

MEASUREMENT / TECHNICAL REPORT**SIEMENS NIXDORF AG****Model: Personal Computer Scenic Pro D7****FCC ID: HSSSCENICD701****April 29, 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

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**SIEMENS
NIXDORF**

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Personal Computer Scenic Pro D7

FCC Identifier:
HSSSCENICD701

Date: Apr. 29, 1998

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1 GENERAL INFORMATION

1.1 Product Description

The Siemens Nixdorf Computer Scenic Pro D7 is a compact desktop table personal computer.

The system board integrates the Pentium Processor, memory, video and I/O-technologies. The main system unit is assembled with Processors Intel Pentium II from 300 MHz up to 400 MHz.

Description of the power supplies:

- Power supplies:

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

Features Overview:

- System board in ATX format
- Intel processor Pentium II, 100 MHz clock frequency, slot 1
- second level cache, synchronous up to 512 Kbytes
- main memory 16 to 384 MBytes (SDRAM)
- 2D/3D AGP Graphic Controller on board
- up to 4 MBit Flash-BIOS
- CMOS RAM 256 Byte

- Expansion slots (on board):

5 x PCI
2 x AT
1 x AGP

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

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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 D7 S26361-K509-V1**	HSSSCENICD701	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 1703 NTD	A3KM053	Monitor	unshielded power cord [175] shielded video cable [168]
3	Siemens Nixdorf S26381-K210	HSS01TASTK210	Keyboard	shielded keyboard cable [143]
4	Microsoft MS 2.1A	C3KKMP3	Mouse	shielded mouse cable [183]

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	Siemens	N/A	USB cable	shielded cable, terminated [192]
9	Siemens	N/A	USB cable	shielded cable, terminated [192]
	<u>Pos 1 contains:</u>			
a1	ASTEC (UK), AA20040 SNI: S26113-E412-V30	N/A	Power supply	
a2	Minebea MN145S2CSE 01310 SNI: S26113-E412-V20	N/A	Power supply	

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
b	Siemens Nixdorf S26361-D1064-A11 GS 1	N/A	System board	
c	WD Caviar 1120 AC11200-07LA	N/A	Hard disk	
d	Intel Pentium II 80523 PY 400512 Q434ES	N/A	Processor	
e	ASTEC AA20040 SNI: S26113-E412-V30	N/A	Power supply	
f	Minebea MN145S2CSE 01310 SNI: S26113-E412-V20	N/A	Power supply	
g	SNI S26361-D960-V1 GS 4	N/A	Card reader	
h	Mitsumi CRMC-FX240S	EW4CRMC-FX240S	CD ROM	
i	Siemens Nixdorf S26361-H288-V500	N/A	Floppy disk drive	

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Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
j	SECKMM966 G512BQN-G8	N/A	Video RAM	
k	SEC KMM 366S203CT-GL (2x) SEC KMM 366S823BT-GL (1x)	N/A	SIMM	

Remark: positions 1a1 / 1a2 and 2a / 2b are optional

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. The limits for radiated and conducted emission 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, Buergermeister 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). During radiated emission the monitor was powered via system unit, during conducted emission also the external monitor supply was tested.

The system clock is 100 MHz, the clock frequency was tested with the highest possible processor:

100 MHz clock: Intel Pentium II 400 MHz

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

- ASTEC AA20040 SNI: S26113-E412-V30
- Minebea MN145S2CSE01310 SNI: S26113-E412-V20

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

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

ASTEC PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

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

ASTEC PSU:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz
monitor power via system unit

Minebea PSU:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz
monitor power via system unit

3.2 Video mode Justification

The system was tested in video graphic modes 1024 x 768, 1280 x 1024, 1600 x 1200 and 1920 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:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz

conducted emission:

ASTEC PSU:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz
monitor power via system unit

Minebea PSU:

