FUJITSU

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Deutsche Akkreditierungsstelle D-PL-12108-01-01

EMC Compliance Report, CE

Product: D3313-S
Model: D3313-S

Document number: 1SB13-0023+E01-03
Document title: EMC Compliance Report CE+D3313-S

Reference Original Report: None

BSMI Authorisation No. SL2-IN-E-3001; SL2-R1/R2-E-3001, SL2-A1-E-3001
FCC Registration No. 90935
VCCI Registration No. C-2052, C-2053, C-2054, T-173, T-176, T-177, R-1907, G-186
KC Registration No. EU0061
VCCI Registration No. 1468

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EUT: D3313-S (D3313-S)

TEST RESULT:	Passed

EUT		
	Product Name:	D3313-S
	Model:	D3313-S
	Product Category:	System board
	Manufacturer:	FUJITSU TECHNOLOGY SOLUTIONS GmbH
	Serial No.:	
	Revision No.:	D3313-S32 GS5x
	Order No.:	1SB13-0023+E01

APPLICANT:		
	Customer:	FUJITSU TECHNOLOGY SOLUTIONS GmbH
	Name:	Mertes
	Address:	Bürgermeister-Ulrich-Strasse 100
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SIGNATURE:		
	Release Date:	Feb 10, 2014
	Test Engineer:	Thomas Zitzelsberger
	Prepared by:	Vasilij Konovalov Technician
	Reviewed by:	Thomas Zitzelsberger Test Engineer

1 Table of content

Attachments:

Testprotocols

2 Remarks, Statements and Protocol Table

2.1 Result Statement Details

Discipline:	Protocol No.:	Result:
Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 1-6 GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded;	P2M1	Passed
Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 30MHz - 1GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded;	P8M1	Passed
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: AC/DC mains delivery state;	P1M1	Passed
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit;	P4M1	Passed
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit;	P4M2	Passed
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit;	P5M1	Passed
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit;	P5M2	Passed
Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04, Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, delivery state;	P9M1	Passed
Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04, Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, full configuration;	P10M1	Passed
Voltage Fluctuations and Flicker Emission, IEC 61000-3-3 Edition 3.0:2013-05, Mains Voltage: 230V, 50Hz, TP: AC mains;	P11M1	Passed
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains;Criteria C: temporary loss of function, operator intervention required, detailed description: EUT reboot at step 4	P12M1	Passed
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 60Hz, PhaseConfig: L-N, TP: AC mains;Criteria C: temporary loss of function, operator intervention required, detailed description: EUT reboot at step 4	P13M1	Passed
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN55024:2010, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains;Criteria C: temporary loss of function, operator intervention required, detailed description: EUT reboot at step 4	P14M1	Passed
Radiated Electromagnetic Field Immunity, IEC 61000-4-3 Ed 3.2:2010-04, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, TP: EUT, Positions: 2;Criteria A: normal function observed	P6M1	Passed
Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 50Hz, TP: EUT, 30A/m;Criteria A: normal function observed	P17M1	Passed
Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 60Hz, TP: EUT, 30A/m;Criteria A: normal	P18M1	Passed

function observed		
Electrostatic Discharge Immunity, IEC 61000-4-2:2008, full configuration, Mains Voltage: 230V, 50Hz, TP: EUT, Level air: ±2, 4, 6, 8kV, Level contact: ±2, 4kV;Criteria A: normal function observed	P19M1	Passed
Electrical Fast Transient Immunity, IEC 61000-4-4 Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: AC mains, Level: ±2,0kV;Criteria A: normal function observed	P20M1	Passed
Electrical Fast Transient Immunity, IEC 61000-4-4Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: signal line, Level: ±1,0kV;Criteria A: normal function observed	P21M1	Passed
Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V;Criteria A: normal function observed	P15M1	Passed
Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: signal line, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V;Criteria A: normal function observed	P16M1	Passed
Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, com.mode: ±2.0kV, diff.mode: ±1.0kV;Criteria A: normal function observed	P22M1	Passed
Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: shielded signal line, com.mode: Surge ±1.0kV, diff.mode: ±n.a.kV;Criteria A: normal function observed	P23M1	Passed

2.2 Remarks on the individual tests

Radiated Electromagnetic Field Immunity, IEC 61000-4-3 Ed 3.2:2010-04, EN 55024:2010, Mains Voltage: 230V, 50Hz, TP: EUT, Positions: 2

Already tested.

Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 50Hz, TP: EUT, 1A/m

Already tested.

Electrical Fast Transient Immunity, IEC 61000-4-4 Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, Level: ±2,0kV

Already tested.

Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 3,0V

Already tested.

Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: signal line, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 3,0V

Already tested.

EUT: D3313-S (D3313-S)

Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: signal line, com.mode: Surge ±1.0kV, diff.mode: ±n.a.kV

Already tested.

Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: unshielded signal line, com.mode: Surge ±1.0kV, diff.mode: ±n.a.kV

Shielded signal cable is used.

3 General information about this document

INFORMATION

EUT CLASS	CLASS B
CERTIFICATION STANDARD	CE
STATEMENT	The test results reported herein apply only to the units actually tested and to substantially identical units.
APPLICABLE STANDARDS	**Applicable standards:** EN 55022 : 2010 CISPR 24 Edition 2.0 2010-08 EN 55024 : 2010 EN 61000-3-2 : 2006 + A1: 2009 + A2 : 2009 EN 61000-3-3: 2008 EN 61000-6-2:2005-08
REFERENCES	**References:** CISPR 22 Edition 6.0 2008-09 Sep 2008 IEC 61000-4-4 Edition 2.1 :2011-03 Mrz 2011 IEC 61000-4-2 Edition 2.0:2008-12 Dez 2008 IEC 61000-4-8 Edition 2.0 :2009-09 Sep 2009 IEC 61000-4-6 Edition 3.0:2008-10 Okt 2008 IEC 61000-4-11 Second Edition:2004-03 Mrz 2004 IEC 61000-4-5 Second Edition:2005-11 Nov 2005 IEC 61000-4-3 Edition 3.2 :2010-04 Apr 2010 IEC 61000-3-2 Edition 3.2:2009-04 Apr 2009 IEC 61000-3-2 :Ed. 3.2 :2009 Cor. 1 Aug 2009 IEC 61000-3-3 Edition 3.0:2013-05 Mai 2013

4 General information about the test site

The test site is located at Fujitsu Technology Solutions GmbH, Bürgermeister - Ulrich - Str. 100, 86199 Augsburg, Germany. This site consists of a 10 m semi anechoic chamber and a 3 m fully anechoic chamber for radiated emission testing, and of three shielded rooms for conducted emission testing. The 10 m semi anechoic chamber is conforming to the NSA-limits described in CISPR22, CISPR16 and ANSI C63.4-2003. The measurement facility was found to be in compliance with the requirements to Section 2.948 of the FCC Rules

Due to the Mutual Recognition Agreement (MRA) between the European Community and the USA the EMC test lab located as described above has been approved as a Conformity Assessment Body (CAB) designated by the EU member states through the conclusion of the MRA on the basis of Article 133 of the treaty.

The site is registered by

- the German accreditation body DAkkS-Registration No. D-PL-12108-01-01
- the Federal Communications Commission (FCC) Registration Number 90935
- the Bundesnetzagentur as Conformity assessment body (CAB) Registration Number BnetzA-CAB-02/21-03/4
- the Bureau of Standards, Metrology, and Inspection (BSMI) (LAB-ID: SL2-IN-E-3001, SL2-A1-E-3001, SL2-R1-E-3001, SL2-R2-E-3001)
- the National Radio Research Agency of Korea, EU lab Registration number EU0057
- the Voluntary Control Council for Interference by Information Technology Equipment (VCCI) on July 27, 2010 with member No: 1468

4.1 Measurement uncertainty

The measurement uncertainty is calculated according to CISPR 16-4-2.

