MEASUREMENT / TECHNICAL REPORT

Fujitsu Siemens Computers

Model: Personal Computer Scenic DT6

FCC ID: HSSSCENIC6621

Oct. 26, 2000

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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1 GENERAL INFORMATION

1.1 Product Description

The Fujitsu Siemens Computers Scenic DT6 is a compact desktop 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 III up to 1000 MHz.

With the first model (original grant, dated: Oct. 29, 1999, 1st class II change; dated: Jan. 21, 2000; 2nd class II change, dated: May 16, 2000) two standard PSU`s (Astec, model AA20650 and Minebea, model SPW 1553-1) were equipped, now two PSU`s (Minebea, model FS001U200PCW and Newton, model NPS200PB-121A) have been added.

Description of the power supplies:

- Power supplies:

ASTEC, model	AA20650 S26113-E425-V30
Minebea, model	SPW1553-1 S26113-E425-V20
Minebea, model	FS001U200PCW S26113-E447-V20
Newton, model	NPS200PB-121A S26113-E447-V50

Features Overview:

<u>CPU – Intel PGA370 / FCPGA</u>

- 300 - 600 MHz Celeron (Coppermine-128k) with (66/100 MHz) FSB
- up to 1000 MHz PIII with 100 / 133 MHz FSB
- Onboard voltage regulator

Main memory

- Two 3,3 V DIMM sockets for 16 MByte up to 512 MByte, support only unbuffered SDRAM DIMMs with 100 MHz (PC100)

Chips on board

- Intel 810e Chip Set
- Analog Devices AD 1881 Audio Codec
- Intel 82559 LAN Controller
- National PC87363 Super I/O

2D/3D Graphics

- 24 Bit 230 MHz RAMDAC
- optional Display Cache
- Dynamic Video Memory (DVM)

AC´97

- Host based Audio with AC´97
- Mono Micro In, Stereo Line In, Stereo CD IN, Stereo Aux In, Game/MIDI Port
- Stereo Line Out (max. 2x0,5 W / 8 Ω)
- Sound via internal system speaker

Communication

- 2 USB ports with 12 MBits/s
- 2 External PS2 ports
- 1 External parallel port
- 1 External serial (COM1) port
- 1 Internal connector for chipcard reader or external serial (COM2) port via wire

LAN – Ethernet Controller

- Intel 82559 with 10/100 MBit/s
- WOL by interesting packets, link status change and Magic-Packet™
- InCom LAN boot and Intel LANdesk Service Agent (LSA) support
- Alert on LAN (AOL)

Storage Devices

- 2 IDE ports for up to 4 IDE devices Support enhanced busmaster ATA66
- One internal Floppy port for two Floppy and one Floppy-Tape drive Support up to 2,88 MByte Floppy

Form factor, slots compatible list

- Micro ATX
- 4 PCI slots
- Compatible to ACPI, APM, AGP, BBS, DMI, IAPC, OnNow, PC99, PCI, WfM

The personal computer is assembled by Fujitsu Siemens Computers GmbH, Bürgermeister-Ulrich-Str. 100, 86199 Augsburg.

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	Fujitsu Siemens Computers DT6-D1171 (Scenic xB-1171)	HSSSCENIC6621	Personal Computer **EUT**	unshielded power cord [292]
2	Fujitsu Siemens Computers MCM 17P1 YEDA175914	A3LCSE783	Monitor	unshielded power cord [175] shielded video cable [168]
3	Microsoft Mouse 2.1 A 0056712-5	C3KKMP1	Mouse	shielded mouse cable [197]
4	Logitech M-BB48 LZE01361946	DZL211137	USB-Mouse	shielded mouse cable [197]