100 MHz clock/Pentium II 400 MHz, video resolution 1280 x 1024/100 Hz
monitor power via system unit

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

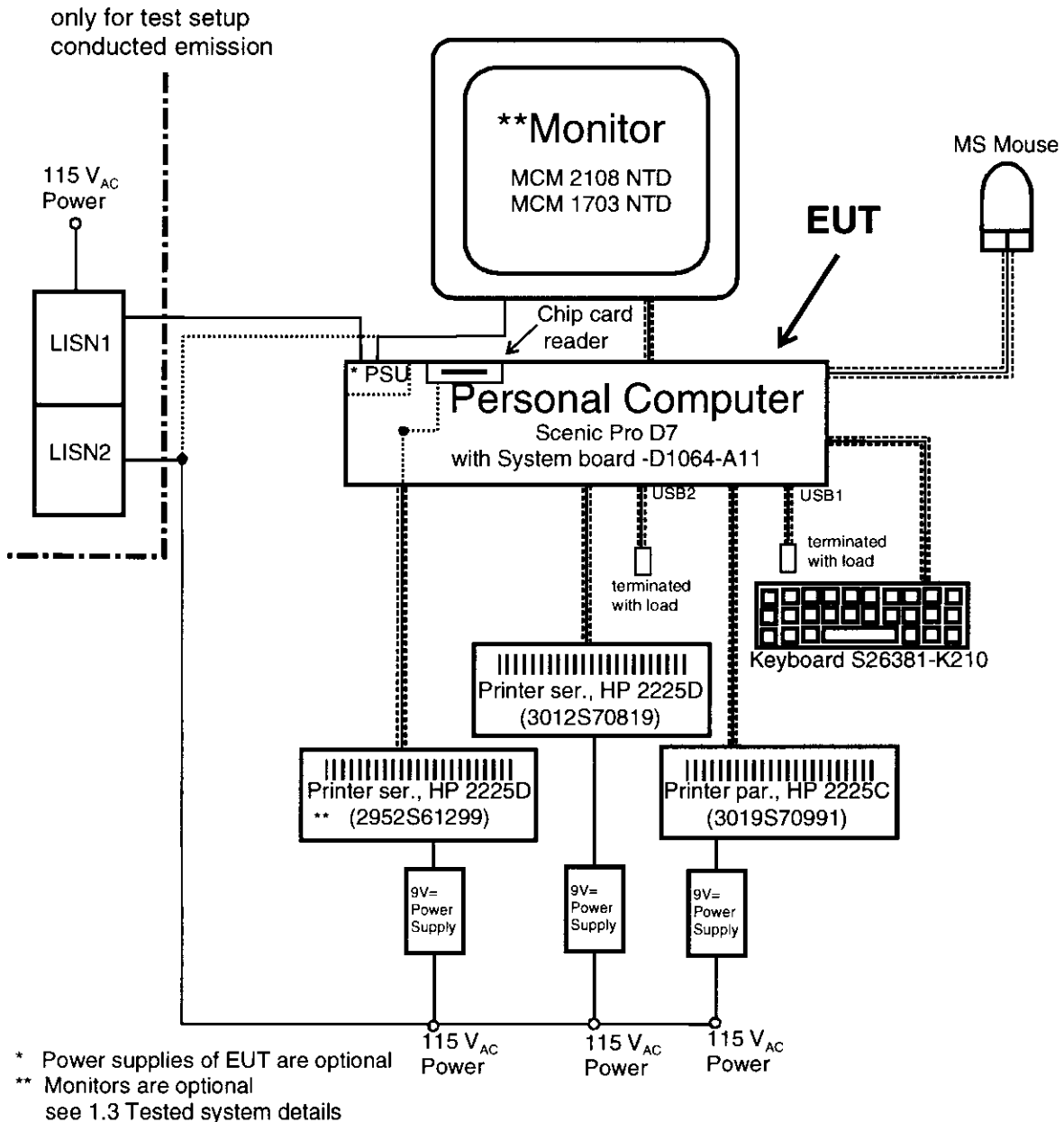
Applicant Signature _____ Date _____

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.

Figure 3.1 Configuration of Tested System



4 BLOCK DIAGRAM OF EUT

see fig 4.1 page 23

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, Video, Parallel Port and USB)

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
Memory	100 MHz
PCI-bus	33,3 MHz
PIIX4 to IDE and USB	33,3 MHz
ISA Bus	8,2 MHz
I/O controller	33,3 MHz
USB	48 MHz

4.3 Theory of Operation

The compact desktop PC works exactly as a traditional PC.

The processors run internally between 300 and 400 MHz, the type is selected by switches, the system clock is in each case the same - 100 MHz and is multiplied by the processors internally.

The highest possible frequencies and the corresponding processors are:

System clock	Processor	factor
100 MHz	300 MHz	3,0
100 MHz	350 MHz	3,5
100 MHz	400 MHz	4,0

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 result of the corresponding configuration (video resolution, supply modus) are given next:

- a) Configuration with ASTEC PSU
- b) Configuration with Minebea PSU

Judgement: Passed by

Line	Frequency [MHz]	Measured Level [dB(μV)]	Kind of value	Limit [dB(μV)]	Configuration
phase	0.486000	28.53	AV	46	a
phase	0.552000	27.75	AV	46	a
phase	0.762000	27.73	AV	46	a
phase	0.828000	30.88	AV	46	a
phase	0.900000	28.45	AV	46	a
neutral	1.104000	27.21	AV	46	a
neutral	1.176000	28.34	AV	46	a
neutral	1.242000	27.62	AV	46	a
phase	3.006000	44.58	QP	56	b
phase	3.114000	43.86	QP	56	b
phase	3.540000	44.66	QP	56	b
phase	3.648000	44.74	QP	56	b
neutral	4.080000	44.29	QP	56	b
phase	2.472000	40.33	AV	46	b
phase	3.006000	44.08	AV	46	b
phase	3.540000	44.10	AV	46	b
phase	3.648000	43.60	AV	46	b
neutral	3.756000	39.63	AV	46	b
phase	4.080000	44.04	AV	46	b
phase	4.614000	42.88	AV	46	b

AV: average

QP: quasi peak

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Test Personnel:

Tester Signature: *G. Pommerenke* Date: May 7th 98

Printed Name: G. Pommerenke

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Measurement Protocols

Page No

ASTEC PSU:

100 MHz clock/Pentium II 400 MHz
video resolution 1280 x 1024/100 Hz
monitor power via system unit

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Minebea PSU:

100 MHz clock/Pentium II 400 MHz
video resolution 1280 x 1024/100 Hz
monitor power via system unit

35 - 37

Conducted noise according to:

EN55022 class B

EUT: Scenic Pro D7 (D1064/400MHz)
Manufacturer: SNI
Operating Condition: scr."H" 1280 x 1024, 100Hz + peripheral test 2108
Test Site: EMC CENTER Augsburg, SK1
Operator: G. Pommerenke
Comment : meas.points: N, L1 PE to GND
Comment: fully configured, PSU: Astec AA20040 (E412-V30)
Start of Test: 01.04.1998 / 07:56:26

SCAN TABLE: "Volt_015-30MHZ"

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: ESHS Transducer: ESH2-Z5
Signal Path: None System Transducer: None
Meas. Mode: Lin Add. Transd. 1: ESH3-Z2
Tracking Gen.: -- Add. Transd. 2: None
Input: -- Add. Transd. 3: None

Preamplifier: Off Demodulation: A3
RF Att.: 0 dB Volume: --
Ref. Level: -- Squelch: --
Min. RF Att.: 10 dB Option: None
IF Att.: LowNoise
Autorange: On

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

MEASUREMENT RESULT: "Quasi Peak"

01.04.1998 08:31

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.486000	33.09	56	23.1		N	FLO
0.828000	34.71	56	21.3		L1	FLO
0.900000	32.60	56	23.4		L1	FLO

MEASUREMENT RESULT: "Quasi Peak"

(continued)