Measurement	U_{cispr}	U_{lab}
Conducted disturbance (mains port) 150 kHz – 30 MHz at SK1	3,4 dB	3,0 dB
Conducted disturbance (telecom port; STP) 150 kHz – 30 MHz at SK1	5,0 dB	3,0 dB
Conducted disturbance (mains port) 150 kHz – 30 MHz at SK2	3,4 dB	3,3 dB
Conducted disturbance (telecom port; STP) 150 kHz – 30 MHz at SK2	5,0 dB	3,3 dB
Conducted disturbance (mains port) 150 kHz – 30 MHz at SK3	3,4 dB	3,0 dB
Conducted disturbance (telecom port; STP) 150 kHz – 30 MHz at SK3	5,0 dB	3,0 dB
Conducted disturbance (telecom port; UTP Cat.3) 150 kHz – 30 MHz at SK3	5,0 dB	4,9 dB
Conducted disturbance (telecom port; UTP Cat.5) 150 kHz – 30 MHz at SK3	5,0 dB	4,7 dB
Radiated disturbance 30 MHz – 1 GHz	6,3 dB	4,8 dB
Radiated disturbance 1 GHz – 6 GHz	5,2 dB	5,0 dB

Table 1: measurement uncertainty

Determining compliance with the limits in this report are based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

4.2 Measurement procedures and remarks

4.2.1 Conducted emission

The conducted emission was measured in a fully configured system. These measurements were performed according to the standards mentioned before. Line to ground radio noise voltages were measured at phase and neutral lines using an Artificial Mains Network (AMN). The other peripheral devices power cables were connected to the mains via a second LISN.

Preliminary scans were performed with the EMI-receiver detector set to PEAK and AVERAGE to determine the conducted EMI-profile of the EUT. During the final measurement, the noise frequencies producing emission with the highest level relative to the limit line, were measured again using the QUASI PEAK and AVERAGE detector of the EMI receiver.

The conducted emission was measured in the frequency range from 0,150 MHz to 30 MHz. The bandwidth of the EMI-Receiver was set to 9 kHz and the detector was set to “peak”. During the final measurement the detector was set to “average” respectively to “CISPR quasi-peak”.

The measurements were done on the phase and neutral line of the EUT’s power cable.

During the final measurement the cables and the equipment were placed and moved within the range of positions likely to find the maximum emission.

All measurements were done inside the shielded rooms.

For further data as well as the used power source for the EUT see enclosed test results.

4.2.2 Radiated emission

The radiated emission was measured in a fully configured system. These measurements were performed according to the standards mentioned before.

The radiated emission was measured in two parts:

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”. These tests were performed at a distance of 10 meters between antenna and EUT in a Semi Anechoic Chamber.

In a first step preview tests with PEAK detector were performed to collect all critical frequencies. To find also the maximum emission during tests, the EUT was turned 360°, the receiving antenna was moved from 1 to 4 meters above ground plane and the polarization was changed from horizontal to vertical.

During prescan all data in peak mode were accumulated automatically. During the final measurement the detector was set to “CISPR quasi-peak” and values above the acceptance line were measured automatically.

In the frequency range 1 GHz to 6 GHz, the bandwidth of the EMI-receiver was set to 1 MHz and the detector was set to “peak”. These tests were performed at a distance of 3 meters between antenna and EUT in a Fully Anechoic Chamber.

During prescan all data in peak mode were accumulated automatically. During the final measurement the detector was set to “CISPR average” and values above the acceptance line were verified automatically.

For both parts: After automatic tests manual verification took place the cables and the equipment were placed and moved within the range of position in order to find the maximum emission. The selected frequency points were those with less than 3 dB margin to the applicable limit.

Field strength calculation:

The field strength level is calculated automatically by the test system which uses the following equations:

LEVEL [dBµV/m] = Meter-Reading [dBµV] + TRANSDUCER [dB/m]

TRANSDUCER [dB/m] = Antenna factor [dB/m] + Cable Loss [dB]

Radiated disturbance emission is always performed with vertical and horizontal polarization.
In the final result table the worst cases values are listed.
In case if the result table contains only vertical or horizontal measurements that means the worst cases is within this polarization.

5 EUT (Equipment under test) information

5.1 Operating condition

The EUT was measured in a fully configured and functionally complete system with all ports connected to appropriate peripheral devices. The system was put on a table with a height of 80 cm above ground. The tested video modes - see test protocol - reflect the most commonly used resolutions.

The EUT exercise program used during radiated and conducted testing is representative for worst case use and able to produce system stress for the highest disturbance.

Operating system: Windows 7

Additional operating conditions, configuration and comments see the attached test protocols.

5.2 Arrival date of the tested system

Receipt date: 09.01.2014

EUT: D3313-S (D3313-S)

5.3 Configuration description

The EUT was measured in a fully configured and functionally complete system with all ports connected to appropriate peripheral devices.

Component	Manufacturer	Model	Remark
System board	FTS	D3313-S	
AC adapter	Delta	ADP-65JH AD	65 W
CPU	AMD	eKabini	2 GHz Quad core
RAM	Hynix	HMT325S6CFR8A	2 x 4 GB
Drive	Seagate	ST320L020	2,5” 320 GB HDD
Chassis	LiteOn	Futro industrial box	enclosure

Table 2: components list of EUT

5.4 Dimension of EUT

W x H x D: 249 * 52 * 180 mm

Table 3: Technical datasheet or drawing of EUT dimension

EUT: D3313-S (D3313-S)

5.5 Block diagram of tested system and Block diagram of the system board

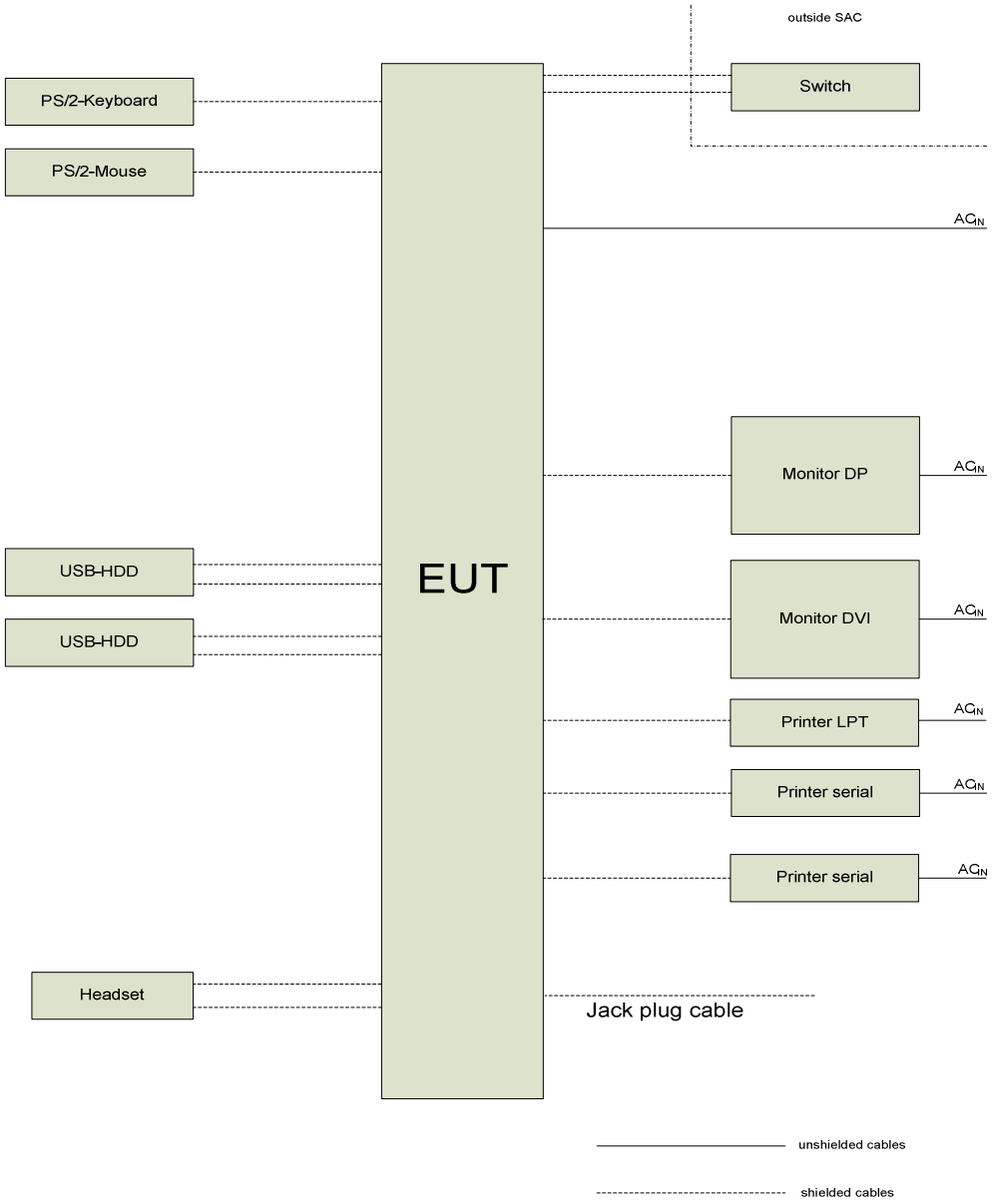


Table 4: Block diagram of tested system

EUT: D3313-S (D3313-S)

