

MEASUREMENT / TECHNICAL REPORT

SIEMENS NIXDORF AG

Model: Personal Computer Scenic Pro C6

FCC ID: HSSSCENICC603

April 27, 1998

This report concerns:

☒ Original grant

☐ Class II change

Equipment type:

Personal Computer

Request issue of grant:

☒

Immediately upon completion of review

☐

Defer grant per 47 CFR 0.457(d)(1)(ii) until _____ date _____. Company Name agrees to notify the Commission by _____ date _____ of the intended date of announcement of the product so that the grant can be issued on that date.

Measurement procedure used:

☒

ANSI C63.4-1992

☐

FCC/OET MP-4(1987)

☐

other _____

Limits on compliance with: CISPR 22 resp. FCC class B

Application for Certification prepared by:

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NIXDORF**

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Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro C6

FCC Identifier:
HSSSCENICC603

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Attachment A: User Manual

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1 GENERAL INFORMATION

1.1 Product Description

The Siemens Nixdorf Computer Scenic C6 is a compact desktop table personal computer, which is for commercial as well as for house use. The system board integrates the Pentium Processor, memory, I/O-technologies, a graphic controller, a LAN controller and an audio controller. The main system unit is assembled with Processors Intel Pentium II 233 MHz to 333 MHz.

Description of the power supplies:

- Power supplies:

ASTEC, model	S26113-E412-V30
Minebea, model	S26113-E412-V20

Features Overview:

- System board in LPX format
- Intel Pentium II processor 233 MHz - 333 MHz
- main memory 16 to 384 MBytes (SDRAM)
- video on board (2 MByte)
- audio on board
- LAN on board (10/100 MBit)
- 2 MBit Flash-BIOS
- CMOS RAM 256 Byte
- Video upgrade via JEDEC module up to 6 MByte

- Expansion slots (via Riser connector):
3 x PCI
1 x AT bus

The personal computer is assembled by Siemens Nixdorf Informationssysteme AG, Buergermeister-Ulrich-Str. 100, 86199 Augsburg.

1.2 Related Submittal Grant

N/A

1.3 Tested System Details

The FCC IDs for all equipment, plus description of all cables used in the tested system are:

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
1	Siemens Nixdorf Scenic Pro C6 S26361-K490-V5**	HSSSCENICC603	PC EUT	unshielded power cord [292]
2a	Siemens Nixdorf MCM 2108 NTD S26361-K479-V150	M9U9703C97BMD	Monitor	unshielded power cord [175] shielded video cable [168]
2b	Siemens Nixdorf MCM 1705 NTD	A3LCGH760	Monitor	unshielded power cord [175] shielded video cable [168]
3	Siemens Nixdorf S26381-K252-V120	9G6935IACF	Keyboard	shielded keyboard cable [143]
4	Microsoft MS 2.1A	C3KKMP3	Mouse	shielded mouse cable [183]

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Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
5	Hewlett Packard HP 2225C+ (3019S70991)	DSI6XU2225	Printer, parallel I/F	unshielded AC ca- ble [180], shielded centronics cable [190]
6	Hewlett Packard HP 2225D+ (3012S70819)	DSI6XU2225	Printer, serial I/F	unshielded power cord [185], shiel- ded serial cable [190]
7	Hewlett Packard HP 2225D+ (2952S61299)	DSI6XU2225	Printer, serial I/F	unshielded power cord [185], shiel- ded serial cable [190]
8		N/A	Line in	shielded cable, terminated [203]
9	Siemens	N/A	USB cable	shielded cable, terminated [192]
10	Siemens	N/A	USB cable	shielded cable, terminated [192]
11	Escom	N/A	Microphone	shielded cable [142]
12	Power beat P10	N/A	Loud- speakers	shielded cable, [166 + 124]
13	Microsoft SideWinder 3D Pro	C3KMJ1	Joystick Part No: 63545	shielded cable

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Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
	<u>Pos 1 contains:</u>			
a1	ASTEC (UK), AA20040 SNI: S26113-E412-V30	N/A	Power supply	
a2	Minebea ML145S2CE01310 SNI: S26113-E412-V20	N/A	Power supply	
b	Siemens Nixdorf S26361-D1026-A12	N/A	System board	
c	Matrox Twister 1264SSG 4 MB B7406-V52 SMX:KMM966G512 AQN-G8 512KX64-8 GRAF-SOD S7974	N/A	Video storage piggy board	
d	SNI S26361-D960-V1 GS 4	N/A	Chip card reader	
e	SEC KMM366S403BTN- G2	N/A	RAM	
f	Intel Pentium II 333 MHz	N/A	Processor module	

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Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
g	NEC CDR-1800A S26361-H341-V500	A3CDR-1800A	CD-ROM drive	
h	Quantum Fireball ST QUM: FBST32A S26361-H336-V100	N/A	Hard disk drive	
i	Sony MPF 920-C S26361-H303-V500	N/A	Floppy disk drive	

Remark: positions 2a / 2b, a1 / a2 and 7 / d optional

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1.4 Test Methodology

Both, conducted and radiated tests were performed according to the procedures in ANSI C63.4-1992. Radiated testing below 1 GHz was performed at an antenna to EUT distance of 10 meters above 1 GHz at an antenna to EUT distance of 3 meters. All radiated emission measurements were done in an anechoic chamber. Limits for radiated and conducted are in compliance with CISPR 22 resp FCC class B.

1.5 Test Facility

The anechoic chamber and conducted measurement facility used to collect the emission data is located at Siemens Nixdorf Informationssysteme AG, Bürgermeister Ulrich Str. 100, 86199 Augsburg, Germany. This site has been fully described in a report dated January 24, 1997 submitted to your office, and accepted in a letter dated March 03, 1997 (31040/SIT).

1.6 Referenced Rules Sections

N/A

3 SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a maximum fashion (as a customer can use it). Each type of external ports was connected with a peripheral unit (e.g. serial port connected to a serial printer, external keyboard port connected to a keyboard and so on). As the system can be provided alternatively either with a chip card reader or with a second serial port, both configurations were tested. During radiated emission the monitor was powered via system unit, during conducted emission also the external monitor supply was tested.

The system clock is 66 MHz, the clock frequency was tested with the highest possible processor:

66 MHz clock: Pentium II 333 MHz

The system can be provided with two kinds of power supplies:

- | | | |
|-----------|----------------|----------------------|
| - ASTEC | AA20040 | SNI: S26113-E412-V30 |
| - Minebea | ML145S2CE01310 | SNI: S26113-E412-V20 |

Both kinds of power supplies with each video resolution were measured.

Referring to radiated emission the following (worst case) results are applicable:

ASTEC PSU:

Frequency range 30 MHz - 1 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with chip card reader

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

Frequency range 1 GHz - 3 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with chip card reader

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

Frequency range 1 GHz - 3 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

Referring to conducted emission the following (worst case) result is
applicable:

ASTEC PSU:

66 MHz clock/Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with chip card reader

66 MHz clock/Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with second serial printer

Minebea PSU:

66 MHz clock/Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with chip card reader

66 MHz clock/Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with second serial printer

3.2 Video mode Justification

The system was tested in video graphic modes 1024 x 768, 1280 x 1024 and 1600 x 1200. To get comparable results when measuring different video resolutions it is necessary to carry out the test with one monitor which is capable to drive all high resolutions. Such a high performance monitor has a special ferrite loaded video cable. To prove the compliance of the EUT without ferrite on the host side, we additionally tested the system with a representative standard 17" monitor provided with a cable without any ferrite in a video resolution which is usual for standard monitors (1024 x 768). The worst case combination (with clock frequency, video mode and power supply) of the system was used to collect the included data.

The following data is applicable:

radiated emission:

ASTEC PSU:

Frequency range 30 MHz - 1 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with chip card reader

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

Frequency range 1 GHz - 3 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with chip card reader

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

Frequency range 1 GHz - 3 GHz:

66 MHz clock/Pentium II 333 MHz, video resolution 1600 x 1200/85 Hz
system with second serial printer

conducted emission:

ASTEC PSU:

66 MHz clock/ Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with chip card reader

66 MHz clock/ Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with second serial printer

Minebea PSU:

66 MHz clock/ Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with chip card reader

66 MHz clock/ Pentium II 333 MHz, video resolution 1280 x 1024/100 Hz
monitor power separate, system with second serial printer

3.3 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

The used sequence is:

- scrolling "H" with applicable video mode (see 3.2)
- internal Floppy drive writes to the HD and reads back
- internal CD-ROM writes to the HD
- "H`s" are sent to the printer ports
- data is sent to USB ports

3.4 Special Accessories

As shown in Figure 3.1, all interface cables used for compliance testing are shielded like normally supplied by the manufacturer. All cable connectors feature integral metal hoods for shielding.

3.5 Equipment Modifications

To achieve compliance to Class B levels, the following modifications were made during compliance testing:

no modifications

Applicant Signature _____ Date _____

Typed/Printed Name _____ Position _____

3.6 Configuration of Tested System

All necessary tests were carried out like figure 3.1. The system was used according to paragraph 1.1. During test for conducted emission the EUT was connected to a LISN. All peripherals were supplied by a second LISN. The equipment was configured according to ANSI C63.4-1992 Fig 11.

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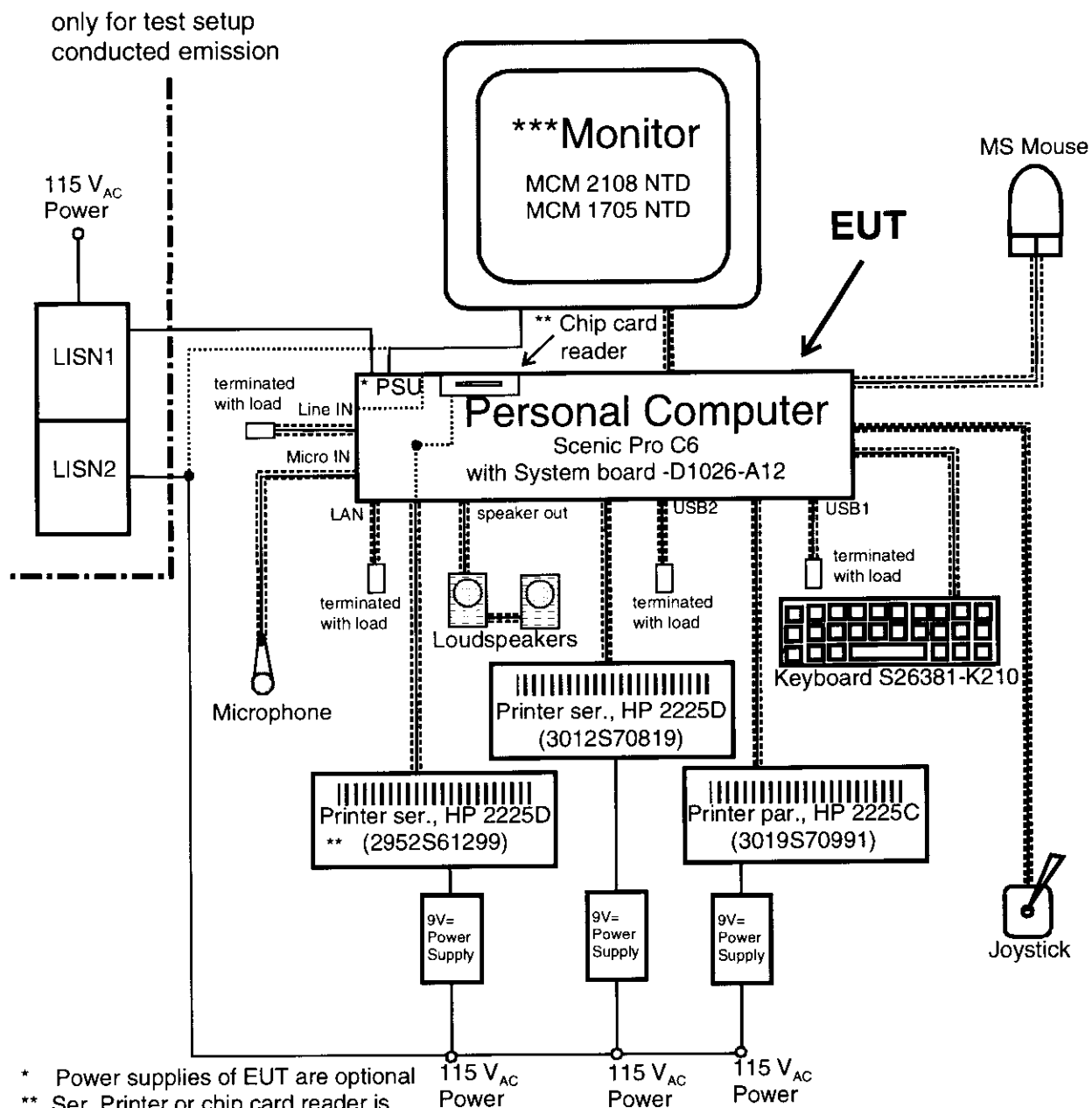
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Figure 3.1 Configuration of Tested System



- * Power supplies of EUT are optional
- ** Ser. Printer or chip card reader is alternative
- *** Monitors are optional see 1.3 Tested system details

4 BLOCK DIAGRAM OF EUT

see fig 4.1 page 24

4.1 Block Diagram Description (see fig. 4.1)

The major parts of the system are (fig 4.1).

