

MEASUREMENT / TECHNICAL REPORT**SIEMENS NIXDORF AG****Model: Personal Computer Scenic Edition Mi6****FCC ID: HSSSCENICM604****August 28, 1998**

This report concerns:	<input checked="" type="checkbox"/> Original grant	<input type="checkbox"/> Class II change
Equipment type:	Personal Computer	
Request issue of grant:	<input checked="" type="checkbox"/> Immediately upon completion of review <input type="checkbox"/> 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:	<input checked="" type="checkbox"/> ANSI C63.4-1992 <input type="checkbox"/> FCC/OET MP-4(1987) <input type="checkbox"/> other _____	
Limits on compliance with: CISPR 22 resp. FCC class B		
Application for Certification prepared by: Peter Rost Siemens Nixdorf Informationssysteme AG Buergermeister-Ulrich-Str. 100 86199 Augsburg Germany Tel.: +49 821 804-2821 Fax: +49 821 804 2675	Applicant for this device: Siemens Nixdorf Informationssysteme AG Buergermeister-Ulrich-Str. 100 86199 Augsburg Germany Tel.: +49 821 804-0	

**SIEMENS
NIXDORF**

Engineer:

Robert Schaufler

Robert Schaufler

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
1/62

Table of Contents

1 GENERAL INFORMATION	4
1.1 Product Description	4 - 5
1.2 Related Submittal(s)/Grant(s)	6
1.3 Tested System Details	6 - 8
1.4 Test Methodology	9
1.5 Test Facility	9
1.6 Referenced Rules Sections	9
2 PRODUCT LABELING	10
Figure 2.1 FCC ID Label	10
Figure 2.2 Location of Label on EUT	11
3 SYSTEM TEST CONFIGURATION	12
3.1 Justification	12 - 13
3.2 Video Mode Justification	14
3.3 EUT Exercise Software	15
3.4 Special Accessories	15
3.5 Equipment Modifications	16
3.6 Configuration of Tested System	16
Figure 3.1 Configuration of Tested System	17
4 BLOCK DIAGRAM OF EQUIPMENT UNDER TEST	18
4.1 Block Diagram Description	18
4.2 Clock frequencies of the EUT	19
4.3 Theory of Operation	19
Figure 4.1 Block Diagram	20
5 CONDUCTED AND RADIATED MEASUREMENT PHOTOS	21
5.1 Test setup, conducted emission, front side view	21
5.2 Test setup, conducted emission, rear side view	22
5.3 Test setup, radiated emission, front side view	23
5.4 Test setup, radiated emission, rear side view	24

6 CONDUCTED EMISSION DATA	25
6.1 Test Procedure	25
6.2 Measured data	25 - 30
6.3 Referenced Rules	31
6.4 Test Instrumentation Used, Conducted Measurement	31
7 RADIATED EMISSION DATA	32
7.1 Test Procedure	32
7.2 Measured Data	33 - 41
7.3 Reference Rules Sections	42
7.4 Test Instrumentation Used, Radiated Measurement	42
7.5 Field Strength Calculation	43
7.6 Table of Correction Factors	44 - 46
8 PHOTOS OF TESTED EUT	47
8.1 Front side of EUT	47
8.2 Rear side of EUT	48
8.3 Opened case, inside view of EUT	49
8.4 System board, front side view, part one	50
8.5 System board, front side view, part two	51
8.6 System board, rear side view, part one	52
8.7 System board, rear side view, part two	53
8.8 SDRAM module, front side and rear side view	54
8.9 Additional slot with serial interface	55
8.10 Power supply ASTEC, closed case, top side view	56
8.11 Power supply ASTEC, opened case, inside view	57
8.12 Power supply ASTEC, regulator board, front side view	58
8.13 Power supply ASTEC, regulator board, rear side view	59
8.14 Primery board, front side view	60
8.15 Primery board, rear side view	61
Attachment A. User Manual	62

Main memory

- Two 3,3V DIMM sockets for 16MByte up to 256MByte
Support unbuffered SDRAM or EDO modules

PCI-Bus 2D Graphic Controller ATI VT4

- 2MByte SGRAM
- 200MHz RAMDAC frequency

Security features

- Floppy write protection by switch

Support soft on/off power supplies

- Desk on/off software
- Power switch on/off

BIOS features

- Flash EPROM 2MBit
- System-BIOS
- VGA-BIOS

Environmental protection

- Battery on socket for recycling

Form factor and slots

- Micro ATX
- 2 PCI slots
- 1 shared PCI-Bus / ISA-Bus slot

Compliant to

- PC98, On now, ACPI

The personal computer is assembled by Siemens Nixdorf Informations-systeme AG, Buergermeister-Ulrich-Strasse 100, 86199 Augsburg.

