

MEASUREMENT / TECHNICAL REPORT

SIEMENS PC SYSTEME GMBH & CO. KG

Model: Personal Computer Scenic MT8

FCC ID: HSSSCENIC8501

Mar. 10, 1999

This report concerns: ☒ Original grant ☐ Class II change
Equipment type: Personal Computer

Request issue of grant: ☒ Immediately upon completion of review
☐ Defer grant per 47 CFR 0.457(d)(1)(ii) until _____ date _____. Company Name agrees to notify the Commission by _____ date _____ of the intended date of announcement of the product so that the grant can be issued on that date.

Measurement procedure used: ☒ ANSI C63.4-1992
☐ FCC/OET MP-4(1987)
☐ other _____

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

Application for Certification prepared by:
Guenther Roesch
Siemens PC Systeme GmbH & Co. KG
Buergermeister-Ulrich-Str. 100
86199 Augsburg
Germany
Tel.: +49 821 804-2821
Fax: +49 821 804 2675

Applicant for this device:

Siemens PC Systeme GmbH & Co. KG
Buergermeister-Ulrich-Str. 100
86199 Augsburg
Germany
Tel.: +49 821 804-0

S

Engineer: _____
Robert Schaufler
Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
1/43

Table of Contents

1	GENERAL INFORMATION	4
1.1	Product Description	4
1.2	Related Submittal Grant	7
1.3	Tested System Details.....	7
1.4	Test Methodology	10
1.5	Test Facility	10
1.6	Referenced Rules Sections.....	10
2	PRODUCT LABELING	11
2.1	FCC ID Label.....	11
2.2	Location of Label on EUT: see attached files.....	12
3	SYSTEM TEST CONFIGURATION	13
3.1	Justification.....	13
3.2	Video mode Justification	15
3.3	EUT Exercise Software	17
3.4	Special Accessories	17
3.5	Equipment Modifications	18
3.6	Configuration of Tested System	18
4	BLOCK DIAGRAM OF EUT	20
4.1	Block Diagram Description.....	21
4.2	Clockfrequencies of EUT.....	22
4.3	Theory of Operation.....	22
5	CONDUCTED EMISSION DATA	23
5.1	Test Procedure	23
5.2	Measured Data.....	23
5.3	Referenced Rules Sections.....	27
5.4	Test Instrumentation Used, Conducted Measurement.....	27
6	RADIATED EMISSION DATA	28
6.1	Test Procedure.....	28
6.2	Measured Data.....	29
6.3	Referenced Rules Sections.....	34
6.4	Test Instrumentation Used, Radiated Measurement.....	34
6.5	Field Strength Calculation	35
6.6	Table of Correction Factors.....	36
7	CONDUCTED AND RADIATED EMISSION MEASUREMENT PHOTOS:	40
7.1	Test setup, conducted emission, front side view.....	40
7.2	Test setup, conducted emission, rear side view.....	40
7.3	Test setup, radiated emission, front side view	40
7.4	Test setup, radiated emission, rear side view	40

8	EXTERNAL PHOTOS OF EUT:	41
8.1	Front side of EUT	41
8.2	Rear side of EUT	41
8.3	Opened case, inside view of EUT	41
9	INTERNAL PHOTOS OF EUT:	42
9.1	Floppy disk drive, top side view	42
9.2	Hard disk drive, top side view	42
9.3	CD-ROM drive, top side view	42
9.4	System board, front side view, part one	42
9.5	System board, front side view, part two	42
9.6	System board, rear side view, part one	42
9.7	System board, rear side view, part two	42
9.8	Graphic controller board, front side view	42
9.9	Graphic controller board, rear side view	42
9.10	SDRAM module, front and rear side view	42
9.11	Chip card reader, front side view	42
9.12	Chip card reader, rear side view	42
9.13	Power supply ASTEC, closed case, top side view	42
9.14	Power supply ASTEC, opened case, inside view	42
9.15	Power supply ASTEC, regulator board, rear side view	42
9.16	Power supply ASTEC, rear side view	42
9.17	Power supply Minebea, closed case, top side view	42
9.18	Power supply Minebea, opened case, inside view	42
9.19	Power supply Minebea, regulator board, rear side view	42
9.20	Power supply Minebea, rear side view	43
10	USER MANUAL:	43

1 GENERAL INFORMATION

1.1 Product Description

The Siemens Computer Scenic 850 is a mini tower personal computer. The system board integrates the Pentium Processor, memory, and I/O-technologies. The main system unit is assembled with the Processor Intel Pentium II.