- System board
- Power supply
- Floppy disk drive
- Hard disk drive
- CD-ROM drive
- Chip card reader
- Peripheral connector area ((Keyboard, Mouse, Ser. 1, Ser. 2 (alternative with the chip card reader), Audio, Video, Parallel Port, USB and LAN))

The detailed diagram of the system board is shown in fig 4.1

The personal computer works exactly like a traditional PC.

4.2 Clock frequencies of EUT

Clock synthesizer	14,318 MHz
Host Bus	66 MHz
PCI-Bus	33 MHz
PIIX4 to USB	48 MHz
ISA Bus	14/8,33 MHz
Audio	16,934 MHz
I/O controller	24 MHz
LAN to PCI	33 MHz
Keyboard	12 MHz
SDRAM-Clock	66 MHz
SM-Bus	8,33 MHz
AGP-Bus	66 MHz
Wave table Crystal to Audio Crystal	16,934 MHz
SGRAM-Clock	125 MHz

4.3 Theory of Operation

The compact desktop PC works exactly as a traditional PC.

The processors run internally at 233, 266, 300 or 333 MHz. The used frequency depends on the Processor type Pentium II and a concerning adjustment via dip switches. The system clock is in each case the same - 66 MHz and is multiplied by the processors internally by 3,5, 4,0, 4,5 or 5,0.

The highest possible frequencies and the corresponding processors are:

System clock	Processor	factor
66 MHz	233 MHz	3,5
66 MHz	266 MHz	4,0
66 MHz	300 MHz	4,5
66 MHz	333 MHz	5,0

5.5 Test setup, radiated emission with chip card reader, front side view

identical to photo 5.8 except for second serial printer

6 CONDUCTED EMISSION DATA

6.1 Test Procedure

The initial step in collecting conducted emission data is a Rohde & Schwarz Test Receiver (ESHS10). During first scan all data in peak mode is measured, then all significant peaks are explored either in quasi-peak mode or in average mode. In case of low noise (no peak value reaches the quasi peak limit), only average checks are done.

6.2 Measured Data

The conducted emission was measured the following way:

1. Peak noise on L
2. Peak noise on N

During the emission measurement the printers are supplied with power via a second LISN, the monitor was either powered via the system unit or separately.

The worst case results of each power supply with the corresponding configuration (video resolution, supply modus and printer / chip card reader configuration) are given next:

- a) Configuration with ASTEC PSU (chip card reader)
- b) Configuration with ASTEC PSU (second serial printer)
- c) Configuration with Minebea PSU (chip card reader)
- d) Configuration with Minebea PSU (second serial printer)

Judgement: Passed by

	Frequency [MHz]	Measured [dB(μV)]	Kind of value	Limit [dB(μV)]	Margin	Confi- guration
neutral	24,096	35	AV	50	15	a
neutral	24,096	35	QP	60	25	a
neutral	0,498	29,9	AV	46	16,1	a
phase	0,570	29,4	AV	46	16,6	a
neutral	0,852	29,9	AV	46	16,1	a
phase	0,492	29,5	AV	46	16,6	b
neutral	0,564	30,30	AV	46	15,7	b
neutral	0,846	29,70	AV	46	16,3	b
neutral	0,846	32,8	QP	56	23,2	b
neutral	0,210	42,90	AV	53	10,3	c
neutral	0,318	38,10	AV	50	11,7	c
phase	0,534	32,90	AV	46	13,1	c
phase	0,534	33,60	QP	56	22,4	c
neutral	0,210	38,60	AV	53	14,6	d
phase	0,318	35,30	AV	50	14,5	d
phase	0,534	28,90	AV	46	17,1	d
phase	0,636	30,10	AV	46	15,9	d
neutral	0,636	30,60	QP	56	25,4	d

AV: average

QP: quasi peak

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Test Personnel:

Tester Signature: J. Sommer Date: May 05, 1998

Printed Name: J. Sommer

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Measurement Protocols

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ASTEC PSU:

66 MHz clock/Pentium II 333 MHz
video resolution 1280 x 1024/100 Hz
monitor power separate
system with chip card reader

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66 MHz clock/ Pentium II 333 MHz
video resolution 1280 x 1024/100 Hz
monitor power separate
system with second serial printer

42 - 44

Minebea PSU:

66 MHz clock/ Pentium II 333 MHz
video resolution 1280 x 1024/100 Hz
monitor power separate
system with chip card reader

45 - 47

66 MHz clock/ Pentium II 333 MHz
video resolution 1280 x 1024/100 Hz
monitor power separate
system with second serial printer

48 - 50

conducted noise according to:

EN55022/B

EUT: Scenic Pro C6 with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scr."H" 1200 x 1024, 100Hz + HD/CD-test
Test Site: EMC CENTER Augsburg ; SK2
Operator: J.Sommer
Comment : meas. point: N, L1 of EUT, PE grounded
Comment: P.S.: E412-V20; Monitor: MCM2108, extern powered
Start of Test: 26.02.1998 / 12:30:20

SCAN TABLE: "Volt_015-30av"

Unit: dBµV

Detector: Mode:

Curve 1: MaxPeak MaxHold
Curve 2: Average MaxHold

Subrange 1:

Start Frequency: 150.0 kHz Step Size: 6.0 kHz
Stop Frequency: 30.0 MHz
Measure Time: 10.0 ms
IF Bandwidth: 10 kHz

Receiver: ESH3 Transducer: ESH3-Z5
Signal Path: None System Transducer: None
Meas. Mode: Lin Add. Transd. 1: ESH3-Z2
Tracking Gen.: Off Add. Transd. 2: None
Input: -- Add. Transd. 3: None

Preamplifier: -- Demodulation: A3
RF Att.: 0 dB Volume: --
Ref. Level: -- Squelch: --
Min. RF Att.: -- Option: None
IF Att.: LowDistortion
Autorange: On

Curve 1: On Repetition: 0
Curve 2: On Stop Mark: Off
Stop Message: Off
Stop Message:

MEASUREMENT RESULT: "Quasi Peak"

26.02.1998 13:07

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.180000	31.80	64	32.7		N	GND
0.210000	45.40	63	17.8		L1	GND
0.318000	42.50	60	17.3		N	GND

MEASUREMENT RESULT: "Quasi Peak"

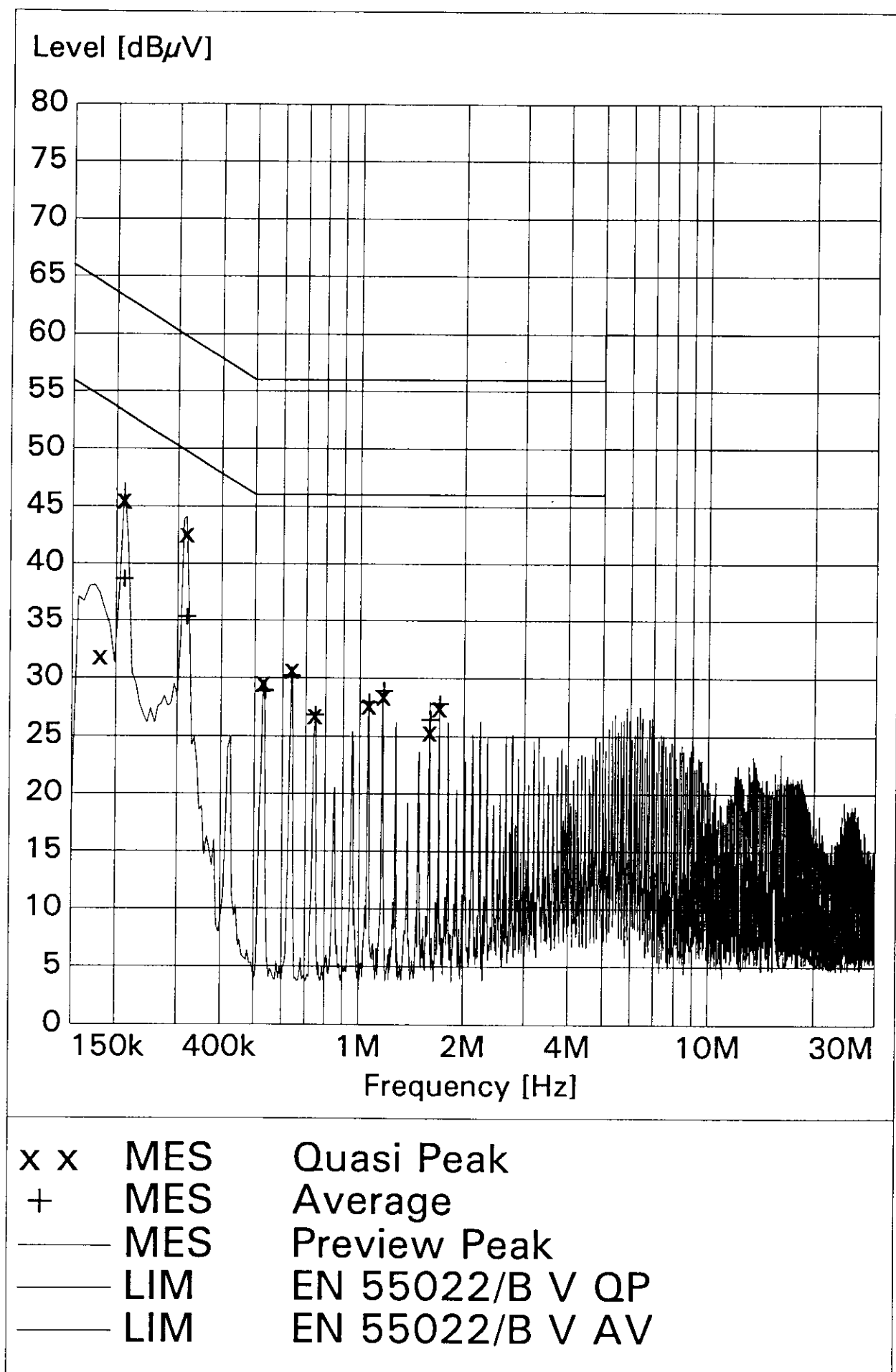
(continued)

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.528000	29.50	56	26.5		L1	GND
0.636000	30.60	56	25.4		N	GND
0.744000	26.70	56	29.3		L1	GND
1.062000	27.60	56	28.4		L1	GND
1.170000	28.40	56	27.6		N	GND
1.590000	25.30	56	30.7		N	GND
1.698000	27.40	56	28.6		N	GND

MEASUREMENT RESULT: "Average"

26.02.1998 13:07

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.210000	38.60	53	14.6		N	GND
0.318000	35.30	50	14.5		L1	GND
0.534000	28.90	46	17.1		L1	GND
0.636000	30.10	46	15.9		L1	GND
0.744000	26.80	46	19.2		N	GND
1.062000	27.90	46	18.1		L1	GND
1.170000	28.90	46	17.1		L1	GND
1.596000	26.40	46	19.6		N	GND
1.698000	27.80	46	18.2		N	GND