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSCENICM604

Date: Aug 28, 1998

Page:
5/62

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 Edition Mi6	HSSSCENICM604	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]

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
6/62

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
5	Hewlett Packard HP 2225C+ (3019S70991)	894C2655X	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]
	Pos 1 contains:			
a	ASTEK (UK), AA20710	N/A	Power supply	
b	Siemens Nixdorf S26361-D1081-A11 GS 2	N/A	System board	
c	ATI VT4	N/A	2D-Graphic controller mounted on system board	

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENIC604

Date: Aug 28, 1998

Page:
7/62

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
d	SNI S26361-S1783-V2	N/A	Slot with additional serial port	
e	Hyundai HYM7V64400BTFG- 10	N/A	SDRAM	
f	Intel Pentium II 80523/PX333512 SL2KA	N/A	Processor module	
g	Intel Celeron "Mendocino"	N/A	Processor module	
h	Mitsumi CRMX-FX240S S26361-H350-V500	EW4CRMX- FX240S	CD-ROM drive	
i	Fujitsu MPB3021AT 2,16 GB S26361-H369-V100	N/A	Hard disk drive	
j	Mitsumi D359M3	N/A	Floppy disk drive	

Remark: position 1f / 1g and 2a / 2b optional

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSCENICM604

Date: Aug 28, 1998

Page:
8/62

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 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-Strasse 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

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSCENICM604

Date: Aug 28, 1998

Page:
9/62

2 PRODUCT LABELING

2.1 FCC ID Label

FCC ID: HSSSCENICM604

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.

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
10/62

2.2 Location of Label on EUT



SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
11/62

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).

The system clock is 66,6 MHz, the clock frequency was tested with the highest possible processor:

66,6 MHz clock:	a) Intel Pentium II (Deschutes)	333 MHz
	b) Intel Celeron (Mendocino)	333 MHz

The system is provided with one kind of power supply:

ASTEC, model AA20710

The power supply has been measured in each video resolution.

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

Frequency range 30 MHz - 1 GHz:

66,6 MHz clock/Intel Pentium II 333 MHz, video resolution 1024 x 768/100 Hz

Frequency range 1 GHz - 3 GHz:

66,6 MHz clock/Intel Celeron 333 MHz, video resolution 1600 x 1200/75 Hz

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

66,6 MHz clock/Intel Celeron 333 MHz, video resolution 1600 x 1200/75 Hz

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
13/62

3.2 Video mode Justification

The system was tested in video graphic modes 1024 x 768, 1280 x 1024 and 1600 x 1200. To get comparable results when measuring different video resolutions it is necessary to carry out the test with one monitor which is capable to drive all high resolutions. Such a high performance monitor has a special ferrite loaded video cable. To prove the compliance of the EUT without ferrite on the host side, we additionally tested the system with a representative 21" monitor provided with a cable without any ferrite in a video resolution which is usual for standard monitors (1600 x 1200). 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:

Frequency range 30 MHz - 1 GHz:

66,6 MHz clock/Intel Pentium II 333 MHz, video resolution 1024 x 768/100 Hz

Frequency range 1 GHz - 3 GHz:

66,6 MHz clock/Intel Celeron 333 MHz, video resolution 1600 x 1200/75 Hz

conducted emission:

66,6 MHz clock/ Intel Celeron 333 MHz, video resolution 1600 x 1200/75 Hz

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.

