

MEASUREMENT / TECHNICAL REPORT

SIEMENS NIXDORF AG

Model: Personal Computer Scenic Pro M7

FCC ID: HSSSCENICM701

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 M7

FCC Identifier:
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1 GENERAL INFORMATION

1.1 Product Description

The Siemens Nixdorf Computer Scenic Pro M7 is a compact mini tower personal computer.

The system board integrates the Pentium Processor, memory, 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 supply:

- Power supply: ASTEC, model S26113-E413-V30

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 M7 S26361-K510-V1**	HSSSCENICM701	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>				
a	ASTEC (UK), AA20050 SNI S26113-E413-V30	N/A	Power supply	
b	SNI S26361-D1064-A11	N/A	System board	
c	SNI S26361-D960-V1 GS 4	N/A	Chip card reader	

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
d	SECKMM966G512 BQN-G8	N/A	Video RAM	
e	SECKMM366S203 CT-GL (2x) SECKMM366S823 BT-GL (1x)	N/A	SDRAM	
f	Intel Pentium II 80523/PY400512 Q434ES	N/A	Processor module	
g	NEC CDR-1900A	A3DCDR-1900A	CD-ROM drive	
h	Quantum Fireball 2340 AT	N/A	Hard disk drive	
i	Mitsumi D359T5	N/A	Floppy disk drive	

Remark: positions 2a / 2b 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 clock frequency is 100 MHz, the system was tested with the highest possible processor:

100 MHz clock: Intel Pentium II 400 MHz

The system is provided with one kind of power supply:

– ASTEC AA20050 SNI: S26113-E413-V30

The power supply has been measured in each video resolution.

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

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

ASTEC PSU:

100 MHz clock/Pentium II 400 MHz, video resolution 1600 x 1200/85 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

conducted emission:

ASTEC PSU:

100 MHz clock/Pentium II 400 MHz, video resolution 1600 x 1200/85 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

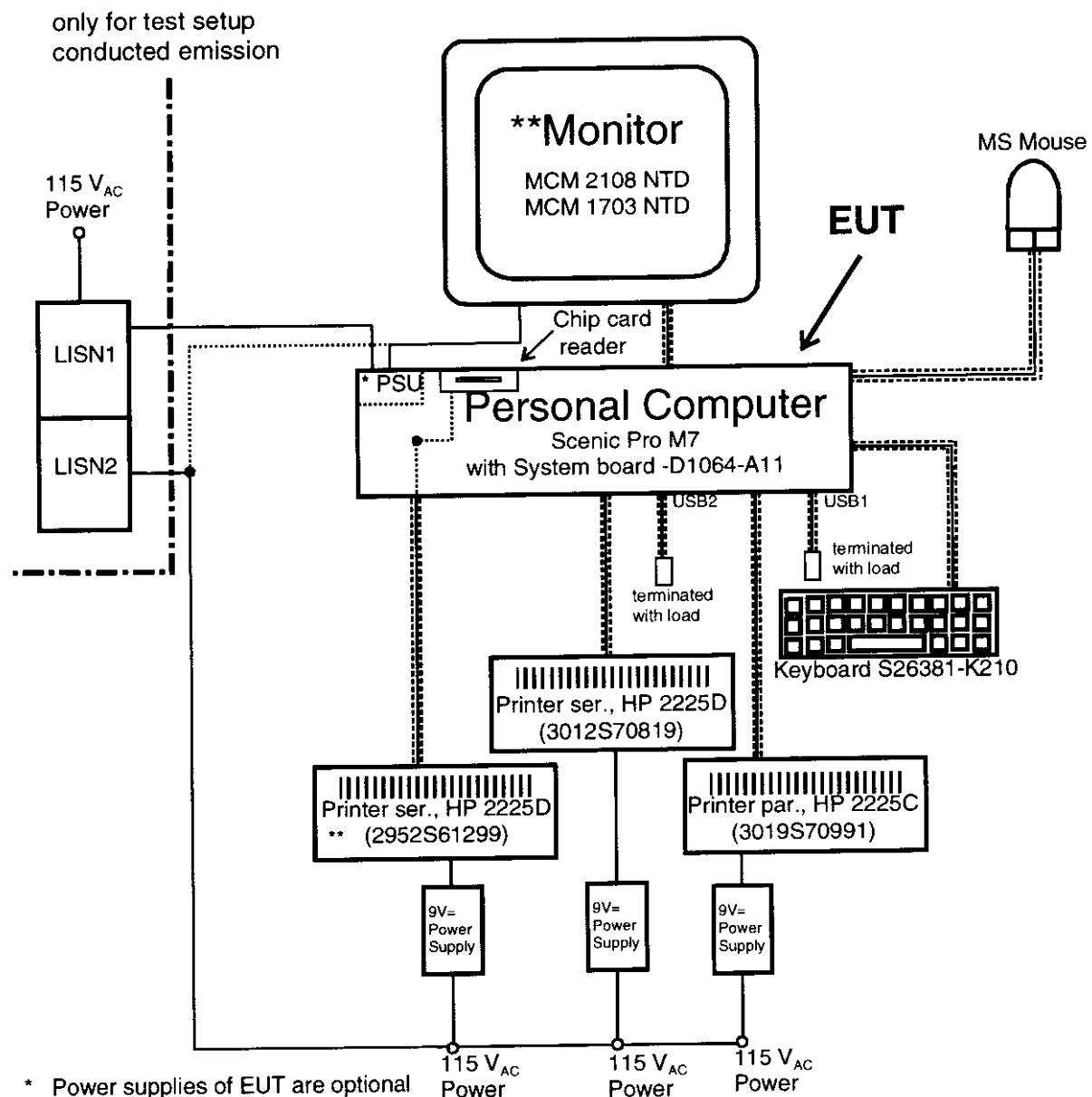
Applicant Signature _____ Date _____

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



* Power supplies of EUT are optional

** 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, 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

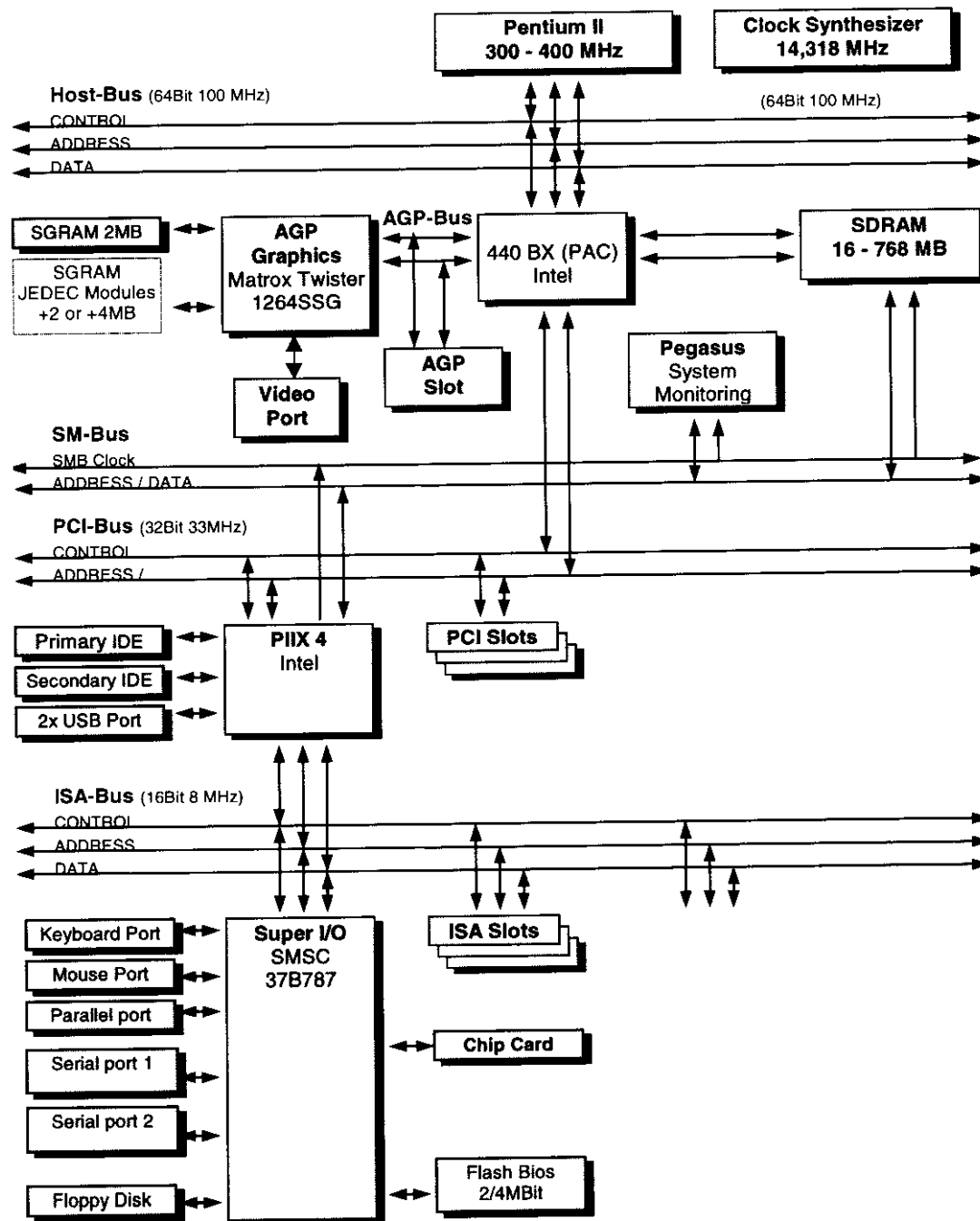
The compact mini tower PC works exactly as a traditional PC.