Conducted noise according to:

EN55022/B

EUT: Scenic Pro C6, with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scr. "H" 1280x1024/100 Hz, HD/CD-ROM-Test
Test Site: EMC CENTER Augsburg ; SK2
Operator: J.Sommer
Comment : meas. point: N,L1 of EUT, PE grounded.
Comment: w.card reader; P.S.E412-V20; MCM2108, ext.pow.
Start of Test: 21.04.1998 / 11:26:37

SCAN TABLE: "Volt_015-30av"

Unit: dBµV

Detector: Mode:

Curve 1: MaxPeak MaxHold
Curve 2: Average MaxHold

Subrange 1:

Start Frequency: 150.0 kHz Step Size: 6.0 kHz
Stop Frequency: 30.0 MHz
Measure Time: 10.0 ms
IF Bandwidth: 10 kHz

Receiver: ESH3 Transducer: ESH3-Z5
Signal Path: None System Transducer: None
Meas. Mode: Lin Add. Transd. 1: ESH3-Z2
Tracking Gen.: Off Add. Transd. 2: None
Input: -- Add. Transd. 3: None

Preamplifier: -- Demodulation: A3
RF Att.: 0 dB Volume: --
Ref. Level: -- Squelch: --
Min. RF Att.: -- Option: None
IF Att.: LowDistortion
Autorange: On

Curve 1: On Repetition: 0
Curve 2: On Stop Mark: Off
Stop Message: Off
Stop Message:

MEASUREMENT RESULT: "Quasi Peak"

21.04.1998 11:52

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.210000	46.90	63	16.3		L1	GND
0.318000	43.10	60	16.7		N	GND
0.426000	32.10	57	25.2		L1	GND

MEASUREMENT RESULT: "Quasi Peak"

(continued)

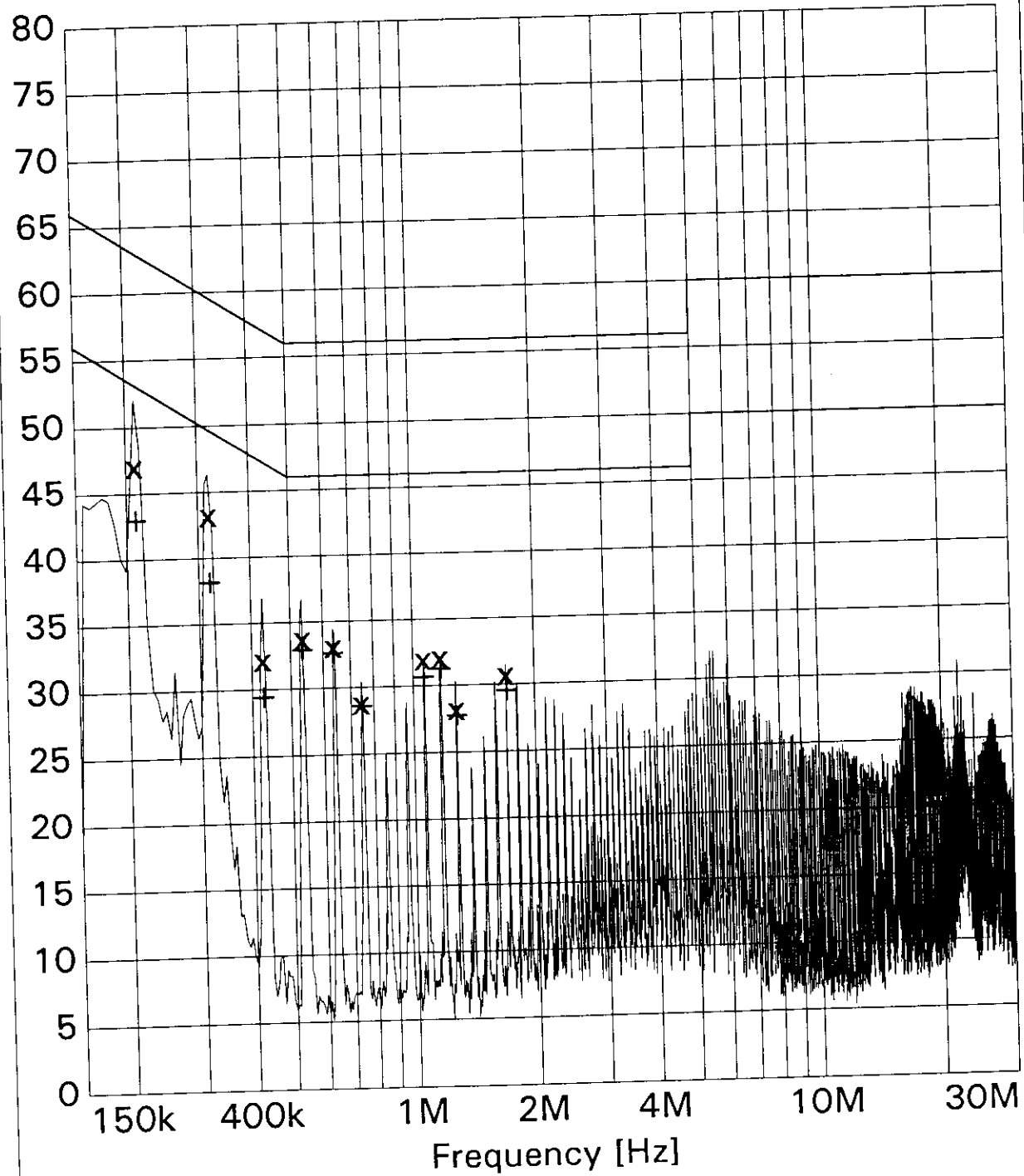
Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.534000	33.60	56	22.4		L1	GND
0.636000	33.00	56	23.0		L1	GND
0.744000	28.70	56	27.3		L1	GND
1.062000	31.90	56	24.1		L1	GND
1.170000	32.00	56	24.0		L1	GND
1.278000	28.10	56	27.9		L1	GND
1.704000	30.60	56	25.4		L1	GND

MEASUREMENT RESULT: "Average"

21.04.1998 11:53

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.210000	42.90	53	10.3		N	GND
0.318000	38.10	50	11.7		N	GND
0.426000	29.40	47	17.9		L1	GND
0.534000	32.90	46	13.1		L1	GND
0.636000	32.60	46	13.4		L1	GND
0.744000	28.60	46	17.4		L1	GND
1.062000	30.60	46	15.4		L1	GND
1.170000	31.20	46	14.8		L1	GND
1.278000	27.70	46	18.3		L1	GND
1.704000	29.50	46	16.5		L1	GND

Level [dB μ V]



x x	MES	Quasi Peak
+	MES	Average
—	MES	Preview Peak
—	LIM	EN 55022/B V QP
—	LIM	EN 55022/B V AV

Conducted noise according to:

EN55022/B

EUT: Scenic Pro C6, with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scr. "H" 1280x1024/100Hz, HD/CD-ROM-Test
Test Site: EMC CENTER Augsburg ; SK2
Operator: J.Sommer
Comment : meas. point: N,L1 of EUT, PE grounded.
Comment: w.sec.ser.print; P.S.E412-V30; MCM2108, ext.pow.
Start of Test: 21.04.1998 / 15:07:07

SCAN TABLE: "Volt_015-30av"

Unit: dBµV

Detector: Mode:

Curve 1: MaxPeak MaxHold
Curve 2: Average MaxHold

Subrange 1:

Start Frequency: 150.0 kHz Step Size: 6.0 kHz
Stop Frequency: 30.0 MHz
Measure Time: 10.0 ms
IF Bandwidth: 10 kHz

Receiver: ESH3 Transducer: ESH3-Z5
Signal Path: None System Transducer: None
Meas. Mode: Lin Add. Transd. 1: ESH3-Z2
Tracking Gen.: Off Add. Transd. 2: None
Input: -- Add. Transd. 3: None

Preamplifier: -- Demodulation: A3
RF Att.: 0 dB Volume: --
Ref. Level: -- Squelch: --
Min. RF Att.: -- Option: None
IF Att.: LowDistortion
Autorange: On

Curve 1: On Repetition: 0
Curve 2: On Stop Mark: Off
Stop Message: Off
Stop Message: Off

MEASUREMENT RESULT: "Quasi Peak"

21.04.1998 15:36

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.492000	32.80	56	23.3		L1	GND
0.564000	32.90	56	23.1		N	GND
0.774000	30.20	56	25.8		L1	GND

MEASUREMENT RESULT: "Quasi Peak"

(continued)

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.846000	32.80	56	23.2		N	GND
0.912000	31.80	56	24.2		N	GND
1.200000	29.00	56	27.0		N	GND
1.908000	30.20	56	25.8		N	GND
1.980000	28.50	56	27.5		N	GND
2.610000	27.40	56	28.6		N	GND
2.964000	27.30	56	28.7		N	GND

MEASUREMENT RESULT: "Average"

21.04.1998 15:36

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.492000	29.50	46	16.6		L1	GND
0.564000	30.30	46	15.7		N	GND
0.774000	26.70	46	19.3		N	GND
0.846000	29.70	46	16.3		N	GND
0.918000	28.20	46	17.8		N	GND
1.200000	24.10	46	21.9		N	GND
1.902000	23.00	46	23.0		N	GND
1.980000	20.60	46	25.4		N	GND
2.604000	19.00	46	27.0		L1	GND
2.958000	19.10	46	26.9		N	GND

Level [dB μ V]

80

75

70

65

60

55

50

45

40

35

30

25

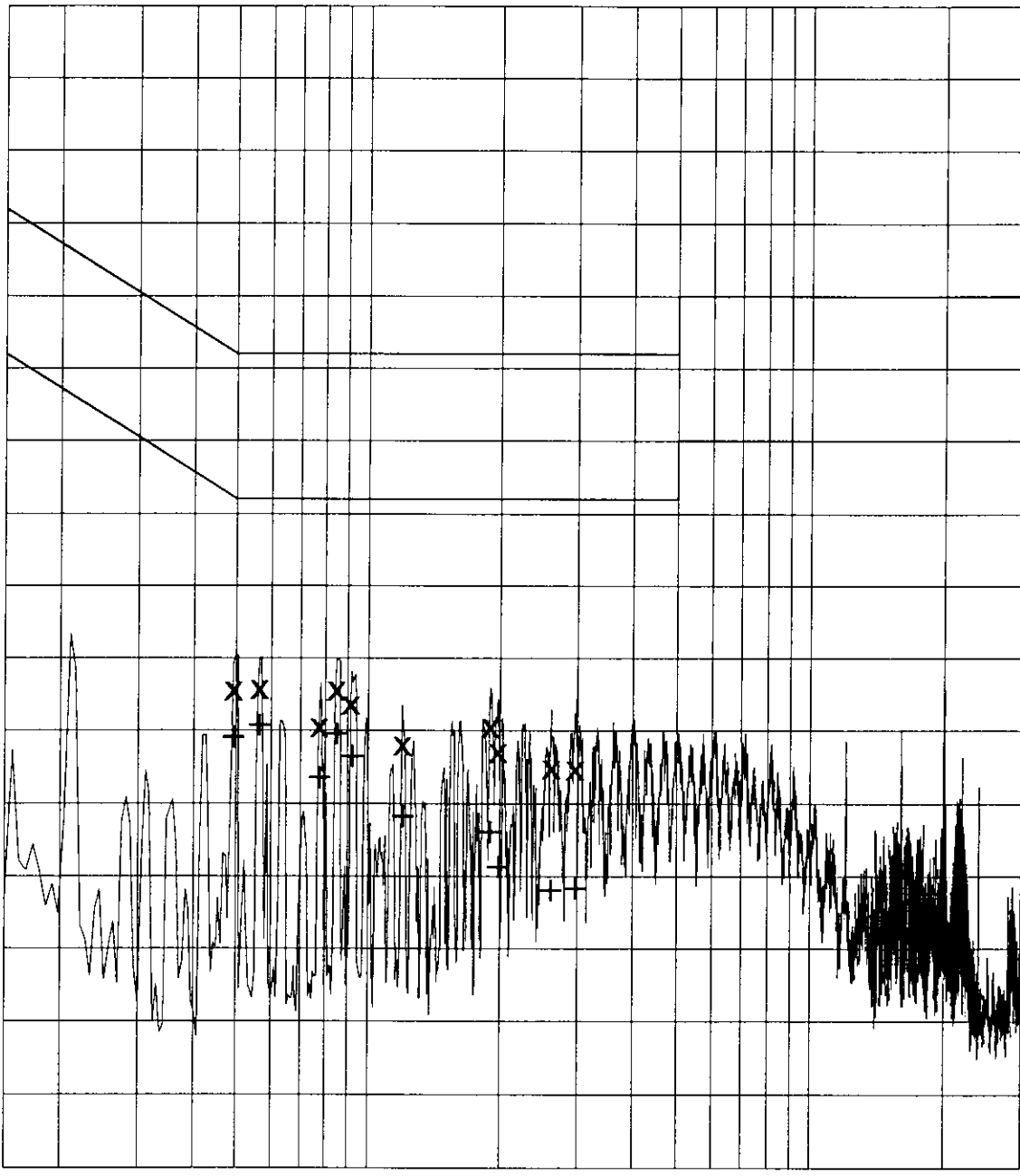
20

15

10

5

0



150k 400k 1M 2M 4M 10M 30M

Frequency [Hz]

x x	MES	Quasi Peak
+	MES	Average
—	MES	Preview Peak
—	LIM	EN 55022/B V QP
—	LIM	EN 55022/B V AV

