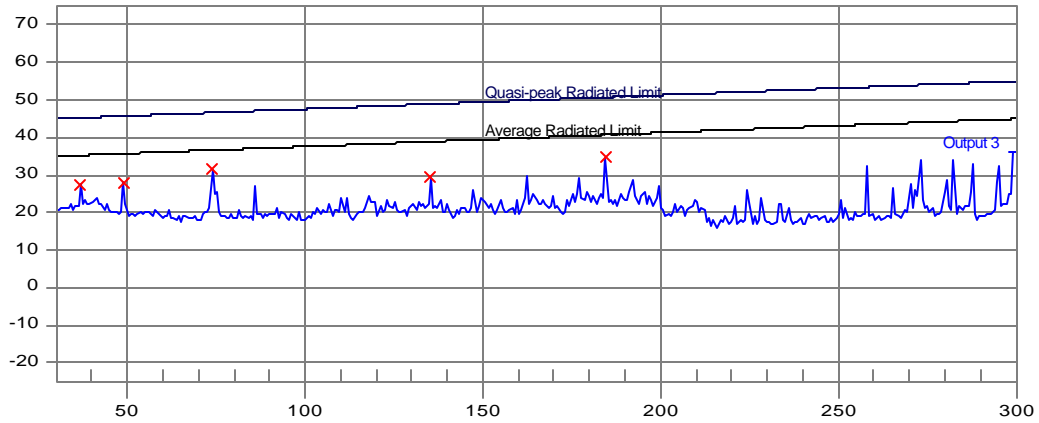
12/3/02 2:31:25 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
30.675	27.4	-7.7		
44.175	27.6	-7.9		
48.900	27.5	-8.2		
73.875	31.6	-5.0		
111.675	29.1	-8.9		
162.300	30.4	-9.5		
184.575	33.8	-6.9		

## Output 3

dBuV



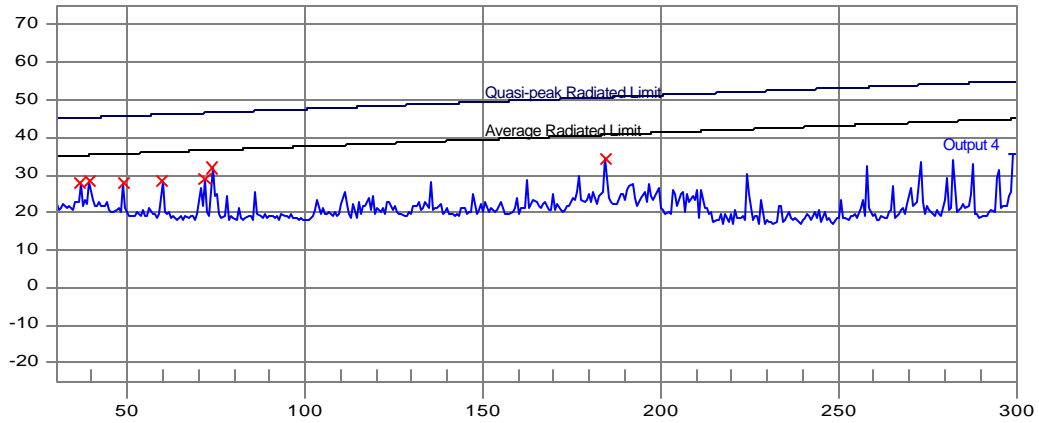
12/3/02 2:32:07 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	27.4	-7.8		
48.900	28.0	-7.7		
73.875	31.6	-5.0		
135.300	29.3	-9.6		
184.575	34.6	-6.1		

## Output 4

dBuV



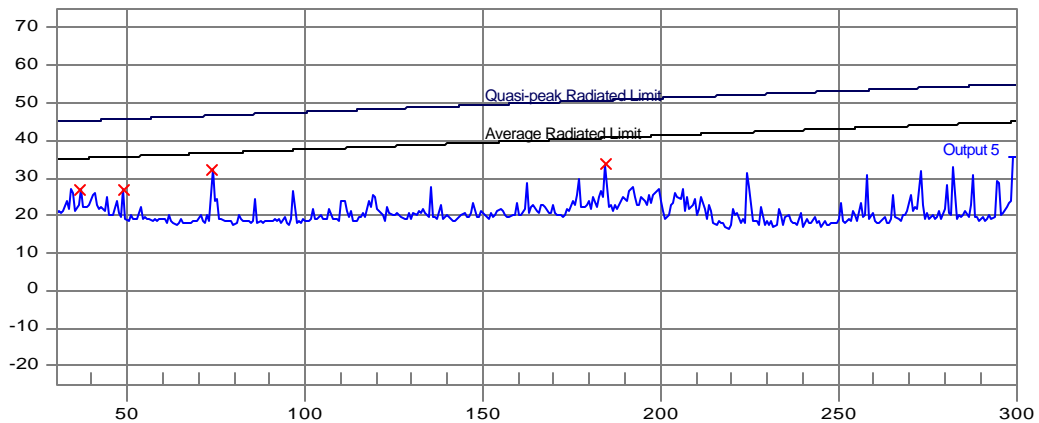
12/3/02 2:32:49 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	27.7	-7.5		
39.450	28.2	-7.1		
48.900	27.7	-8.0		
59.700	28.3	-7.8		
71.850	28.7	-7.8		
73.875	31.9	-4.7		
184.575	34.5	-6.3		