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
5	Logitech M-BB48 LZE01361905	DZL211137	USB-Mouse	shielded mouse cable [197]
6	Fujitsu Siemens Computers S26381-K240-V120 YBKB000809153553	HSS01TASTK240	Keyboard	shielded keyboard cable [143]
7	Hewlett Packard HP 2225C+ (3011S70627)	DSI6XU2225	Printer, parallel I/F	unshielded AC cable [180], shielded centronics cable [190]
8	Hewlett Packard HP 2225D+ (2952S61229)	DSI6XU2225	Printer, serial I/F	unshielded power cord [185], shielded serial cable [190]
8	Labtec AM-232	N/A	Microphone	shielded cable [142]
9a	Chairman Power Beat P-10	N/A	Loud-speaker	shielded cable [166 + 124]
9b	Boeder LT-100	N/A	Headphone	shielded cable [142]
10	Microsoft Side Winder 3D Pro 02100777	C3KMJ1	Joystick	shielded cable
11	Bay Networks HUB 100BaseT	N/A	HUB	

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
12			Line IN	shielded cable, terminated [192]
	Pos 1 contains:			
a_1	Minebea FS001U200PCW S26113-E447-V20	N/A	Power supply	N/A
a_2	Newton NPS200PB-121A S26113-E447-V50	N/A	Power supply	N/A
b	Quantum Fireball QUM: FBCR43A	N/A	Hard disk drive 4.3 GB	N/A
c	Samsung SC148F, 48x, S26361-H527-V700	DOC	CD-ROM drive	N/A
d	Mitsumi D359M3 S26361-H315-V500	N/A	Floppy disk drive	N/A
e	Fujitsu Siemens Computers S26361-D1171-A11	N/A	System board GS2	N/A
f	Intel Pentium III 1000 MHz FSB 133 MHz	N/A	Processor module	N/A

Pos	Model Number (Serial Number)	FCC ID	Description	Cable Description (length in [cm])
g	Hyundai HYM7V65801 PC100-322-620	N/A	SDRAM	N/A

Remark: position 9a / 9b and $1a_1$ / $1a_2$ optional

1.4 Test Methodology

Both, conducted and radiated tests were performed according to the procedures in ANSI C63.4-1992. Radiated testing below 1 GHz was performed at an antenna to EUT distance of 10 meters above 1 GHz at an antenna to EUT distance of 3 meters. All radiated emission measurements were done in an anechoic chamber. Limits for radiated and conducted emission are in compliance with CISPR 22 resp FCC class B.

1.5 Test Facility

The test site is located at Fujitsu Siemens Computers GmbH, Bürgermeister-Ulrich-Str. 100, 86199 Augsburg, Germany. This site consist of a 10 m semi anechoic chamber for radiated emission testing and of two shielded cabinets for conducted emission testing. The 10 m semi anechoic chamber is conform with the NSA-limits described in CISPR22, CISPR16 and ANSI C63.4.1992. The site is registered by the German accreditation body DAR-Registration No. TTI-P-G114 and by the Federal Communications Commission on April 07, 2000, Registration Number 90935.

1.6 Referenced Rules Sections

N/A

2 PRODUCT LABELING

2.1 FCC ID Label:

see 2nd class II change, dated: May 16, 2000

2.2 Location of Label on EUT:

see 2nd class II change, dated: May 16, 2000

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 133 MHz, the clock frequency was tested with the corresponding worst case processor:

133 MHz clock: Intel Pentium III 1000 MHz

The system is provided with four kinds of power supplies:

- ASTEC, AA20650 FSC: S26113-E425-V30
- Newton, SPW1553-1 FSC: S26113-E425-V20
- Minebea, FS001U200PCW FSC: S26113-E447-V20
- Newton, NPS200PB-121A FSC: S26113-E447-V50

According both worst case results concerning the test report of the original grant (dated: Oct. 29, 1999), the first class II change (dated: Jan. 21, 2000) and the second class II change (dated: May 16, 2000) the following configuration has been tested:

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

PSU Minebea, FS001U200PCW:

Frequency range 30 MHz - 1 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

Frequency range 1 GHz - 5 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

PSU Newton, NPS200PB-121A:

Frequency range 30 MHz - 1 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

Frequency range 1 GHz - 5 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

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

PSU Minebea, FS001U200PCW:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power via EUT

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power from peripheral device LISN

PSU Newton, NPS200PB-121A:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power via EUT

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power from peripheral device LISN

