

The device under test is a 450 MHz Pentium II personal computer consisting of the following components:

CASE model YC-6250 A with power supply 250W YHI
ASUSTek DUAL motherboard model P2-BDS
Matrox Millenium G100 8Mb AGP graphics card
Svec model PN-100 LAN card
Fujitsu model MPB3032AT hard drive
ALPS Electric Co., LTD model DF354H911B 3.5 " floppy drive
LG Electronics model CRD-8322B 32x CD-ROM drive

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**Report of Measurements
of Electromagnetic Compatibility Testing**

Test Report File No. : NC2579 Date of issue: February 25, 1999
Applicant : Impex Italia SRL
Model / Serial No. : GAVP7
Product Type : Computer System
Power Supply : 115 V ac
Manufacturer : Same as Applicant
License holder : Same as Applicant
Address : Via del Paracadutista, 8
42100 Reggio Emilia Italy,
Test Result : ☒ Positive ☐ Negative
Test Project Number : 99ME50017
References(s)
FCC Grantee Code: OGO
FCC ID: OGOGAVP7

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1.0 GENERAL - Product Description

The device under test is a 450 MHz Pentium II personal computer consisting of the following components:

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ASUSTek DUAL motherboard model P2-BDS
Matrox Millenium G100 8Mb AGP graphics card
Svec model PN-100 LAN card
Fujitsu model MPB3032AT hard drive
ALPS Electric Co., LTD model DF354H911B 3.5 " floppy drive
LG Electronics model CRD-8322B 32x CD-ROM drive

1.1 Device Configuration During Test

The device under test was configured for testing with the following peripherals:

104 keys NMB Italiana Keyboard FCC ID AQ6-8Z15
Three key mouse G@VI computers FCC ID 10WCM-PS2C
ADI Corp. monitor model LM-1564 FCC ID BR8LM-1564
Panasonic printer model KX-P1124i FCC ID ACJ5Z6KX-P1125

The system was configured in the standard ANSI C63.4 tabletop setup.

1.1.1 Deviations from ANSI C63.4 Standard Test Set-up

☒ None

☐ As described below:

1.2 Device Modifications Necessary for Compliance

☒ N/A

☐ As described below:

Environmental conditions in the lab:

Temperature:	<u>Range</u> 20-25°C
Relative Humidity	30 - 60 %
Atmospheric pressure	680 - 1060 mbar

2.0 EMISSIONS TEST REGULATIONS:

- | | | |
|---|---|---|
| ☐ EN 50081-1 /1992 | ☐ Group 1 | ☐ Group 2 |
| ☐ EN 50081-2 /1993 | ☐ Class A | ☐ Class B |
| ☐ EN 55011 / 3.1991 | | |
| ☐ EN 55013 / 6.1990 | ☐ Household appliances and similar | |
| ☐ EN 55014 / 2.1987 | ☐ Portable tools | |
| | ☐ Semiconductor devices | |
|
 | | |
| ☐ EN 55014 / 12.1993 | ☐ Household appliances and similar | |
| | ☐ Portable tools | |
| | ☐ Semiconductor devices | |
|
 | | |
| ☐ EN 55015 / 1993 | | |
| ☐ EN 55022 / 4.1987 | ☐ Class A | ☐ Class B |
| ☐ EN 55020 / 1994 | | |
| ☐ EN60555-2/1987, EN60555-3/1987 | | |
| ☐ EN61000-3-2, 1995, EN61000-3-3, 1995 | | |
| ☐ VCCI | ☐ Class 1 | ☐ Class 2 |
| ☒ FCC Part, 15, Subpart B | ☐ Class A | ☒ Class B |
| ☐ FCC Part, 15, Subpart C | | |
| ☐ FCC Part 18 | | |
| ☐ CISPR 11 (1990) | | |
| ☐ CISPR 14 (1993) | | |
| ☐ CISPR 22 | | |
| ☐ DENTORI | | |
| ☐ AS3548 | | |
| ☐ (OTHER) _____ | | |

2.1 EUT OPERATION MODE - EMISSIONS TESTS:

- ☐ Standby
- ☐ Test program (H-Pattern)
- ☐ Test program (color bar)
- ☐ Test program (customer specific)
- ☐ Practice operation
- ☒ Normal operation Mode: Displaying continuous "H" patterns to monitor reading/writing data files from CD ROM to hard drive to floppy drive and back to hard drive, and printing "H" pattern to parallel printer.
- ☐ As per manufacturer's instructions
- ☐ Other

2.1.1 Conducted Emissions Tests:☒ Test Applicable ☐ Test Not Applicable**All Data Pages located in Appendix A.**

Frequency range on each side of line.