Description of the power supplies:

- ASTEC, model AA20660
S26113-E427-V30
- Minebea, model SPW1562
S26113-E427-V20

Features Overview:

CPU – Intel Pentium II

- 100 MHz Slot 1 specification
- Onboard voltage regulator VRM 8.2

Chip Set – Intel 440BX/ZX and PIIX4E

- 2 IDE ports for up to 4 IDE devices
support enhanced bus master ATA33 IDE with WIN98™ and NT™
- 2 USB ports with 12 Mbits/s

Super I/O – SMCS FDC37M807

- One internal floppy port for one floppy and one floppy tape drive support up to 2,88 Mbyte floppy
- 2 external PS2 ports - support keyboard and mouse connector exchange
- 1 external parallel port
- 1 external serial (COM1) port
- 1 internal connector for chipcardreader or external serial (COM2) port via wire

Main memory

- Two 3,3 V DIMM sockets for 16 Mbyte up to 768 Mbyte support only unbuffered SDRAMs

Security features

- Floppy write protection by BIOS and by switch
- System and BIOS password
- Flash write protection against virus
- SPD EEPROM protection against virus
- Intrusion check

Power management

- ACPI and APM
- On/Sleep/Off by power switch
- On/Sleep/Off by keyboard
- On/Off by SNI desk software
- On by real time clock (RTC)
- On by chip card reader
- On by external serial port 1
- Wake on LAN (WOL)
- Wake on PCI and AGP cards
- Wake on chip card reader
- Monitor power switch control

BIOS features

- Flash EPROM 2 Mbit
- System BIOS
- USB legacy support
- InCom LAN boot support
- Intel LAN desk Service Agent (LSA) support

Environmental protection

- Battery on socket for recycling

Form factor and slots

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

The personal computer is assembled by Siemens PC Systeme GmbH & Co. KG ,
Bürgermeister-Ulrich-Str. 100, 86199 Augsburg.

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
6/43

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 Scenic 850 (MT8)	HSSSCENIC8501	PC EUT	unshielded power cord [292]
2a	Siemens MCM 2110 NTD	M9U9705C97BMD	Monitor	unshielded power cord [175] shielded video cable [168]
2b	Siemens MCM 1705 NTD	A3LCGH760	Monitor	unshielded power cord [175] shielded video cable [168]
3	Siemens S26381-K240	HSS01TASTK240	PS/2 Keyboard	shielded keyboard cable [200]
4	Microsoft MS 2.1A	C3KKMP3	PS/2 Mouse	shielded mouse cable [183]
5	Microsoft Intelli mouse 1.1A	DOC: PN X03-29688	USB mouse	shielded mouse cable [197]
6	Hewlett Packard HP 2225C+ (3019S70991)	894C2655X	Printer, parallel	unshielded AC ca- ble [180], shielded centronics cable [190]

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
7/43

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
7	Hewlett Packard HP 2225D+ (2952S61299)	DSI6XU2225	Printer, serial I/F	unshielded power cord [185], shielded serial cable [190]
8	Siemens	N/A	USB cable	shielded cable, terminated [192]
	<u>Pos 1 contains:</u>			
a ₁	ASTEC (UK), AA20660 SNI: S26113-E427-V30	N/A	Power supply	
a ₂	Minebea SPW1562 SNI: S26113-E427-V20	N/A	Power supply	
b	Siemens S26361-D1107-A10 WGS 2	N/A	System board	
c	Hyundai HYM7V75A400 PC100-322-620	N/A	SDRAM	
d	Intel Pentium II 80525/PY500512	N/A	Processor module	

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
8/43

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
e	Matrox G200 AGP	DOC: G200A/8/OEM	Graphic controller board	
f	Siemens S26361-D960-V1	N/A	Chip card reader	
g	Fujitsu MPB3043AT	N/A	Hard disk drive	
h	Toshiba XM-6302B S26361-H402-V500	CJ6AT98-032	CD-ROM drive	
i	Teac FD235-HF235-7376	N/A	Floppy disk drive	

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

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
9/43

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 PC Systeme GmbH & Co. KG , 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

2 PRODUCT LABELING

2.1 FCC ID Label

see attached photo "fcc id label.jpg"

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
11/43

2.2 Location of Label on EUT: see attached files

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
12/43

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 corresponding worst case processor:

100 MHz clock: Intel Pentium II 500 MHz

The system is provided with two kinds of power supplies:

- ASTEC, SNI: S26113-E427-V30
- Minebea, SNI: S26113-E427-V20

Each power supply has been measured with each video resolution (worst case).