SIEMENS
NIXDORF

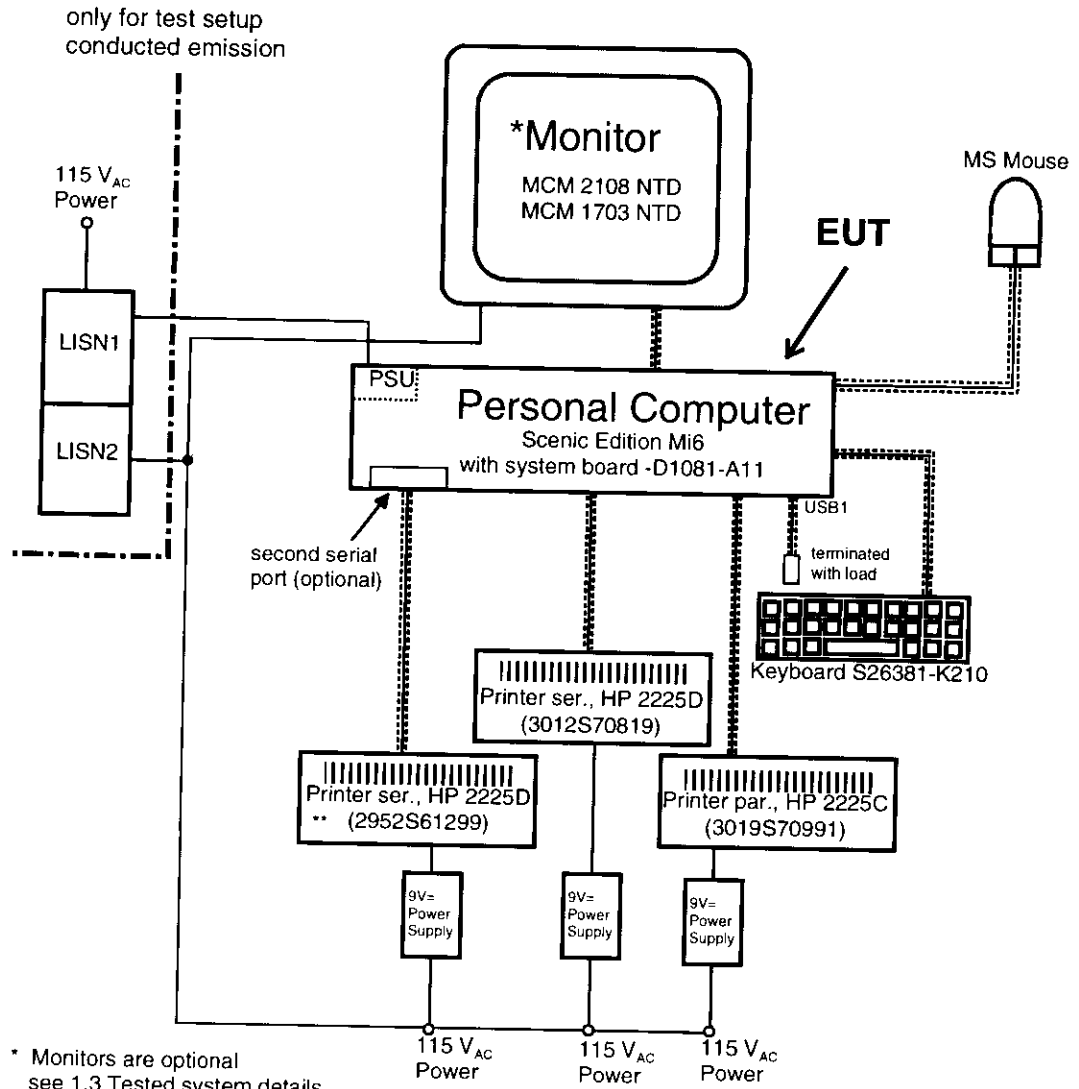
Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition M16

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
16/62

Figure 3.1 Configuration of Tested System



* Monitors are optional
see 1.3 Tested system details

4 BLOCK DIAGRAM OF EUT

see fig 4.1 page 20

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
- Peripheral connector area (Keyboard, Mouse, Ser. 1, Ser. 2, 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.

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSCENICM604

Date: Aug 28, 1998

Page:
18/62

4.2 Clock frequencies of EUT

Clock synthesizer	14,318 MHz
Memory	66,6 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 tower PC works exactly as a traditional PC.

The processors run internally between 233 and 333 MHz, the type is selected by switches, the system clock is in each case the same - 66,6 MHz and is multiplied by the processors internally by 3,5, 4,0, 4,5 or 5,0.