- | | | |
|--|---|----------------------------------|
| ☐ 150kHz to 30MHz | ☐ Voltage | ☐ Current |
| ☒ 450kHz to 30 MHz | ☒ Voltage | ☐ Current |
| ☐ 500kHz to 30MHz | ☐ Voltage | ☐ Current |
| ☐ 10kHz to 30MHz | ☐ Voltage | ☐ Current |

Test equipment used for conducted emissions:

- | | | | |
|--|-----------------|--------------------------|-------------------------|
| ☐ HP - 8566B | Hewlett-Packard | Spectrum Analyzer | Equipment No.: ME5-589 |
| ☐ HP - 85662A | Hewlett-Packard | Analyzer Display | Equipment No.: ME5-590 |
| ☐ HP - 85650A | Hewlett-Packard | Quasi-Peak Adapter | Equipment No.: ME5-591 |
| ☐ HP - 85685A | Hewlett-Packard | Preselector | Equipment No.: ME5-588 |
| ☐ NM- 17/27B | Carnel Labs | Field Intensity Meter | Equipment No.: ME5A-054 |
| ☐ CCA7 | Carnel Labs | CISPR Quasi-peak Adapter | Equipment No.: ME5A-053 |
| ☒ R3261C | Advantest | Spectrum Analyzer | Equipment No.: ME5A-228 |
| ☒ R3551 | Advantest | Pre-Selector | Equipment No.: ME5A-229 |

Test Accessories:

- | | | | |
|--------------------------------------|--------------------------|------------------|------------------------|
| ☐ EC - 3825/2 | Electro-Mechanics (EMCO) | 50 Ω LISN | Equipment No.: ME5-629 |
| ☐ EC - 3825/2 | Electro-Mechanics (EMCO) | 50 Ω LISN | Equipment No.: ME5-790 |
| ☐ EC - 3820/4 | Electro-Mechanics (EMCO) | 50 Ω LISN | Equipment No.: ME5-438 |

2.1.2 Conducted Click Emissions Tests:☐ Test Applicable ☒ Test Not Applicable**2.2.1 Reserved for Future Use**

2.2.2 Radiated Emissions Test (10 Meter Semi-Anechoic Chamber):☒ Test Applicable ☐ Test Not Applicable**All Data Pages located in Appendix A.**The measurement antenna distance ☒ 3 ☐ 10 meters from the EUT.**Test equipment used for final radiated emissions tests:**

☒ HP - 8566B	Hewlett-Packard	Spectrum Analyzer	Equipment No.: ME5-589
☒ HP - 85662A	Hewlett-Packard	Analyzer Display	Equipment No.: ME5-590
☒ HP - 85650A	Hewlett-Packard	Quasi-Peak Adapter	Equipment No.: ME5-591
☒ HP - 85685A	Hewlett-Packard	Preselector	Equipment No.: ME5-588
☐ NM- 17/27B	Carnel Labs	Field Intensity Meter	Equipment No.: ME5A-054
☐ CCA7	Carnel Labs	CISPR Quasi-peak Adapter	Equipment No.: ME5A-053
☐ R3261C	Advantest	Spectrum Analyzer	Equipment No.: ME5A-228
☐ R3551	Advantest	Pre-Selector	Equipment No.: ME5A-229

Test Accessories:

☐ 3104C	EMCO	Biconnical Antenna	Equipment No.: ME5-810
☐ 94455-1	Ailtech	Biconnical Antenna	Equipment No.: ME5-439
☐ 3146	EMCO	Log Periodic Antenna	Equipment No.: ME5-451
☐ 3146	EMCO	Log Periodic Antenna	Equipment No.: ME5-811
☐ 3142	EMCO	BiconiLog Antenna	Equipment No.: ME5A-131
☐ 3142	EMCO	BiconiLog Antenna	Equipment No.: ME5A-261