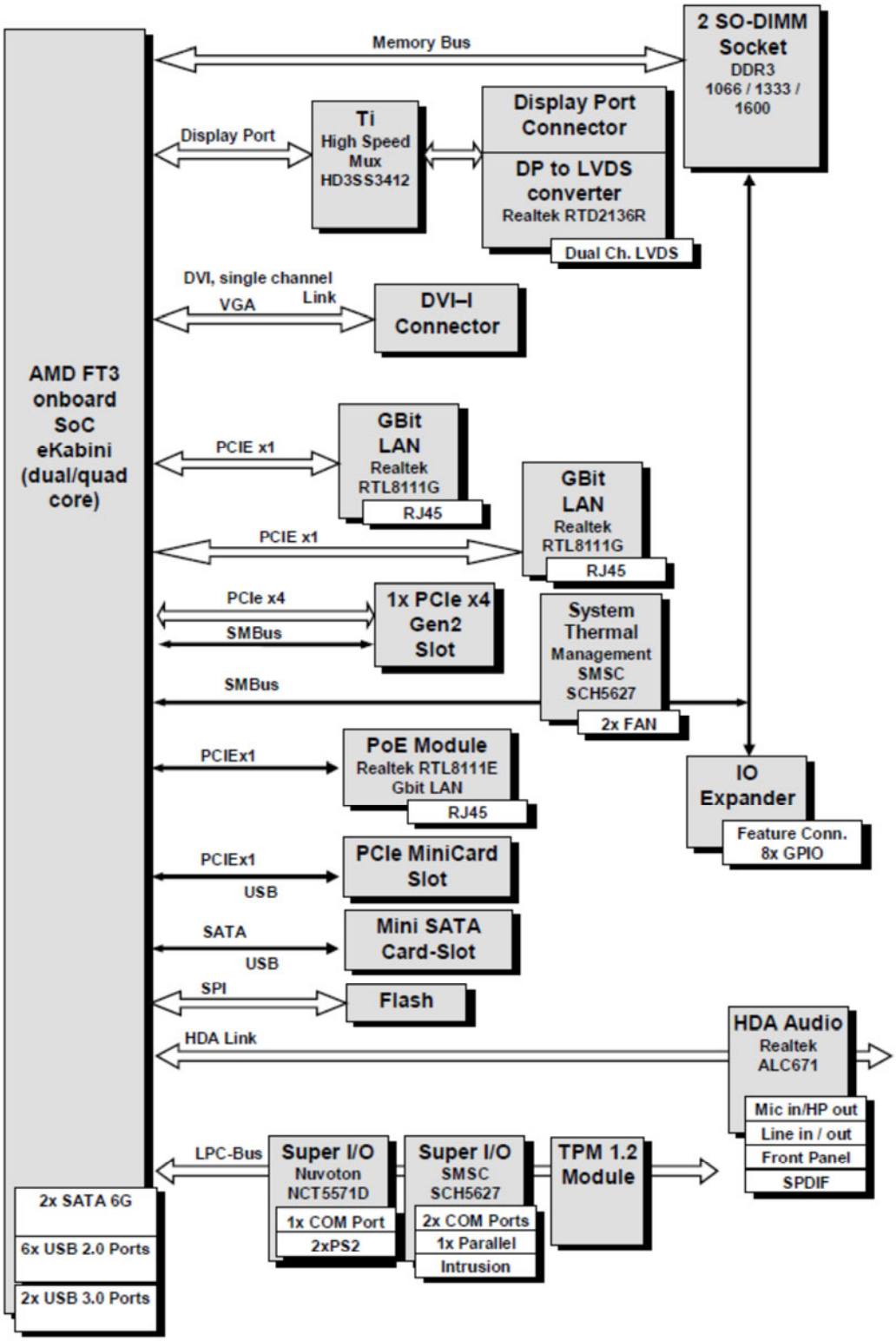


Table 5: Principle schematic of the system board

5.6 Clock frequencies of the system board

Source	Frequency / MHz	Bandwidth
AMD eKabini SOC:	2 GHz	
Memory	800 (1600MT/s)	12800MB/s
PCIe 2,0 x4	2500 (5000MT/s)	500MB/s per Lane
GPU	300 to 600	300 to 600 Mpixel/s
SATA II	1500	300 MB/s
SATA III	3000	600 MB/s
HD-Audio	24	1,536 MB/s
LPC-Bus	33	16,5 MB/s
USB (low-, full-, high-, super speed)	48 / Link: 0,75/6/240/2500	1,5Mb/s \ 12Mb/s \ 480Mb/s \ 4000Mb/s
Misc:		
Real time clock	32,768kHz	
SMBus	10kHz	1,25 MB/s
Super IO	14	

Table 6: clock frequencies of the system board

EUT: D3313-S (D3313-S)

5.7 Photos of EUT

Figure 1 : Front EUT

EUT: D3313-S (D3313-S)

Figure 2 : Rear EUT

EUT: D3313-S (D3313-S)

Figure 3 : Left EUT

EUT: D3313-S (D3313-S)

Figure 4 : Right EUT

EUT: D3313-S (D3313-S)