3.2 Video mode Justification

The system was tested in video graphic mode 1024 x 768, 85 Hz (worst case combination according the test results of the original grant (dated: Oct. 29, 1999) and the first class II change (dated: Jan. 21, 2000) and the second class II change (dated: May 16, 2000) has been tested:

The following data are applicable:

radiated emission:

PSU Minebea, FS001U200PCW:

Frequency range 30 MHz - 1 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

Frequency range 1 GHz - 5 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

PSU Newton, NPS200PB-121A:

Frequency range 30 MHz - 1 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

Frequency range 1 GHz - 5 GHz:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz

conducted emission:

PSU Minebea, FS001U200PCW:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power via EUT

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power from peripheral device LISN

PSU Newton, NPS200PB-121A:

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power via EUT

133 MHz clock/Pentium III 1000 MHz, video resolution 1024 x 768/85 Hz monitor power from peripheral device LISN

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

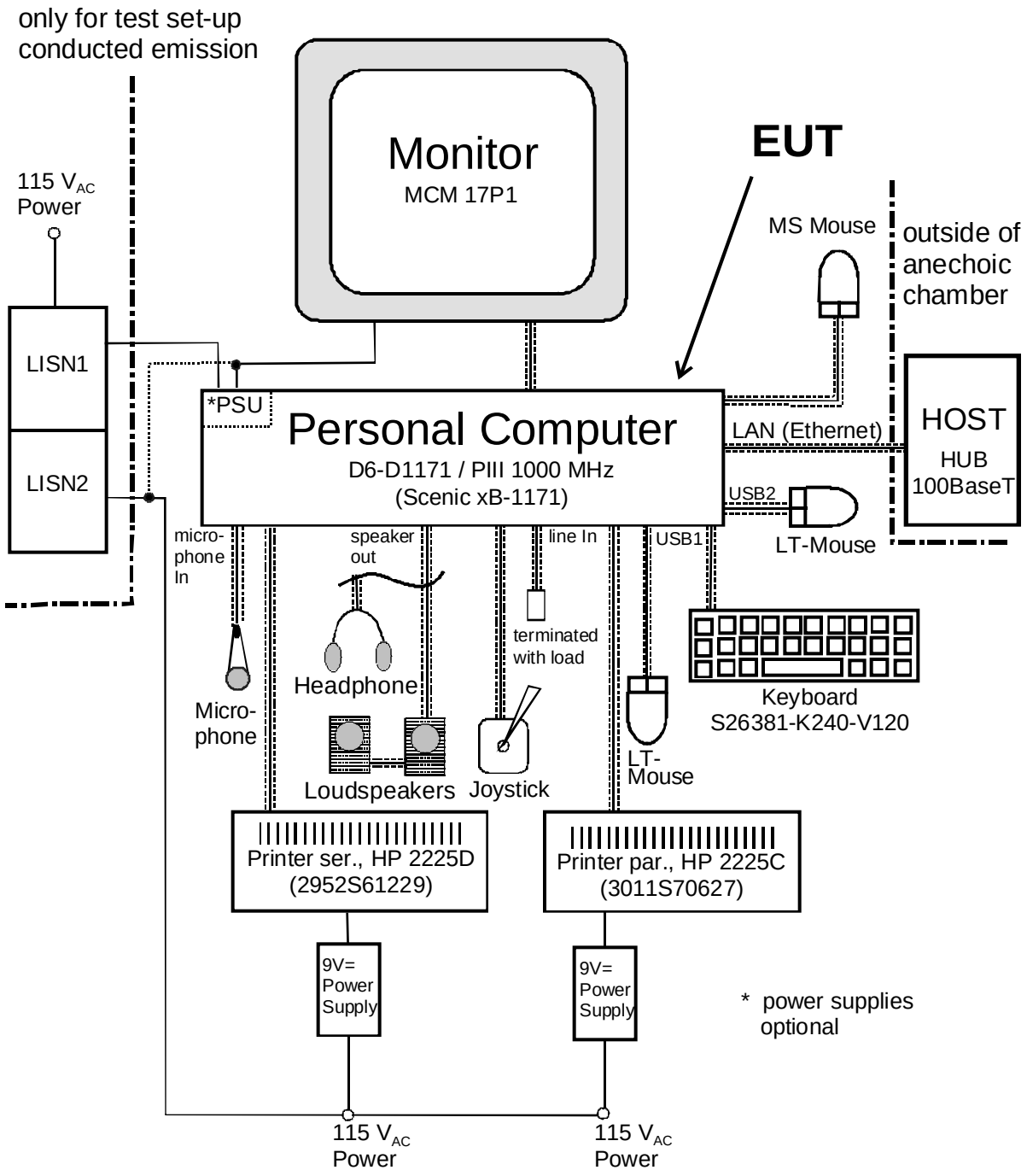
Applicant Signature _____ Date _____

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.

Figure 3.1 Configuration of Tested System



4 BLOCK DIAGRAM OF EUT

see fig 4.1 page 23

4.1 Block Diagram Description (see fig. 4.1)

The major parts of the system are (fig 4.1).

- System board
- Power supply
- Floppy disk drive
- Hard disk drive
- CD-ROM drive
- Peripheral connector area (keyboard, mouse, ser. 1, parallel port LAN, USB and audio)

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

The personal computer works exactly like a traditional P.C..

4.2 Clockfrequencies of EUT

VGA controller	48 MHz
Clock synthesizer	14.318 MHz
Front side bus	66.6/100/133 MHz
Memory	100 MHz
PCI-bus	33.3 MHz
PIIX4 to IDE and USB	33.3 MHz
I/O controller	48 MHz
USB	48 MHz
Display cache	133 MHz
Audio controller	24.576 MHz

4.3 Theory of Operation

The compact desktop PC works exactly as a traditional PC.

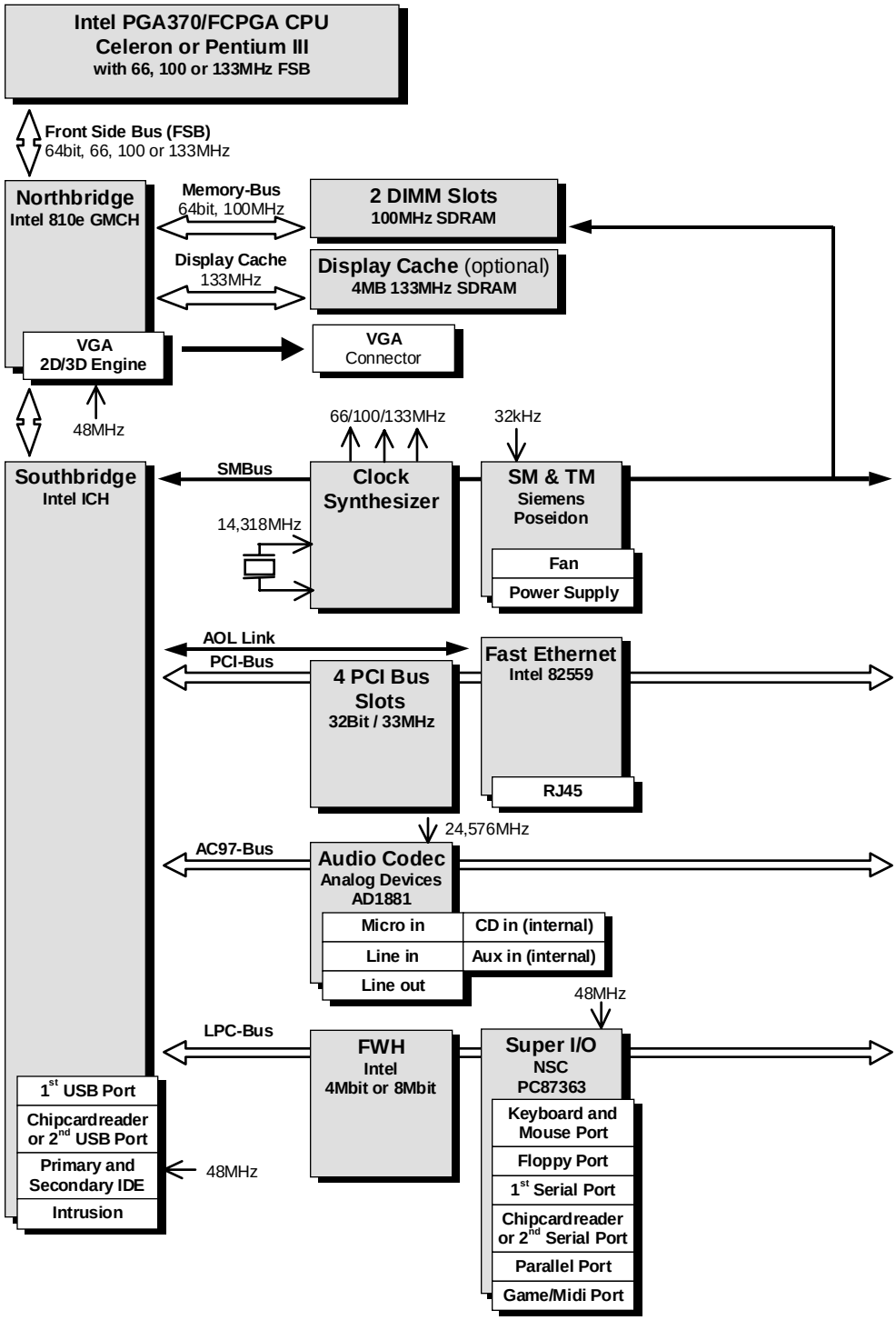
The processors run internally between 233 and 1000 MHz, the system clock is 66.6 MHz, 100 MHz or 133 MHz and is multiplied by the processors internally by 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5 or 8,0.