2.2.3 RFI Power Measurements:☐ Test Applicable ☒ Test Not Applicable**2.2.4 Harmonic Disturbances:**☐ Test Applicable ☒ Test Not Applicable

2.3 EMISSIONS TEST RESULTS

☒ Conducted Emissions

☒ Voltage(Section 2.1.1)☒ MET☐ NOT MET☐ Current(Section 2.1.1)☐ MET☐ NOT MET☐ Clicks(Section 2.1.2)☐ MET☐ NOT MET

☒ Radiated Emissions(Section 2.2.2)

☒ MET☐ NOT MET

☐ RFI Power(Section 2.2.3)

☐ MET☐ NOT MET

☐ Harmonic Disturbances

☐ Steady State(Section 2.2.4)☐ MET☐ NOT MET☐ Fluctuating(Section 2.2.4)☐ MET☐ NOT MET

The tractability of the measurements contained in this report is achieved by the use of calibrated equipment which is traceable back to NIST.

3.0 IMMUNITY TEST REGULATIONS:

- ☒ NOT APPLICABLE
- ☐ EN50082-1:1992
- ☐ EN50082-2:1995
- ☐ EN55014-2: 1997
- ☐ FDA - Reviewer Guide
- ☐ Bellcore GR-1089, Core
- ☐ IEC 601-1-2

In accordance with:

- | | | |
|--------------------------------------|--|---------------------------------|
| ☐ IEC 801-2, | ☐ IEC 1000-4-2 | Electrostatic Discharge (ESD) |
| ☐ IEC 801-3, | ☐ ENV50140 | RF Immunity |
| ☐ IEC 801-4, | ☐ IEC 1000-4-4 | Electrical Fast Transient (EFT) |
| ☐ IEC 801-5, | ☐ IEC 1000-4-5 | Surge (Lighting) |
| ☐ IEC 801-6, | ☐ ENV50141 | Conducted Immunity |
| ☐ IEC 801-11, | ☐ IEC 1000-4-11 | Voltage Dips and Interruptions |

3.1 EUT OPERATION MODE - IMMUNITY TESTS:

- ☐ Standby
- ☐ Test program (H-Pattern)
- ☐ Test program (color bar)
- ☐ Test program (customer specific)
- ☐ Practice operation
- ☐ Normal operating Mode:
- ☐ As per manufacture's instructions

3.1.1 Electrostatic Discharge (ESD) Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.2 Radiated Field (RF Immunity) Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.3 Electrical Fast Transient (EFT)/Burst test:

☐ Test Applicable ☒ Test Not Applicable

3.1.4 Voltage Surge Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.5 Conducted Immunity Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.6 Voltage Dips and Interruptions:

☐ Test Applicable ☒ Test Not Applicable

File Number: NC2579

Issued: February 25, 1999

Project Number: 99ME50017, FCC Grantee Code: OGO

Model Number: GAVP7 Grantee Code: OGO FCC ID: OGOGAVP7

4.0 SUMMARY:

The equipment under test has

☒ met the technical requirements as defined under section(s) ☒ 2.0 and ☐ 3.0.

☐ not met the technical requirements as defined under section(s) ☐ 2.0 and ☐ 3.0.

Test Start Date: 2/8/99

Test Completion Date: 2/11/99

- UNDERWRITERS LABORATORIES, INC. -

Project Engineer



William Wack (Ext. 23057)
EMC Engineering Associate
International EMC Services
Engineering Services-3014AMEL

Reviewer



Robert DeLisi (Ext. 22452)
EMC Engineering Team Leader
International EMC Services
Engineering Services-3014AMEL