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

ASTEC PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz

Frequency range 1 GHz - 5 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz

Frequency range 1 GHz - 5 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz

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

ASTEC PSU:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz
monitor power via system unit

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz
monitor power via system unit

Minebea PSU:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz
monitor power via system unit

100 MHz clock/Pentium II 500 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 and 1600 x 1200. To get comparable results when measuring different video resolutions it is necessary to carry out the test with one monitor which is capable to drive all high resolutions. Such a high performance monitor has a special ferrite loaded video cable. To prove the compliance of the EUT without ferrite on the host side, we additionally tested the system with a representative standard 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 are applicable:

radiated emission:

ASTEC PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz

Frequency range 1 GHz - 5 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz

Frequency range 1 GHz - 5 GHz:

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz

conducted emission:

ASTEC PSU:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz
monitor power via system unit

100 MHz clock/Pentium II 500 MHz, video resolution 1600 x 1200/85 Hz
monitor power via system unit

Minebea PSU:

100 MHz clock/Pentium II 500 MHz, video resolution 1024 x 768/100 Hz
monitor power via system unit

100 MHz clock/Pentium II 500 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
- LAN data communication

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.

S

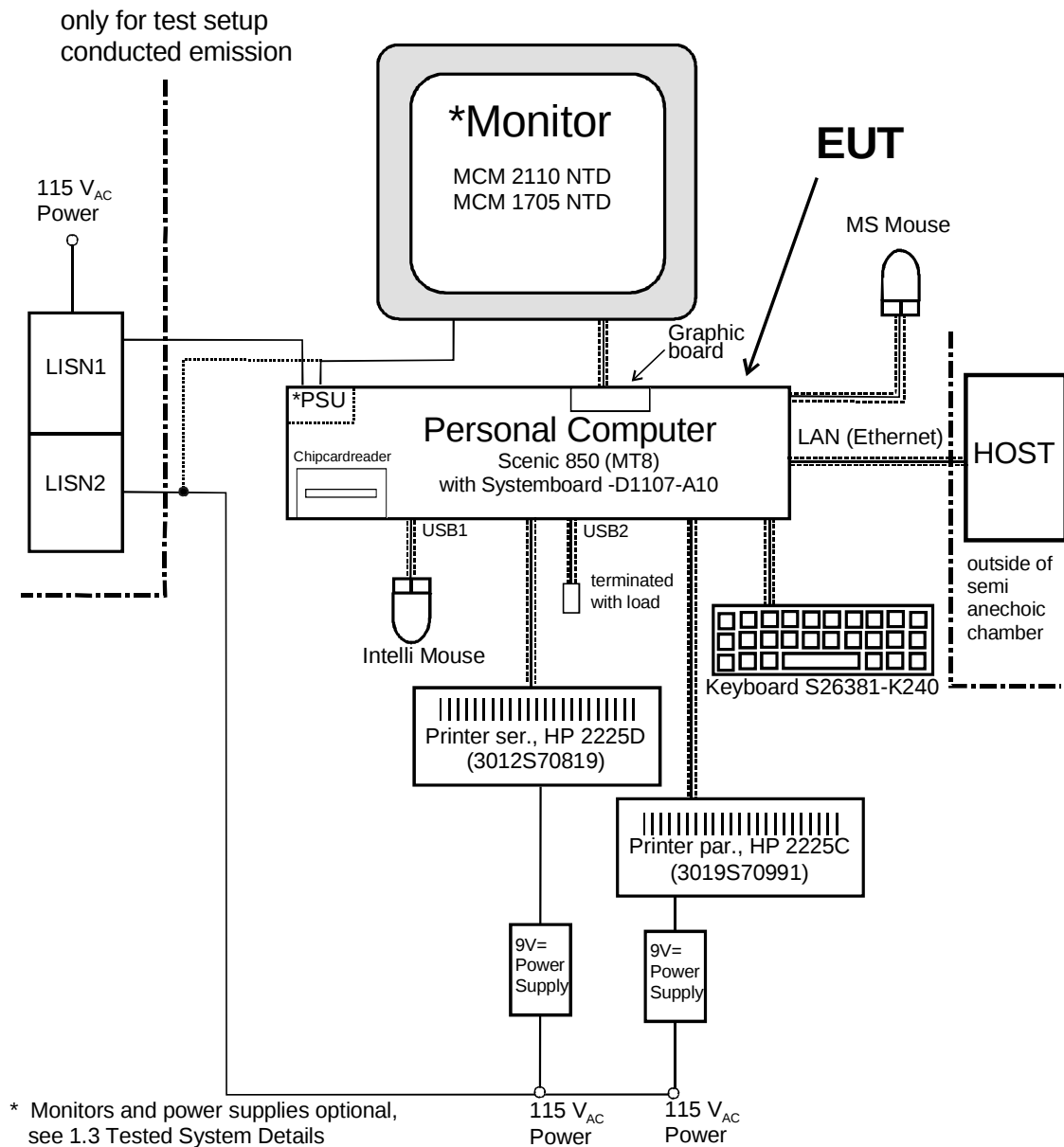
Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
18/43