Conducted noise according to:

EN55022/B

EUT: Scenic Pro C6, with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scr. "H" 1280x1024/100 Hz, HD/CD-ROM-Test
Test Site: EMC CENTER Augsburg ; SK2
Operator: J.Sommer
Comment: meas. point: N,L1 of EUT, PE grounded.
Comment: w.card reader; P.S.E412-V30; MCM2108, ext.pow.
Start of Test: 21.04.1998 / 13:41:57

SCAN TABLE: "Volt_015-30av"

Unit: dBµV

Detector: Mode:

Curve 1: MaxPeak MaxHold
Curve 2: Average MaxHold

Subrange 1:

Start Frequency: 150.0 kHz Step Size: 6.0 kHz
Stop Frequency: 30.0 MHz
Measure Time: 10.0 ms
IF Bandwidth: 10 kHz

Receiver: ESH3 Transducer: ESH3-Z5
Signal Path: None System Transducer: None
Meas. Mode: Lin Add. Transd. 1: ESH3-Z2
Tracking Gen.: Off Add. Transd. 2: None
Input: -- Add. Transd. 3: None

Preamplifier: -- Demodulation: A3
RF Att.: 0 dB Volume: --
Ref. Level: -- Squelch: --
Min. RF Att.: -- Option: None
IF Att.: LowDistortion
Autorange: On

Curve 1: On Repetition: 0
Curve 2: On Stop Mark: Off
Stop Message: Off
Stop Message:

MEASUREMENT RESULT: "Quasi Peak"

21.04.1998 14:11

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.504000	30.70	56	25.3		N	GND
0.570000	32.80	56	23.2		L1	GND
0.786000	29.90	56	26.1		L1	GND

MEASUREMENT RESULT: "Quasi Peak"

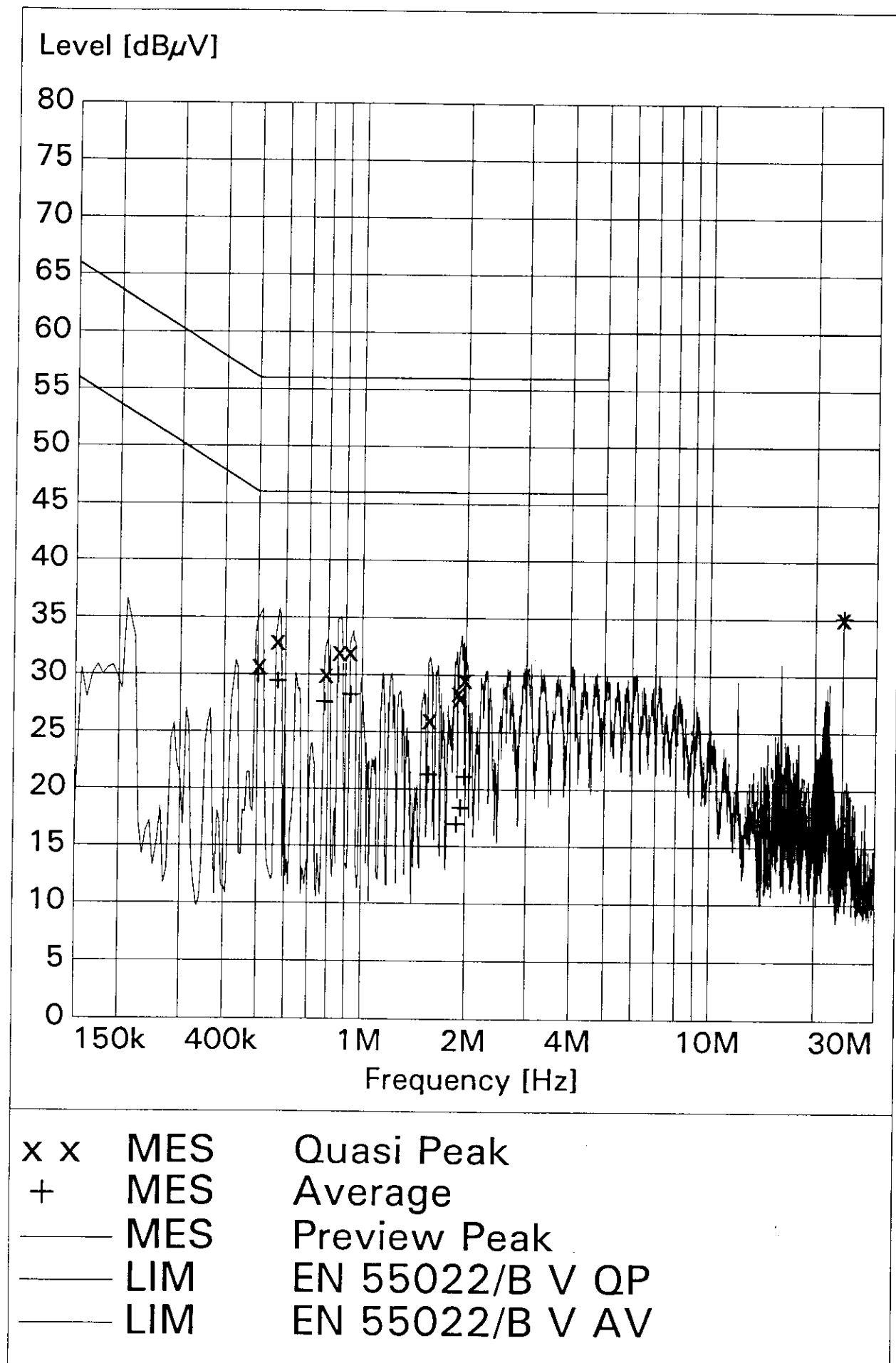
(continued)

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.858000	31.90	56	24.1		L1	GND
0.924000	31.90	56	24.1		N	GND
1.572000	26.00	56	30.0		L1	GND
1.902000	28.30	56	27.7		N	GND
1.926000	27.90	56	28.1		N	GND
1.986000	29.50	56	26.5		N	GND
24.096000	35.00	60	25.0		N	GND

MEASUREMENT RESULT: "Average"

21.04.1998 14:11

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.498000	29.90	46	16.1		N	GND
0.570000	29.40	46	16.6		L1	GND
0.780000	27.50	46	18.5		N	GND
0.852000	29.90	46	16.1		N	GND
0.924000	28.20	46	17.8		L1	GND
1.560000	21.30	46	24.7		L1	GND
1.878000	16.90	46	29.1		N	GND
1.932000	18.40	46	27.6		L1	GND
1.980000	21.10	46	24.9		N	GND
24.096000	35.00	50	15.0		N	GND



6.3 Referenced Rules Sections

N/A

6.4 Test Instrumentation Used, Conducted Measurement

Type	Manufacturer/ Model No.	Serial No.	Last Cal.	Cal. Interval
Receiver	ESHS10 Rohde&Schwarz	842884/011	March 97	12 months
LISN	NSLK 8126 Schwarzbeck	KWA20870662	March 97	12 months
LISN	ESHS-Z5 Rohde&Schwarz	831.5518.52	March 97	12 months
Pulse limiter	ESH3-Z2 Rohde&Schwarz	60813	March 97	12 months

7 RADIATED EMISSION DATA

7.1 Test Procedure

The radiated emission was measured in two parts:

1. in the frequency range from 30 MHz to 1000 MHz. The bandwidth of the EMI-receiver was set to 120 kHz and the detector was set to peak. During prescan all data in peak mode are accumulated automatically. At final measurement the detector was set to CISPR quasi peak and values above the acceptance line were verified automatically.
2. in the frequency range from 1000 MHz to 3000 MHz. The bandwidth of the EMI-receiver was set to 1 MHz and the detector was set to peak. During pre-scan all data in peak mode are accumulated automatically. At final measurement the detector was set to average and values above the acceptance line were verified automatically.

Both tests were performed in a semi-anechoic chamber, measurements below 1000 MHz in a distance of 10 meters between antenna and EUT, above 1 GHz with a distance of 3 meters between antenna and EUT. During tests the EUT was turned 360° and the actual used receiving antenna was moved from 1 to 4 meters and the antenna polarisation was changed from horizontal to vertical for finding the maximum levels of emission.

For each range one antenna for the whole span was used

1. 30 MHz to 1000 MHz: log.-per antenna
2. 1000 MHz to 3000 MHz: rigid tensor antenna

After automatic tests during manual verification the cables and the equipment were placed and moved within the range of position in order to find the maximum of emission.

For further data see enclosed test results.

7.2 Measured Data

The EUT was measured with the Processor Pentium II 333 MHz in video modes 1024 x 768, 1280 x 1024, 1600 x 1200. The test results below reflect the worst case with:

ASTEC PSU:

66 MHz clock/Pentium II 333 MHz, video resolution: 1600 x 1200/85 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

System with chip card reader

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
100.14	21.77	30.000	-8.2	ver	2.2000	240.000
300.66	22.54	37.000	-14.5	hor	3.4000	30.000
480.09	29.29	37.000	-7.7	hor	2.2000	120.000
841.86	32.42	37.000	-4.6	ver	2.2000	150.000
903.48	33.05	37.000	-3.9	ver	2.2000	180.000

all levels are quasi-peak levels

System with second serial printer

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
33.87	26.33	30.000	-3.7	ver	1.0000	120.000
220.53	24.09	80.000	-5.9	hor	3.4000	330.000
384.06	31.36	37.000	-5.6	hor	3.4000	000.000
668.16	31.35	37.000	-5.6	hor	4.000	30.000
841.83	34.46	37.000	-2.5	ver	2.2000	180.000

all levels are quasi-peak levels

Part 2: frequency range 1 GHz - 3 GHz:

System with second serial printer

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1108.60000	32.99	54.0	21.0		100.0	180.00	hor
1118.20000	32.48	54.0	21.5		100.0	180.00	hor
1366.30000	38.30	54.0	15.7		150.0	00.00	hor
1369.60000	32.26	54.0	23.7		150.0	00.00	hor
1406.80000	29.33	54.0	24.8		100.0	00.00	hor

all levels are average levels

*The correction factor is considered automatically by the test receiver.
A table of correction factors is listed in paragraph 7.4.

