

MEASUREMENT / TECHNICAL REPORT**SIEMENS NIXDORF AG****Model: Personal Computer Scenic Pro D7****FCC ID: HSSSCENICD701****August 17, 1998**This report concerns:
Equipment type:☐ Original grant
Personal Computer☒ Class II change

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

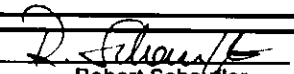
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**SIEMENS
NIXDORF**

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Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro D7

FCC Identifier:
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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. In past the main system unit was assembled with Processors Intel Pentium II from 300 MHz up to 400 MHz, now the Processor Pentium II / 450 MHz is added.

Description of the power supplies:

- Power supplies:

In past the two power supplies

	AA 20040
ASTEC, model	S26113-E412-V30

	MN145S2CSE01310
Minebea, model	S26113-E412-V20 (GS2)

have been assembled, now a modified model of the

Minebea, model	S26113-E412-V20 (GS3)
----------------	-----------------------

is added.

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)

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- 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-Strasse 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]

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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	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 GS2	N/A	Power supply	

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Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
a3	Minebea MN145S2CSE 01310 SNI: S26113-E412-V20 GS3	N/A	Power supply	
b	Siemens Nixdorf S26361-D1064-A11 GS1	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	SNI S26361-D960-V1 GS4	N/A	Card reader	
f	Mitsumi CRMC-FX240S	EW4CRMC-FX240S	CD ROM	
g	Siemens Nixdorf S26361-H288-V500	N/A	Floppy disk drive	
h	SECKMM966 G512BQN-G8	N/A	Video RAM	

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Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
i	SEC KMM 366S203CT-GL (2x) SEC KMM 366S823BT-GL (1x)	N/A	SIMM	

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

2 PRODUCT LABELING

2.1 FCC ID Label

FCC ID: HSSSCENICD701

This device complies with part 15 of the FCC Rules and meets all requirements of the Canadian Interference-Causing-Equipment Regulations. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.2 Location of Label on EUT

See first report, dated April 29, 1998.

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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 three kinds of power supplies:

- | | | |
|-----------|-----------------|--------------------------|
| - ASTEC | AA20040 | SNI: S26113-E412-V30 |
| - Minebea | MN145S2CSE01310 | SNI: S26113-E412-V20 GS2 |
| - Minebea | MN145S2CSE01310 | SNI: S26113-E412-V20 GS3 |

With respect to the worst case results determined during measurements for the first report the following results are applicable:

Referring to radiated emission:

Minebea PSU (GS2):

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 (GS3):

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:

Minebea PSU (GS2):

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

Minebea PSU (GS3):

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:

Minebea PSU (GS2):

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 (GS3):

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:

Minebea PSU (GS2):

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

Minebea PSU (GS3):