Figure 3.1 Configuration of Tested System



4 BLOCK DIAGRAM OF EUT

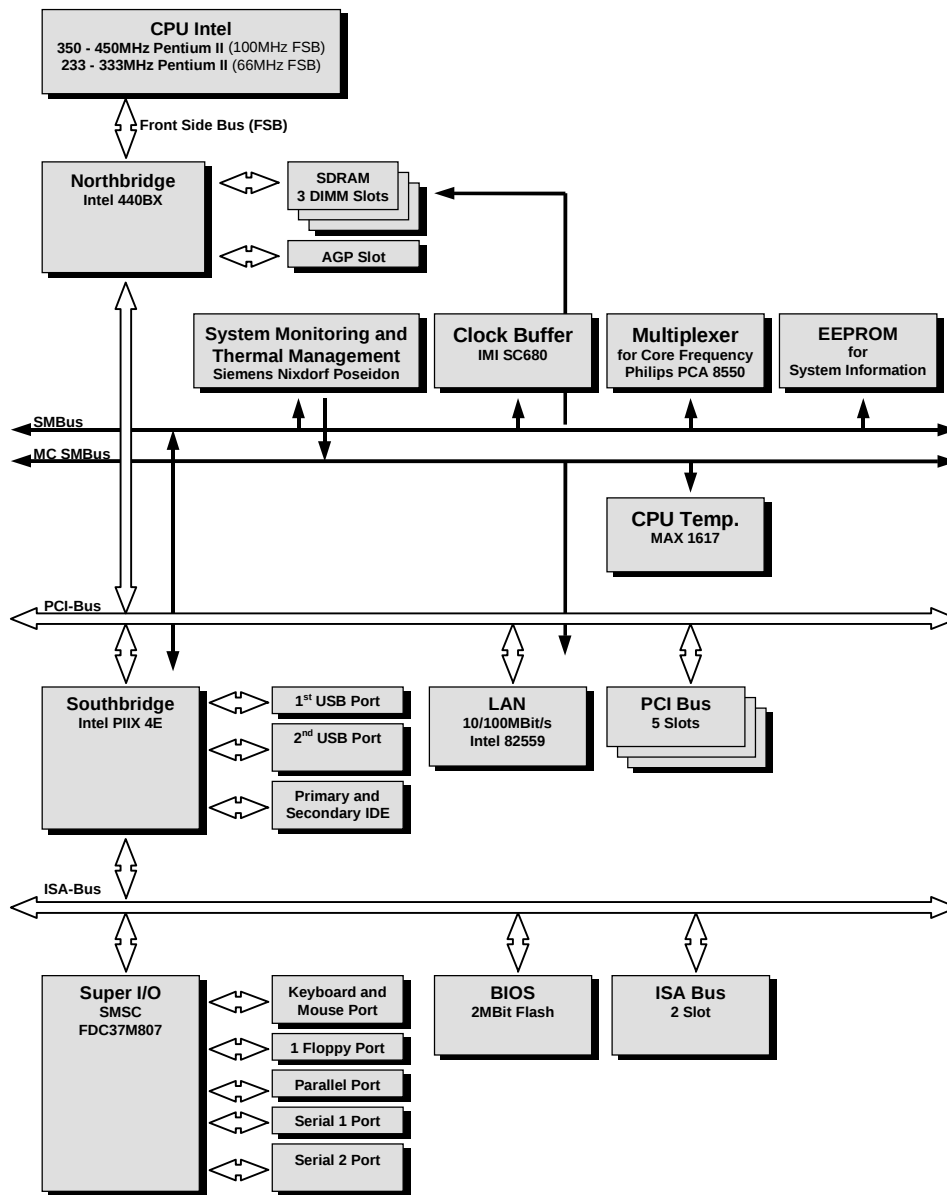


Figure 4.1 Block Diagram of the Systemboard

4.1 Block Diagram Description

The major parts of the system are.

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

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

4.2 Clockfrequencies of EUT

Clock synthesizer	14,318 MHz
Front side bus	66,6 / 100 MHz
Memory	66,6 / 100 MHz
PCI-bus	33,3 MHz
PIIX4 to IDE and USB	33,3 MHz
ISA Bus	8,2 MHz
I/O controller	14,3 MHz
USB	48 MHz
AGP bus	66,6 MHz

4.3 Theory of Operation

The mini tower PC works exactly as a traditional personal computer.

The processor run internally between 233 and 500 MHz, the system clock is 66.6 MHz or 100 MHz and is multiplied by the processors internally by 3,5, 4,0, 4,5, 5,0 or 5,5 (only with 66,6 MHz clock).

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
66,6 MHz	366 MHz	5,5
100 MHz	350 MHz	3,5
100 MHz	400 MHz	4,0
100 MHz	450 MHz	4,5
100 MHz	500 MHz	5,0

5 CONDUCTED EMISSION DATA

5.1 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.

5.2 Measured Data

The conducted emission was measured the following way:

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

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

The worst case results of the corresponding configuration (video resolution, supply modus: monitor via system unit or external) is given next:

ASTEC PSU

- a) video resolution 1024 x 768/100 Hz, monitor power via system unit
- b) video resolution 1024 x 768/100 Hz, monitor power extern