The highest possible frequencies and the corresponding processors are:

Processor	System clock	factor
233 MHz	66,6 MHz	3.5
266 MHz	66,6 MHz	4.0
300 MHz	66,6 MHz	4.5
333 MHz	66,6 MHz	5.0
366 MHz	66,6 MHz	5.5
350 MHz	100 MHz	3.5
400 MHz	100 MHz	4.0
450 MHz	100 MHz	4.5
500 MHz	100 MHz	5.0

Processor	System clock	factor
550 MHz	100 MHz	5.5
600 MHz	100 MHz	6.0
700 MHz	100 MHz	7.0
733 MHz	133 MHz	5.5
750 MHz	100 MHz	7.5
800 MHz	100 MHz	8.0
866 MHz	133 MHz	6.5
933 MHz	133 MHz	7.0
1000 MHz	133 MHz	7.5

4.1 Block Diagram of the EUT



5 CONDUCTED EMISSION DATA

5.1 Test Procedure

The initial step in collecting conducted emission data is a Rohde & Schwarz Test Receiver (ESH10). 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 powered both, via the system unit or separately.

The worst case results of the measurement is given next:

PSU Minebea, FS001U200PCW:

a) video resolution 1024 x 768/85 Hz, monitor power via EUT
b) video resolution 1024 x 768/85 Hz, monitor power from peripheral device LISN

Judgement: Passed by

	Frequency [MHz]	Measured [dB(µV)]	Kind of value	Limit [dB(µV)]	Configuration
phase	0.222	48.70	QP	63.0	a

Judgement: Passed by

	Frequency [MHz]	Measured [dB(µV)]	Kind of value	Limit [dB(µV)]	Configuration
neutral	1.848	41.80	QP	56.0	a
phase	1.950	39.60	QP	56,0	a
phase	0.222	48.20	AV	53.0	a
phase	0.672	36.30	AV	46.0	a
neutral	1.740	36.30	AV	46.0	a
phase	0.222	48.90	QP	63.0	b
neutral	1.740	41.10	QP	56.0	b
neutral	1.842	42.00	QP	56.0	b
phase	0.222	48.20	AV	53.0	b
phase	0.672	37.00	AV	46.0	b
neutral	1.842	37.20	AV	46.0	b

AV: average
QP: quasi peak

PSU Newton, NPS200PB-121A:

a) video resolution 1024 x 768/85 Hz, monitor power via EUT
b) video resolution 1024 x 768/85 Hz, monitor power from peripheral device LISN