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

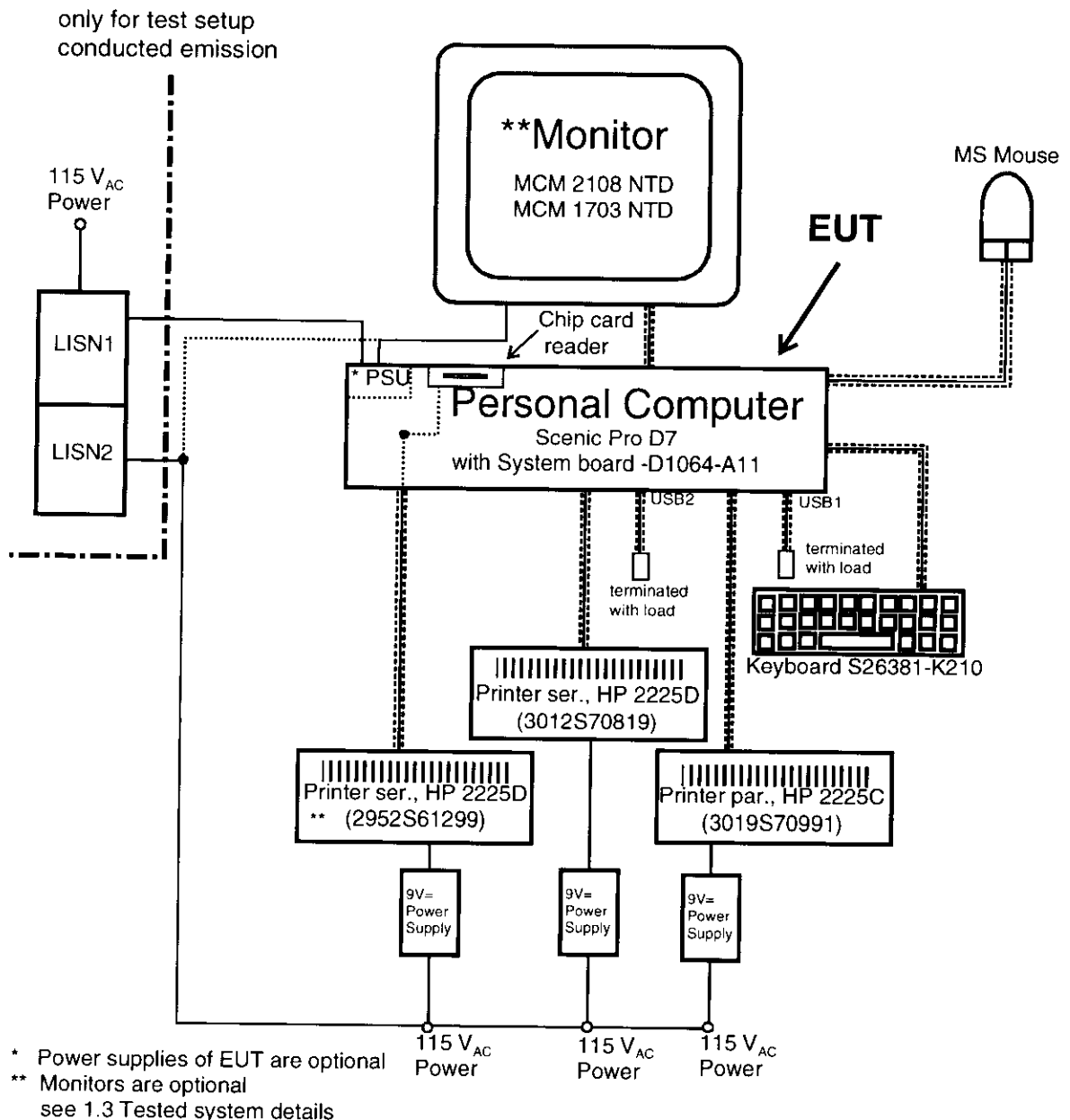
Applicant Signature _____ Date _____

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 22

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

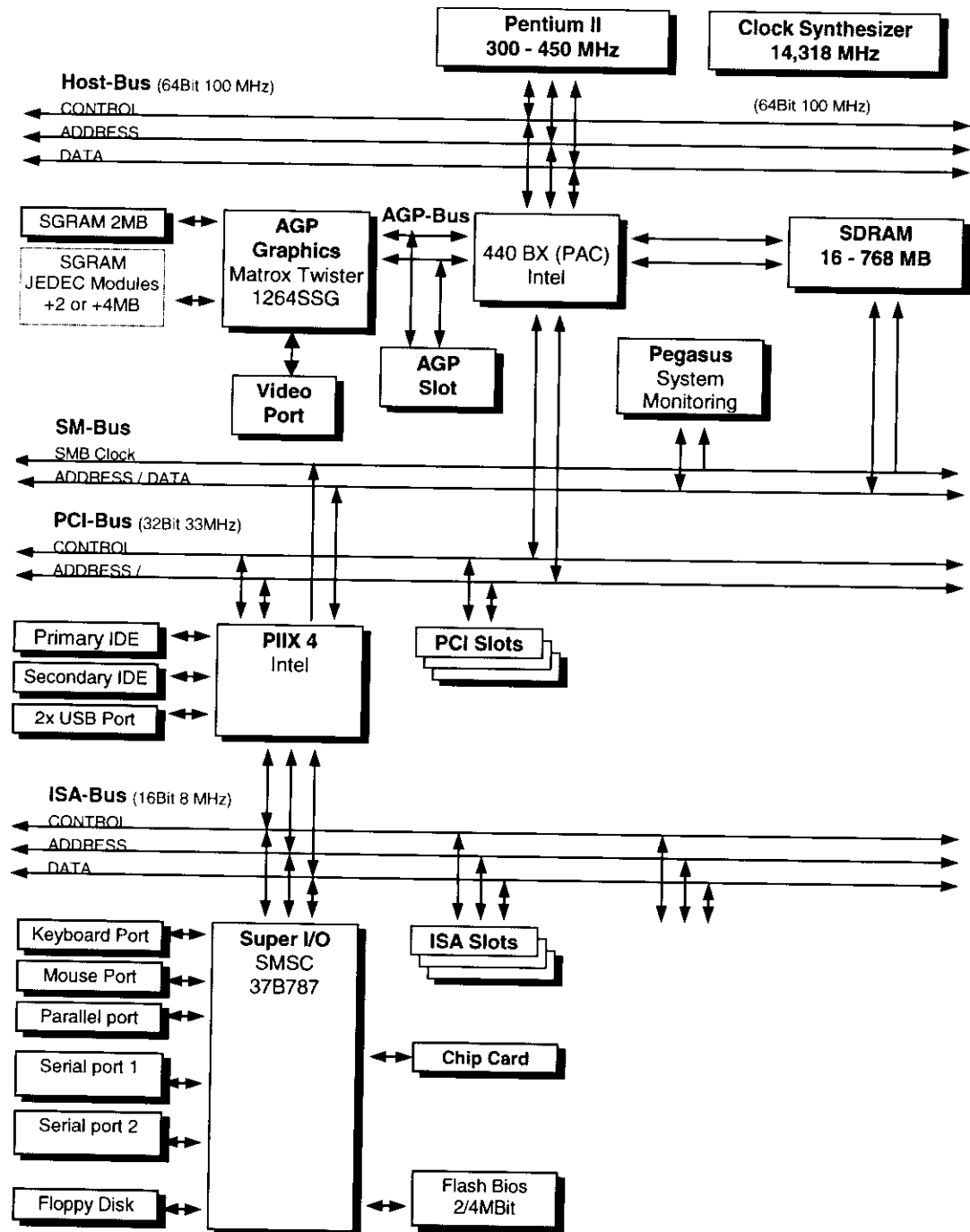
The compact desktop PC works exactly as a traditional PC.

The processors run internally between 300 and 450 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
100 MHz	450 MHz	4,5

Figure 4.1 Block Diagram of the EUT



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:

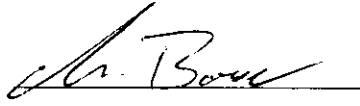
1. Peak noise on L
2. Peak noise on N

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 Minebea PSU (GS2)
- b) Configuration with Minebea PSU (GS3)

Test Personnel:

Tester Signature:  Date: Aug 17, 98

Printed Name: M. Bosse

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Measurement Protocols

Page No

Minebea PSU (GS2):

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 (GS3):

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

34 - 36

Conducted noise according to:

EN 55022 class B

EUT: Scenic Pro D7/PII/450, D1064-A11
Manufacturer: SNI
Operating Condition: scroll H 1280*1024/100 Hz HD/CD-Test
Test Site: SNI-Augsburg; SK1
Operator: M.Bosse.
Comment: Full configured, monitor MCM2108
Supply: Monitor on CPU, Minebea E412-V20 old layout
Start of Test: 30.07.1998 / 09:09:26