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

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) is given next:

Judgement: Passed by

Line	Frequency [MHz]	Measured Level [dB(μV)]	Kind of value	Limit [dB(μV)]
phase	0.480000	29.70	QP	56
neutral	0.546000	31.30	QP	56
phase	0.822000	28.10	QP	56
neutral	2.106000	30.40	QP	56
neutral	12.012000	35.60	QP	60
neutral	0.474000	28.70	AV	46
neutral	0.546000	27.10	AV	46
phase	0.816000	28.30	AV	46
phase	1.836000	22.80	AV	46
neutral	12.012000	35.80	AV	50

AV: average

QP: quasi peak

Test Personnel:

Tester Signature: W. Richter Date: May 7, 1998

Printed Name: W. Richter

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Measurement Protocols

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ASTEC PSU:

100 MHz clock/Pentium II 400 MHz
video resolution 1600 x 1200/85 Hz
monitor power via system unit

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Conducted noise according to:

EN55022/B

EUT: Scenic Pro M7, 400 MHz ; D1064-A11, WGS2
Manufacturer: SNI
Operating Condition: scr. "H" 1600*1200/85 Hz, HD+CD-ROM-Test
Test Site: EMC CENTER Augsburg ; SK2
Operator: W. Richter
Comment : full configuration with Astec AA20050 (E413-V30)
Comment: Monitor MCM 2108
Start of Test: 07.04.1998 / 07:41:26

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"

07.04.1998 08:44

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.480000	29.70	56	26.6		L1	GND
0.546000	31.30	56	24.7		N	GND
0.822000	28.10	56	27.9		L1	GND

MEASUREMENT RESULT: "Quasi Peak"

(continued)