## Output 5

dBuV



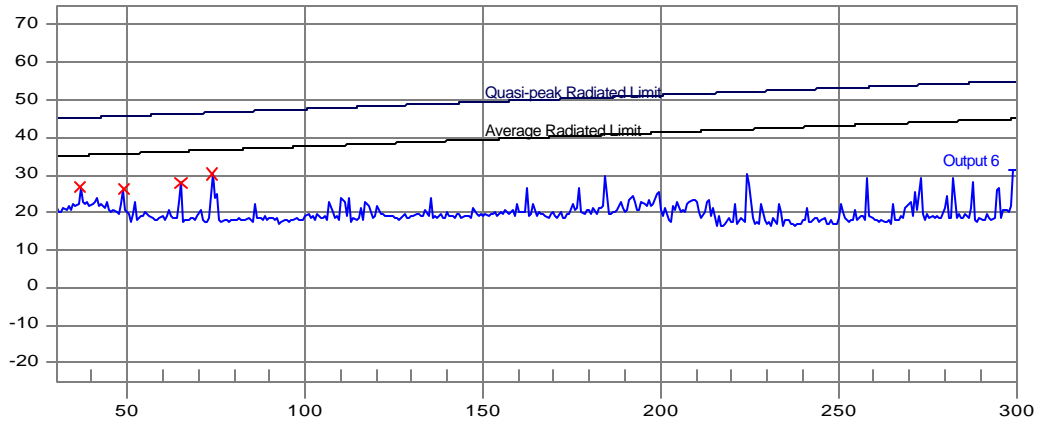
12/3/02 2:33:36 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	26.9	-8.3		
48.900	27.0	-8.7		
73.875	32.2	-4.4		
184.575	33.6	-7.1		

## Output 6

dBuV



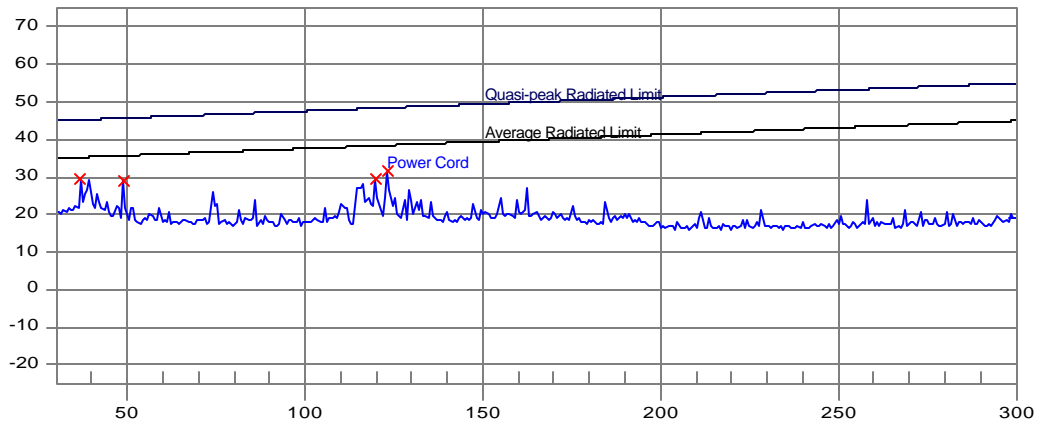
12/3/02 2:34:26 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	26.7	-8.5		
48.900	26.1	-9.6		
65.100	28.1	-8.2		
73.875	30.3	-6.3		