APPENDIX A

EMISSIONS TEST DATA

1. ☒ Conducted Emissions ☒ voltage ☐ current
 - ☒ Peak traces, Data Pages A1 and A3.
 - ☐ Quasi-Peak traces, Data Pages A___ and/through A___
 - ☐ Average traces, Data Pages A___ and/through A___
 - ☒ Discrete Frequencies, Data Pages A2 and A4.
☐ Discontinuous Interference (Clicks)
 - ☐ No clicks exceeded the steady state quasi-peak limit
 - ☐ Clicks exceeded the steady state quasi-peak limit. The limit was adjusted to _____ dB and no clicks exceeded the adjusted limit.
 - ☐ Clicks exceeded the adjusted limit. See Data Page A___ for details.
2. ☒ Radiated Emissions
 - ☒ Peak traces, Data Pages A5 and A8.
 - ☐ Quasi-Peak traces, Data Pages A___ and/through A___
 - ☐ Open Area Test Data, Data Pages A___ and/through A___.
 - ☒ Discrete Frequencies, Data Pages A6, A7 and A9.
3. ☐ RFI Power Measurements
 - ☐ Peak traces, Data Pages A___ and/through A___
 - ☐ Quasi-Peak traces, Data Pages A___ and/through A___
 - ☐ Average Traces, Data Pages A___ and/through A___
4. ☐ Harmonic Disturbances
 - ☐ Steady State Harmonics, Data Pages A___ and/through A___
 - ☐ Fluctuating Harmonics, Data Pages A___ and/through A___
 - ☐ Changing Voltage, Data Pages A___ and/through A___

Conducted RFI Voltage
Impex Italia
G@UP7 115v ac LINE 1
File: NC2579 Project: 99ME50017
Tested By: BP PEAK=BL QP=GR

FCC Part 15 Subpart B, Class B

dB[μV/m]

Frequency [MHz]

40

60

50

30

20

45

1

10

30

UL - EMC TEST SYSTEM

Date Tested: 9 Feb 199
18:12:45

Impex Italia

G@VP7 115v ac LINE 1

File:NC2579 Project:99ME50017

Tested By;BP PEAK=BL QP=GR

MKR NO.	TEST FREQUENCY [MHz]	METER READING [dB(uV)]	GAIN/LOSS FACTOR [dB]	TRANSDUCER FACTOR [dB]	LEVEL	LIMIT:1 dB[uVolts]	2	3	4
1	.63706	33.5 pk	10.3	0	43.8	47.9	N/A	N/A	N/A
2	1.00591	30.1 pk	10.3	0	40.4	47.9	N/A	N/A	N/A
3	1.60871	28.6 pk	10.4	0	39	47.9	N/A	N/A	N/A
4	3.84709	31.7 pk	10.5	0	42.2	47.9	N/A	N/A	N/A
5	5.86838	21.7 pk	10.5	0	32.2	47.9	N/A	N/A	N/A
6	18.78755	22.9 pk	11.1	0	34	47.9	N/A	N/A	N/A