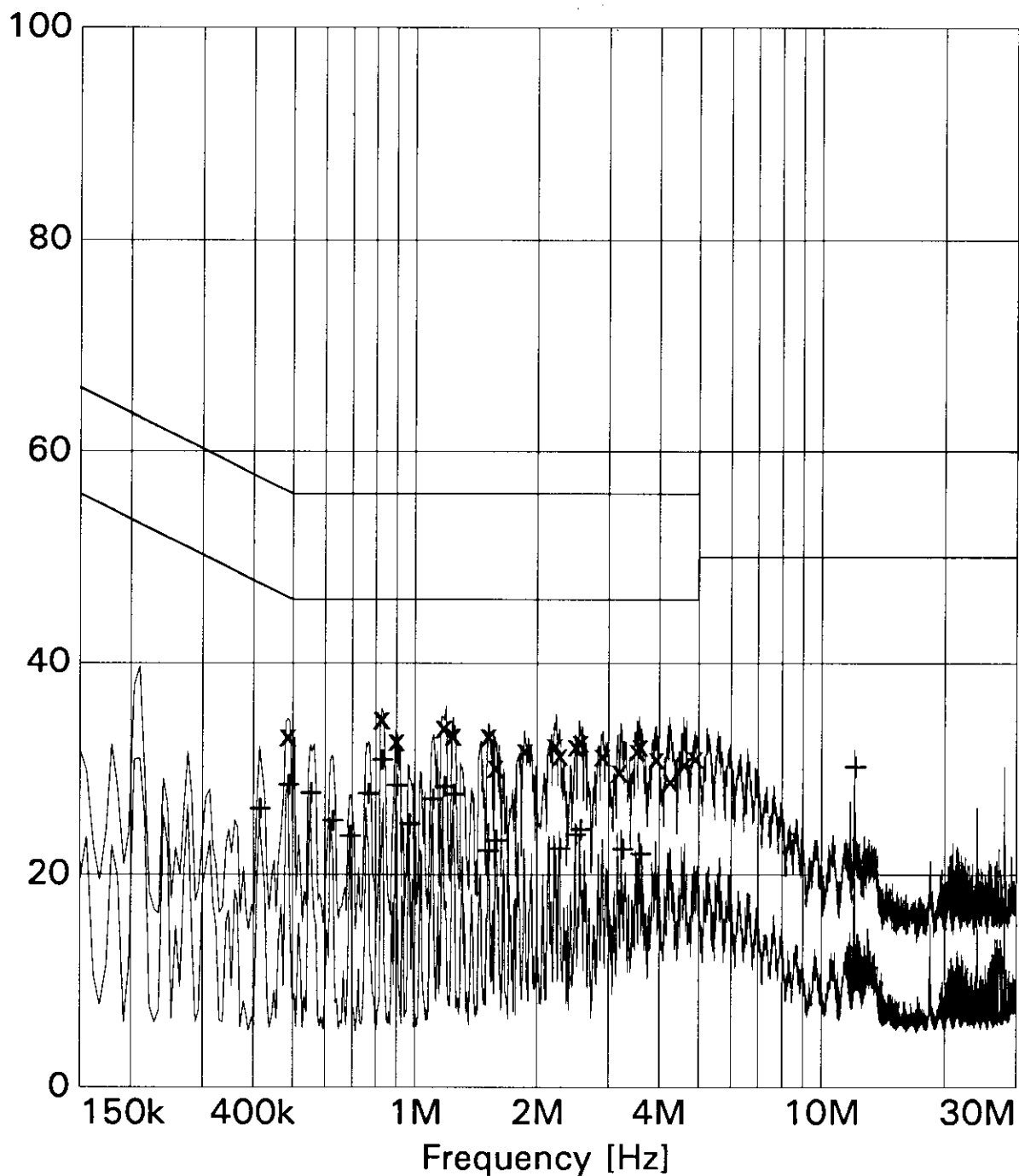
Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
1.176000	33.88	56	22.1		N	GND
1.242000	33.17	56	22.8		N	GND
1.518000	33.10	56	22.9		N	GND
1.578000	30.09	56	25.9		N	GND
1.866000	31.68	56	24.3		L1	FLO
2.214000	32.18	56	23.8		N	FLO
2.280000	31.26	56	24.7		N	FLO
2.490000	32.08	56	23.9		N	GND
2.556000	32.54	56	23.5		N	FLO
2.898000	31.17	56	24.8		N	FLO
3.192000	29.71	56	26.3		N	FLO
3.522000	31.66	56	24.3		N	FLO
3.582000	32.08	56	23.9		N	FLO
3.936000	30.85	56	25.2		N	FLO
4.254000	28.84	56	27.2		N	GND
4.608000	30.41	56	25.6		N	FLO
4.908000	30.93	56	25.1		N	FLO

MEASUREMENT RESULT: "Average"

01.04.1998 08:32

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.414000	26.27	48	21.3		L1	GND
0.486000	28.53	46	17.7		L1	FLO
0.552000	27.75	46	18.3		L1	GND
0.624000	25.12	46	20.9		L1	FLO
0.690000	23.70	46	22.3		L1	GND
0.762000	27.73	46	18.3		L1	GND
0.828000	30.88	46	15.1		L1	GND
0.900000	28.45	46	17.6		L1	GND
0.966000	24.81	46	21.2		L1	FLO
1.104000	27.21	46	18.8		N	FLO
1.176000	28.34	46	17.7		N	GND
1.242000	27.62	46	18.4		N	FLO
1.512000	22.32	46	23.7		N	FLO
1.584000	23.27	46	22.7		N	GND
2.274000	22.51	46	23.5		N	FLO
2.484000	23.81	46	22.2		N	FLO
2.556000	24.31	46	21.7		N	FLO
3.240000	22.46	46	23.5		N	FLO
3.582000	21.99	46	24.0		N	GND
12.030000	30.18	50	19.8		L1	FLO

Level [dB μ V]



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

Conducted noise according to:

EN55022 class B

EUT: Scenic Pro D7 (D1064/400MHz)
Manufacturer: SNI
Operating Condition: scr."H" 1280 x 1024, 100Hz + peripheral test 2108
Test Site: EMC CENTER Augsburg, SK1
Operator: G. Pommerenke
Comment: meas.points: N, L1 PE to GND
Comment: fully configured, PSU: Minebea
Start of Test: 01.04.1998 / 09:37:24

SCAN TABLE: "Volt_015-30MHZ"

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: ESHS Transducer: ESH2-Z5
Signal Path: None System Transducer: None
Meas. Mode: Lin Add. Transd. 1: ESH3-Z2
Tracking Gen.: -- Add. Transd. 2: None
Input: -- Add. Transd. 3: None

Preamplifier: Off Demodulation: A3
RF Att.: 0 dB Volume: --
Ref. Level: -- Squelch: --
Min. RF Att.: 10 dB Option: None
IF Att.: LowNoise
Autorange: On

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

MEASUREMENT RESULT: "Quasi Peak"

01.04.1998 10:11

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.216000	46.25	63	16.7	N	FLO	
0.324000	43.13	60	16.5	N	GND	
2.364000	40.41	56	15.6	N	FLO	

MEASUREMENT RESULT: "Quasi Peak"

(continued)