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

Judgement: Passed by

Line	Frequency [MHz]	Measured Level [dB(μV)]	Kind of value	Limit [dB(μV)]	Configuration
neutral	0.498000	36.60	AV	46	a
phase	0.870000	41.50	AV	46	a
phase	0.996000	41.70	AV	46	a
phase	1.494000	41.00	AV	46	a
phase	1.620000	42.90	AV	46	a
neutral	0.498000	37.30	QP	56	a
phase	0.870000	42.10	QP	56	a
phase	0.996000	42.20	QP	56	a
phase	1.620000	43.50	QP	56	a
phase	0.666000	33.80	AV	46	b
neutral	0.780000	33.00	AV	46	b
neutral	1.338000	31.40	AV	46	b
phase	4.794000	31.70	AV	46	b
neutral	12.024000	35.40	AV	50	b

AV: average

QP: quasi peak

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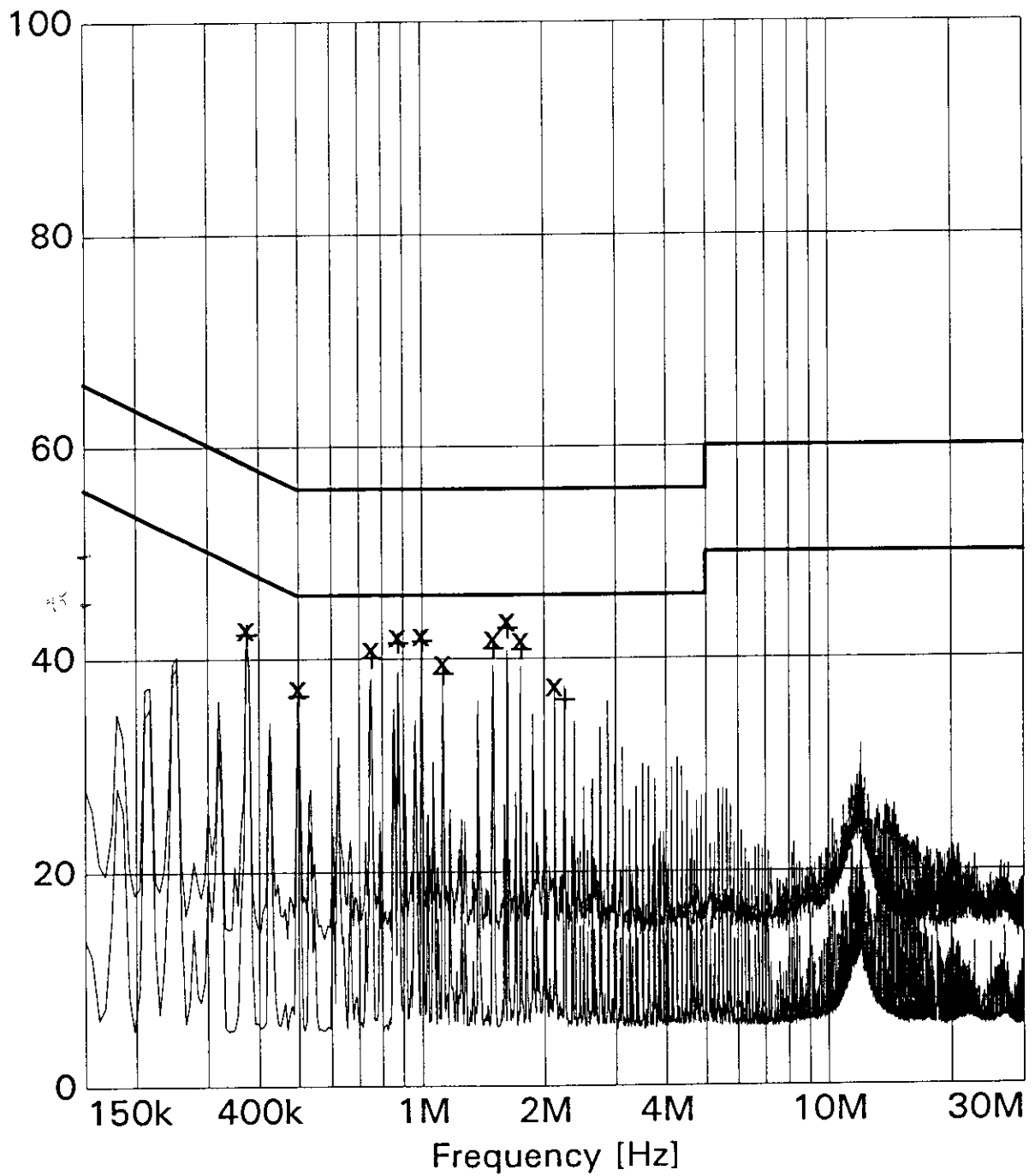
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Level [dB μ V]



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

MEASUREMENT RESULT: "Quasi Peak"

30.07.1998 09:28

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.372000	42.80	10.0	58.4	15.5	L1	GND
0.498000	37.30	10.0	56.0	18.7	N	GND
0.750000	40.90	10.0	56.0	15.0	L1	GND
0.870000	42.10	10.0	56.0	13.8	L1	GND
0.996000	42.20	10.0	56.0	13.7	L1	GND
1.122000	39.60	10.0	56.0	16.3	L1	GND
1.494000	41.90	10.0	56.0	14.0	L1	GND
1.620000	43.50	10.0	56.0	12.4	L1	GND
1.746000	41.70	10.0	56.0	14.2	L1	GND
2.118000	37.40	10.0	56.0	18.5	L1	GND

MEASUREMENT RESULT: "Average"

30.07.1998 09:28

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.372000	42.40	10.0	48.4	6.0	L1	GND
0.498000	36.60	10.0	46.0	9.4	N	GND
0.750000	40.10	10.0	46.0	5.8	L1	GND
0.870000	41.50	10.0	46.0	4.4	L1	GND
0.996000	41.70	10.0	46.0	4.2	L1	GND
1.122000	38.60	10.0	46.0	7.3	L1	GND
1.494000	41.00	10.0	46.0	4.9	L1	GND
1.620000	42.90	10.0	46.0	3.0	L1	GND
1.746000	40.90	10.0	46.0	5.0	L1	GND
2.244000	36.20	10.0	46.0	9.7	L1	GND

Worst case

Conducted noise according to:

EN 55022 class B

EUT: Scenic Pro Edition D7/PII/450, D1064-A11
Manufacturer: SNI
Operating Condition: Scroll H 1280*1024/100 Hz HD/CD-test
Test Site: SNI-Augsburg; SK1
Operator: M. Bosse.
Comment: Fully configured, monitor MCM 2108
Comment: Monitor on CPU, Minebea E412-V20
Start of Test: 03.08.1998 / 11:08:19

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

Level [dB μ V]

100

80

60

40

20

0

150k 400k 1M 2M 4M 10M 30M
Frequency [Hz]

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

MEASUREMENT RESULT: "Quasi Peak"

03.08.1998 11:23

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.222000	45.10	10.0	62.7	17.5	L1	GND
0.666000	35.70	10.0	56.0	20.2	N	GND
0.780000	36.70	10.0	56.0	19.2	N	GND
0.894000	33.20	10.0	56.0	22.7	N	GND
1.224000	33.20	10.0	56.0	22.7	N	GND
1.338000	35.10	10.0	56.0	20.9	N	GND
1.782000	33.40	10.0	56.0	22.5	N	GND
1.896000	34.30	10.0	56.0	21.6	N	GND
12.024000	37.60	10.0	60.0	22.3	N	GND

MEASUREMENT RESULT: "Average"

03.08.1998 11:23

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.444000	29.50	10.0	46.9	17.4	N	GND
0.666000	33.80	10.0	46.0	12.1	L1	GND
0.780000	33.00	10.0	46.0	12.9	N	GND
1.116000	30.10	10.0	46.0	15.8	N	GND
1.224000	31.00	10.0	46.0	15.0	N	GND
1.338000	31.40	10.0	46.0	14.5	N	GND
1.782000	29.70	10.0	46.0	16.2	N	GND
1.896000	29.40	10.0	46.0	16.5	N	GND
4.794000	31.70	10.0	46.0	14.2	L1	GND
12.024000	35.40	10.0	50.0	14.5	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	May 98	12 months
LISN	NSLK 8126 Schwarzbeck	8126160	May 98	12 months
LISN	ESH2-Z5 Rohde&Schwarz	871884/004	May 98	12 months
Pulse limiter	ESH3-Z2 Rohde&Schwarz	357.8810.52	May 98	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: Bilog 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:

Minebea PSU (GS2):

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
297.93000	28.92	37.000	-8.076659	hor	3.4000	240.00
300.06000	30.77	37.000	-6.230369	hor	2.8000	320.00
496.56000	31.55	37.000	-5454774	ver	1.0000	200.00
500.22000	28.90	37.000	-8097817	hor	1.6000	200.00
900.39000	34.06	37.000	-2940636	ver	1.6000	0.0000
992.85000	33.77	37.000	-328635	ver	1.6000	160.00

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
1000.000000	38.83	54.0	15.2		100.0	180.00	hor
1092.400000	34.60	54.0	19.4		100.0	180.00	hor
1094.500000	32.63	54.0	21.4		100.0	180.00	hor
1340.500000	24.86	54.0	29.1		150.0	0.00	hor
1800.700000	29.95	54.0	24.1		100.0	330.00	ver
1802.500000	24.65	54.0	29.4		100.0	330.00	ver
2904.400000	30.97	54.0	23.0		100.0	29.00	ver
2914.300000	30.69	54.0	23.3		100.0	29.00	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 (GS3):

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
55.32000	25.78	30.000	-4219959	ver	2.2000	300.00
92.25000	23.66	30.000	-6340129	ver	1.0000	180.00
129.18000	25.37	30.000	-4.630728	ver	1.0000	150.00
147.60000	23.46	30.000	-6.542345	ver	1.0000	150.00
999.93000	28.93	37.000	-8.066148	hor	1.0000	0.0000

all levels are quasi-peak levels

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro D7

FCC Identifier:
HSSCENICD701

Date: Aug. 17, 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
1000.300000	38.77	54.0	15.2		100.0	180.00	hor
1008.700000	29.91	54.0	24.1		100.0	180.00	hor
1092.400000	34.98	54.0	19.0		100.0	210.00	hor
1100.200000	35.78	54.0	18.2		100.0	210.00	hor
1400.500000	29.50	54.0	24.5		100.0	29.00	ver
1787.200000	30.34	54.0	23.7		100.0	0.00	ver
1797.400000	29.69	54.0	24.3		100.0	0.00	ver
2904.400000	29.90	54.0	24.1		150.0	29.00	ver
2926.300000	30.88	54.0	23.1		150.0	29.00	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: M. Bosse Date: Aug. 17, 98

Printed Name: M. Bosse

Test Personnel:

Tester Signature: H. Zenkner Date: Aug. 17, 98

Printed Name: H. Zenkner

Test Personnel:

Tester Signature: M. Borrmann Date: Aug. 17, 98

Printed Name: M. Borrmann

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro D7

FCC Identifier:
HSSSCENICD701

Date: Aug. 17, 1998

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Measurement Protocols

Page No

Minebea PSU (GS2):

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

44 - 46

Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

47 - 49

Minebea PSU (GS3):

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

50 - 52

Frequency range 1 GHz - 3 GHz:

100 MHz clock/Pentium II 400 MHz

video resolution 1280 x 1024/100 Hz

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SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro D7

FCC Identifier:
HSSSCENICD701

Date: Aug. 17, 1998

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Radiation Test according to:

EN 55022/B

EUT: Scenic Pro D7/PII ; D1064-A11 [redacted]
Manufacturer: SNI
Operating Condition: scr. "H"1280*1024/100Hz, HD/CD-Test
Test Site: EMC Center Augsburg
Operator: M. Borrmann
Job No: PDP8E061
Comment : full configuration with MCM2108
Comment: PSU:E412-V20 old