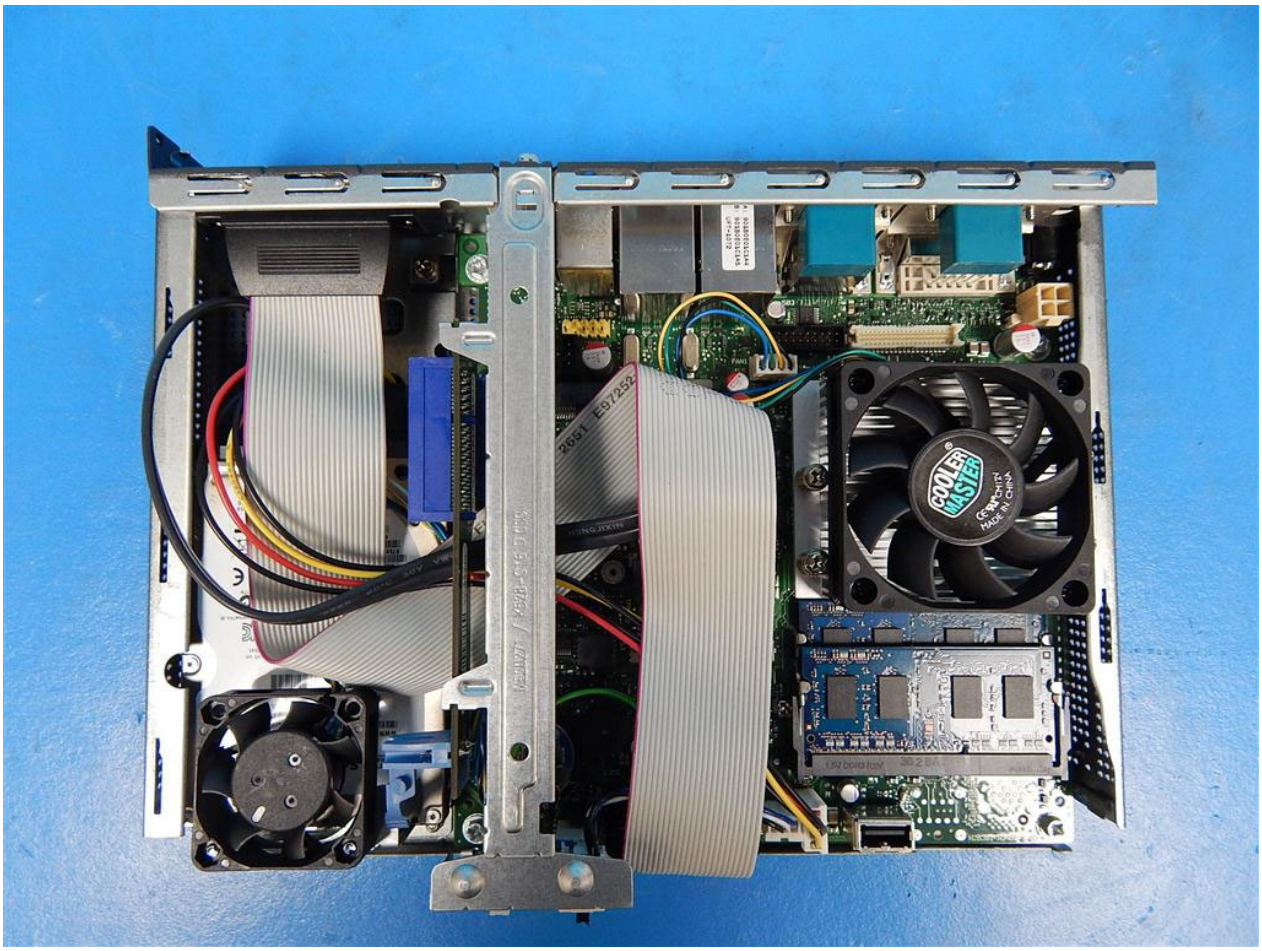


Figure 5 : View inside D3313-S

EUT: D3313-S (D3313-S)

Figure 6 : Top Systemboard D3313-S

EUT: D3313-S (D3313-S)

Figure 7 : Bottom Systemboard D3313-S

EUT: D3313-S (D3313-S)

Figure 8 : Interfaces Systemboard D3313-S

EUT: D3313-S (D3313-S)

Figure 9 : AC Adapter

EUT: D3313-S (D3313-S)

Figure 10 : Label AC Adapter

EUT: D3313-S (D3313-S)

Figure 11 : Top RAM 4GB

EUT: D3313-S (D3313-S)

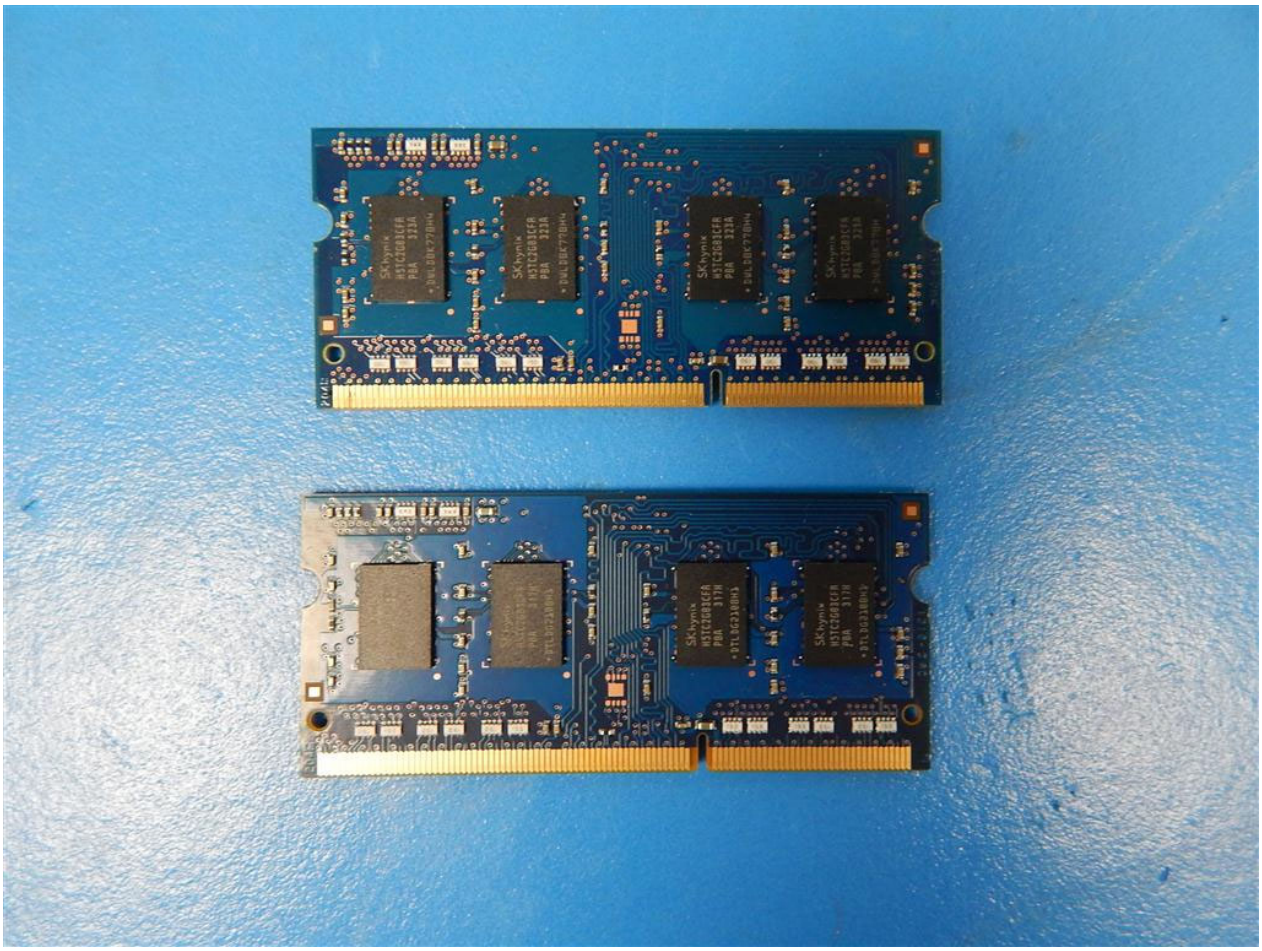


Figure 12 :Bottom RAM 4GB

EUT: D3313-S (D3313-S)

Figure 13 : Top HDD

EUT: D3313-S (D3313-S)

Figure 14 : Bottom HDD

EUT: D3313-S (D3313-S)