Judgement: Passed by

	Frequency [MHz]	Measured [dB(µV)]	Kind of value	Limit [dB(µV)]	Configuration
neutral	0.198	50.60	QP	64.0	a
phase	0.582	39.50	QP	56.0	a

	Frequency [MHz]	Measured [dB(µV)]	Kind of value	Limit [dB(µV)]	Configuration
phase	4.986	40.10	QP	56.0	a
neutral	0.222	45.90	AV	53.0	a
phase	1.926	32.50	AV	46.0	a
phase	4.710	34.10	AV	46.0	a
neutral	0.240	49.50	QP	62.0	b
neutral	0.498	37.30	QP	56.0	b
phase	4.908	40.90	QP	56.0	b
neutral	0.222	46.10	AV	53.0	b
neutral	0.294	37.10	AV	50.0	b
phase	4.602	35.90	AV	46.0	b

AV: average
QP: quasi peak

Test Personnel:

Tester Signature: _____ Date: _____

Printed Name: A. Herr

Measurement Protocols: see attached file

PSU Minebea, FS001U200PCW:
133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 Hz
monitor power via EUT

133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 Hz
monitor power from peripheral device LISN

PSU Newton, NPS200PB-121A:
133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 Hz
monitor power via EUT

133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 Hz
monitor power from peripheral device LISN

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 00	12 months
Receiver	ESH3 Rohde&Schwarz	879599/019	May 00	12 months
LISN	ESH2-Z5 Rohde&Schwarz	871884/004	May 00	12 months
LISN	ESH3-Z5 Rohde&Schwarz	883650/027	May 00	12 months
Pulse limiter	ESH3-Z2 Rohde&Schwarz	---	May 99	12 months

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 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 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 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.

6.2 Measured Data

The EUT was measured with the Processor Intel Pentium III 1000 MHz in video mode 1024 x 768, 85 Hz. The test results below reflect the worst case with:

PSU Minebea, FS001U200PCW:

a) 133 MHz clock/Intel Pentium III 1000 MHz,
video resolution 1024 x 768/85 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
99.39000	22.10	30.000	-7.9	ver	1.60	210.000
299.94000	34.10	37.000	-2.9	hor	2.80	59.000
399.93000	31.20	37.000	-5.8	hor	2.20	300.000
699.87000	31.80	37.000	-5.2	hor	4.00	330.000
745.80000	33.20	37.000	-3.8	ver	2.80	180.000
927.18000	34.30	37.000	-2.7	hor	1.00	330.000

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.

Part 2: frequency range 1 GHz - 5 GHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(µV/m)]	Limit [dB(µV/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1093.00000	33.80	53.9	20.1		100.00	180.00	hor
1324.60000	33.70	53.9	20.2		100.00	0.00	ver

Frequency [MHz]	Level* [dB(µV/m)]	Limit [dB(µV/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1399.60000	38.50	53.9	15.4		100.00	0.00	ver
1457.20000	35.00	53.9	18.9		100.00	29.00	ver
1490.20000	32.60	53.9	21.3		100.00	29.00	ver
1599.70000	36.80	53.9	17.1		100.00	0.00	ver

all levels are average levels

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

PSU Newton, NPS200PB-121A:

b) 133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 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
66.15000	26.50	30.000	-3.5	hor	4.00	239.000
113.40000	24.80	30.000	-5.2	ver	1.60	210.000
166.62000	23.80	30.000	-6.2	hor	4.00	119.000
499.92000	29.40	37.000	-7.6	ver	2.20	210.000
695.40000	30.50	37.000	-6.5	hor	1.00	300.000
745.83000	34.50	37.000	-2.5	ver	2.20	180.000

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.