pk - Peak detector

qp - Quasi-peak detector

av - Average detector

tm - Trace Math Result

LIMIT 1 : FCC Part 15 Subpart B, Class B

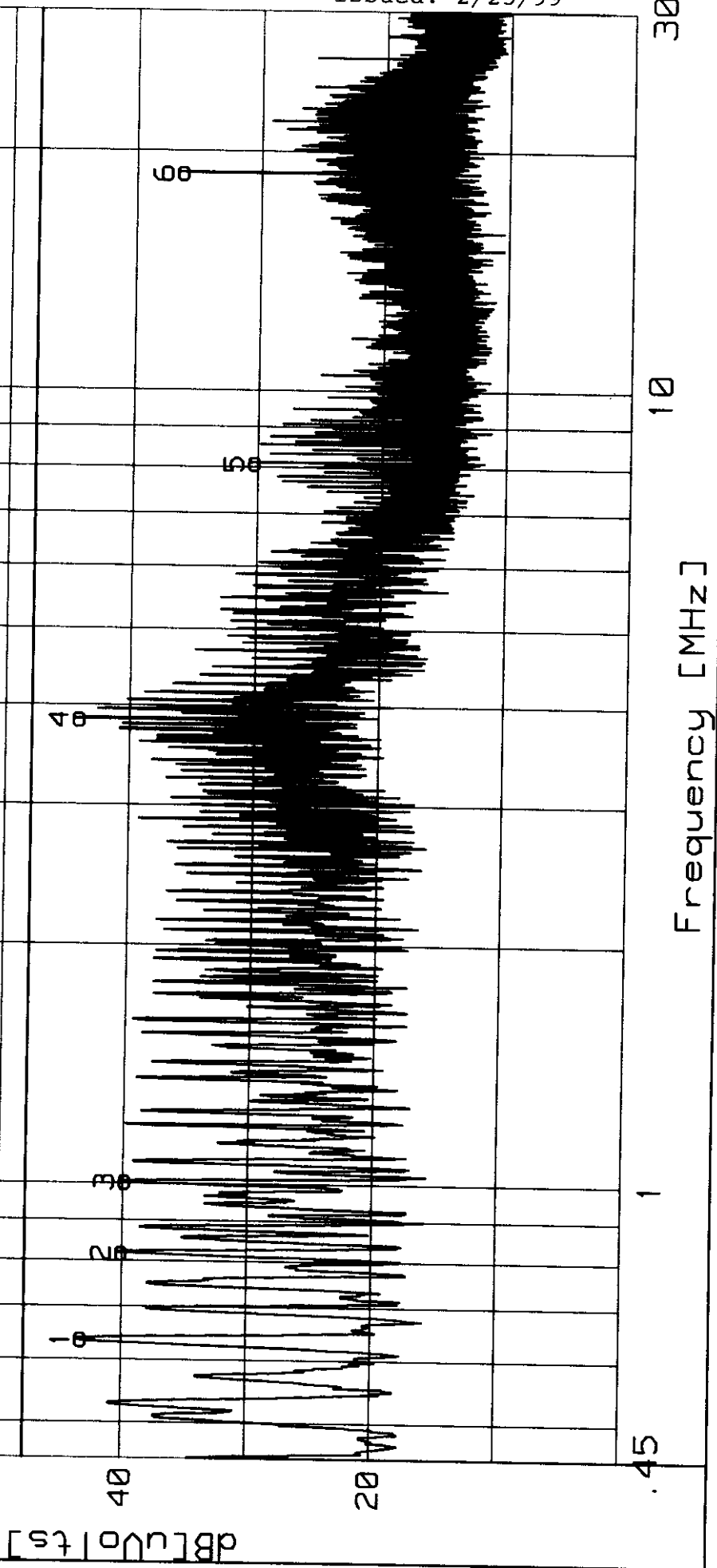
LIMIT 2 : NONE

LIMIT 3 : NONE

LIMIT 4 : NONE

Conducted RFI Voltage
Impex Italia
G0VP7 115V ac LINE 2
File:NC2579 Project:99ME50017
Tested By:BP PEAK=BL QP=GR

FCC Part 15 Subpart B, Class B



Date Tested: 9 Feb 199
19:12:02Impex Italia
G@VP7 115V ac LINE 2
File:NC2579 Project:99ME50017
Tested By;BP PEAK=BL QP=GR

MKR NO.	TEST FREQUENCY [MHz]	METER READING [dB(uV)]	GAIN/LOSS FACTOR [dB]	TRANSDUCER FACTOR [dB]	LEVEL	LIMIT:1 dB[uVolts]	2	3	4
1	.63706	33.3 pk	10.3	0	43.6	47.9	N/A	N/A	N/A
2	.82043	30.1 pk	10.3	0	40.4	47.9	N/A	N/A	N/A
3	1.00591	29.9 pk	10.3	0	40.2	47.9	N/A	N/A	N/A
4	3.84393	33.9 pk	10.5	0	44.4	47.9	N/A	N/A	N/A
5	8.10676	20 pk	10.6	0	30.6	47.9	N/A	N/A	N/A
6	18.78649	25.5 pk	11.1	0	36.6	47.9	N/A	N/A	N/A

pk - Peak detector
qp - Quasi-peak detector
av - Average detector
tm - Trace Math ResultLIMIT 1 : FCC Part 15 Subpart B, Class B
LIMIT 2 : NONE
LIMIT 3 : NONE
LIMIT 4 : NONE