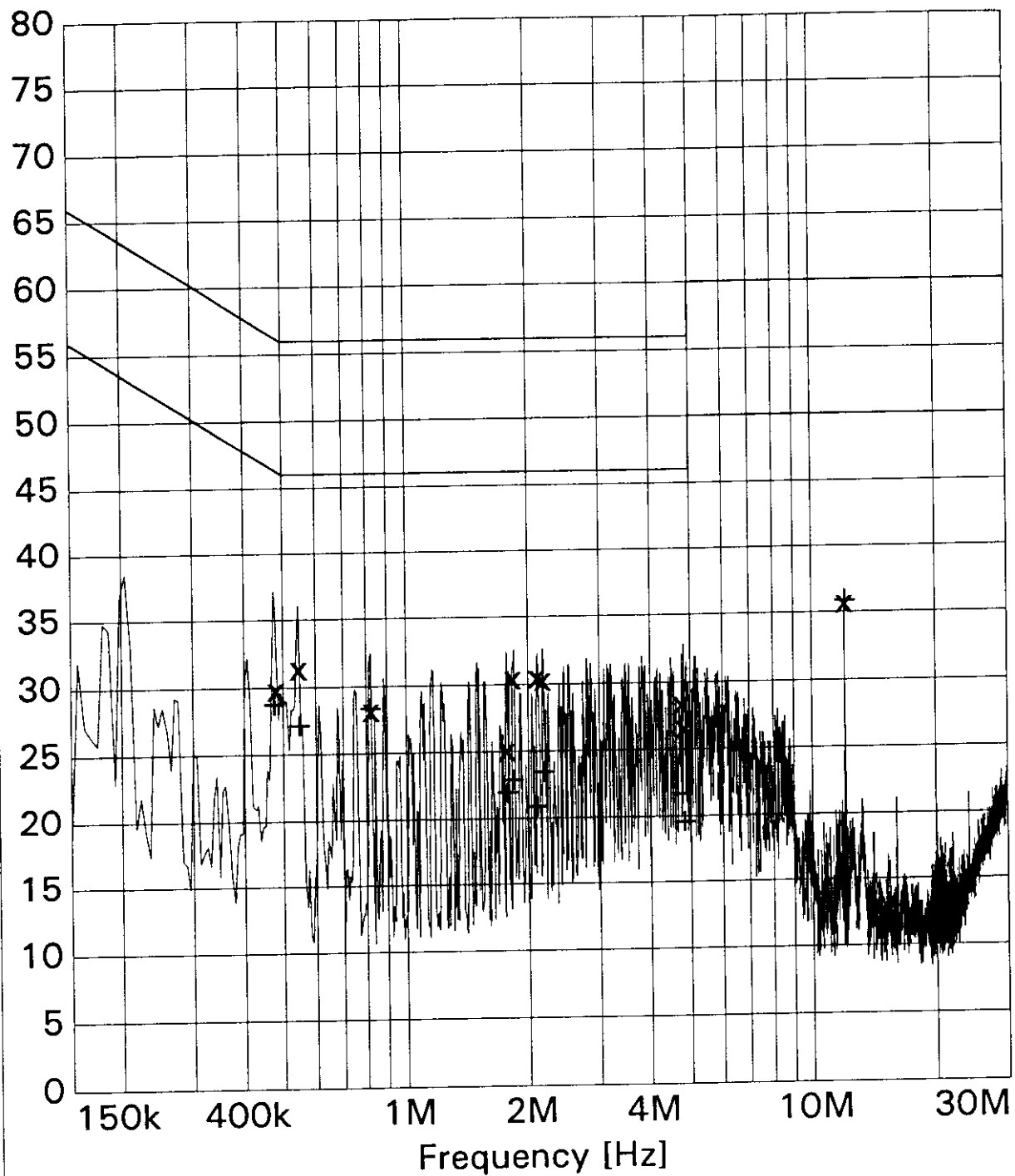
Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
1.776000	25.00	56	31.0		L1	GND
1.836000	30.30	56	25.7		N	GND
2.106000	30.40	56	25.6		N	GND
2.172000	30.20	56	25.8		N	GND
4.764000	28.30	56	27.7		N	GND
4.812000	26.50	56	29.5		N	GND
12.012000	35.60	60	24.4		N	GND

MEASUREMENT RESULT: "Average"

07.04.1998 08:44

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
0.474000	28.70	46	17.7		N	GND
0.546000	27.10	46	18.9		N	GND
0.816000	28.30	46	17.7		L1	GND
1.770000	21.90	46	24.1		L1	GND
1.836000	22.80	46	23.2		L1	GND
2.100000	20.80	46	25.2		N	GND
2.178000	23.40	46	22.6		N	GND
4.758000	21.60	46	24.4		N	GND
4.818000	19.50	46	26.5		L1	GND
12.012000	35.80	50	14.2		N	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