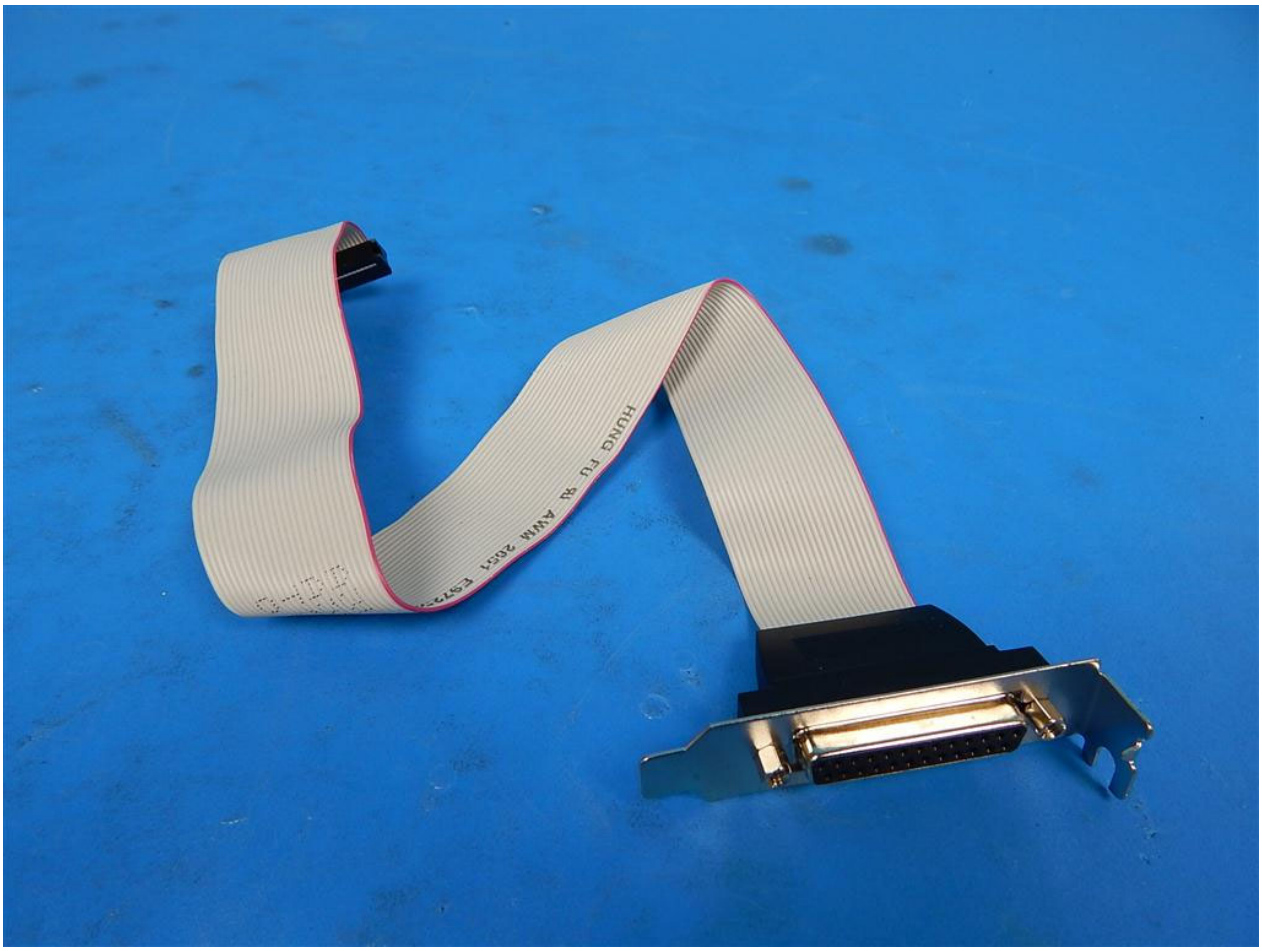


Figure 15 : LPT Cable/Connector.

6 List of Attached Test Protocols

Description:	Protocol No.:
Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 1-6 GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded	P2M1
Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 30MHz - 1GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded	P8M1
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: AC/DC mains delivery state	P1M1
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit	P4M1
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit	P4M2
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit	P5M1
Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit	P5M2
Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04, Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, delivery state	P9M1
Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04, Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, full configuration	P10M1
Voltage Fluctuations and Flicker Emission, IEC 61000-3-3 Edition 3.0:2013-05, Mains Voltage: 230V, 50Hz, TP: AC mains	P11M1
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains	P12M1
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 60Hz, PhaseConfig: L-N, TP: AC mains	P13M1
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN55024:2010, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains	P14M1
Radiated Electromagnetic Field Immunity, IEC 61000-4-3 Ed 3.2:2010-04, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, TP: EUT, Positions: 2	P6M1
Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 50Hz, TP: EUT, 30A/m	P17M1
Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 60Hz, TP: EUT, 30A/m	P18M1
Electrostatic Discharge Immunity, IEC 61000-4-2:2008, full configuration, Mains Voltage: 230V, 50Hz, TP: EUT, Level air: ±2, 4, 6, 8kV, Level contact: ±2, 4kV	P19M1

EUT: D3313-S (D3313-S)

Electrical Fast Transient Immunity, IEC 61000-4-4 Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: AC mains, Level: ±2,0kV	P20M1
Electrical Fast Transient Immunity, IEC 61000-4-4Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: signal line, Level: ±1,0kV	P21M1
Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V	P15M1
Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: signal line, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V	P16M1
Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, com.mode: ±2.0kV, diff.mode: ±1.0kV	P22M1
Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: shielded signal line, com.mode: Surge ±1.0kV, diff.mode: ±n.a.kV	P23M1

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P2M1, Radiated Disturbance Emission

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P2M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	09.01.2014 - 11:27

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FUJITSU TECHNOLOGY SOLUTIONS GmbH
	Product Category:	Personal Computer

TEST	Description:	Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 1-6 GHz Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: FAR
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

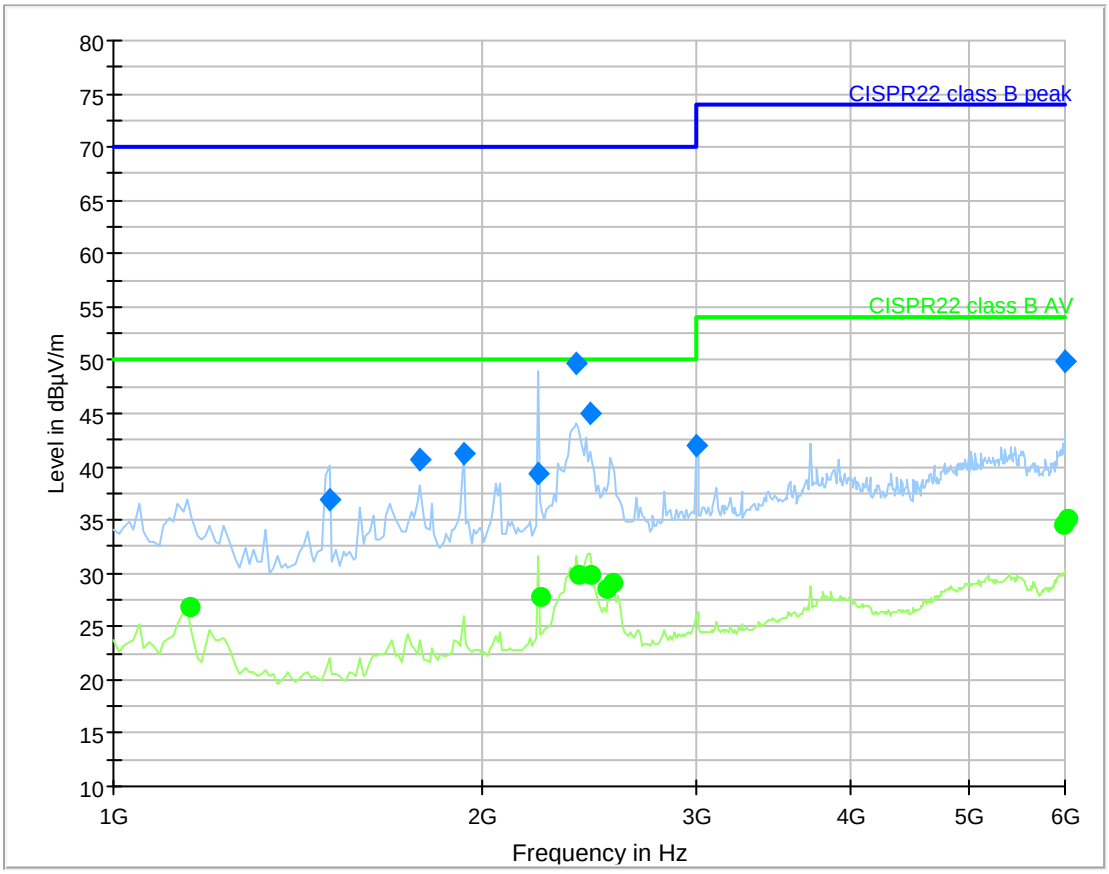
Test Report

EUT Information

Category:	Personal Computer
Product:	D3313-S (EMV / Futro Industriechassis)
Model:	D3313-S
Detail:	
Manufacturer:	FTS

Common Information

ProjectNr.:	1SB13-0023+E01;P2M1
Comments:	