Part 2: frequency range 1 GHz - 5 GHz:

Judgement: Passed by

Frequency [MHz]	Level* [dB(µV/m)]	Limit [dB(µV/m)]	Margin [dB]	Exceed Mark	Height [cm]	Azimuth [deg]	Ant Pol
1199.80000	33.70	53.9	20.2		200.00	0.00	ver
1296.10000	39.70	53.9	14.2		100.00	29.00	ver
1399.60000	40.20	53.9	13.7		100.00	90.00	ver
1492.90000	34.00	53.9	19.9		100.00	0.00	ver
1589.50000	32.70	53.9	21.2		100.00	330.00	ver
4936.60000	33.80	53.9	20.1		100.00	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: _____ Date: _____

Printed Name: A. Luck

Test Personnel:

Tester Signature: _____ Date: _____

Printed Name: M. Rothtauscher

Measurement Protocols: see attached files

PSU Minebea, FS001U200PCW:
Frequency range 30 MHz - 1 GHz:
133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 Hz

Frequency range 1 GHz - 5 GHz:
133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 Hz

PSU Newton, NPS200PB-121A:
Frequency range 30 MHz - 1 GHz:
133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 Hz

Frequency range 1 GHz - 5 GHz:
133 MHz clock/Intel Pentium III 1000 MHz
video resolution 1024 x 768/85 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 00	15 months
Antenna	CBL 6111 Chase	1345	May 99	12 months
Antenna	CBL 6112 Chase	2041	Aug 99	15 months
Active Ridged antenna	Tensor 4105 Rohde&Schwarz	2063	Dec 99	15 months

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 dBµV is obtained. The Antenna Factor of 10,5 and a Cable Factor of 1,3 is added, giving a field strength of 40,3 dBµV/m.

FS = 28,5 + 10,5 + 1.3 = 40,3 dBµV/m

The 40,3 dBµV/m value can be mathematically converted to its corresponding level in µV/m.

Level in µV/m =
Common Antilogarithm [(40,3 dBµV/m)/20] =

103,5 µV/m

6.6 Table of Correction Factors

Frequency range: 30 MHz to 1000 MHz (Antenna CBL6112)

Frequency [MHz]	Correction Bilog Antenna [dB]	Correction Cable [dB]	Correction Antenna + Cable [dB]
30.0	17.80	0.65	18.45
35.0	15.10	0.67	15.77
40.0	12.40	0.68	13.08
45.0	9.80	0.73	10.53
50.0	7.70	0.74	8.44
55.0	6.20	0.82	7.02
60.0	5.10	0.84	5.94
70.0	5.00	0.90	5,.90
80.0	6.60	0.95	7.55
90.0	8.50	0.99	9.49
100.0	10.30	1.10	11.40
120.0	11.40	1.14	12.54
140.0	10.40	1.27	11.67
160.0	9.40	1.35	10.75
180.0	8.50	1.45	9.95
200.0	9.10	1.51	10.61
250.0	11.80	1.71	13.51
300.0	13.00	1.84	14.84
350.0	14.10	2.00	16.10
400.0	16.00	2.18	18.18
450.0	16.30	2.35	18.65
500.0	17.10	2.43	19.53

Frequency [MHz]	Correction Bilog Antenna [dB]	Correction Cable [dB]	Correction Antenna + Cable [dB]
550.0	18.80	2.62	21.41
600.0	18.60	2.73	21.33
650.0	19.00	2.88	21.88
700.0	19.10	2.91	22.01
750.0	19.80	3.01	22.81
800.0	19.80	3.21	23.01
850.0	20.40	3.32	23.72
900.0	20.50	3.40	23.90
950.0	20.80	3.49	24.29
1000.0	21.10	3.69	24.79

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 set-up, conducted emission, front side view

7.2 Test set-up, conducted emission, rear side view

7.3 Test set-up, radiated emission, front side view

7.4 Test set-up, radiated emission, rear side view

8 External Photos of EUT

see original grant, dated: Oct. 29, 1999

9 Internal Photos of EUT: see attached files and original grant, date Oct. 29, 1999

9.1 Power supply Minebea, closed case, top side view
9.2 Power supply Minebea, opened case, inside view
9.3 Power supply Minebea, rear side view
9.4 Power supply Newton, closed case, top side view
9.5 Power supply Newton, opened case, inside view
9.6 Power supply Newton, rear side view

Further internal photos see original grant, date Oct. 29, 1999

10 User Manual

see 2nd class II change, dated: May 16, 2000