- c) video resolution 1600 x 1200/85 Hz, monitor power via system unit
- d) video resolution 1600 x 1200/85 Hz, monitor power extern

Judgement: Passed by

	Frequency [MHz]	Measured [dB(μV)]	Kind of value	Limit [dB(μV)]	Configuration
neutral	0,180	42,2	AV	54	b)
neutral	0,246	38,4	AV	52	b)
phase	0,300	41,4	QP	60	a)
neutral	0,306	41,6	AV	50	b)
neutral	0,306	44,3	QP	60	b)
neutral	0,366	31,0	AV	49	b)
phase	0,486	27,9	AV	46	c)
phase	0,540	30,4	AV	46	c)

AV: average
QP: quasi peak

Minebea PSU

- a) video resolution 1024 x 768/100 Hz, monitor power via system unit
- b) video resolution 1024 x 768/100 Hz, monitor power extern
- c) video resolution 1600 x 1200/85 Hz, monitor power via system unit
- d) video resolution 1600 x 1200/85 Hz, monitor power extern

Judgement: Passed by

	Frequency [MHz]	Measured [dB(μV)]	Kind of value	Limit [dB(μV)]	Configuration
Neutral	0,220	39,0	AV	52,7	a)
Phase	0,606	40,8	QP	56	c)
neutral	0,606	37,6	AV	46	c)
Neutral	0,768	32,0	AV	46	c)
Phase	0,882	31,5	AV	46	a)
Neutral	2,016	34,8	AV	46	d)
Neutral	1.914	32,4	AV	46	a)
Phase	2.118	35,2	AV	46	b)

AV: average

QP: quasi peak

Test Personnel:

Tester Signature: _____ Date: _____

Printed Name: A. Siebenhütter

Tester Signature: _____ Date: _____

Printed Name: R. Schaufler

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCNIC8501

Date: **Mar. 10, 1999**

Page:
25/43

Measurement Protocols: see attached file

ASTEC PSU:

100 MHz clock/Intel Pentium II 500 MHz
video resolution 1024 x 768/100 Hz

100 MHz clock/Intel Pentium II 500 MHz
video resolution 1600 x 1200/85 Hz

Minebea PSU:

100 MHz clock/Intel Pentium II 500 MHz
video resolution 1024 x 768/100 Hz

100 MHz clock/Intel Pentium II 500 MHz
video resolution 1600 x 1200/85 Hz

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
26/43

5.3 Referenced Rules Sections

N/A

5.4 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
Receiver	ESH3 Rohde&Schwarz	879676/014	May 98	12 months
LISN	NSLK 8126 Schwarzbeck	8126160	May 98	12 months
LISN	ESH3-Z5 Rohde&Schwarz	846695/27	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

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
27/43

6 RADIATED EMISSION DATA

6.1 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 close or above the acceptance line were verified automatically.
2. in the frequency range from 1000 MHz to 5000 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 close or 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 5000 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 the test results in attachment 3.

6.2 Measured Data

The EUT was measured with the Processor Pentium II 500 MHz in video modes 1024 x 768 and 1600 x 1200. The test results below reflect the worst case with:

ASTEC PSU:

- a) 100 MHz clock/Intel Pentium II 500 MHz,
video resolution 1600 x1200 85 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
178,32	21,3	30	-8,7	ver	1,0	180
344,25	29,5	37	-7,5	hor	2,2	29
500,34	35,2	37	-1,8	hor	1,6	270
505,83	23,5	37	-13,5	hor	2,8	210
562,47	34,1	37	-2,9	hor	2,2	59
993,81	31,5	37	-5,5	Ver	2,2	270

all levels are quasi-peak levels

Part 2: frequency range 1 GHz - 5 GHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	3 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
1000,3	33,1	53,9	-20,8	hor	1,0	195
1068,7	24,3	53,9	-29,6	ver	1,0	59
1100,5	32,2	53,9	-21,7	hor	1,0	239
1293,7	37,8	53,9	-16,1	hor	1,0	239
1501,0	29,8	53,9	-24,1	hor	1,0	59
4003,6	32,1	53,9	21,8	hor	1,4	29

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.

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: Mar. 10, 1999

Page:
29/43

b) 100 MHz clock/Intel Pentium II 500 MHz,
video resolution 1024 x 768/100 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
89,13	23,2	30	-6,8	ver	1,6	29
281,25	26,8	37	-10,2	ver	1,0	239
500,37	33,1	37	-4,9	hor	3,9	210
506,25	26,9	37	-10,1	ver	2,8	0
539,85	31,7	37	-5,3	hor	4,0	59
995,28	30,6	37	-6,4	Hor	1,0	59

all levels are quasi-peak levels

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

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
30/43

Minebea PSU:

a) 100 MHz clock/Intel Pentium II 500 MHz,
video resolution 1024 x 768/100 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
30,48	19,6	30	-10,4	Ver	1,5	150
89,10	27,5	30	-2,5	Ver	3,0	300
506,25	27,2	37	-9,3	Hor	2,2	59
675,00	32,1	37	-4,9	Hor	4,0	59
860,40	33,9	37	-3,1	Hor	3,4	59
893,46	34,0	37	-2,9	Hor	2,8	59

all levels are quasi-peak levels

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

b) 100 MHz clock/Intel Pentium II 500 MHz,
video resolution 1600 x 1200/85 Hz

Part 1: frequency range 30 MHz - 1000 MHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(μV/m)]	10 Meter Limit [dB(μV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
114,75	24,2	30	5,8	hor	4,0	59
206,58	24,5	30	5,5	hor	4,0	180
344,25	32,7	37	4,3	ver	1,0	330
390,15	34,5	37	2,5	ver	1,0	0
459,00	34,8	37	2,2	ver	2,2	0
900,81	34,6	37	2,4	hor	2,8	59

all levels are quasi-peak levels

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
31/43

Part 2: frequency range 1 GHz - 5 GHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(µV/m)]	3 Meter Limit [dB(µV/m)]	Exceeding [dB]	Ant Pol	Height in [m]	Angle in deg
1059,7	23,5	53,9	30,4	ver	1,0	270
1068,7	23,2	53,9	30,7	hor	1,0	29
1096,9	24,4	53,9	29,5	hor	1,0	210
1300,9	30,1	53,9	23,8	hor	1,0	59
1305,7	25,0	53,9	28,9	hor	1,0	29
1349,8	23,8	53,9	30,1	hor	1,0	29