Minebea PSU:

66 MHz clock/Pentium II 333 MHz, video resolution: 1600 x 1200/85 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

System with chip card reader

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
96.00000	23.41	30.000	-6.6	ver	1.6000	90.000
128.64000	25.74	30.000	-4.3	ver	1.0000	240.000
343.20000	27.78	37.000	-9.2	hor	2.2000	330.000
423.39000	28.42	37.000	-8.6	hor	3.4000	30.000
659.22000	32.11	37.000	-4.9	hor	1.6000	300.000

all levels are quasi-peak levels

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro C6

FCC Identifier:
HSSSCENICC603

Date: Apr 27, 1998

Page:
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System with second serial printer

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
36.75	24.52	30.000	-5.5	ver	1.6000	120.00
110.28	24.56	30.000	-5.4	ver	1.000	210.00
384.06	32.10	37.000	-4.9	hor	2.2000	60.000
576.09	32.65	37.000	-4.3	ver	2.8000	00.000
768.21	31.68	37.000	-5.3	ver	2.2000	180.000

all levels are quasi-peak levels

Part 2: frequency range 1 GHz - 3 GHz:

System with second serial printer

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1117.9000	37.11	54.0	16.9		150.0	330.00	hor
1366.0000	35.14	54.0	18.9		150.0	0.00	hor
1615.3000	36.82	54.0	17.2		100.0	0.00	hor
1617.4000	32.68	54.0	21.3		100.0	0.00	hor
1696.6000	28.65	54.0	25.4		150.0	0.00	hor

all levels are average levels

*The correction factor is considered automatically by the test receiver.
A table of correction factors is listed in paragraph 7.4.

Test Personnel:

Tester Signature: A. Siebenhütter Date: May 25, 1998

Printed Name: A. Siebenhütter

Test Personnel:

Tester Signature: J. Sommer Date: May 25, 1998

Printed Name: J. Sommer

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro C6

FCC Identifier:
H566CENIC602

Date: Apr 27, 1998

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Measurement Protocols

	Page No
ASTEC PSU:	
<u>Frequency range 30 MHz - 1 GHz:</u> 66 MHz clock/Pentium II 333 MHz video resolution 1600 x 1200/85 Hz system with chip card reader	58 - 60
66 MHz clock/ Pentium II 333 MHz video resolution 1600 x 1200/85 Hz system with second serial printer	61 - 63
<u>Frequency range 1 GHz - 3 GHz:</u> 66 MHz clock/ Pentium II 333 MHz video resolution 1600 x 1200/85 Hz system with second serial printer	64 - 66
Minebea PSU:	
<u>Frequency range 30 MHz - 1 GHz:</u> 66 MHz clock/ Pentium II 333 MHz video resolution 1600 x 1200/85 Hz system with chip card reader	67 - 69
66 MHz clock/ Pentium II 333 MHz video resolution 1600 x 1200/85 Hz system with second serial printer	70 - 72
<u>Frequency range 1 GHz - 3 GHz:</u> 66 MHz clock/ Pentium II 333 MHz video resolution 1600 x 1200/85 Hz system with second serial printer	73 - 75

Radiation Test according to:

EN 55022/B

EUT: Scenic Pro C6 with D1026/330MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1600 x 1200/85Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: A. Siebenhütter
Job No: PDP8E020
Comment : full configuration. Power Supply: ASTEC E412-V30
Comment: with card reader and sicrypt-card

SCAN TABLE: "10m/30-1000"

Unit: dB μ V/m

Detector: Mode:

Curve 1: MaxPeak ClearWrite
Curve 2: QuasiPeak ClearWrite

Subrange 1:

Start Frequency: 30.0 MHz Step Size: 30.0 kHz
Stop Frequency: 1.0 GHz
Measure Time: 0.01 s
IF Bandwidth: 120 kHz

Receiver: ESMI Probe Transducer: CBL6111 cal. 4/95
Signal Path: 2DC-CP1X1 System Transducer: RFin2-CP1/X1
Scan Mode: Lin Add. Transd. 1: cable30-1000
Tracking Gen.: Off Add. Transd. 2: NONE
Input: 2DC Add. Transd. 3: NONE

Preamplifier: 10 dB Demodulation: AM
RF Att.: 0 dB Volume: 70.0 %
Ref. Level: -60 dBm Squelch: --
Min. RF Att.: 0 dB Option: None
IF Att.: --
Autorange: On

Curve 1: On Repetition: 1
Curve 2: On Stop Mark: Off
Stop Message: Off
Text: 1

MEASUREMENT RESULT: "Peak"

Frequency MHz	Level dB μ V/m	ANT POL	HEIGHT in [m]	ANGLE in deg
30.00000	23.47	VER	1.0000	0.0000
77.42222	23.05	VER	2.2000	90.000
100.05555	23.87	VER	2.2000	240.00
301.60000	24.74	HOR	3.4000	30.000

MEASUREMENT RESULT: "Quasi Peak"

Frequency MHz	Level dB μ V/m	LIMIT dB μ V/m	EXCEEDING dB	ANT POL	HEIGHT in [m]	ANGLE in deg
30.87000	16.42	30.000	-13.58223	VER	1.0000	0.0000
78.06000	18.14	30.000	-11.86033	VER	2.2000	90.000
100.14000	21.77	30.000	-8.225540	VER	2.2000	240.00
300.66000	22.54	37.000	-14.46382	HOR	3.4000	30.000
349.20000	29.24	37.000	-7.761097	VER	1.0000	300.00
480.09000	29.29	37.000	-7.705440	HOR	2.2000	120.00
841.86000	32.42	37.000	-4.579808	VER	2.2000	150.00
880.68000	30.68	37.000	-6.323757	VER	2.2000	120.00
900.30000	29.62	37.000	-7.383225	VER	2.2000	180.00
903.48000	33.05	37.000	-3.946634	VER	2.2000	180.00
979.83000	31.29	37.000	-5.705016	HOR	2.8000	90.000

Level [dB μ V/m]

60

50

40

30

20

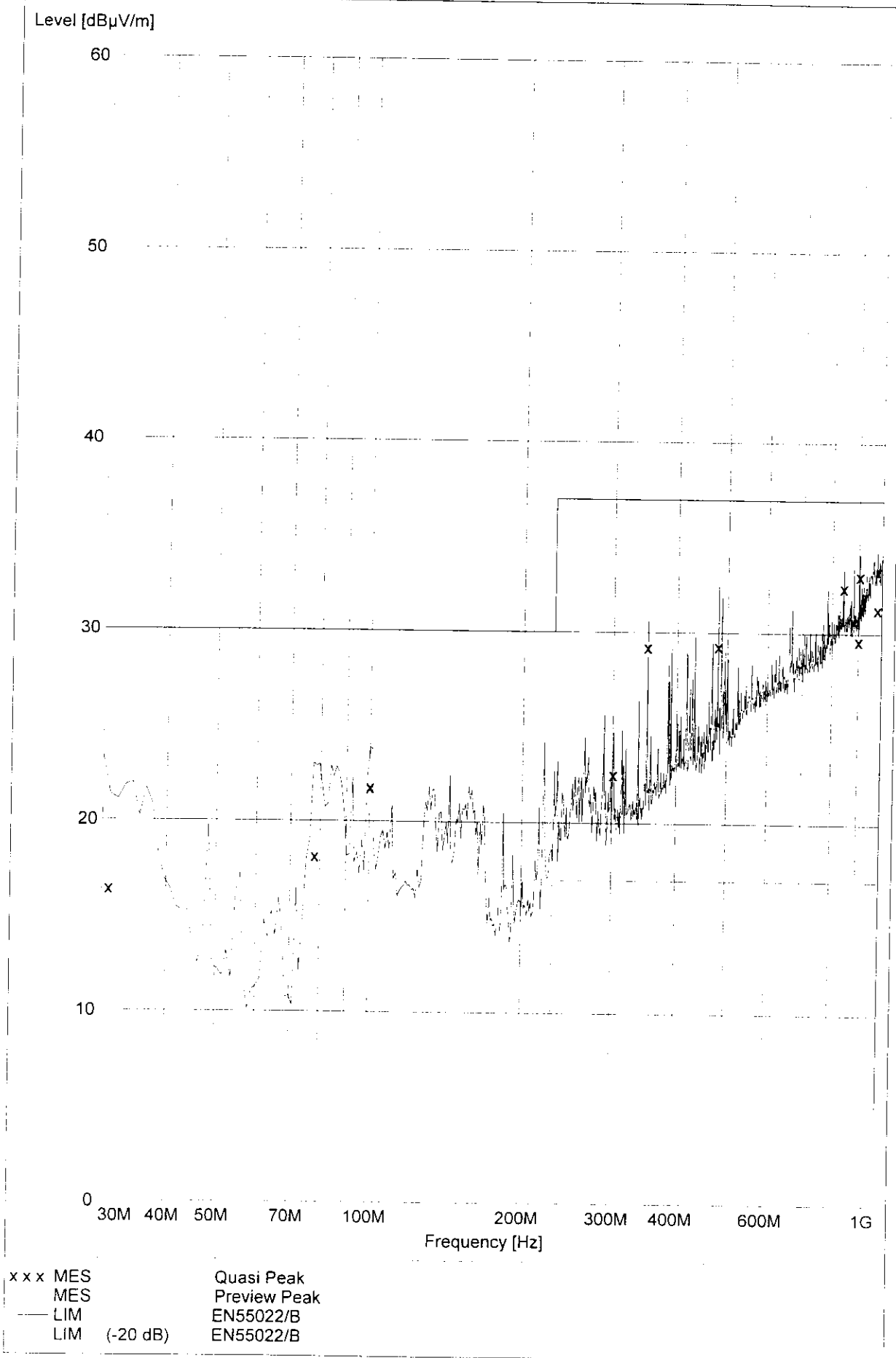
10

0

30M 40M 50M 70M 100M 200M 300M 400M 600M 1G

Frequency [Hz]

x x x MES Quasi Peak
MES Preview Peak
— LIM EN55022/B
LIM (-20 dB) EN55022/B



Radiation Test according to:

EN 55022/B

EUT: Scenic Pro C6 with D1026 / 333MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1600 x 1200/85Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: J.Sommer
Job No: PDP8E020
Comment: full configuration. Power Supply: ASTEC E412-V30
Comment: with second ser. interface

SCAN TABLE: "10m/30-1000"

Unit: dBµV/m

Detector: Mode:

Curve 1: MaxPeak ClearWrite
Curve 2: QuasiPeak ClearWrite

Subrange 1:

Start Frequency: 30.0 MHz Step Size: 30.0 kHz
Stop Frequency: 1.0 GHz
Measure Time: 0.01 s
IF Bandwidth: 120 kHz

Receiver: ESMI Probe Transducer: CBL6111 cal. 4/95
Signal Path: 2DC-CP1X1 System Transducer: RFin2-CP1/X1
Scan Mode: Lin Add. Transd. 1: cable30-1000
Tracking Gen.: Off Add. Transd. 2: NONE
Input: 2DC Add. Transd. 3: NONE

Preamplifier: 10 dB Demodulation: AM
RF Att.: 0 dB Volume: 70.0 %
Ref. Level: -60 dBm Squelch: --
Min. RF Att.: 0 dB Option: None
IF Att.: --
Autorange: On

Curve 1: On Repetition: 1
Curve 2: On Stop Mark: Off
Stop Message: Off
Text: 1

MEASUREMENT RESULT: "Peak"

Frequency MHz	Level dBµV/m	ANT POL	HEIGHT in [m]	ANGLE in deg
34.31111	26.90	VER	1.0000	120.00
129.15555	25.79	VER	1.0000	180.00

220.76666	25.09	HOR	3.4000	330.00
384.58888	32.29	HOR	3.4000	0.0000
669.12222	33.55	HOR	4.0000	30.000
842.64444	34.95	VER	2.2000	180.00
950.42222	34.97	HOR	4.0000	210.00

MEASUREMENT RESULT: "Quasi Peak"