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
700.26000	35.03	37.000	-1.973861	hor	4.0000	330.00
800.25000	33.70	37.000	-3.295020	ver	3.4000	180.00
827.22000	33.93	37.000	-3.065130	ver	3.4000	180.00
863.16000	35.06	37.000	-1.936865	ver	1.6000	180.00
972.06000	32.24	37.000	-4.757073	hor	3.4000	180.00

all levels are quasi-peak levels

Part 2: frequency range 1 GHz - 3 GHz:

System with chip card reader

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	29.26	54.0	24.7		200.0	180.00	ver
1099.900000	27.91	54.0	26.1		150.0	180.00	hor
1114.900000	34.46	54.0	19.5		200.0	180.00	hor
1191.700000	30.18	54.0	23.8		100.0	180.00	hor
1194.700000	29.00	54.0	25.0		100.0	180.00	hor
1588.900000	29.05	54.0	24.9		150.0	315.00	ver
1600.300000	29.12	54.0	24.9		150.0	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.

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Test Personnel:

Tester Signature: H. Zenkner Date: May 7, 1998

Printed Name: H. Zenkner

Test Personnel:

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

Printed Name: A. Siebenhütter

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Measurement Protocols

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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

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Radiation Test according to:

EN 55022/B

EUT: Scenic Pro M7 400MHz; D1064-A11,WGS=2
Manufacturer: SNI
Operating Condition: scr. "H" 1280 x 1024/100Hz; HD/CD-Test
Test Site: EMC Center Augsburg
Operator: H. Zenkner
Job No: PDP8E026
Comment : full configuration
Comment: USB running

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
700.37777	35.96	HOR	4.0000	330.00
801.68888	34.92	VER	3.4000	180.00

827.55555	36.80	VER	3.4000	180.00
864.20000	36.80	VER	1.6000	180.00
973.05555	36.12	HOR	3.4000	180.00

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
700.26000	35.03	37.000	-1.973861	HOR	4.0000	330.00
800.25000	33.70	37.000	-3.295020	VER	3.4000	180.00
827.22000	33.93	37.000	-3.065130	VER	3.4000	180.00
863.16000	35.06	37.000	-1.936865	VER	1.6000	180.00
972.06000	32.24	37.000	-4.757073	HOR	3.4000	180.00

Level [dB μ V/m]