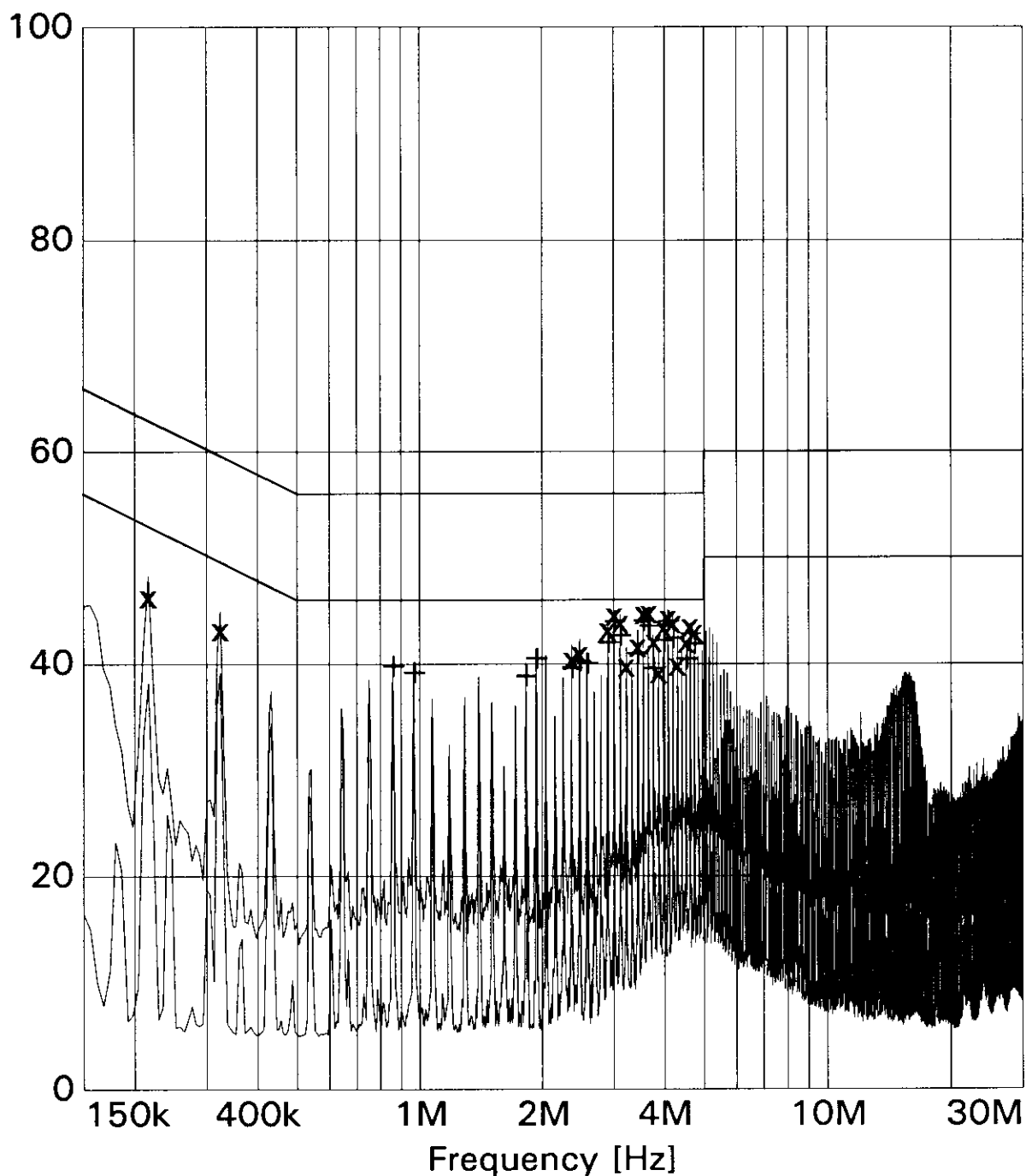
Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
2.472000	40.89	56	15.1		L1	FLO
2.898000	43.14	56	12.9		L1	FLO
3.006000	44.58	56	11.4		L1	GND
3.114000	43.86	56	12.1		L1	GND
3.222000	39.73	56	16.3		L1	GND
3.438000	41.60	56	14.4		N	GND
3.540000	44.66	56	11.3		L1	GND
3.648000	44.74	56	11.3		L1	GND
3.756000	42.08	56	13.9		N	GND
3.864000	39.13	56	16.9		L1	FLO
3.972000	43.38	56	12.6		N	GND
4.080000	44.29	56	11.7		N	GND
4.188000	43.77	56	12.2		L1	GND
4.296000	39.85	56	16.2		N	GND
4.506000	41.95	56	14.1		N	FLO
4.614000	43.45	56	12.6		L1	FLO
4.722000	42.96	56	13.0		L1	GND

MEASUREMENT RESULT: "Average"

01.04.1998 10:11

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.858000	39.85	46	6.1		L1	FLO
0.966000	39.22	46	6.8		L1	FLO
1.824000	38.91	46	7.1		L1	GND
1.932000	40.52	46	5.5		L1	FLO
2.364000	39.67	46	6.3		L1	FLO
2.472000	40.33	46	5.7		L1	FLO
2.574000	40.10	46	5.9		L1	FLO
2.898000	42.04	46	4.0		L1	FLO
3.006000	44.08	46	1.9		L1	GND
3.114000	42.72	46	3.3		L1	GND
3.432000	41.06	46	4.9		L1	FLO
3.540000	44.10	46	1.9		L1	GND
3.648000	43.60	46	2.4		L1	FLO
3.756000	39.63	46	6.4		N	GND
3.972000	42.25	46	3.8		L1	FLO
4.080000	44.04	46	2.0		L1	GND
4.188000	42.43	46	3.6		L1	FLO
4.506000	40.47	46	5.5		L1	FLO
4.614000	42.88	46	3.1		L1	GND
4.722000	41.87	46	4.1		L1	GND

Level [dB μ V]



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

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 pre-scan 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 400 MHz in video modes 1024 x 768, 1280 x 1024, 1600 x 1200 and 1920 x 1200. The test results below reflect the worst case with:

ASTEC PSU:

100 MHz clock/Pentium II 400 MHz, video resolution: 1280 x 1024/100 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
72.00000	21.43	30.000	-8.570000	ver	4.0000	90.000
110.67000	21.68	30.000	-8.323625	ver	1.6000	180.00
129.21000	22.55	30.000	-7.453766	ver	1.6000	150.00
500.22000	28.02	37.000	-8.984932	ver	3.4000	30.000
992.91000	34.96	37.000	-2.039044	hor	1.0000	30.000

all levels are quasi-peak levels

Part 2: frequency range 1 GHz - 3 GHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1000.300000	29.05	54.0	24.9		150.0	45.00	ver
1366.300000	33.37	54.0	20.6		100.0	0.00	ver
1399.000000	28.10	54.0	25.9		100.0	0.00	ver
1428.400000	31.59	54.0	22.4		100.0	0.00	ver
1490.500000	30.59	54.0	23.4		100.0	315.00	ver
1588.600000	27.64	54.0	26.4		100.0	45.00	ver
1985.500000	27.98	54.0	26.0		300.0	315.00	ver