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

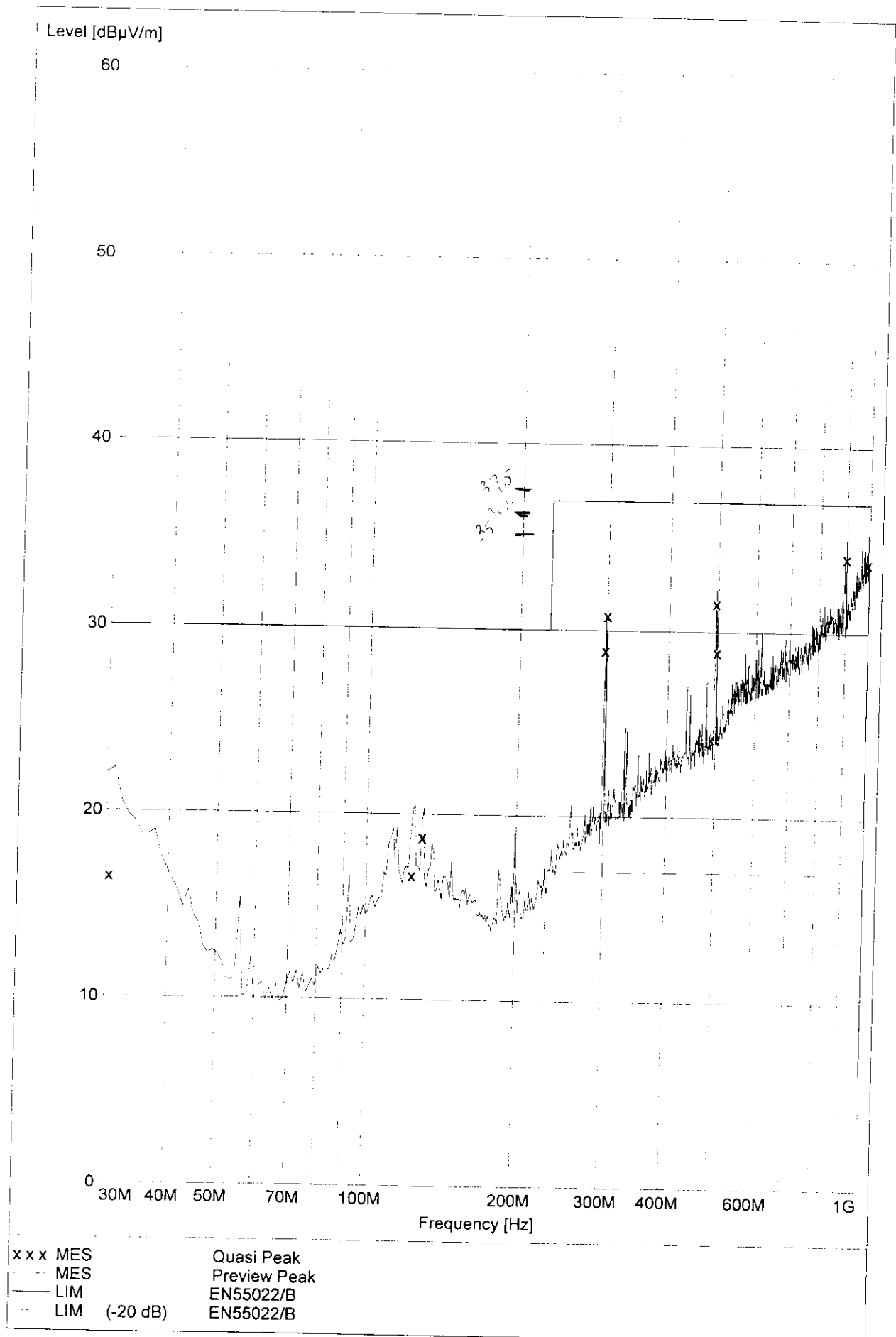
MEASUREMENT RESULT: "Peak"

Frequency MHz	Level dB μ V/m	ANT POL	HEIGHT in [m]	ANGLE in deg
31.07777	22.34	VER	1.6000	280.00
124.84444	20.46	VER	1.0000	240.00

130.23333	20.33	VER	1.0000	120.00
298.36666	30.78	HOR	3.4000	240.00
300.52222	29.92	HOR	2.8000	320.00
496.67777	32.31	VER	1.0000	200.00
500.98888	32.42	HOR	1.6000	200.00
900.84444	35.59	VER	1.6000	0.0000
993.53333	35.36	VER	1.6000	160.00

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
30.42000	16.50	30.000	-13.50482	VER	1.6000	280.00
123.33000	16.66	30.000	-13.33981	VER	1.0000	240.00
129.21000	18.73	30.000	-11.27113	VER	1.0000	120.00
297.93000	28.92	37.000	-8.076659	HOR	3.4000	240.00
300.06000	30.77	37.000	-6.230369	HOR	2.8000	320.00
496.56000	31.55	37.000	-5.454774	VER	1.0000	200.00
500.22000	28.90	37.000	-8.097817	HOR	1.6000	200.00
900.39000	34.06	37.000	-2.940636	VER	1.6000	0.0000
992.85000	33.77	37.000	-3.228635	VER	1.6000	160.00



Fieldstrength according to :

FCC class B

EUT: Scenic Pro D7 with D1064 /PII/ 450MHz
Manufacturer: SNI
Operating Condition: scr. "H" , 1280 * 1024/ 85Hz and periph. test
Test Site: EMC Center Augsburg
Operator: M.Bosse
Job No: PDO8E061
Comment : fully configured, MCM2108
Start of Test: 28.07.1998 / 11:41:09