Radiated Emissions
Impex Italia
G@VP7

File:NC2579 Project:99ME50017
Tested By BP; BL=HORZ GR=VERT

FCC Part 15 Subpart B Class B

dB[μV/meter]

Frequency [MHz]

85

65

45

25

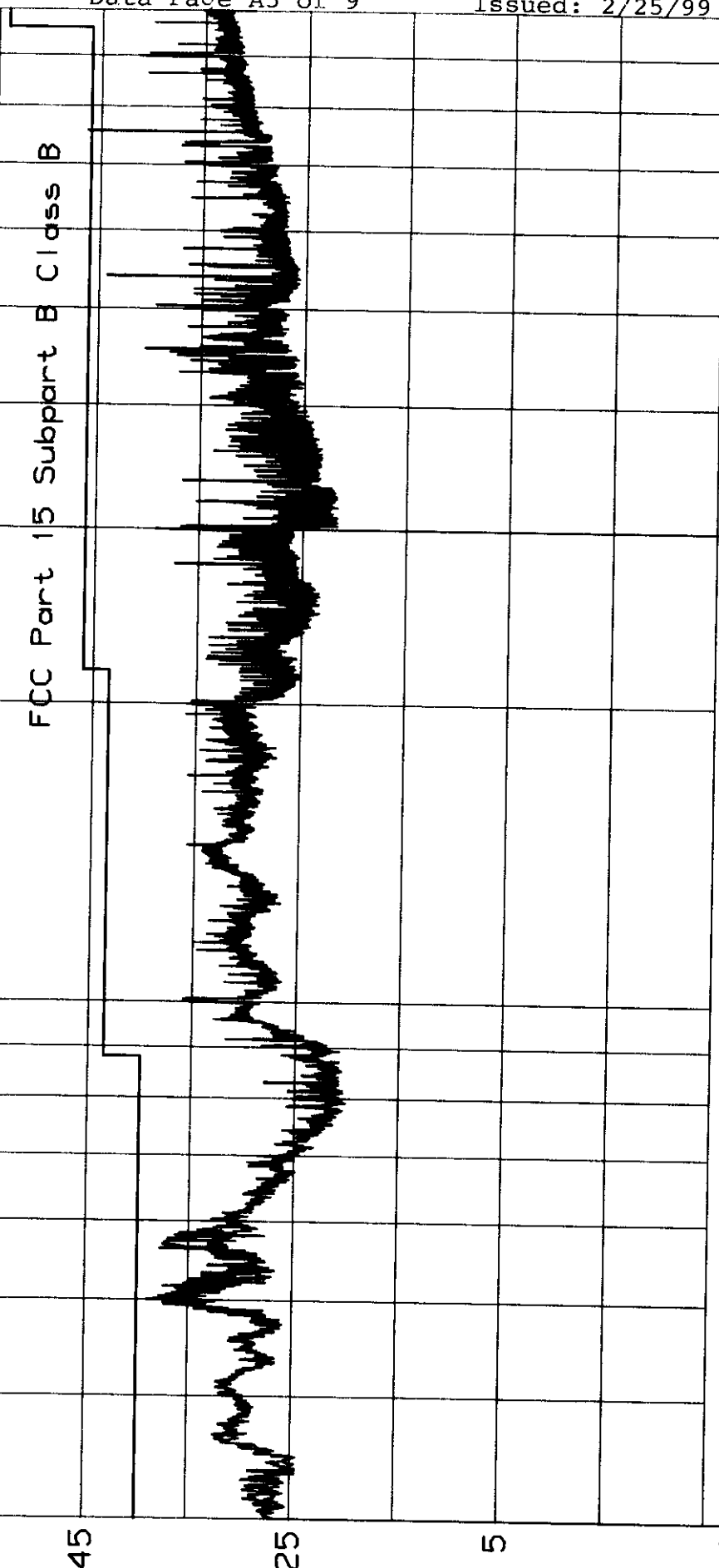
5

30

100

Frequency [MHz]