## Power Cord

dBuV



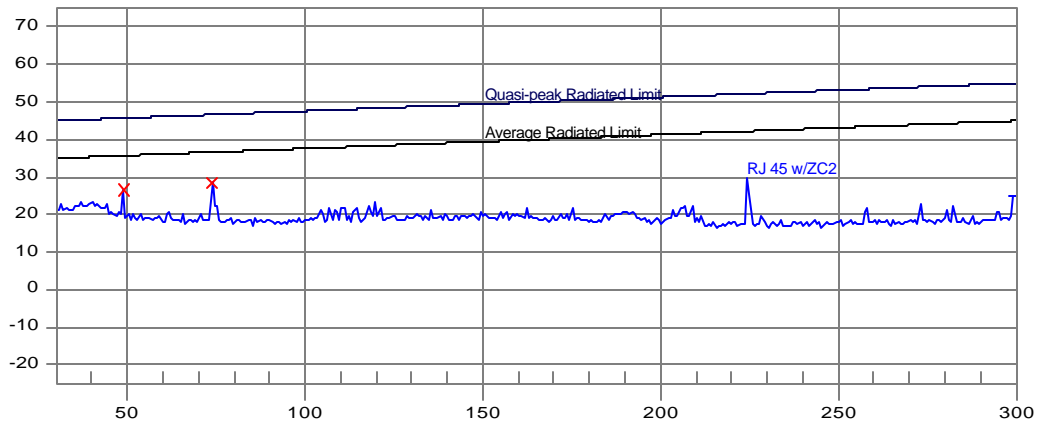
12/3/02 2:42:49 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
36.750	29.4	-5.8		
48.900	29.0	-6.7		
119.775	29.3	-9.0		
123.150	31.5	-7.0		

## RJ45

dBuV



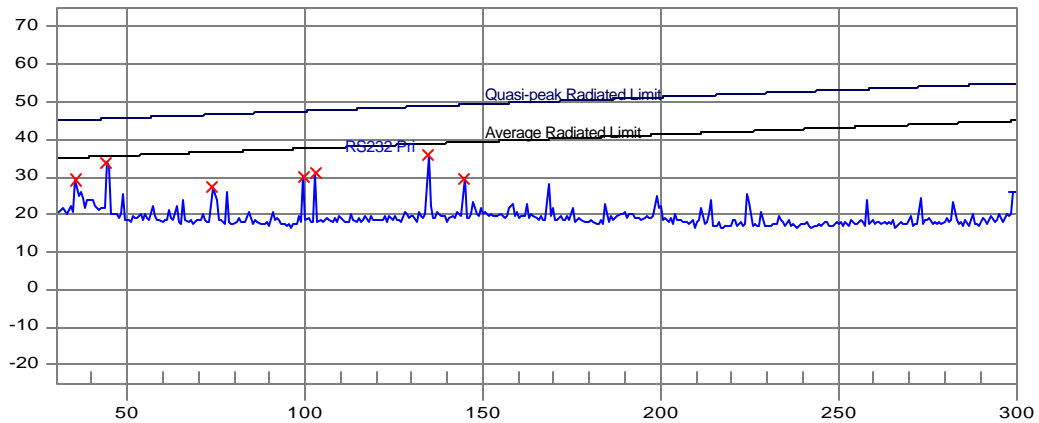
12/3/02 2:37:03 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
48.900	26.6	-9.1		
73.875	28.5	-8.1		

## RS232 Pri

dBuV

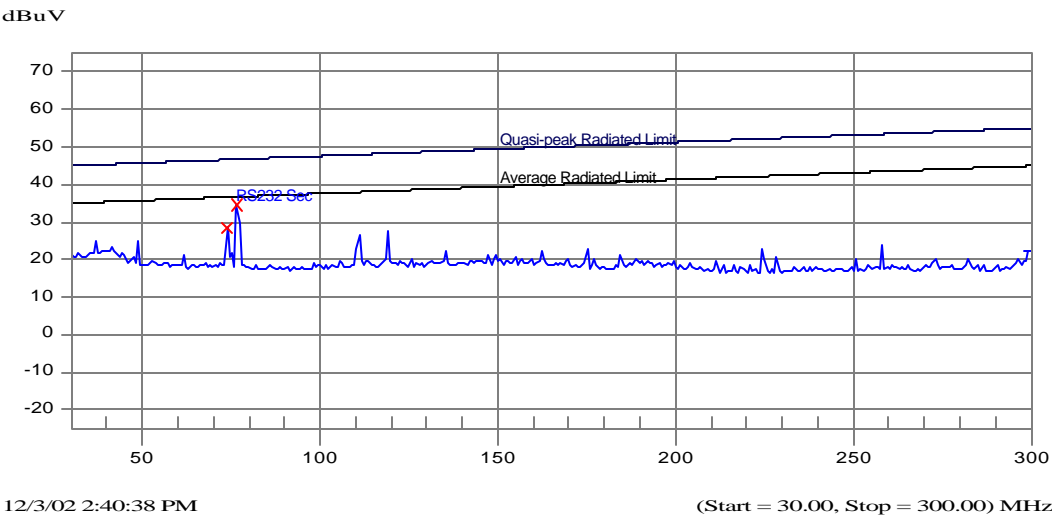


12/3/02 2:39:10 PM

(Start = 30.00, Stop = 300.00) MHz

Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
35.400	29.2	-6.0		
44.175	33.8	-1.7		
73.875	27.2	-9.5		
99.525	30.1	-7.5		
102.900	30.9	-6.8		
134.625	35.8	-3.1		
144.750	29.6	-9.7		