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:

100 MHz clock/Pentium II 400 MHz, video resolution: 1280 x 1024/100 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
110.70000	23.99	30.000	-6.010839	ver	1.6000	210.00
129.21000	25.11	30.000	-4.893766	ver	1.0000	180.00
147.57000	23.83	30.000	-6.169770	ver	1.0000	150.00
694.95000	32.41	37.000	-4.591848	ver	2.8000	0.0000
989.34000	32.49	37.000	-4.513588	hor	1.6000	240.00

all levels are quasi-peak levels

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro D7

FCC Identifier:
HSSSCENICD701

Date: Apr. 29, 1998

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Part 2: frequency range 1 GHz - 3 GHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1000.900000	31.13	54.0	22.9		100.0	180.00	hor
1389.700000	26.95	54.0	27.0		150.0	315.00	ver
1491.100000	32.85	54.0	21.1		100.0	0.00	ver
1493.500000	29.31	54.0	24.7		100.0	0.00	ver
1588.300000	27.99	54.0	26.0		100.0	45.00	ver
1600.000000	27.01	54.0	27.0		100.0	45.00	ver
1985.200000	27.78	54.0	26.2		100.0	0.00	ver

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: Heinz Zenkner Date: May 7, 1998

Printed Name: H. Zenkner

Test Personnel:

Tester Signature: A. Siebenhütter Date: May 7, 1998

Printed Name: A. Siebenhütter

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro D7

FCC Identifier:
HSSSCENICD701

Date: Apr. 29, 1998

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Measurement Protocols

Page No

ASTEC PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

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Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

47 - 49

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

50 - 51

Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

53 - 55

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro D7

FCC Identifier:
HSSSCENICD701

Date: Apr. 29, 1998

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Radiation Test according to:

EN 55022/B

EUT: Scenic Pro D7 (D1064/400MHz)
Manufacturer: SNI
Operating Condition: scr. "H"1280 x1024 / 100Hz; HD/CD-Test
Test Site: EMC Center Augsburg
Operator: H. Zenkner
Job No: PDP8E027
Comment : full configuration, MCM2108
Comment: PSU: ASTEC

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	21.36	VER	3.4000	300.00
----------	-------	-----	--------	--------

72.03333	21.40	VER	4.0000	90.000
----------	-------	-----	--------	--------

110.83333	24.17	VER	1.6000	180.00
-----------	-------	-----	--------	--------

129.15555	24.39	VER	1.6000	150.00
-----------	-------	-----	--------	--------

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
30.27000	16.29	30.000	-13.71224	VER	3.4000	300.00
72.00000	21.43	30.000	-8.570000	VER	4.0000	90.000
110.67000	21.68	30.000	-8.323625	VER	1.6000	180.00
129.21000	22.55	30.000	-7.453766	VER	1.6000	150.00
297.90000	25.61	37.000	-11.39444	VER	1.0000	330.00
500.22000	28.02	37.000	-8.984932	VER	3.4000	30.000
662.52000	25.32	37.000	-11.68274	HOR	3.4000	330.00
992.91000	34.96	37.000	-2.039044	HOR	1.0000	30.000

Level [dB μ V/m]

60

50

40

30

20

10

0

30M 40M 50M

70M 100M

200M

300M 400M

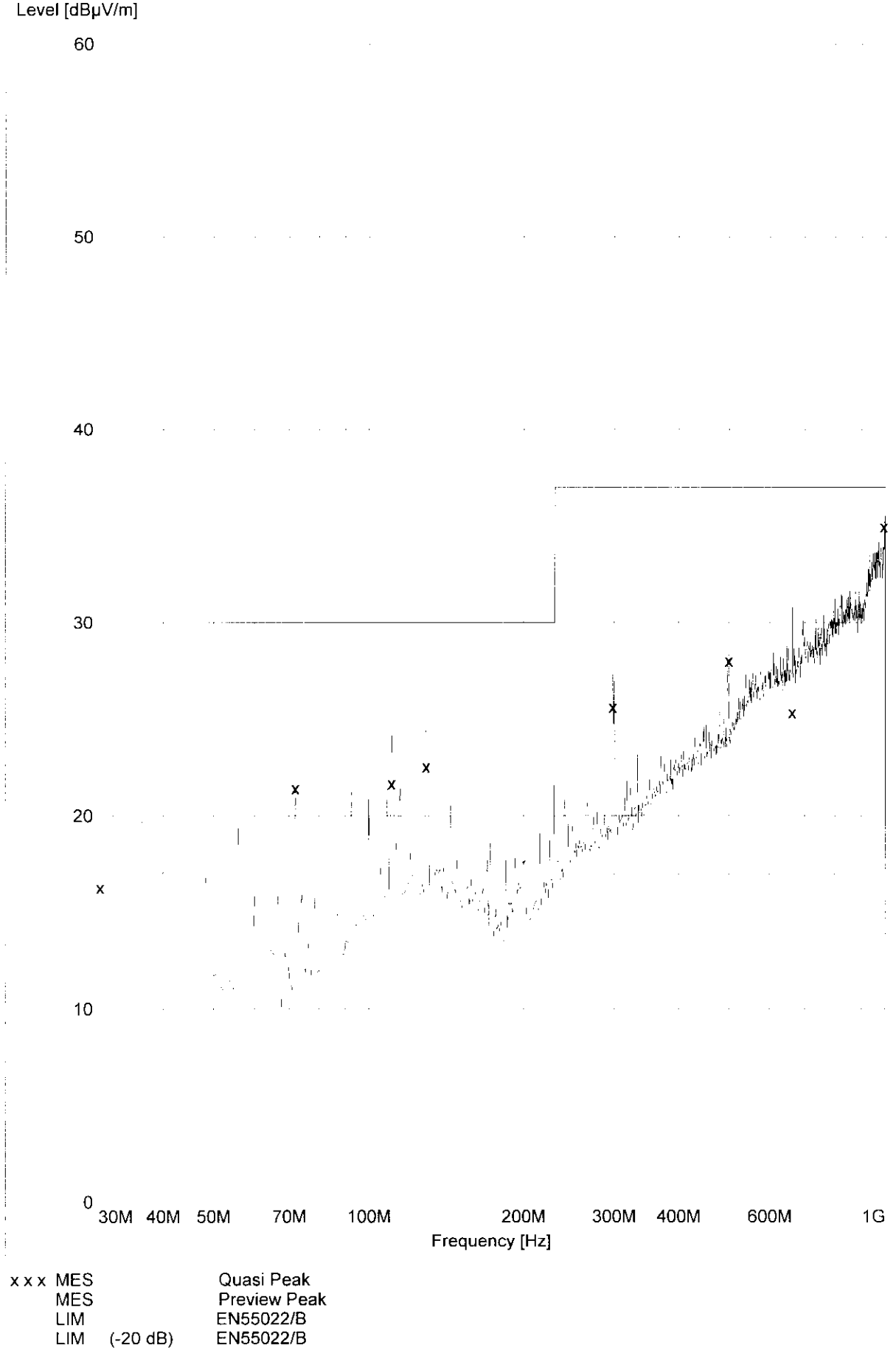
600M

1G

Frequency [Hz]