1000



Date Tested: 9 Feb 1999

21:11:13

Impex Italia

G@VP7

File:NC2579 Project:99ME50017

Tested By BP; BL=HORZ GR=VERT

DATA POINT [No.]	TEST FREQUENCY [MHz]	METER READING [dB(uV)]	GAIN/LOSS FACTOR [dB]	TRANSDUCER FACTOR [dB]	LEVEL dB[uVolts/meter]	LIMITS:1	2	3	4
1	49.71754	14.0	.4	12.8	27.2	40.0	0.0	0.0	0.0
Azimuth : 343		Height : 138 V		Margin [dB]		-12.8	---	---	---
2	49.99046	7.9	.4	12.8	21.1	40.0	0.0	0.0	0.0
Azimuth : 345		Height : 367 V		Margin [dB]		-18.9	---	---	---
3	49.99541	15.7	.4	12.8	28.9	40.0	0.0	0.0	0.0
Azimuth : 354		Height : 109 V		Margin [dB]		-11.1	---	---	---
4	50.01711	16.0	.4	12.8	29.2	40.0	0.0	0.0	0.0
Azimuth : 0		Height : 99 V		Margin [dB]		-10.8	---	---	---
5	50.02584	14.9	.4	12.8	28.1	40.0	0.0	0.0	0.0
Azimuth : 0		Height : 99 H		Margin [dB]		-11.9	---	---	---
6	50.40432	13.8	.4	12.8	27.0	40.0	0.0	0.0	0.0
Azimuth : 1		Height : 100 V		Margin [dB]		-13	---	---	---
7	50.79480	16.2	.4	12.7	29.3	40.0	0.0	0.0	0.0
Azimuth : 1		Height : 100 H		Margin [dB]		-10.7	---	---	---
8	51.03834	10.7	.5	12.7	23.9	40.0	0.0	0.0	0.0
Azimuth : 1		Height : 100 H		Margin [dB]		-16.1	---	---	---
9	51.37103	9.1	.5	12.7	22.3	40.0	0.0	0.0	0.0
Azimuth : 314		Height : 99 V		Margin [dB]		-17.7	---	---	---
10	51.76444	16.2	.5	12.7	29.4	40.0	0.0	0.0	0.0
Azimuth : 314		Height : 99 H		Margin [dB]		-10.6	---	---	---
11	56.48953	19.9	.5	12.2	32.6	40.0	0.0	0.0	0.0
Azimuth : 224		Height : 99 V		Margin [dB]		-7.4	---	---	---
12	57.82106	15.0	.5	11.9	27.4	40.0	0.0	0.0	0.0
Azimuth : 224		Height : 99 H		Margin [dB]		-12.6	---	---	---
13	58.41174	16.7	.5	11.9	29.1	40.0	0.0	0.0	0.0
Azimuth : 75		Height : 243 V		Margin [dB]		-10.9	---	---	---
14	540.05350	20.1	2.1	18.8	41.0	46.0	0.0	0.0	0.0
Azimuth : 75		Height : 243 V		Margin [dB]		-5	---	---	---
15	540.05937	23.1	2.1	18.8	44.0	46.0	0.0	0.0	0.0

Azimuth : 75	Height : 243 H	Margin [dB]	-2	---	---	---
16 756.03038	20.6	2.5	21.7	44.8	46.0	0.0
Azimuth : 75	Height : 243 H	Margin [dB]	-1.2	---	---	---
17 756.05419	16.2	2.5	21.7	40.4	46.0	0.0
Azimuth : 75	Height : 243 V	Margin [dB]	-5.6	---	---	---

H - indicates horizontal antenna polarization.
V - indicates vertical antenna polarization.