RS232 Sec



Frequency MHz	Peak dBuV	D: Pk Dt to Av Lim dB	D: Av Dt to Av Lim dB	D: QP Dt to Av Lim dB
73.875	28.5	-8.1		
76.575	34.5	-2.2		

Limit Lines

QP Radiated Limit  
Average Radiated Limit

Equipment Table

Device	Model	Serial Number	Last Cal Date	Cal Due Date
HP-E7401A	HP-E7401A	US40240386	8/29/01 2:58:37 PM	8/29/02 2:58:37 PM
HMG Radiated Cable			10/29/01 3:39:41 PM	10/29/01 3:39:41 PM
HMG ACLAMP Type MDS21	MDS21	828228/013	12/6/01 3:29:46 PM	12/6/01 3:29:46 PM

Measure Settings

Measure From List: Measure selected signals  
Frequency search: No  
Tune and listen: No  
Prompt before measure: No  
Update Signals: Always update signal  
Signal Path: HMG EN55013 Radiated

Receiver PreAmp: Yes  
Autorange Sweep Time: 0.200000 sec  
Average Detector Settings  
Dwell Time: 15.000000 sec  
RBW: 1000000.000000 kHz  
VBW: 1000000.000000 kHz  
Attenuation: 0.000000 dB



## Sweep Settings

Trace Name: Trial Run  
Use CISPR 16 Settings: Yes  
Interpolation: Linear  
Detector: Peak  
Segment Overlap %: 20.000000  
Dwell for: 10.000000 sec  
Receiver PreAmp: Yes  
Video Average: No  
  
Signal Path: HMG EN55013 Radiated  
Start Frequency: 30.000000 MHz  
Stop Frequency: 300.000000 MHz  
RBW: Auto  
VBW: Auto  
Ref Level: Auto  
Attenuation: Auto  
Sweep Time: Auto  
Segment Size: Auto  
Input:

## Signal Paths

HMG EN55013 Radiated  
Receiver : HP-E7401A  
Cable : HMG Radiated Cable  
Transducer : HMG ACLAMP Type MDS21

## Cable 6 - HMG Radiated Cable Corrections

Frequency Scale : Linear  
Frequency Units : MHz  
**Frequency    Amplitude**

29.99	0.0
30.00	0.4
40.00	0.4
50.00	0.4
60.00	0.5
70.00	0.5
80.00	0.5
90.00	0.6
100.00	0.6
110.00	0.7
120.00	0.7
130.00	0.8
140.00	0.7
150.00	0.8
160.00	0.9
170.00	0.9
180.00	0.9
190.00	0.9
200.00	1.0
210.00	0.9
220.00	1.0
230.00	1.0
240.00	0.9
250.00	1.1
260.00	1.0
270.00	0.9
280.00	1.0
290.00	1.1
300.00	1.2
310.00	0.0

## Transducer 22 - HMG ACLAMP Type MDS21 Corrections

Frequency Scale : Linear

Frequency Units : MHz

**Frequency    Amplitude**

30.00	2.5
40.00	4.0
50.00	0.0
55.00	0.5
60.00	0.0
65.00	-0.5
70.00	0.0
75.00	-0.5
95.00	-1.0
108.00	-0.3
110.00	-0.8
120.00	-0.5
130.00	-0.1
140.00	-0.3
150.00	-0.1
160.00	0.0
170.00	-1.0
175.00	-1.0
183.00	-1.7
189.00	-0.1
200.00	-2.4
205.00	-2.3
215.00	-2.8
225.00	-2.2
233.00	-2.4
243.00	-1.8
250.00	-2.0
260.00	-1.3
268.00	-1.5
279.00	-1.1
290.00	-1.5
295.00	-1.1
300.00	0.0

## SECTION V

## EN55020 TEST DATA

### SUMMARY

Per EN 55020 (1991), the limits and requirements for testing of Associated Equipment are listed as being Under Consideration. This apparatus under the Associated Equipment is therefore regarded as fulfilling the requirements of immunity testing as prescribed by EN 55020.

#### Canada:

These results are deemed satisfactory evidence of compliance with **Industry Canada Interference Causing Equipment Standard ICES-003**

Ces essais sont considérés comme suffisants pour prouver la conformité avec la **NMB-003 du Règlement sur le matériel brouilleur du Canada.**