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

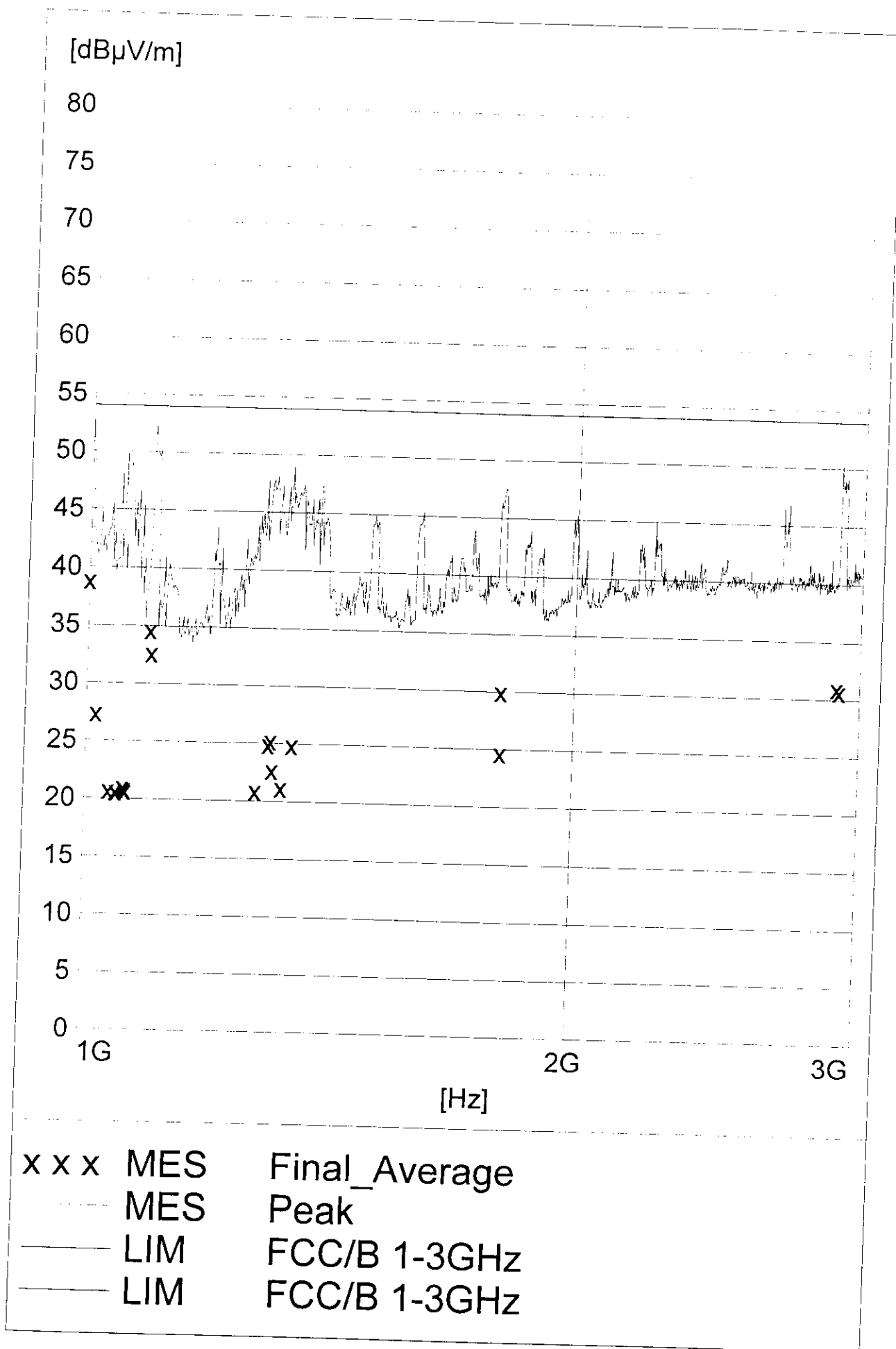
Preamplifier: 10 dB Demodulation: AM
RF Att.: Coupled Volume: 75 %
Ref. Level: -40.0 dBm Squelch: --
Min. RF Att.: 0 dB Option: None
IF Att.: --
Autorange: On

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

MEASUREMENT RESULT: "Final_Average"

28.07.1998 12:38

Frequency	Level	Limit	Margin	Exceed	Height	Azimuth	Polarisation
MHz	dBµV/m	dBµV/m	dB	Mark	cm	deg	
1000.000000	38.83	54.0	15.2		100.0	180.00	HORIZONTAL
1013.500000	27.36	54.0	26.6		100.0	180.00	HORIZONTAL
1034.200000	20.69	54.0	33.3		100.0	180.00	VERTICAL
1045.000000	20.62	54.0	33.4		100.0	180.00	VERTICAL
1045.900000	20.56	54.0	33.4		100.0	180.00	VERTICAL
1055.800000	20.96	54.0	33.0		100.0	150.00	VERTICAL
1058.500000	20.82	54.0	33.2		100.0	150.00	VERTICAL
1059.400000	20.63	54.0	33.4		100.0	180.00	VERTICAL
1092.400000	34.60	54.0	19.4		100.0	180.00	HORIZONTAL
1094.500000	32.63	54.0	21.4		100.0	180.00	HORIZONTAL
1274.200000	20.87	54.0	33.1		150.0	0.00	HORIZONTAL
1296.400000	24.90	54.0	29.1		150.0	0.00	HORIZONTAL
1300.300000	25.21	54.0	28.8		150.0	0.00	HORIZONTAL
1304.200000	22.68	54.0	31.3		150.0	0.00	HORIZONTAL
1321.600000	21.17	54.0	32.8		150.0	0.00	HORIZONTAL
1340.500000	24.86	54.0	29.1		150.0	0.00	HORIZONTAL
1800.700000	29.95	54.0	24.1		100.0	330.00	VERTICAL
1802.500000	24.65	54.0	29.4		100.0	330.00	VERTICAL
2904.400000	30.97	54.0	23.0		100.0	29.00	VERTICAL
2914.300000	30.69	54.0	23.3		100.0	29.00	VERTICAL



Radiation Test according to:

EN 55022/B

EUT: Scenic Pro D7 (450MHz)
Manufacturer: SNI
Operating Condition: Scr "H" 1280 * 1024/100Hz, HD/CD-Test
Test Site: EMC Center Augsburg
Operator: H. Zenkner
Job No: PDP8E061
Comment: full configuration with MCM2108,
Comment: PSU E412-V20 GS3

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: ESAI 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"