Frequency MHz	Level dB μ V/m	LIMIT dB μ V/m	EXCEEDING dB	ANT POL	HEIGHT in [m]	ANGLE in deg
33.87000	26.33	30.000	-3.668387	VER	1.0000	120.00
128.64000	23.31	30.000	-6.694469	VER	1.0000	180.00
220.53000	24.09	30.000	-5.913505	HOR	3.4000	330.00
384.06000	31.36	37.000	-5.641471	HOR	3.4000	0.0000
668.16000	31.35	37.000	-5.648698	HOR	4.0000	30.000
841.83000	34.46	37.000	-2.540130	VER	2.2000	180.00
950.16000	30.80	37.000	-6.200247	HOR	4.0000	210.00

Level [dB μ V/m]

60

50

40

30

20

10

0

30M 40M 50M 70M 100M 200M 300M 400M 600M 1G

Frequency [Hz]

x x x MES

MES

— LIM

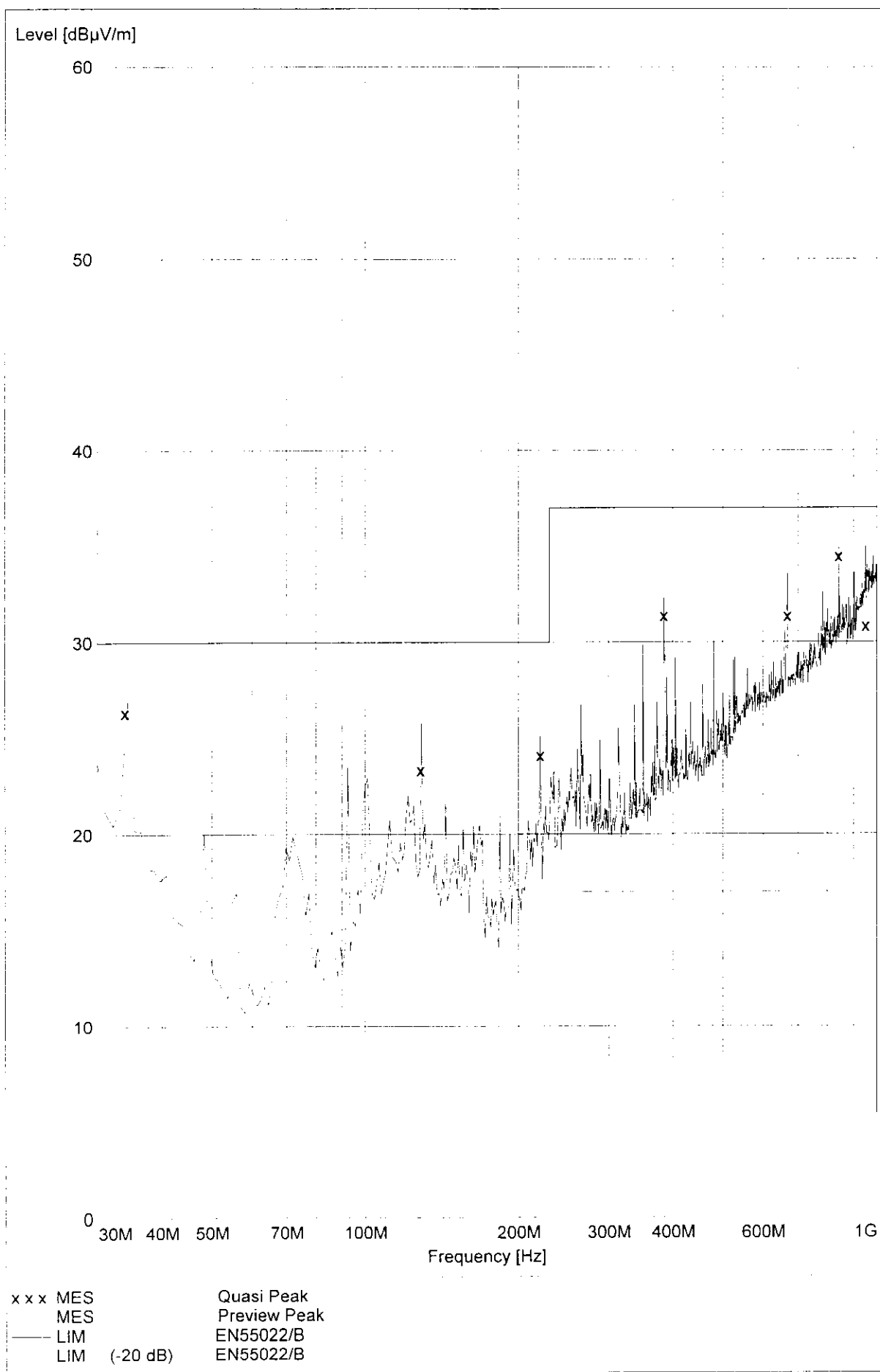
LIM (-20 dB)

Quasi Peak

Preview Peak

EN55022/B

EN55022/B



Fieldstrength according to :

FCC class B

EUT: Scenic Pro C6 with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1600 x 1200/85Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: J.Sommer
Job No: PDP8E020
Comment : full configuration. Power Supply: ASTEC E412-V20
Comment: with second ser. interface MCM2108

SCAN TABLE: "3m/1-3GHz"

Unit: dB μ V/m

Detector: Mode:

Curve 1: Average MaxHold

Subrange 1:

Start Frequency:	1.0 GHz	Step Size:	300.0 kHz
Stop Frequency:	3.0 GHz		
Measure Time:	10.0 ms		
IF Bandwidth:	1 MHz		

Receiver:	ESXI	Transducer:	Tensor 4105 h
Signal Path:	2DC-CP7X1	System Transducer:	RFin2-CP7/X1
Meas. Mode:	Lin	Add. Transd. 1:	Rosenberger 8m
Tracking Gen.:	Off	Add. Transd. 2:	None
Input:	2DC	Add. Transd. 3:	None

Preamplifier:	10 dB	Demodulation:	AM
RF Att.:	Coupled	Volume:	75 %
Ref. Level:	-40.0 dBm	Squelch:	--
Min. RF Att.:	0 dB	Option:	None
IF Att.:	--		
Autorange:	On		

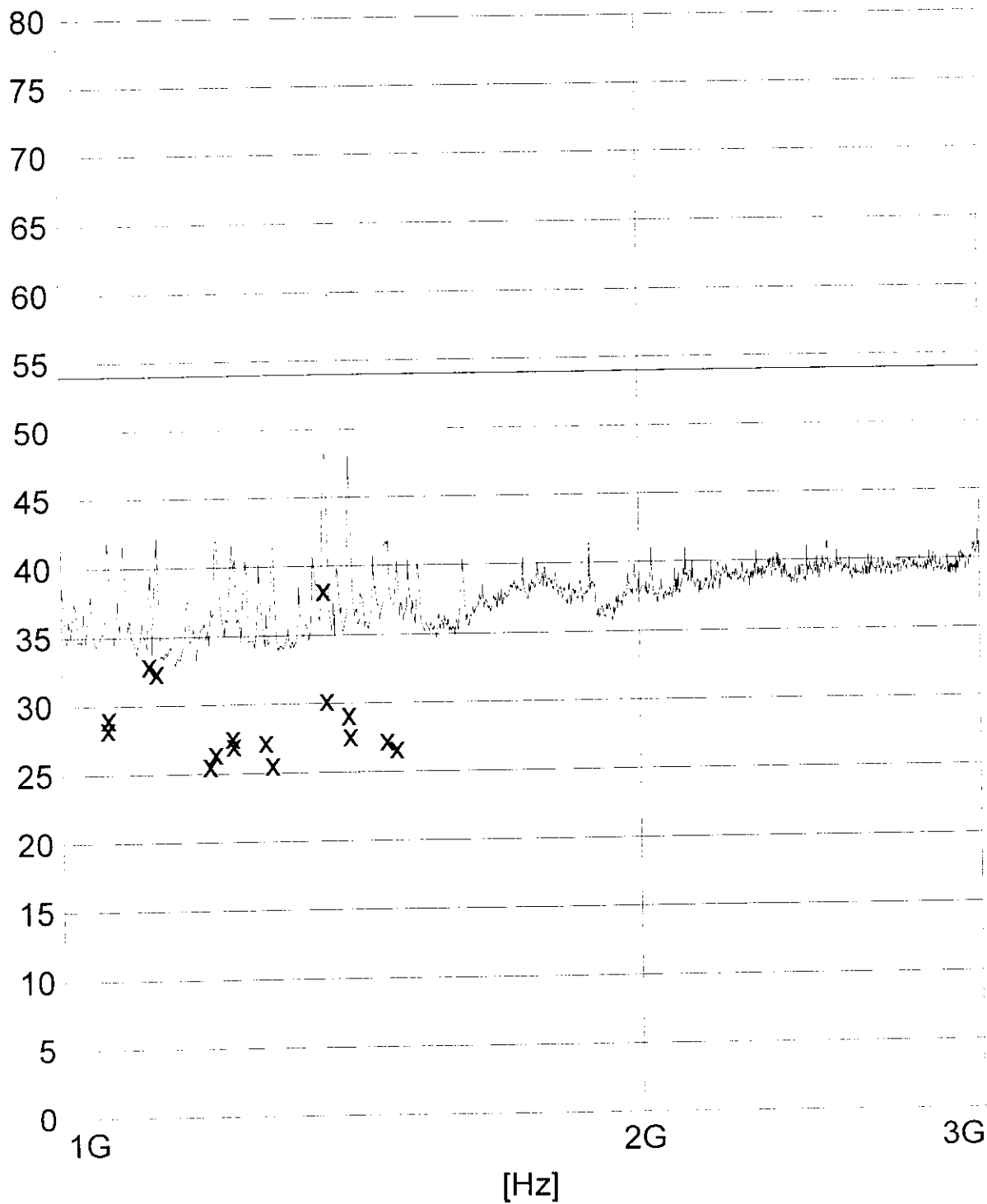
Curve 1:	On	Repetition:	0
		Stop Mark:	Off
		Stop Message:	Off
		Stop Message:	

MEASUREMENT RESULT: "Final_Average"

16.03.1998 18:05

Frequency	Level	Limit	Margin	Exceed Mark	Height	Azimuth	Polarisation
MHz	dB μ V/m	dB μ V/m	dB		cm	deg	
1055.500000	28.39	54.0	25.6		150.0	45.00	HORIZONTAL
1056.100000	29.12	54.0	24.9		150.0	45.00	HORIZONTAL
1108.600000	32.99	54.0	21.0		100.0	180.00	HORIZONTAL
1118.200000	32.48	54.0	21.5		100.0	180.00	HORIZONTAL
1190.800000	25.63	54.0	28.4		100.0	135.00	HORIZONTAL
1198.900000	26.48	54.0	27.5		100.0	135.00	HORIZONTAL
1223.800000	27.65	54.0	26.3		100.0	180.00	VERTICAL
1224.700000	27.06	54.0	26.9		100.0	180.00	VERTICAL
1273.000000	27.30	54.0	26.7		100.0	135.00	HORIZONTAL
1282.600000	25.63	54.0	28.4		100.0	135.00	HORIZONTAL
1366.300000	38.30	54.0	15.7		150.0	0.00	HORIZONTAL
1369.600000	30.26	54.0	23.7		150.0	0.00	HORIZONTAL
1406.800000	29.23	54.0	24.8		100.0	0.00	HORIZONTAL
1408.900000	27.67	54.0	26.3		100.0	0.00	HORIZONTAL
1473.100000	27.33	54.0	26.7		150.0	45.00	HORIZONTAL
1490.500000	26.70	54.0	27.3		150.0	45.00	HORIZONTAL

[dB μ V/m]



Radiation Test according to:

EN 55022/B

EUT: Scenic Pro C6 with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1600 x 1200/85Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: J.Sommer
Job No: PDP8E020
Comment : full configuration. Power Supply: Minebea E412-V20
Comment: with card reader and sycrypt-card

SCAN TABLE: "10m/30-1000"

Unit: dB μ V/m

Detector: Mode:

Curve 1: MaxPeak ClearWrite
Curve 2: QuasiPeak ClearWrite

Subrange 1:

Start Frequency: 30.0 MHz Step Size: 30.0 kHz
Stop Frequency: 1.0 GHz
Measure Time: 0.01 s
IF Bandwidth: 120 kHz