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1150.300601	---	27.18	50.00	22.82	1000.000	150.0	V	150.0	8.4
1501.002004	36.91	---	70.00	33.09	1000.000	150.0	H	60.0	10.0
1781.563126	40.66	---	70.00	29.34	1000.000	150.0	V	330.0	11.3
1931.863727	41.24	---	70.00	28.76	1000.000	150.0	V	330.0	11.5
2222.444890	39.31	---	70.00	30.69	1000.000	150.0	V	300.0	12.5
2222.444890	---	28.06	50.00	21.94	1000.000	150.0	V	300.0	12.5
2392.785571	---	30.19	50.00	19.81	1000.000	150.0	V	30.0	13.5
2392.785571	49.79	---	70.00	20.21	1000.000	150.0	V	30.0	13.5
2442.885772	---	30.20	50.00	19.80	1000.000	150.0	V	30.0	13.8
2452.905812	45.06	---	70.00	24.94	1000.000	150.0	V	30.0	13.9
2523.046092	---	28.82	50.00	21.18	1000.000	150.0	V	150.0	14.4
2553.106212	---	29.37	50.00	20.63	1000.000	150.0	V	30.0	14.5
2993.987976	41.93	---	70.00	28.07	1000.000	150.0	V	60.0	14.7
5959.919840	---	34.83	54.00	19.17	1000.000	150.0	V	0.0	18.8
6000.000000	49.87	---	74.00	24.13	1000.000	150.0	V	0.0	19.1
6000.000000	---	35.45	54.00	18.55	1000.000	150.0	V	150.0	19.1

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up Radiated Disturbance Emission - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test set up Radiated Disturbance Emission - rear view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Radiated Emission FAR >1GHz				
Antenna Ridged Guide 4105	Tensor	2063	Aug 2012	Aug 2014
Preamplifier (Tensor 4105)	MiTeq	392000	Aug 2012	Aug 2014
EMI Receiver ESU40	ROH - Rohde & Schwarz Vertriebs GmbH, Rohde & Schwarz	100071	Jul 2013	Jul 2014
Cable FAR	Rosenberger Hochfrequenztechnik , Rosenberger		Jul 2013	Jul 2014
Fully Anechoic Room	Albatross Projects GmbH, Albatross Projects		Jan 2011	Jan 2014
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.00		

Tools used in 'P2M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P2M1'

IMPLEMENTED MODIFICATION

Modifications for Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 1-6 GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded:

Cause: Modifications for Radiated Disturbance Emission, Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 1-6 GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

Cause:

Countermeasure: Modifications for Radiated Disturbance Emission, Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 1-6 GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

Countermeasure:

Install Gasket to the ground pin
Install Gasket to the ground pin
Install Gasket to the ground pin

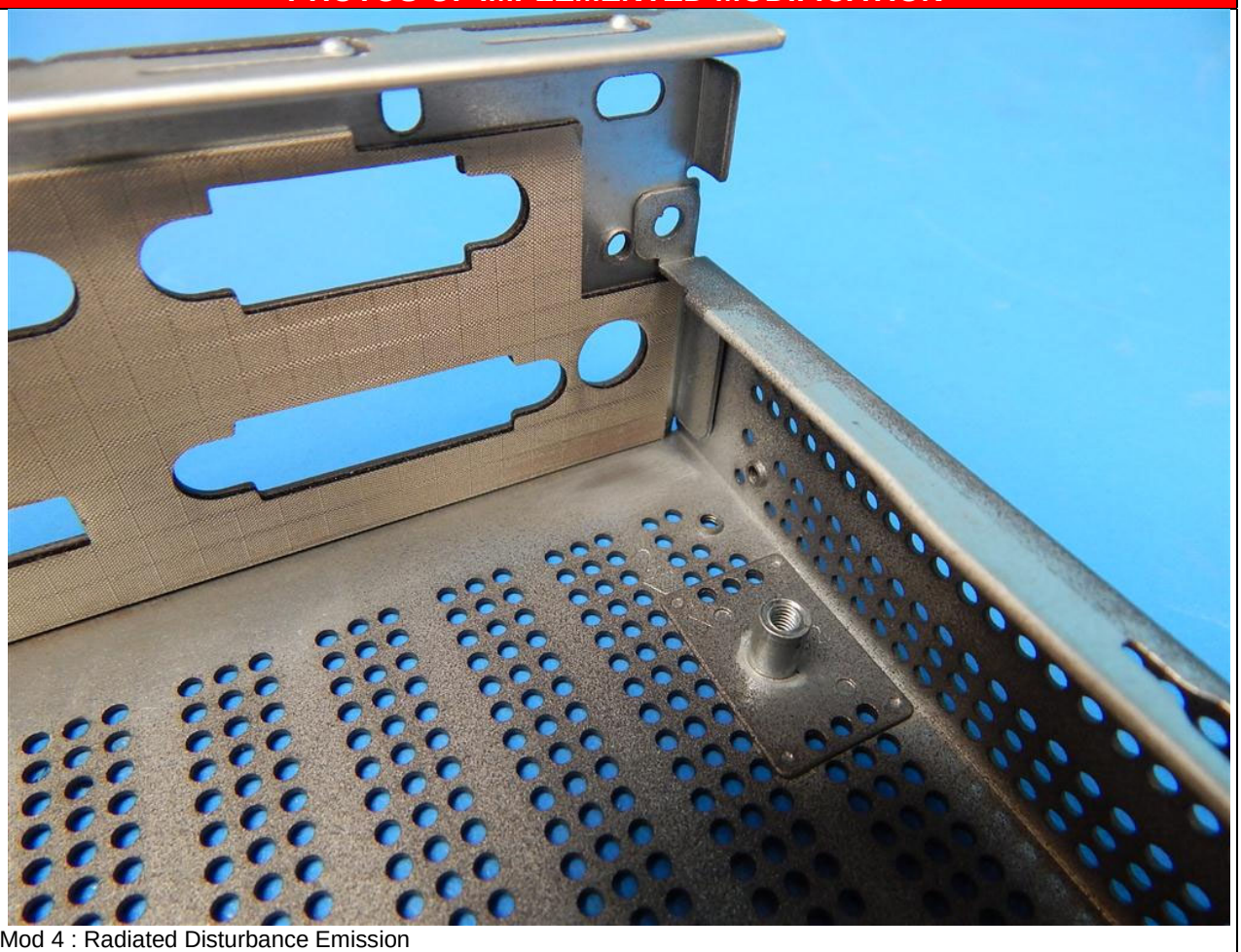
Comments: Modifications for Radiated Disturbance Emission, Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 1-6 GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

Mod 3 : Radiated Disturbance Emission

PHOTOS OF IMPLEMENTED MODIFICATION



Mod 4 : Radiated Disturbance Emission

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P8M1, Radiated Disturbance Emission

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P8M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	10.01.2014 - 14:14

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FUJITSU TECHNOLOGY SOLUTIONS GmbH
	Product Category:	Personal Computer

TEST	Description:	Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 30MHz - 1GHz Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: SAC
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

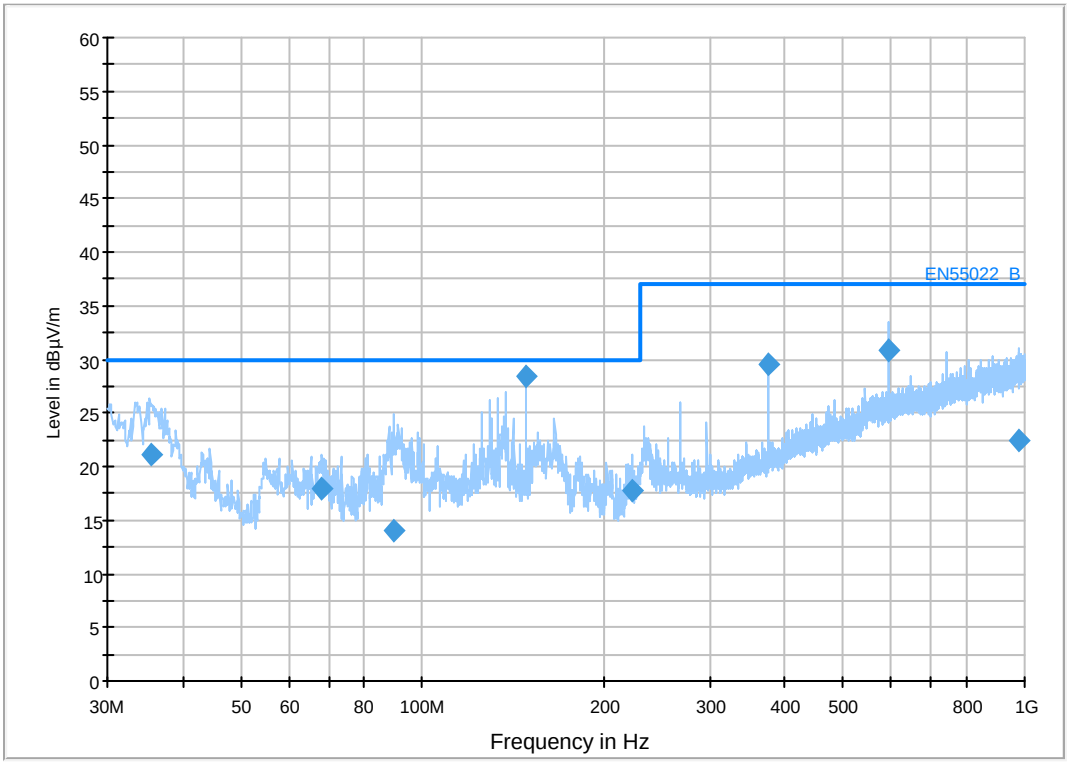
EUT Information

Category:	Personal Computer
Product:	D3313-S
Model:	D3313-S
Detail:	
Manufacturer:	FTS