The highest possible frequencies and the corresponding processors are:

System clock	Processor	factor
66,6 MHz	233 MHz	3,5
66,6 MHz	266 MHz	4,0
66,6 MHz	300 MHz	4,5
66,6 MHz	333 MHz	5,0

SIEMENS
NIXDORF

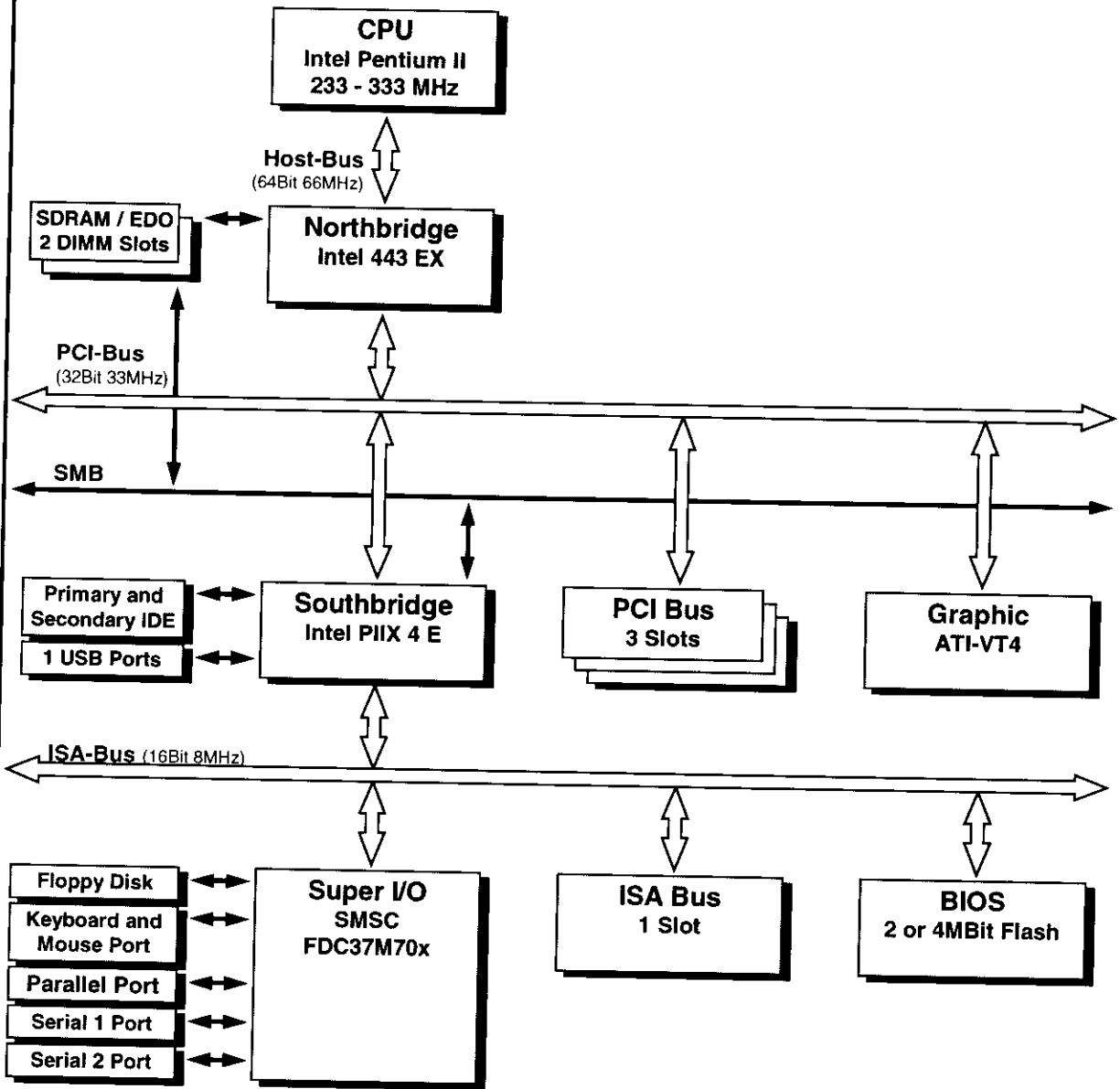
Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
19/62

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 (ESH3). 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 worst case results of the corresponding configuration (video resolution, supply modus) is given next:

Judgement: Passed by

	Frequency [MHz]	Measured [dB(μ V)]	Kind of value	Limit [dB(μ V)]
phase	1.206000	39.90	AV	46
phase	1.710000	39.60	AV	46
phase	1.308000	39.30	AV	46

	Frequency [MHz]	Measured [dB(μV)]	Kind of value	Limit [dB(μV)]
phase	2.214000	38.90	AV	46
phase	1.206000	42.10	QP	56
phase	1.710000	41.80	QP	56
phase	1.308000	41.70	QP	56
phase	2.214000	41.60	QP	56