Receiver: ESMI Probe Transducer: CBL6111 cal. 4/95
Signal Path: 2DC-CP1X1 System Transducer: RFin2-CP1/X1
Scan Mode: Lin Add. Transd. 1: cable30-1000
Tracking Gen.: Off Add. Transd. 2: NONE
Input: 2DC Add. Transd. 3: NONE

Preamplifier: 10 dB Demodulation: AM
RF Att.: 0 dB Volume: 70.0 %
Ref. Level: -60 dBm Squelch: --
Min. RF Att.: 0 dB Option: None
IF Att.: --
Autorange: On

Curve 1: On Repetition: 1
Curve 2: On Stop Mark: Off
Stop Message: Off
Text: 1

MEASUREMENT RESULT: "Peak"

Frequency MHz	Level dB μ V/m	ANT POL	HEIGHT in [m]	ANGLE in deg
30.00000	21.29	VER	3.4000	90.000
32.15555	23.31	VER	1.0000	120.00

92.51111	25.39	VER	1.6000	150.00
96.82222	25.07	VER	1.6000	90.000
129.15555	26.14	VER	1.0000	240.00
184.12222	25.05	HOR	3.4000	90.000
350.10000	29.74	HOR	2.2000	330.00
424.46666	29.10	HOR	3.4000	30.000
659.42222	35.15	HOR	1.6000	300.00
946.11111	35.18	HOR	1.0000	60.000

MEASUREMENT RESULT: "Quasi Peak"

Frequency MHz	Level dBμV/m	LIMIT dBμV/m	EXCEEDING dB	ANT POL	HEIGHT in [m]	ANGLE in deg
30.06000	17.24	30.000	-12.76074	VER	3.4000	90.000
32.31000	16.66	30.000	-13.34472	VER	1.0000	120.00
91.89000	25.55	30.000	-4.447547	VER	1.6000	150.00
96.00000	23.41	30.000	-6.587767	VER	1.6000	90.000
128.64000	25.74	30.000	-4.264469	VER	1.0000	240.00
183.78000	23.59	30.000	-6.411520	HOR	3.4000	90.000
349.20000	27.78	37.000	-9.221097	HOR	2.2000	330.00
423.39000	28.42	37.000	-8.575881	HOR	3.4000	30.000
659.22000	32.11	37.000	-4.888917	HOR	1.6000	300.00
947.49000	30.87	37.000	-6.134944	HOR	1.0000	60.000

Level [dB μ V/m]

60

50

40

30

20

10

0

30M 40M 50M 70M 100M 200M 300M 400M 600M 1G

Frequency [Hz]

x x x MES

MES

LIM

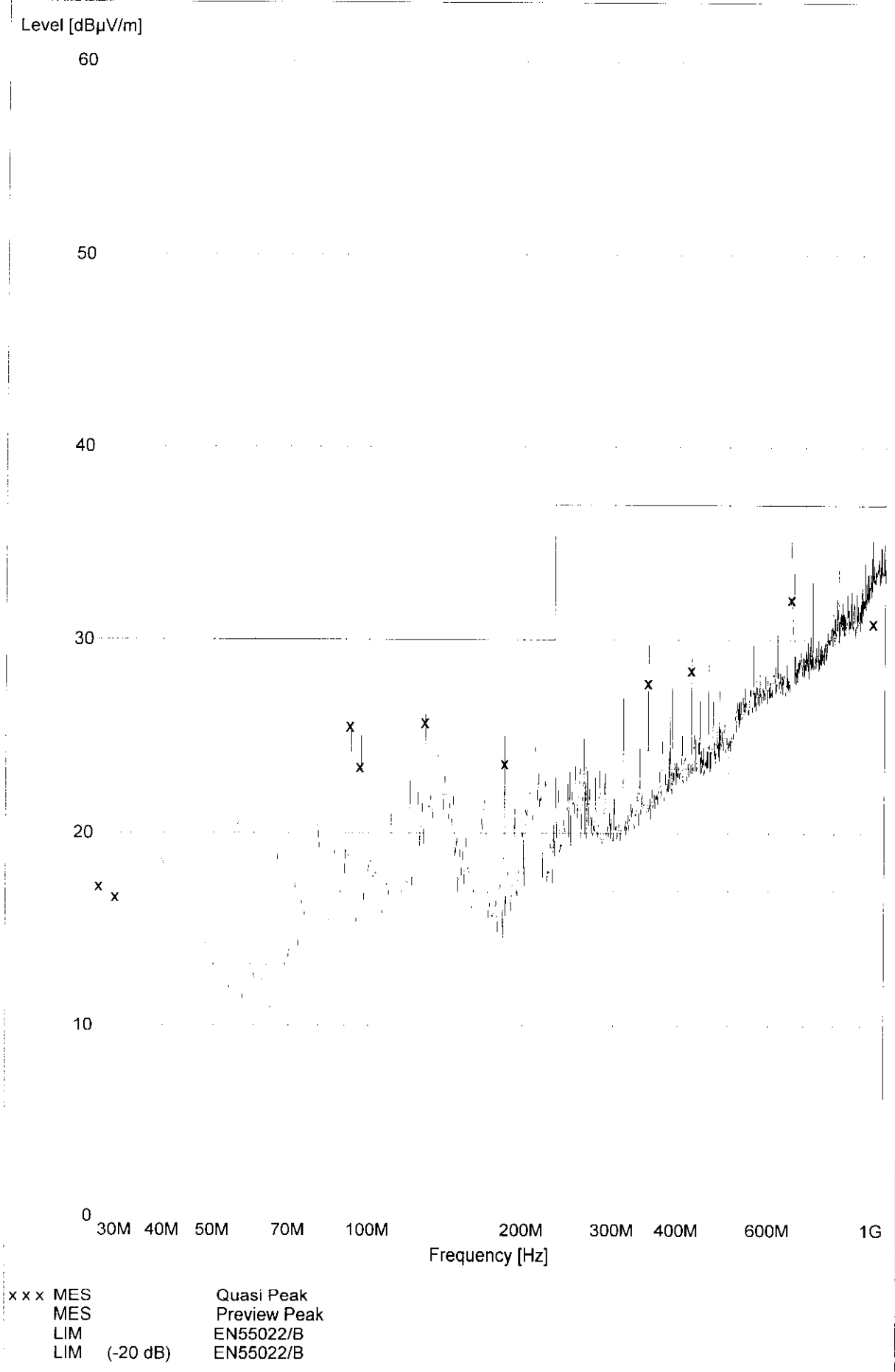
LIM (-20 dB)

Quasi Peak

Preview Peak

EN55022/B

EN55022/B



Radiation Test according to:

EN 55022/B

EUT: Scenic Pro C6 with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1600 x 1200/85Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: J.Sommer
Job No: PDP8E020
Comment : full configuration. Power Supply: Minebea E412-V20
Comment: with second ser. interface MCM2108

SCAN TABLE: "10m/30-1000"

Unit: dBµV/m

Detector: Mode:

Curve 1: MaxPeak ClearWrite
Curve 2: QuasiPeak ClearWrite

Subrange 1:

Start Frequency: 30.0 MHz Step Size: 30.0 kHz
Stop Frequency: 1.0 GHz
Measure Time: 0.01 s
IF Bandwidth: 120 kHz

Receiver: ESMI Probe Transducer: CBL6111 cal. 4/95
Signal Path: 2DC-CP1X1 System Transducer: RFin2-CP1/X1
Scan Mode: Lin Add. Transd. 1: cable30-1000
Tracking Gen.: Off Add. Transd. 2: NONE
Input: 2DC Add. Transd. 3: NONE

Preamplifier: 10 dB Demodulation: AM
RF Att.: 0 dB Volume: 70.0 %
Ref. Level: -60 dBm Squelch: --
Min. RF Att.: 0 dB Option: None
IF Att.: --
Autorange: On

Curve 1: On Repetition: 1
Curve 2: On Stop Mark: Off
Stop Message: Off
Text: 1

MEASUREMENT RESULT: "Peak"

Frequency MHz	Level dBµV/m	ANT POL	HEIGHT in [m]	ANGLE in deg
30.00000	25.10	VER	1.0000	150.00
36.46666	27.11	VER	1.6000	120.00
110.83333	28.49	VER	1.0000	210.00

MEASUREMENT RESULT: "Quasi Peak"

Frequency MHz	Level dB μ V/m	LIMIT dB μ V/m	EXCEEDING dB	ANT POL	HEIGHT in [m]	ANGLE in deg
30.15000	19.25	30.000	-10.75424	VER	1.0000	150.00
36.75000	24.52	30.000	-5.476000	VER	1.6000	120.00
110.28000	24.56	30.000	-5.439846	VER	1.0000	210.00
384.06000	32.10	37.000	-4.901471	HOR	2.2000	60.000
576.09000	32.65	37.000	-4.349501	VER	2.8000	0.0000
768.21000	31.68	37.000	-5.322058	VER	2.2000	180.00
974.10000	31.90	37.000	-5.097150	VER	2.2000	270.00

Level [dB μ V/m]

60

50

40

30

20

10

0

30M 40M 50M 70M

100M

200M

300M 400M

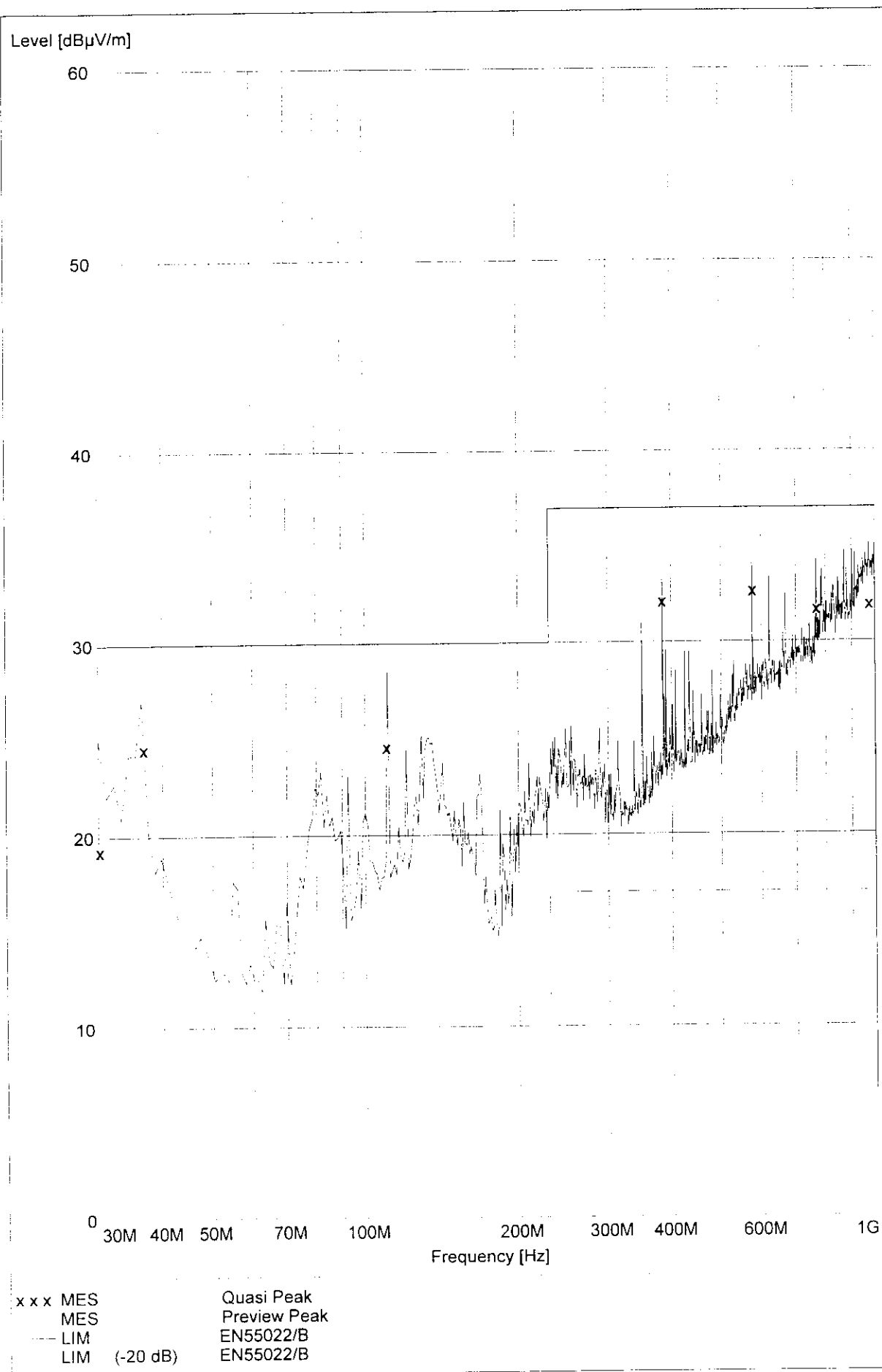
600M

1G

Frequency [Hz]

x x x MES
MES
--- LIM
LIM (-20 dB)