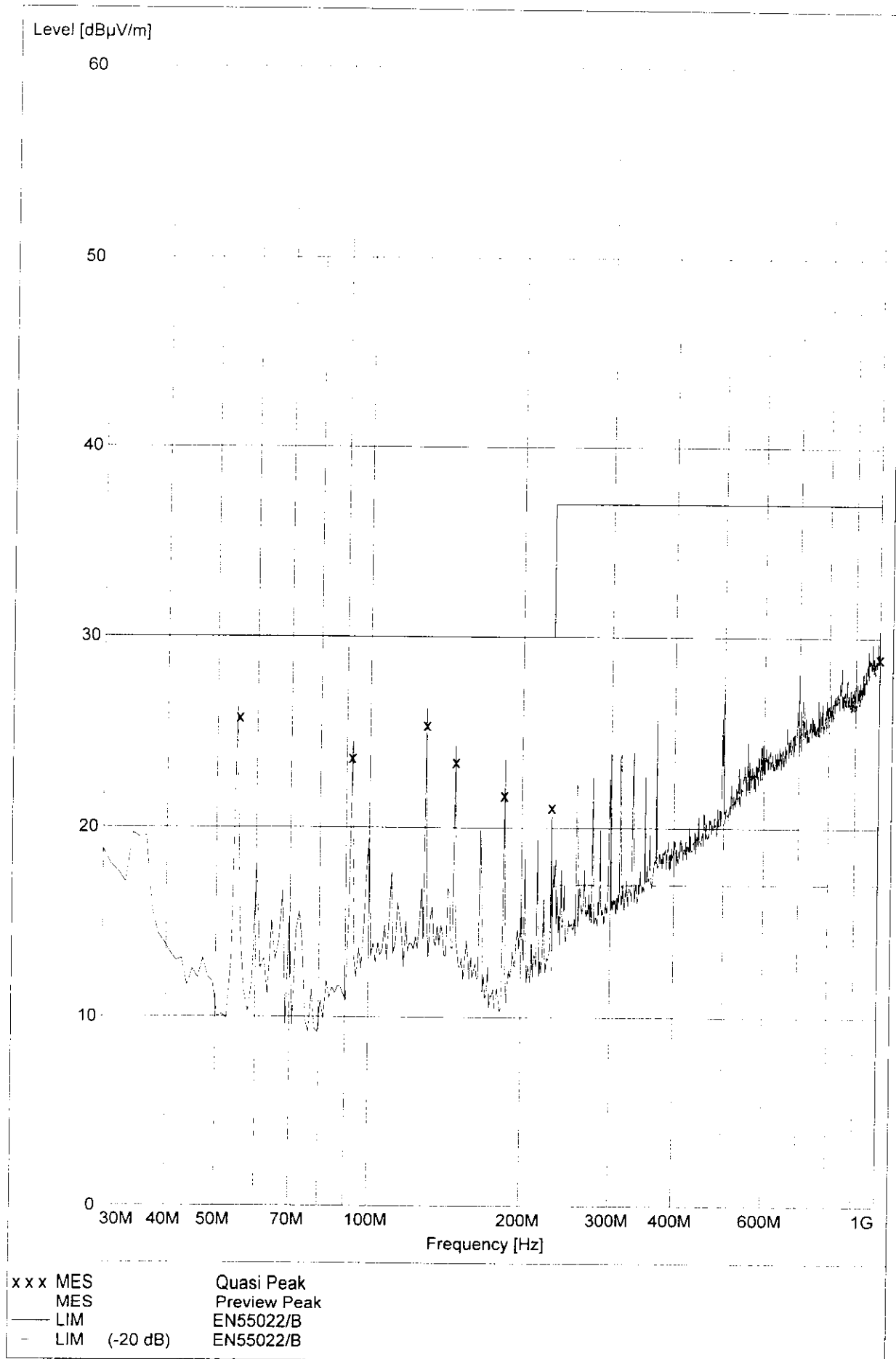
Frequency MHz	Level dB μ V/m	ANT POL	HEIGHT in [m]	ANGLE in deg
54.78888	26.30	VER	2.2000	300.00
92.51111	24.52	VER	1.0000	180.00

✓

129.15555	26.26	VER	1.0000	150.00
147.47777	24.30	VER	1.0000	150.00
185.20000	23.60	VER	1.0000	180.00
229.38888	20.68	HOR	4.0000	120.00
998.92222	30.36	HOR	1.0000	0.0000

MEASUREMENT RESULT: "Quasi Peak"

Frequency MHz	Level dBμV/m	LIMIT dBμV/m	EXCEEDING dB	ANT POL	HEIGHT in [m]	ANGLE in deg
55.32000	25.78	30.000	-4.219959	VER	2.2000	300.00
92.25000	23.66	30.000	-6.340129	VER	1.0000	180.00
129.18000	25.37	30.000	-4.630728	VER	1.0000	150.00
147.60000	23.46	30.000	-6.542345	VER	1.0000	150.00
184.53000	21.72	30.000	-8.284841	VER	1.0000	180.00
229.08000	21.09	30.000	-8.910017	HOR	4.0000	120.00
999.93000	28.93	37.000	-8.066148	HOR	1.0000	0.0000



Fieldstrength according to :

FCC class B

EUT: Scenic Pro D7 with D1064 /PII/ 450MHz
Manufacturer: SNI
Operating Condition: scr. "H" , 1280 * 1024/100Hz and periph. test
Test Site: EMC Center Augsburg
Operator: M.Bosse
Job No: PDO8E061
Comment : fully configured, MCM2108 ,E412-V20/GS3
Start of Test: 28.07.1998 / 12:53:49