Common Information

ProjectNr.:	1SB13-0023+E01;P8M1
Comments:	

EN 55022 class B compliance



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV /m)
35.490000	21.2	15000. 0	120.000	100.0	V	0.0	16.4	8.80	30.00
68.220000	17.9	15000. 0	120.000	200.0	V	90.0	7.3	12.10	30.00
89.760000	14.0	15000. 0	120.000	200.0	V	0.0	10.1	16.00	30.00
148.500000	28.4	15000. 0	120.000	100.0	V	225.0	12.2	1.60	30.00
222.210000	17.7	15000. 0	120.000	100.0	V	0.0	11.4	12.30	30.00
375.930000	29.6	15000. 0	120.000	400.0	V	180.0	17.5	7.40	37.00
594.000000	30.9	15000. 0	120.000	200.0	H	315.0	22.0	6.10	37.00
979.720000	22.5	15000. 0	120.000	300.0	V	135.0	25.7	14.50	37.00

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up Radiated Disturbance Emission - rear view

MEASUREMENT PHOTOS OF TEST SETUP

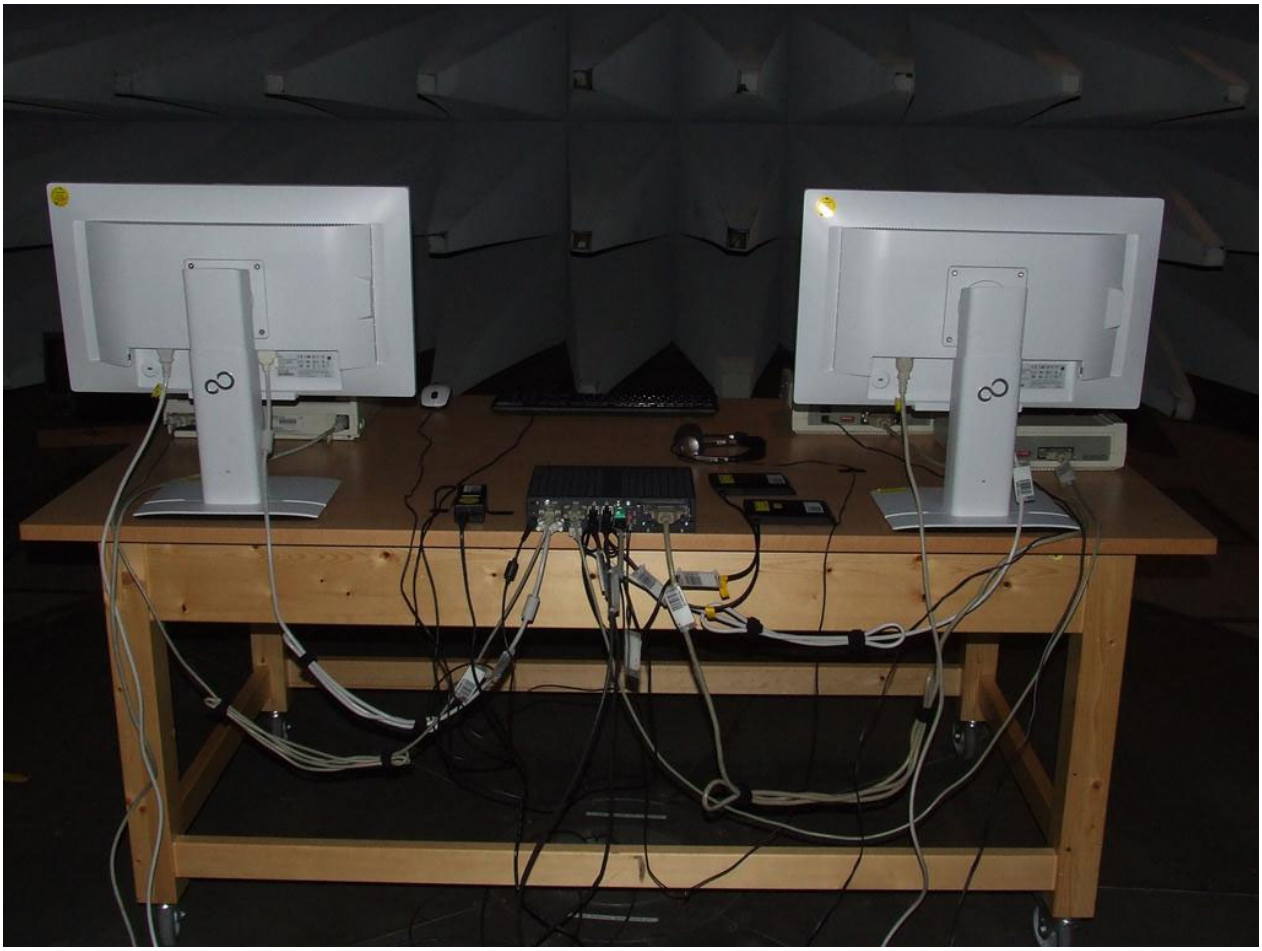


Figure 2 : Test set up Radiated Disturbance Emission - front view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Radiated Emission SAC <1GHz (R-1907)				
EMI Receiver ESCI3	ROH - Rohde & Schwarz Vertriebs GmbH	100021	Jun 2013	Jun 2014
Antenna CBL 6112B	Chase, Chase	2790	Jul 2012	Jul 2014
Cable CP1X1-X1 (30-MHz - 2GHz)			Jul 2013	Jul 2014
Cable 30-2000MHz		1.5-2	Jul 2013	Jul 2014
Semi Anechoic Chamber (R-1907)	Albatross Projects GmbH, Albatross Projects		Mar 2012	Mar 2015
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH, Rohde & Schwarz	V 8.40		

Tools used in 'P8M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P8M1'

IMPLEMENTED MODIFICATION

Modifications for Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 30MHz - 1GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded:

Cause: Modifications for Radiated Disturbance Emission, Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 30MHz - 1GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

Cause:

Countermeasure: Modifications for Radiated Disturbance Emission, Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 30MHz - 1GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

Countermeasure:

Install Gasket to the ground pin
Install Gasket to the ground pin
Install Gasket to the ground pin