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

Quasi Peak
Preview Peak
EN55022/B
EN55022/B



Fieldstrength according to :

FCC class B

EUT: Scenic Pro D7 with D1064-A11/400MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1280 x 1024/100Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: A. Siebenhütter
Job No: PDP8E027
Comment : full configuration. Power Supply: Astec E412-V30
Start of Test: 08.04.1998 / 12:55:20

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

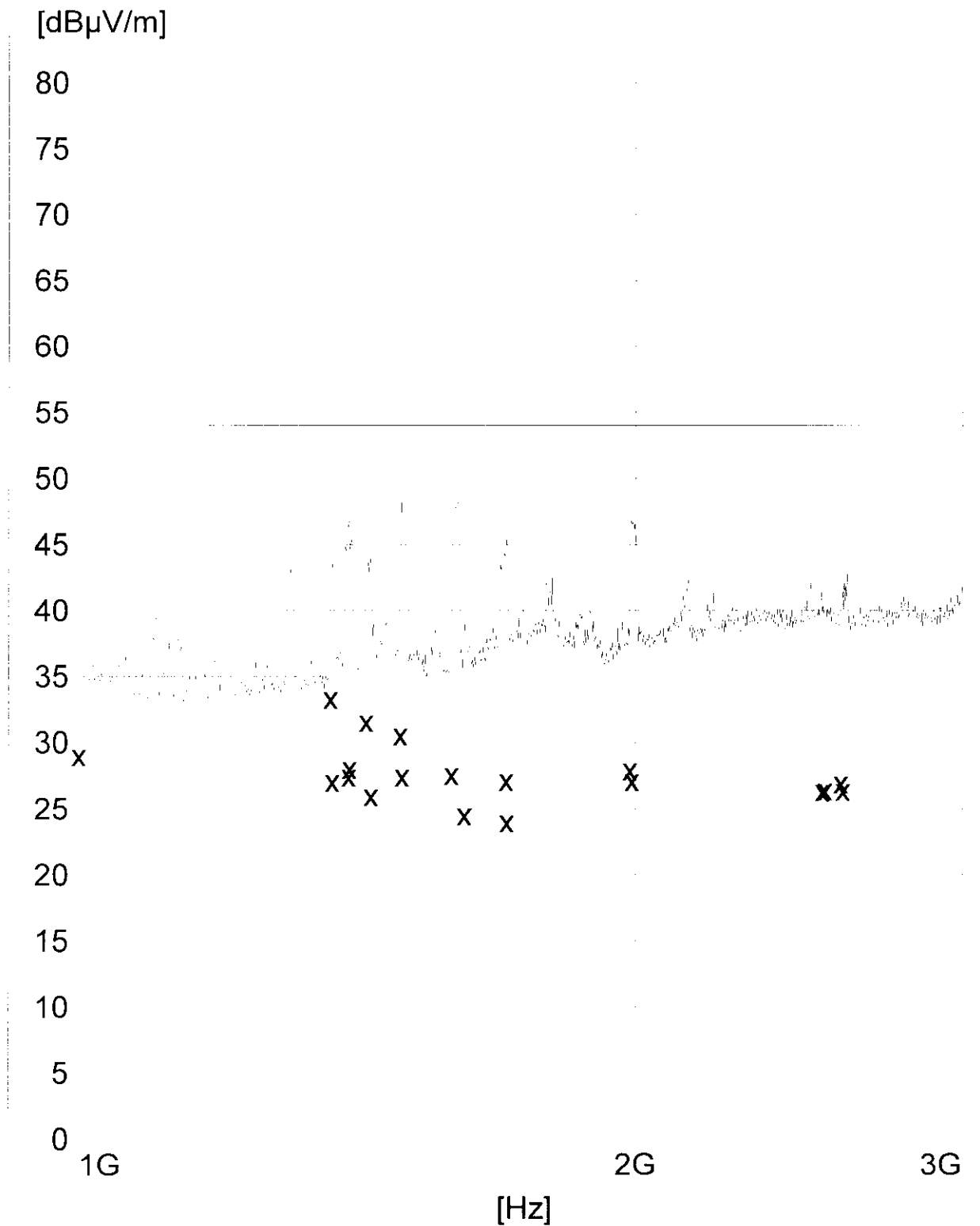
Preamplifier:	10 dB	Demodulation:	AM
RF Att.:	Coupled	Volume:	75 %
Ref. Level:	-40.0 dBm	Squelch:	--
Min. RF Att.:	0 dB	Option:	None
IF Att.:	--		
Autorange:	On		

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

MEASUREMENT RESULT: "Final_Average"

08.04.1998 13:30

Frequency	Level	Limit	Margin	Exceed Mark	Height	Azimuth	Polarisation
MHz	dBµV/m	dBµV/m	dB		cm	deg	
1000.300000	29.05	54.0	24.9		150.0	45.00	VERTICAL
1366.300000	33.37	54.0	20.6		100.0	0.00	VERTICAL
1369.000000	27.10	54.0	26.9		100.0	0.00	VERTICAL
1397.500000	27.48	54.0	26.5		100.0	0.00	VERTICAL
1399.000000	28.10	54.0	25.9		100.0	0.00	VERTICAL
1428.400000	31.59	54.0	22.4		100.0	0.00	VERTICAL
1436.800000	26.02	54.0	28.0		100.0	0.00	VERTICAL
1490.500000	30.59	54.0	23.4		100.0	315.00	VERTICAL
1493.800000	27.48	54.0	26.5		100.0	315.00	VERTICAL
1588.600000	27.64	54.0	26.4		100.0	45.00	VERTICAL
1614.700000	24.55	54.0	29.5		100.0	45.00	VERTICAL
1701.100000	27.17	54.0	26.8		150.0	0.00	VERTICAL
1702.300000	24.00	54.0	30.0		150.0	0.00	VERTICAL
1985.500000	27.98	54.0	26.0		300.0	315.00	VERTICAL
1990.900000	27.17	54.0	26.8		300.0	315.00	VERTICAL
2523.400000	26.38	54.0	27.6		100.0	315.00	VERTICAL
2531.500000	26.46	54.0	27.5		100.0	315.00	VERTICAL
2581.300000	26.99	54.0	27.0		100.0	0.00	VERTICAL
2587.900000	26.42	54.0	27.6		100.0	0.00	VERTICAL



x x x MES Final_Average
 MES Peak
 LIM FCC/B 1-3GHz
 LIM FCC/B 1-3GHz

Radiation Test according to:

EN 55022/B

EUT: Scenic Pro D7 (D1064/400MHz)
Manufacturer: SNI
Operating Condition: scr. "H"1280 x 1024 / 100Hz; HD/CD-Test
Test Site: EMC Center Augsburg
Operator: H. Zenkner
Job No: PDP8E027
Comment : full configuration, MCM2108
Comment: MINEBEA PSU

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
55.86666	23.86	VER	3.4000	240.00
92.51111	25.17	VER	2.8000	180.00

100.05555	24.59	VER	1.6000	240.00
110.83333	25.31	VER	1.6000	210.00
130.23333	25.60	VER	1.0000	180.00
148.55555	24.73	VER	1.0000	150.00
300.52222	30.86	HOR	2.8000	300.00
496.67777	32.18	VER	3.4000	330.00
500.98888	31.93	VER	3.4000	330.00
696.06666	33.84	VER	2.8000	0.0000
989.22222	35.24	HOR	1.6000	240.00

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
55.32000	22.29	30.000	-7.706312	VER	3.4000	240.00
92.25000	23.63	30.000	-6.374026	VER	2.8000	180.00
100.02000	23.09	30.000	-6.906220	VER	1.6000	240.00
110.70000	23.99	30.000	-6.010839	VER	1.6000	210.00
129.21000	25.11	30.000	-4.893766	VER	1.0000	180.00
147.57000	23.83	30.000	-6.169770	VER	1.0000	150.00
300.18000	29.18	37.000	-7.816558	HOR	2.8000	300.00
496.41000	28.76	37.000	-8.235327	VER	3.4000	330.00
500.43000	29.52	37.000	-7.484089	VER	3.4000	330.00
694.95000	32.41	37.000	-4.591848	VER	2.8000	0.0000
989.34000	32.49	37.000	-4.513588	HOR	1.6000	240.00

Level [dB μ V/m]

60

50

40

30

20

10

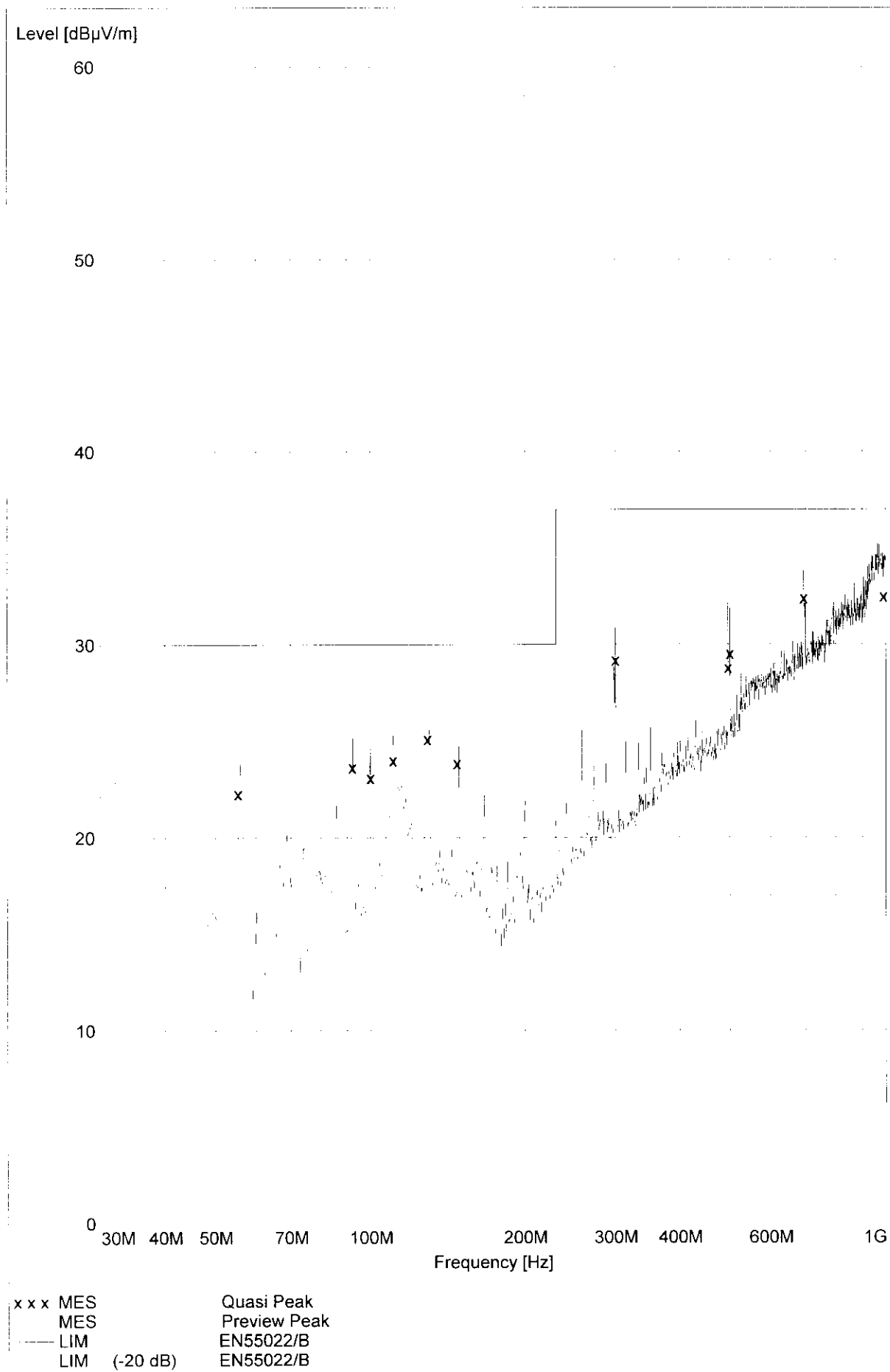
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30M 40M 50M 70M 100M 200M 300M 400M 600M 1G