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: _____ Date: _____

Printed Name: A. Siebenhütter

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
32/43

Measurement Protocols: see attached files

ASTEC PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Intel Pentium II 500 MHz

video resolution 1024 x 768/100 Hz

100 MHz clock/Intel Pentium II 500 MHz

video resolution 1600 x 1200/85 Hz

Frequency range 1 GHz - 5 GHz:

100 MHz clock/Intel Pentium II 500 MHz

video resolution 1600 x 1200/85 Hz

Minebea PSU:

Frequency range 30 MHz - 1 GHz:

100 MHz clock/Intel Pentium II 500 MHz

video resolution 1024 x 768/100 Hz

100 MHz clock/Intel Pentium II 500 MHz

video resolution 1600 x 1200/85 Hz

Frequency range 1 GHz - 5 GHz:

100 MHz clock/Intel Pentium II 500 MHz

video resolution 1600 x 1200/85 Hz

6.3 Referenced Rules Sections

N/A

6.4 Test Instrumentation Used, Radiated Measurement

Type	Manufacturer/ Model No.	Serial No.	Last Cal.	Cal. Interval
Receiver	ESMI Rohde&Schwarz	840607/006	May 98	15 months
Antenna	CBL 6112 Chase	0003	May 98	12 months
Active Ridged antenna	Tensor 4105 Rohde&Schwarz	2063	May 98	12 months

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
34/43

6.5 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

6.6 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

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
37/43

Frequency range: 1 GHz to 5 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
3,1	9,20	2,37	11,57
3,2	8,60	2,40	11,00

Frequency [GHz]	Correction Tensor Antenna with Pre- amplifier [dB]	Correction Cable [dB]	Correction Antenna + Cable [dB]
3,3	8,70	2,42	11,12
3,4	9,70	2,43	12,13
3,5	9,70	2,46	12,16
3,6	10,40	2,43	12,83
3,7	10,80	2,45	13,25
3,8	11,50	2,47	13,97
3,9	11,90	2,49	14,39
4,0	10,90	2,46	13,36
4,1	10,10	2,48	12,58
4,2	8,80	2,49	11,29
4,3	8,70	2,51	11,21
4,4	8,50	2,53	11,03
4,5	8,70	2,54	11,24
4,6	9,50	2,57	12,07
4,7	10,10	2,57	12,67
4,8	11,10	2,59	13,69
4,9	11,50	2,60	14,10
5,0	11,60	2,62	14,22

7 CONDUCTED AND RADIATED EMISSION MEASUREMENT PHOTOS:

see attached files

- 7.1 Test setup, conducted emission, front side view
- 7.2 Test setup, conducted emission, rear side view
- 7.3 Test setup, radiated emission, front side view
- 7.4 Test setup, radiated emission, rear side view

8 EXTERNAL PHOTOS OF EUT:

see attached files

8.1 Front side of EUT

8.2 Rear side of EUT

8.3 Case EUT open

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
41/43

9 INTERNAL PHOTOS OF EUT:

see attached files

- 9.1 Floppy disk drive
- 9.2 Hard disk drive
- 9.3 CD ROM drive
- 9.4 Systemboard, front side view, part one
- 9.5 Systemboard, front side view, part two
- 9.6 System board, rear side view, part one
- 9.7 System board, rear side view, part two
- 9.8 Graphic controller board, front side view
- 9.9 Graphic controller board, rear side view
- 9.10 SDRAM module, front and rear side view
- 9.11 Chip card reader, front side view
- 9.12 Chip card reader, rear side view
- 9.13 Power supply ASTEC, closed case, top side view
- 9.14 Power supply ASTEC, opened case, inside view
- 9.15 Power supply ASTEC, regulator board, rear side view
- 9.16 Power supply ASTEC, power board, rear side view
- 9.17 Power supply Minebea, closed case, top side view
- 9.18 Power supply Minebea, opened case, inside view
- 9.19 Power supply Minebea, regulator board, rear side view

9.20 Power supply Minebea, power board, rear side view

10 USER MANUAL:

see attached files

For FCC statement please refer to user manual page 5.

S

Siemens PC Systeme GmbH & Co. KG
Personal Computer Scenic MT8

FCC Identifier:
HSSSCENIC8501

Date: **Mar. 10, 1999**

Page:
43/43