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

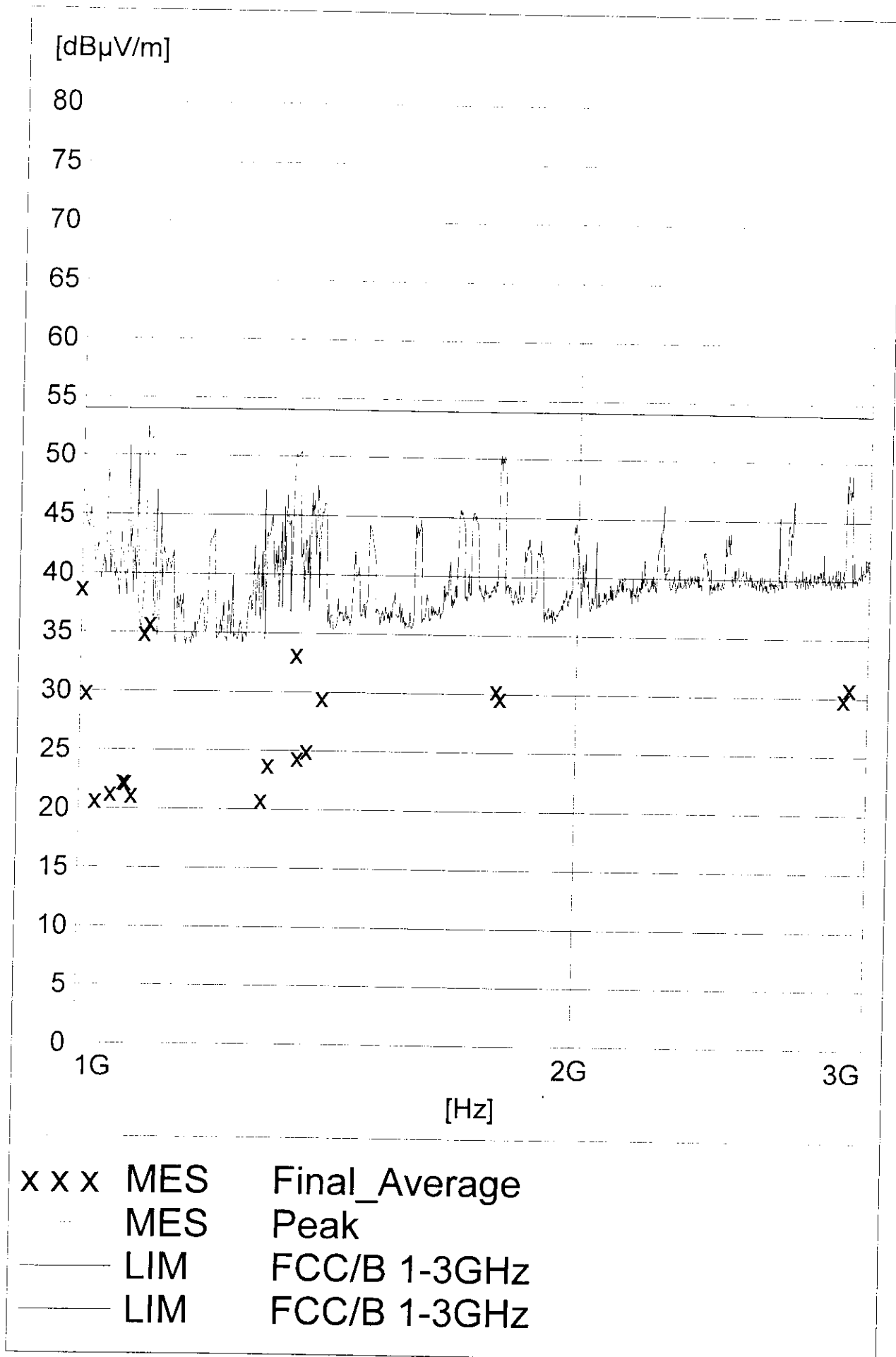
Preamplifier:	10 dB	Demodulation:	AM
RF Att.:	Coupled	Volume:	75 %
Ref. Level:	-40.0 dBm	Squelch:	--
Min. RF Att.:	0 dB	Option:	None
IF Att.:	--		
Autorange:	On		

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

MEASUREMENT RESULT: "Final_Average"

28.07.1998 14:27

Frequency	Level	Limit	Margin	Exceed	Height	Azimuth	Polarisation
MHz	dB μ V/m	dB μ V/m	dB	Mark	cm	deg	
1000.300000	38.77	54.0	15.2		100.0	180.00	HORIZONTAL
1008.700000	29.91	54.0	24.1		100.0	180.00	HORIZONTAL
1023.400000	20.74	54.0	33.3		100.0	119.00	VERTICAL
1045.300000	21.35	54.0	32.6		100.0	119.00	VERTICAL
1063.600000	22.32	54.0	31.7		100.0	29.00	VERTICAL
1066.900000	22.29	54.0	31.7		100.0	29.00	VERTICAL
1075.600000	21.21	54.0	32.8		100.0	119.00	VERTICAL
1092.400000	34.98	54.0	19.0		100.0	210.00	HORIZONTAL
1100.200000	35.78	54.0	18.2		100.0	210.00	HORIZONTAL
1288.600000	20.81	54.0	33.2		150.0	29.00	HORIZONTAL
1300.300000	23.79	54.0	30.2		150.0	29.00	HORIZONTAL
1350.400000	33.24	54.0	20.8		150.0	180.00	HORIZONTAL
1354.600000	24.39	54.0	29.6		150.0	180.00	HORIZONTAL
1371.700000	25.02	54.0	29.0		100.0	29.00	VERTICAL
1400.500000	29.50	54.0	24.5		100.0	29.00	VERTICAL
1787.200000	30.34	54.0	23.7		100.0	0.00	VERTICAL
1797.400000	29.69	54.0	24.3		100.0	0.00	VERTICAL
2904.400000	29.90	54.0	24.1		150.0	29.00	VERTICAL
2926.300000	30.88	54.0	23.1		150.0	29.00	VERTICAL



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	15 months
Antenna	CBL 6111 Chase	1345	May 98	12 months
Active Ridged antenna	Tensor 4105 Rohde&Schwarz	2063	May 98	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 dB μ 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

8 PHOTOS OF TESTED EUT

8.1 Front side of EUT (Scenic Pro D7)

For photos of EUT see first report, dated Apr. 29, 1998.