LIMIT 1 : FCC Part 15 Subpart B Class B
LIMIT 2 : NONE
LIMIT 3 : NONE
LIMIT 4 : NONE

Radiated Emissions
Impex Italia
GQUP7

File: NC2579 Project: 99ME50017
Tested By BP; BL=HORIZ GR=VERT

FCC PT15 CLASS B-RADIATED (3m)

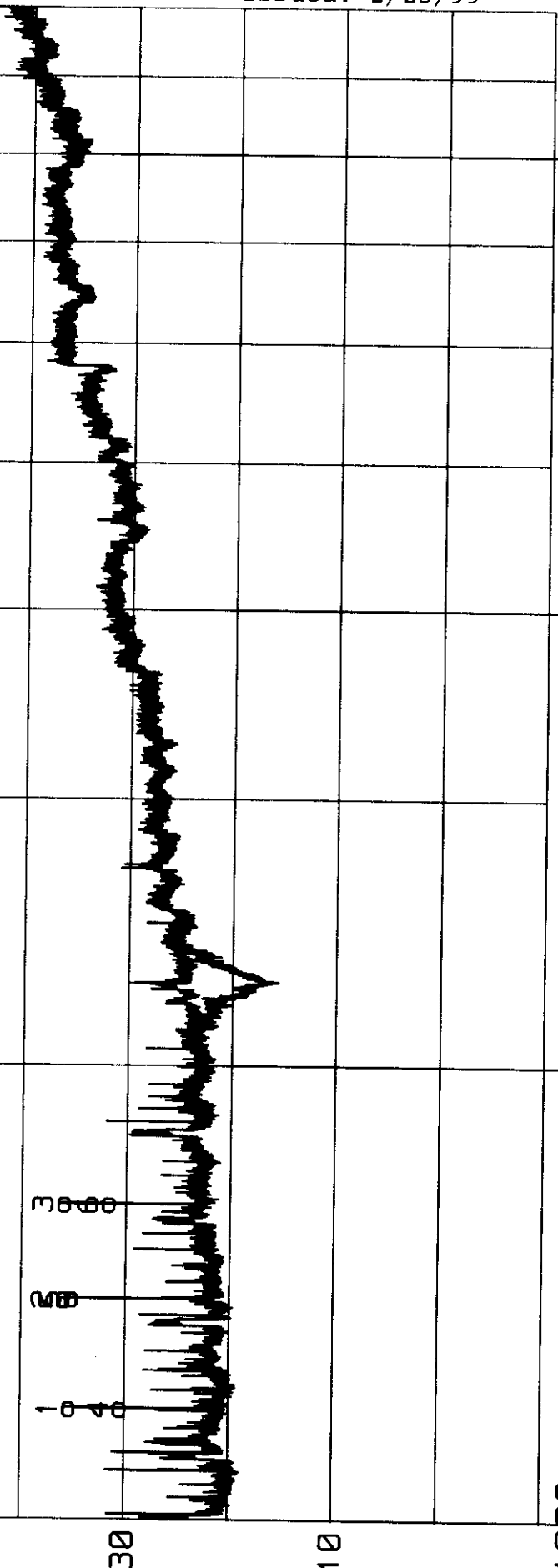
dB[uV/m]

30 40 50 60 70 80 90

1000

Frequency [MHz]

10000



Date Tested: 9 Feb 1999
20:02:27

Impex Italia

G@VP7

File:NC2579 Project:99ME50017

Tested By BP; BL=HORZ GR=VERT

MKR	TEST	METER	GAIN/LOSS	TRANSDUCER	LEVEL	LIMIT:1	2	3	4
NO.	FREQUENCY	READING	FACTOR	FACTOR		dB[uVolts/meter]			
	[MHz]	[dB(uV)]	[dB]	[dB]					
1	1187.188	45.1 pk	-35	25.6	35.7	54	N/A	N/A	N/A
2	1403.222	44.5 pk	-34.7	26.5	36.3	54	N/A	N/A	N/A
3	1619.256	43.3 pk	-34.3	27.3	36.3	54	N/A	N/A	N/A
4	1187.188	40.2 pk	-35	25.6	30.8	54	N/A	N/A	N/A
5	1403.472	43.7 pk	-34.7	26.5	35.5	54	N/A	N/A	N/A
6	1619.256	39 pk	-34.3	27.3	32	54	N/A	N/A	N/A

pk - Peak detector

qp - Quasi-peak detector

av - Average detector

tm - Trace Math Result

LIMIT 1 : FCC PT15 CLASS B-RADIATED (3m)

LIMIT 2 : NONE

LIMIT 3 : NONE

LIMIT 4 : NONE

Exhibit 4

Report of Measurements Paragraph 2.1c33(b) (6)