AV: average

QP: quasi peak

Test Personnel:

Tester Signature: R. Schaufler Date: 31/8/98

Printed Name: R. Schaufler

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
26/62

Measurement Protocols

Page No

66,6 MHz clock/Intel Celeron 333 MHz
video resolution 1600 x 1200/75 Hz

28 - 30

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSCENICM604

Date: Aug 28, 1998

Page:
27/62

Conducted noise according to:

EN5022/B

EUT: Scenic Edition Mi 6 (Mendocino 333 MHz)
Manufacturer: SNI
Operating Condition: scr. "H" 1600x1200/75Hz, HD/CD-Test
Test Site: EMC CENTER Augsburg ; SK2
Operator: R. Schaufler
Comment : full configured ; MCM2108
Comment : PSU: Astec AA20710
Start of Test: 31.07.1998 / 16:23:16

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"

31.07.1998 16:54

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
1.206000	42.10	56	13.9		L1	GND
1.308000	41.70	56	14.3		L1	GND
1.710000	41.80	56	14.2		L1	GND

MEASUREMENT RESULT: "Quasi Peak"

(continued)

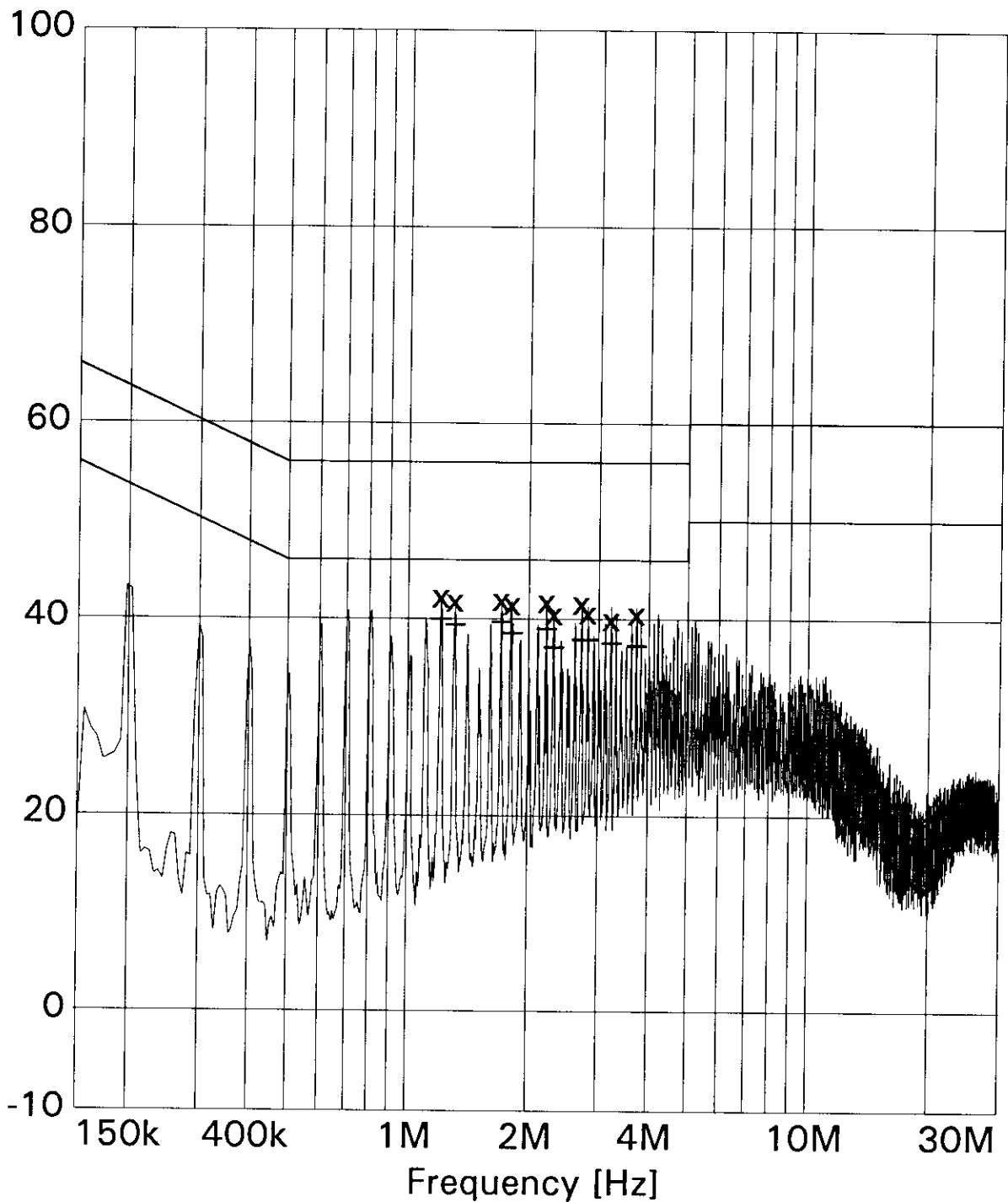
Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
1.812000	41.40	56	14.6		L1	GND
2.214000	41.60	56	14.4		L1	GND
2.316000	40.40	56	15.6		L1	GND
2.718000	41.50	56	14.5		L1	GND
2.814000	40.50	56	15.5		N	GND
3.222000	39.80	56	16.2		L1	GND
3.720000	40.40	56	15.6		L1	GND