60

50

40

30

20

10

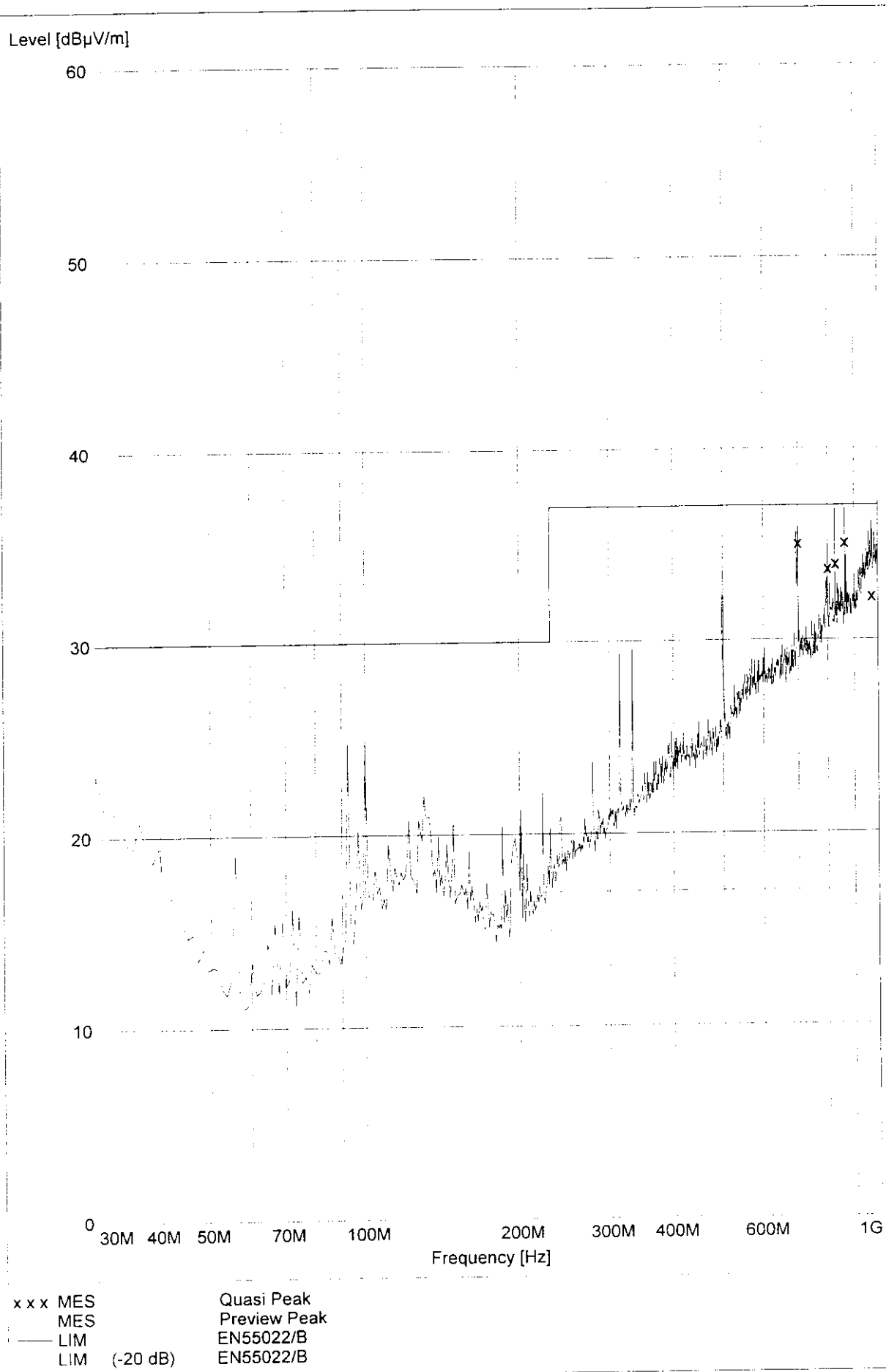
0

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 M7 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: PDP8E026
Comment : full configuration. Power Supply: Astec E412-V30
Start of Test:

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

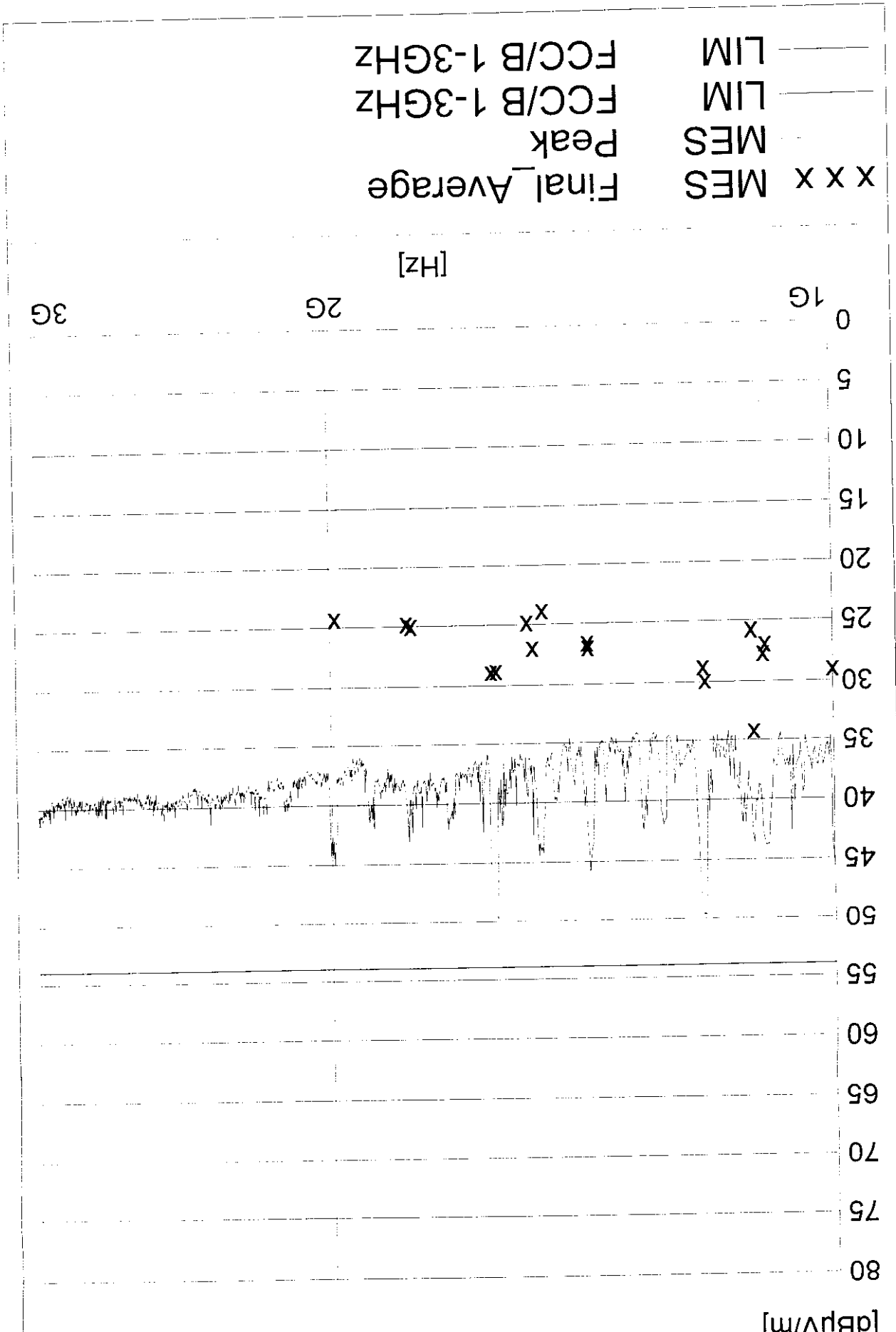
Preamplifier:	10 dB	Demodulation:	AM
RF Att.:	Coupled	Volume:	75 %
Ref. Level:	-40.0 dBm	Squelch:	--
Min. RF Att.:	0 dB	Option:	None
IF Att.:	--		
Autorange:	On		

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

MEASUREMENT RESULT: "Final_Average"

08.04.1998 10:58

Frequency	Level	Limit	Margin	Exceed	Height	Azimuth	Polarisation
MHz	dBµV/m	dBµV/m	dB	Mark	cm	deg	
1000.000000	29.26	54.0	24.7		200.0	180.00	VERTICAL
1096.900000	27.15	54.0	26.9		150.0	180.00	HORIZONTAL
1099.900000	27.91	54.0	26.1		150.0	180.00	HORIZONTAL
1114.900000	34.46	54.0	19.5		200.0	180.00	HORIZONTAL
1117.600000	25.99	54.0	28.0		200.0	180.00	HORIZONTAL
1191.700000	30.18	54.0	23.8		100.0	180.00	HORIZONTAL
1194.700000	29.00	54.0	25.0		100.0	180.00	HORIZONTAL
1399.600000	27.21	54.0	26.8		100.0	225.00	HORIZONTAL
1400.500000	26.82	54.0	27.2		100.0	225.00	HORIZONTAL
1490.500000	24.19	54.0	29.8		200.0	180.00	HORIZONTAL
1510.300000	27.17	54.0	26.8		100.0	225.00	HORIZONTAL
1522.300000	25.11	54.0	28.9		100.0	225.00	HORIZONTAL
1588.900000	29.05	54.0	24.9		150.0	315.00	VERTICAL
1600.300000	29.12	54.0	24.9		150.0	315.00	VERTICAL
1787.200000	25.29	54.0	28.7		100.0	225.00	HORIZONTAL
1798.600000	25.07	54.0	28.9		100.0	225.00	HORIZONTAL
1985.500000	24.63	54.0	29.4		100.0	0.00	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	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

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Pro M7

FCC Identifier:
HSSCENICM701

Date: Apr. 29, 1998

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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