Quasi Peak
Preview Peak
EN55022/B
EN55022/B



Fieldstrength according to :

FCC class B

EUT: Scenic Pro C6 with D1026-A12/333MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1600 x 1200/85Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: J.Sommer
Job No: PDP8E020
Comment : full configuration. Power Supply: Minebea E412-V20
Comment: with second ser. interface; Monitor: MCM2108

SCAN TABLE: "3m/1-3GHz"

Unit: dB μ V/m

Detector: Mode:

Curve 1: Average MaxHold

Subrange 1:

Start Frequency:	1.0 GHz	Step Size:	300.0 kHz
Stop Frequency:	3.0 GHz		
Measure Time:	10.0 ms		
IF Bandwidth:	1 MHz		

Receiver:	ESXI	Transducer:	Tensor 4105 h
Signal Path:	2DC-CP7X1	System Transducer:	RFin2-CP7/X1
Meas. Mode:	Lin	Add. Transd. 1:	Rosenberger 8m
Tracking Gen.:	Off	Add. Transd. 2:	None
Input:	2DC	Add. Transd. 3:	None

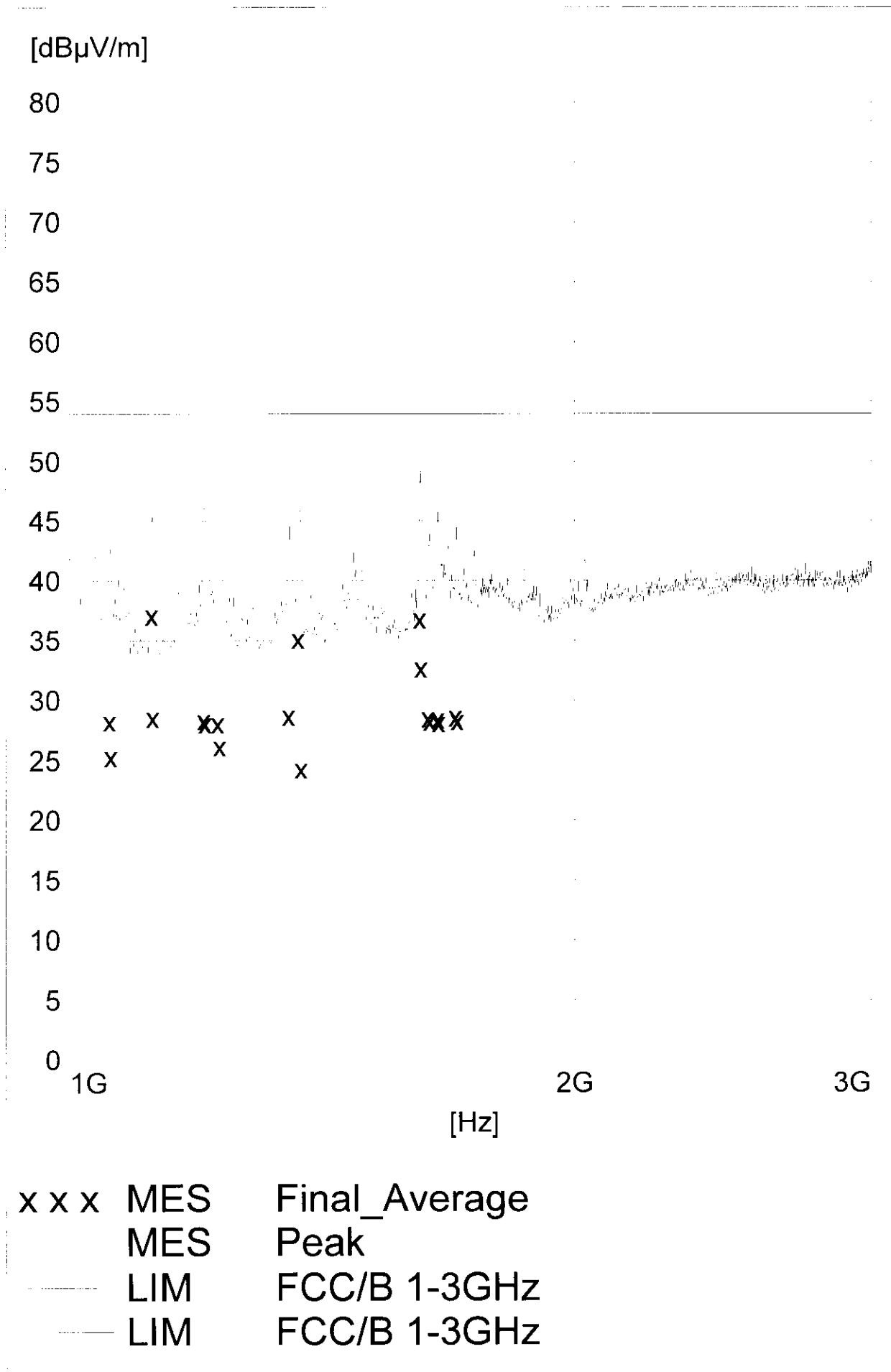
Preamplifier:	10 dB	Demodulation:	AM
RF Att.:	Coupled	Volume:	75 %
Ref. Level:	-40.0 dBm	Squelch:	--
Min. RF Att.:	0 dB	Option:	None
IF Att.:	--		
Autorange:	On		

Curve 1:	On	Repetition:	0
		Stop Mark:	Off
		Stop Message:	Off
		Stop Message:	Off

MEASUREMENT RESULT: "Final_Average"

30.04.1998 17:34

Frequency	Level	Limit	Margin	Exceed Mark	Height	Azimuth	Polarisation
MHz	dBµV/m	dBµV/m	dB		cm	deg	
1056.100000	28.28	54.0	25.7		100.0	0.00	HORIZONTAL
1057.900000	25.32	54.0	28.7		100.0	0.00	HORIZONTAL
1117.900000	37.11	54.0	16.9		150.0	330.00	HORIZONTAL
1120.000000	28.59	54.0	25.4		150.0	330.00	HORIZONTAL
1200.100000	28.39	54.0	25.6		200.0	0.00	HORIZONTAL
1202.500000	28.11	54.0	25.9		200.0	0.00	HORIZONTAL
1223.800000	28.10	54.0	25.9		200.0	0.00	HORIZONTAL
1226.800000	26.17	54.0	27.8		200.0	0.00	HORIZONTAL
1348.300000	28.72	54.0	25.3		150.0	0.00	HORIZONTAL
1366.000000	35.14	54.0	18.9		150.0	0.00	HORIZONTAL
1371.700000	24.31	54.0	29.7		150.0	0.00	HORIZONTAL
1615.300000	36.82	54.0	17.2		100.0	0.00	HORIZONTAL
1617.400000	32.68	54.0	21.3		100.0	0.00	HORIZONTAL
1633.900000	28.53	54.0	25.5		100.0	0.00	HORIZONTAL
1638.100000	28.31	54.0	25.7		100.0	0.00	HORIZONTAL
1656.100000	28.48	54.0	25.5		200.0	0.00	HORIZONTAL
1657.900000	28.17	54.0	25.8		200.0	0.00	HORIZONTAL
1696.600000	28.65	54.0	25.4		150.0	0.00	HORIZONTAL
1700.500000	28.31	54.0	25.7		150.0	0.00	HORIZONTAL



7.3 Referenced Rules Sections

N/A

7.4 Test Instrumentation Used, Radiated Measurement

Type	Manufacturer/ Model No.	Serial No.	Last Cal.	Cal. Interval
Receiver	ESMI Rohde&Schwarz	840607/006	Jan. 97	12 months
Antenna	CBL 6111 Chase	1345	March 97	12 months
Active Ridged antenna	Tensor 4105 Rohde&Schwarz	2063	March 97	12 months

7.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor automatically to the measured value. The display of the Receiver shows the corrected value. The complete table of correction factors is given on next page. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF$$

where FS = Field Strength

AF = Antenna Factor (incl. Preamplifier factor)

CF = Cable Attenuation Factor

Assume a receiver reading of 28,5 dB μ V is obtained. The Antenna Factor of 10,5 and a Cable Factor of 1,3 is added, giving a field strength of 40,3 dB μ V/m.

$$FS = 28,5 + 10,5 + 1,3 = 40,3 \text{ dB}\mu\text{V/m}$$

The 40,3 dB μ V/m value can be mathematically converted to its corresponding level in μ V/m.

Level in μ V/m =
Common Antilogarithm $[(40,3 \text{ dB}\mu\text{V/m})/20] =$

103,5 μ V/m

7.6 Table of Correction Factors

Frequency range: 30 MHz to 1000 MHz

Frequency [MHz]	Correction Bilog Antenna [dB]	Correction Cable [dB]	Correction Antenna + Cable [dB]
30,0	17,90	0,65	18,55
35,0	15,20	0,67	15,87
40,0	12,80	0,68	13,48
45,0	10,00	0,73	10,73
50,0	8,20	0,74	8,94
55,0	6,90	0,82	7,72
60,0	6,50	0,84	7,34
70,0	6,40	0,90	7,30
80,0	7,20	0,95	8,15
90,0	9,30	0,99	10,29
100,0	11,10	1,10	12,20
120,0	12,10	1,14	13,24
140,0	11,30	1,27	12,57
160,0	10,60	1,35	11,95
180,0	9,60	1,45	11,05
200,0	9,50	1,51	11,01
250,0	12,40	1,71	14,11
300,0	13,80	1,84	15,64
350,0	15,00	2,00	17,00
400,0	16,40	2,18	18,58
450,0	16,90	2,35	19,25
500,0	17,40	2,43	19,83

Frequency [MHz]	Correction Bilog Antenna [dB]	Correction Cable [dB]	Correction Antenna + Cable [dB]
550,0	19,00	2,62	21,62
600,0	18,70	2,73	21,43
650,0	19,70	2,88	22,58
700,0	19,00	2,91	21,91
750,0	20,00	3,01	23,01
800,0	19,90	3,21	23,11
850,0	22,90	3,32	26,22
900,0	20,70	3,40	24,10
950,0	21,00	3,49	24,49
1000,0	25,00	3,69	28,69

Frequency range: 1 GHz to 3 GHz

Frequency [GHz]	Correction Tensor Antenna with Pre- amplifier [dB]	Correction Cable [dB]	Correction Antenna + Cable [dB]
1,0	5,70	1,62	7,32
1,1	4,80	1,68	6,48
1,2	5,10	1,75	6,85
1,3	5,00	1,80	6,80
1,4	5,10	1,96	7,06
1,5	5,90	2,00	7,90
1,6	5,60	2,15	7,75
1,7	6,70	2,30	9,00
1,8	6,60	2,32	8,92
1,9	5,90	2,35	8,25
2,0	7,20	2,44	9,64
2,1	7,30	2,62	9,92
2,2	7,40	2,75	10,15
2,3	8,40	2,70	11,10
2,4	8,00	2,69	10,69
2,5	9,30	2,65	11,95
2,6	8,70	2,75	11,45
2,7	8,70	2,92	11,62
2,8	9,00	2,98	11,98
2,9	8,60	3,10	11,70
3,0	9,50	3,12	12,62