MEASUREMENT RESULT: "Average"

31.07.1998 16:54

Frequency	Level	Limit	Margin	Exceed	Line	PE
MHz	dBµV	dBµV	dB	Mark		
1.206000	39.90	46	6.1		L1	GND
1.308000	39.30	46	6.7		L1	GND
1.710000	39.60	46	6.4		L1	GND
1.812000	38.50	46	7.5		L1	GND
2.214000	38.90	46	7.1		L1	GND
2.310000	37.10	46	8.9		L1	GND
2.718000	37.80	46	8.2		L1	GND
2.814000	37.80	46	8.2		L1	GND
3.216000	37.50	46	8.5		L1	GND
3.720000	37.20	46	8.8		L1	GND

Level [dB μ V]



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

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	ESH3 Rohde&Schwarz	879676/014	May 98	12 months
LISN	NSLK 8126 Schwarzbeck	8126160	May 98	12 months
LISN	ESH3-Z5 Rohde&Schwarz	831.5518.52	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 prescan all data in peak mode are accumulated automatically. At final measurement the detector was set to CISPR quasi peak and values above the acceptance line were verified automatically.
2. in the frequency range from 1000 MHz to 3000 MHz. The bandwidth of the EMI-receiver was set to 1 MHz and the detector was set to peak. During prescan 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.

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
32/62

7.2 Measured Data

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

Part 1: frequency range 30 MHz - 1000 MHz:

66,6 MHz clock/Intel Pentium II 333 MHz, video resolution 1024 x 768/100 Hz

Judgement: Passed by

Frequency [MHz]	Level* [dB(μ V/m)]	10 Meter Limit [dB(μ V/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
935.46000	33.89	37.000	-3.109	ver	1.6000	30.000
668.13000	32.04	37.000	-4.961	hor	3.4000	300.00
467.67000	32.00	37.000	-5.002	ver	1.0000	120.00
334.05000	31.48	37.000	-5.519	ver	1.0000	0.0000
200.46000	27.84	30.000	-2.160	ver	1.0000	180.00
133.62000	23.97	30.000	-6.030	ver	1.0000	240.00

all levels are quasi-peak levels

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENIC604

Date: **Aug 28, 1998**

Page:
33/62

Part 2: frequency range 1 GHz - 3 GHz:

66,6 MHz clock/Intel Celeron 333 MHz, video resolution 1600 x 1200/75 Hz

Judgement: Passed by

Frequency [MHz]	Level* [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1002.10000	44.73	54.0	9.3		250.0	180.00	hor
1135.90000	41.60	54.0	12.4		150.0	29.00	ver
1069.00000	40.18	54.0	13.8		250.0	150.00	hor
1068.70000	38.38	54.0	15.6		250.0	150.00	hor
1269.40000	36.81	54.0	17.2		100.0	180.00	hor
1030.90000	32.52	54.0	21.5		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: R. Schaufler Date: 31/8/98

Printed Name: R. Schaufler

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
34/62

Measurement Protocols

	Page No
<u>Frequency range 30 MHz - 1 GHz:</u> 66,6 MHz clock/Intel Pentium II 333 MHz, video resolution 1024 x 768/100 Hz	36 - 38
<u>Frequency range 1 GHz - 3 GHz:</u> 66,6 MHz clock/Intel Celeron 333 MHz, video resolution 1600 x 1200/75 Hz	39 - 41