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 D7 with D1064-A11/400MHz
Manufacturer: SNI
Operating Condition: scrolling "H" 1280 x 1024/100Hz + CD/HD-test
Test Site: EMC Center Augsburg
Operator: A. Siebenhütter
Job No: PDP8E027
Comment : full configuration. Power Supply: Minebea E412-V20
Start of Test: 08.04.1998 / 11:31:37

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

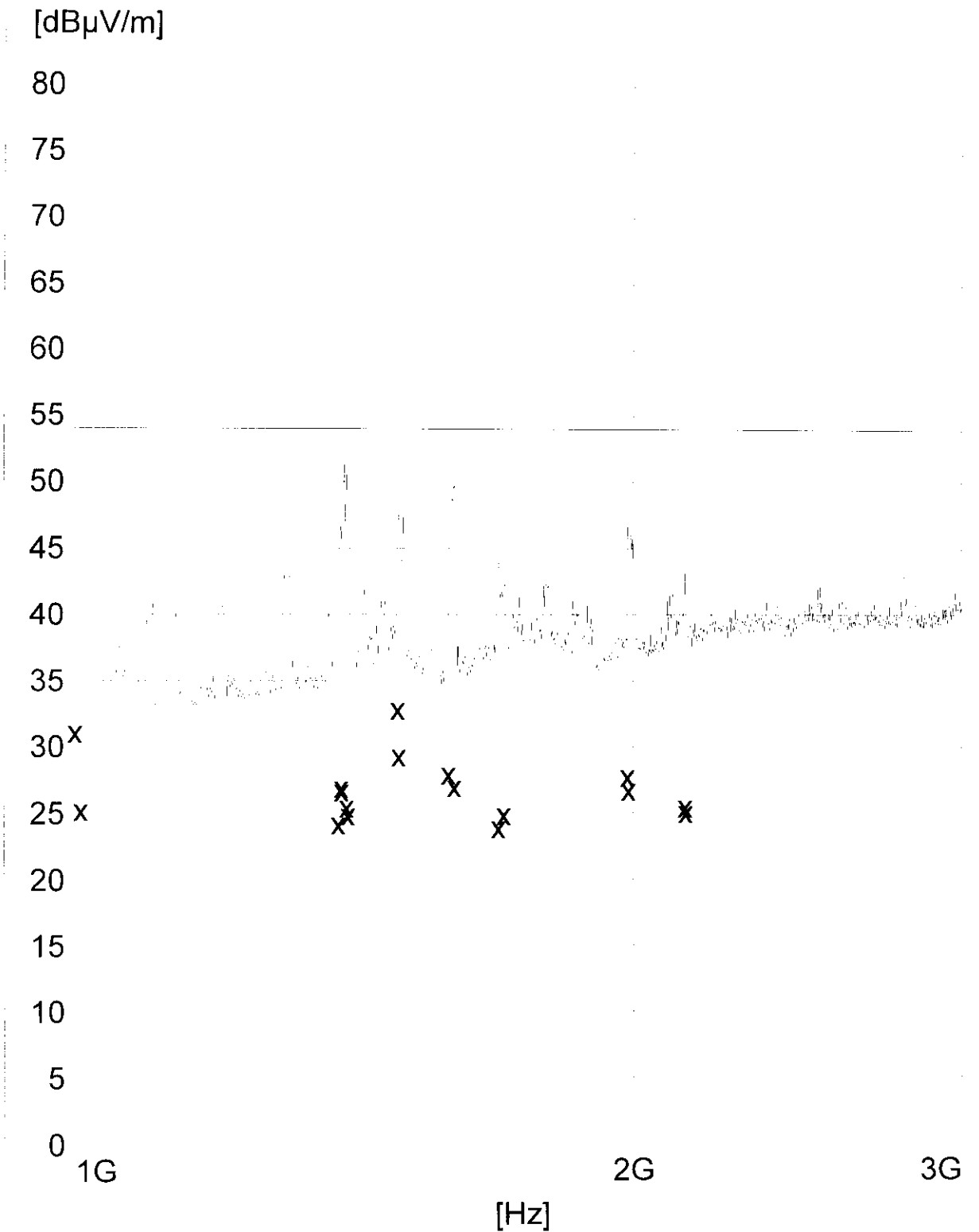
Preamplifier:	10 dB	Demodulation:	AM
RF Att.:	Coupled	Volume:	75 %
Ref. Level:	-40.0 dBm	Squelch:	--
Min. RF Att.:	0 dB	Option:	None
IF Att.:	--		
Autorange:	On		

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

MEASUREMENT RESULT: "Final_Average"

08.04.1998 12:06

Frequency	Level	Limit	Margin	Exceed	Height	Azimuth	Polarisation
MHz	dB μ V/m	dB μ V/m	dB	Mark	cm	deg	
1000.900000	31.13	54.0	22.9		100.0	180.00	HORIZONTAL
1008.100000	25.24	54.0	28.8		100.0	180.00	HORIZONTAL
1384.600000	24.20	54.0	29.8		150.0	315.00	VERTICAL
1389.700000	26.95	54.0	27.0		150.0	315.00	VERTICAL
1390.000000	26.70	54.0	27.3		150.0	315.00	VERTICAL
1399.300000	25.46	54.0	28.5		150.0	315.00	VERTICAL
1401.100000	24.86	54.0	29.1		150.0	315.00	VERTICAL
1491.100000	32.85	54.0	21.1		100.0	0.00	VERTICAL
1493.500000	29.31	54.0	24.7		100.0	0.00	VERTICAL
1588.300000	27.99	54.0	26.0		100.0	45.00	VERTICAL
1600.000000	27.01	54.0	27.0		100.0	45.00	VERTICAL
1690.300000	23.93	54.0	30.1		200.0	0.00	VERTICAL
1701.400000	24.91	54.0	29.1		200.0	0.00	VERTICAL
1985.200000	27.78	54.0	26.2		100.0	0.00	VERTICAL
1987.600000	26.74	54.0	27.3		100.0	0.00	VERTICAL
2132.500000	25.46	54.0	28.5		150.0	45.00	VERTICAL
2133.400000	25.05	54.0	28.9		150.0	45.00	VERTICAL



x x x MES Final_Average
 MES Peak
 LIM FCC/B 1-3GHz
 LIM FCC/B 1-3GHz

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 =

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

$$103,5 \mu\text{V/m}$$

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