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
35/62

Radiation Test according to:

EN 55022/B

EUT: Scenic Edition Mi 6 (PII 333MHz) ;D1081-A11 WGS2
Manufacturer: SNI
Operating Condition: Scr."H" 1024 x 768 + HD/CD-test
Test Site: EMC Center Augsburg
Operator: R. Schaufler
Job No: PDP8E057
Comment : fully configured , MCM1703 NTD
Comment: PSU: Astec Model AA20710

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

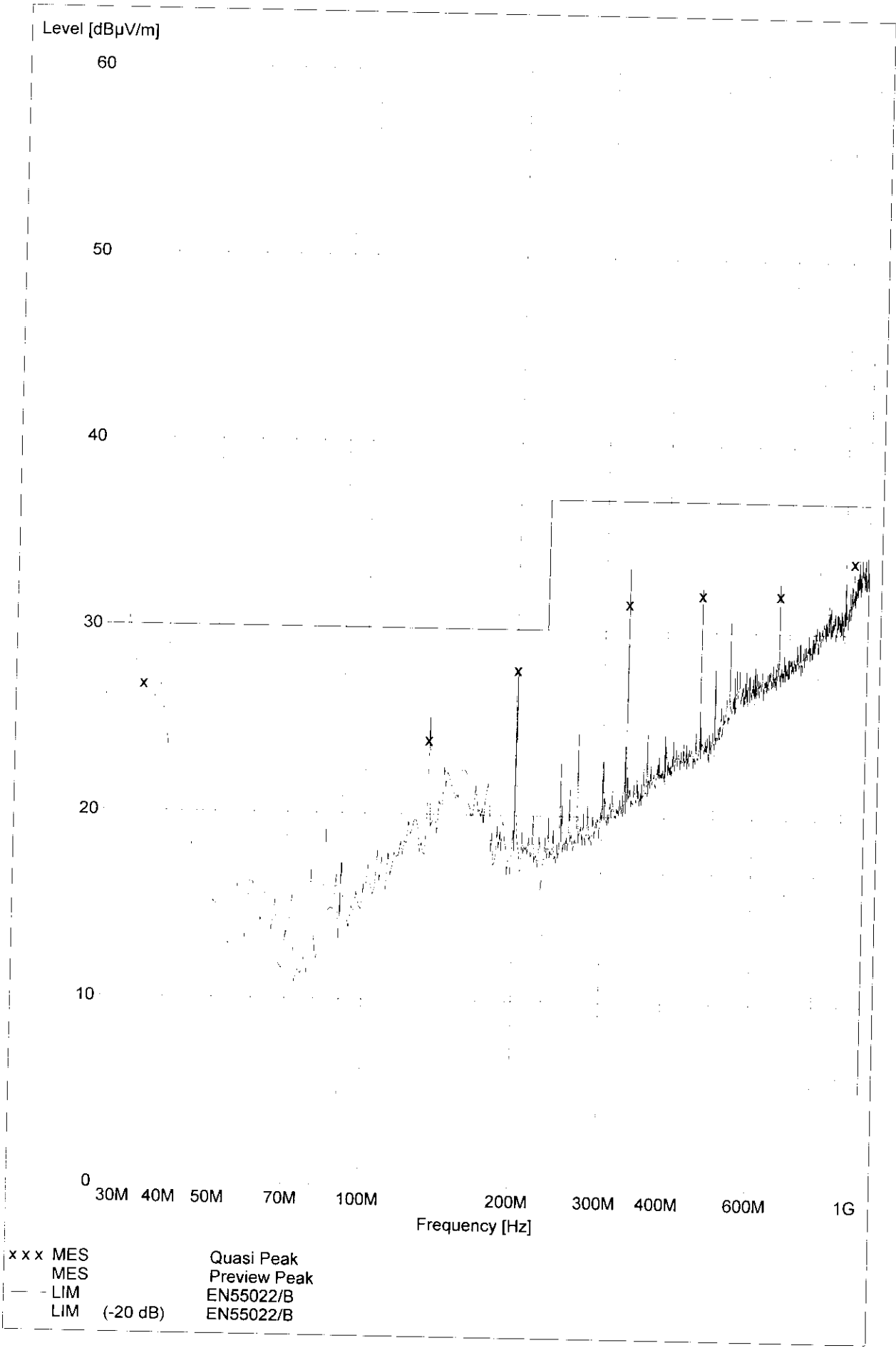
MEASUREMENT RESULT: "Peak"

Frequency MHz	Level dB μ V/m	ANT POL	HEIGHT in [m]	ANGLE in deg
33.23333	30.47	VER	1.0000	240.00
134.54444	25.23	VER	1.0000	240.00

201.36666	27.76	VER	1.0000	180.00
335.01111	33.61	VER	1.0000	0.0000
468.65555	32.34	VER	1.0000	120.00
669.12222	32.66	HOR	3.4000	300.00
936.41111	34.70	VER	1.6000	30.000

MEASUREMENT RESULT: "Quasi Peak"

Frequency MHz	Level dB μ V/m	LIMIT dB μ V/m	EXCEEDING dB	ANT POL	HEIGHT in [m]	ANGLE in deg
35.61000	26.83	30.000	-3.174797	VER	1.0000	240.00
133.62000	23.97	30.000	-6.030867	VER	1.0000	240.00
200.46000	27.84	30.000	-2.160390	VER	1.0000	180.00
334.05000	31.48	37.000	-5.519132	VER	1.0000	0.0000
467.67000	32.00	37.000	-5.002077	VER	1.0000	120.00
668.13000	32.04	37.000	-4.961312	HOR	3.4000	300.00
935.46000	33.89	37.000	-3.109008	VER	1.6000	30.000



Fieldstrength according to :

FCC class B

EUT: Scenic Edition Mi6 (Mendocino 333)
Manufacturer: SNI
Operating Condition: scr. "H" , 1600x1200/ 75Hz and periph. test
Test Site: EMC Center Augsburg
Operator: R. Schaufler
Job No: PDO8E057
Comment : fully configured, MCM2108NTD; PSU:Astec
Start of Test: 31.07.1998 / 13:11:28

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"

31.07.1998 14:10

Frequency	Level	Limit	Margin	Exceed	Height	Azimuth	Polarisation
MHz	dB μ V/m	dB μ V/m	dB	Mark	cm	deg	
1002.100000	44.73	54.0	9.3		250.0	180.00	HORIZONTAL
1016.200000	24.92	54.0	29.1		250.0	180.00	HORIZONTAL
1030.900000	32.52	54.0	21.5		150.0	29.00	VERTICAL
1031.200000	32.52	54.0	21.5		150.0	29.00	VERTICAL
1068.700000	38.38	54.0	15.6		250.0	150.00	HORIZONTAL
1069.000000	40.18	54.0	13.8		250.0	150.00	HORIZONTAL
1102.300000	27.61	54.0	26.4		150.0	29.00	VERTICAL
1114.000000	30.47	54.0	23.5		150.0	29.00	VERTICAL
1135.900000	41.60	54.0	12.4		150.0	29.00	VERTICAL
1152.100000	23.75	54.0	30.3		150.0	29.00	VERTICAL
1269.400000	36.81	54.0	17.2		100.0	180.00	HORIZONTAL
1279.900000	24.66	54.0	29.3		100.0	180.00	HORIZONTAL
2004.400000	28.25	54.0	25.8		250.0	239.00	HORIZONTAL
2014.600000	23.09	54.0	30.9		250.0	239.00	HORIZONTAL
2365.900000	24.35	54.0	29.6		200.0	90.00	VERTICAL
2372.800000	24.26	54.0	29.7		200.0	90.00	VERTICAL
2672.500000	31.10	54.0	22.9		100.0	29.00	HORIZONTAL
2686.900000	25.12	54.0	28.9		100.0	29.00	HORIZONTAL
2986.300000	26.38	54.0	27.6		200.0	29.00	VERTICAL
3000.000000	26.54	54.0	27.5		200.0	29.00	VERTICAL

[dB μ V/m]

80

75

70

65

60

55

50

45x

40

35

30

25

20

15

10

5

0

1G

2G

3G

[Hz]

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

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
42/62

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:

$$\mathbf{FS = RA + AF + CF}$$

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.

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

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

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

SIEMENS
NIXDORF

Siemens Nixdorf Informationssysteme AG
Personal Computer Scenic Edition Mi6

FCC Identifier:
HSSSCENICM604

Date: Aug 28, 1998

Page:
45/62

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