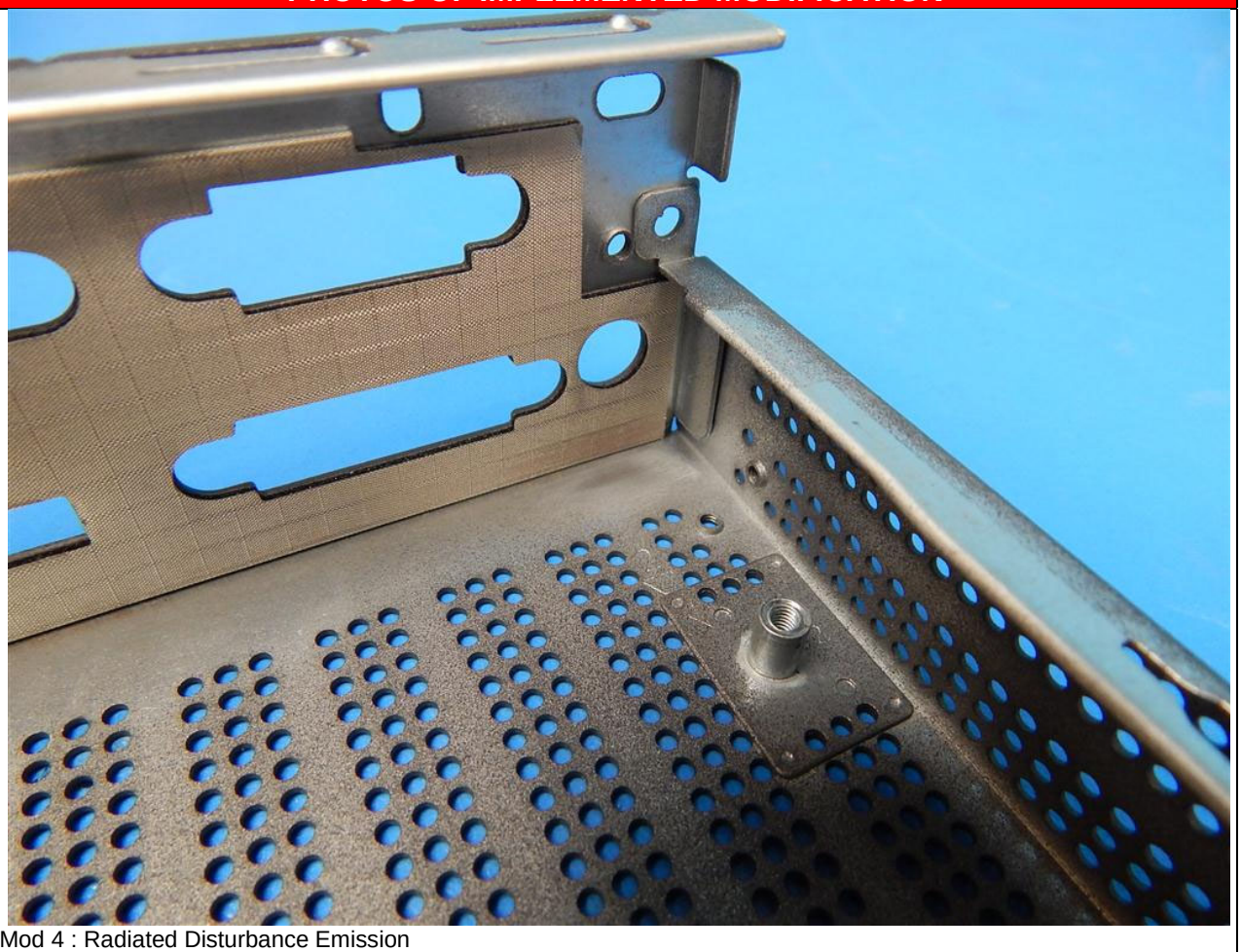
Comments: Modifications for Radiated Disturbance Emission, Radiated Disturbance Emission, CISPR 22:Edition 6.0 2008-09, class B, 30MHz - 1GHz, Mains Voltage: 230V, 50Hz, TP: EUT, LAN: shielded

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

Mod 3 : Radiated Disturbance Emission

PHOTOS OF IMPLEMENTED MODIFICATION



Mod 4 : Radiated Disturbance Emission

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P1M1, Conducted Disturbances Emission

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P1M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	09.01.2014 - 10:32

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B Mains Voltage: 230V, 50Hz, TP: AC/DC mains delivery state

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: Shielded Chamber 3
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

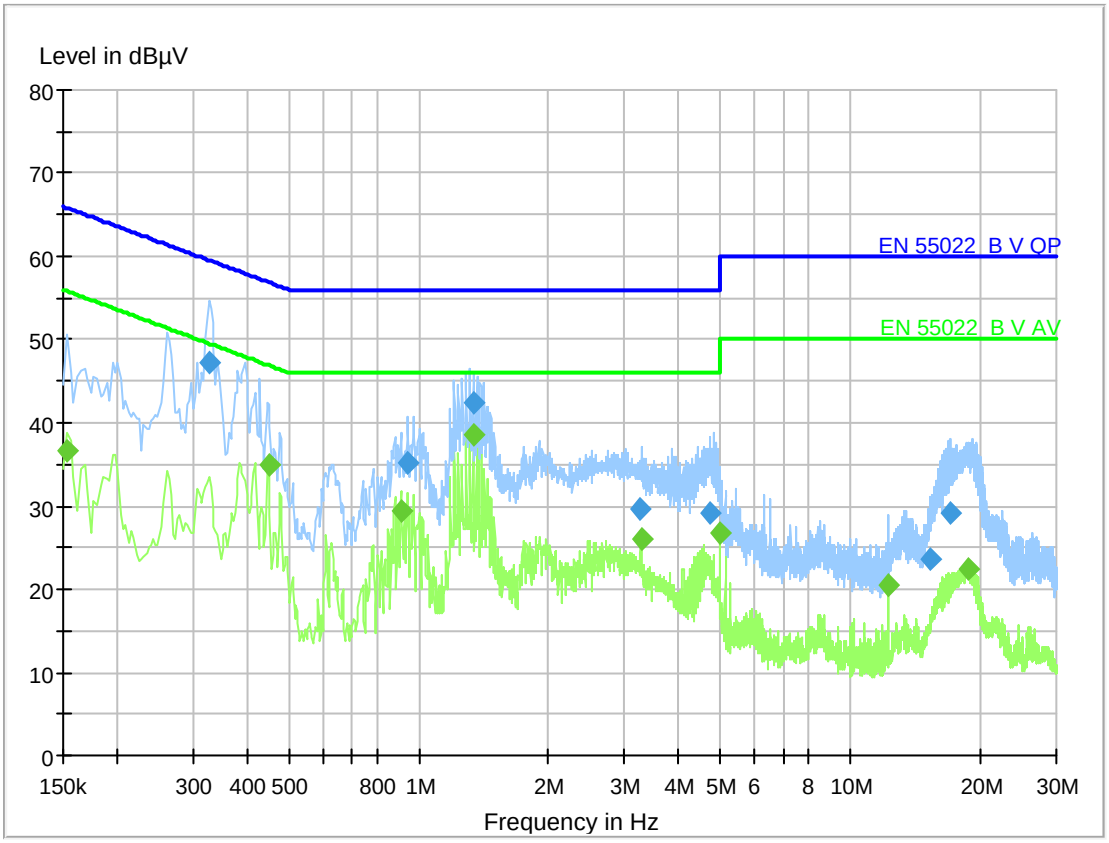
EUT Information

Category:	Personal Computer
Product:	D3313-S
Model:	D3313-S
Detail:	
Manufacturer:	FTS

Common Information

ProjectNr:	1SB13-0023+E01; P1M1
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.153000	---	36.68	55.80	19.16	1000.0	9.000	L1	GND	10.2
0.328500	47.26	---	59.50	12.23	1000.0	9.000	N	GND	10.2
0.448500	---	35.06	46.90	11.84	1000.0	9.000	L1	GND	10.2
0.910500	---	29.29	46.00	16.71	1000.0	9.000	L1	GND	10.3
0.940500	35.10	---	56.00	20.90	1000.0	9.000	L1	GND	10.3
1.336500	---	38.51	46.00	7.49	1000.0	9.000	L1	GND	10.3
1.339500	42.41	---	56.00	13.59	1000.0	9.000	L1	GND	10.3
3.256500	29.70	---	56.00	26.30	1000.0	9.000	L1	GND	10.4
3.274500	---	26.07	46.00	19.93	1000.0	9.000	N	GND	10.3
4.750500	29.27	---	56.00	26.73	1000.0	9.000	L1	GND	10.5
4.969500	---	26.67	46.00	19.33	1000.0	9.000	N	GND	10.4
12.196500	---	20.42	50.00	29.58	1000.0	9.000	L1	GND	10.7
15.340500	23.62	---	60.00	36.38	1000.0	9.000	L1	GND	10.9
17.101500	29.20	---	60.00	30.80	1000.0	9.000	N	GND	11.0
18.835500	---	22.42	50.00	27.58	1000.0	9.000	L1	GND	11.1

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test setup for Conducted Disturbances Emission - front view

MEASUREMENT PHOTOS OF TEST SETUP

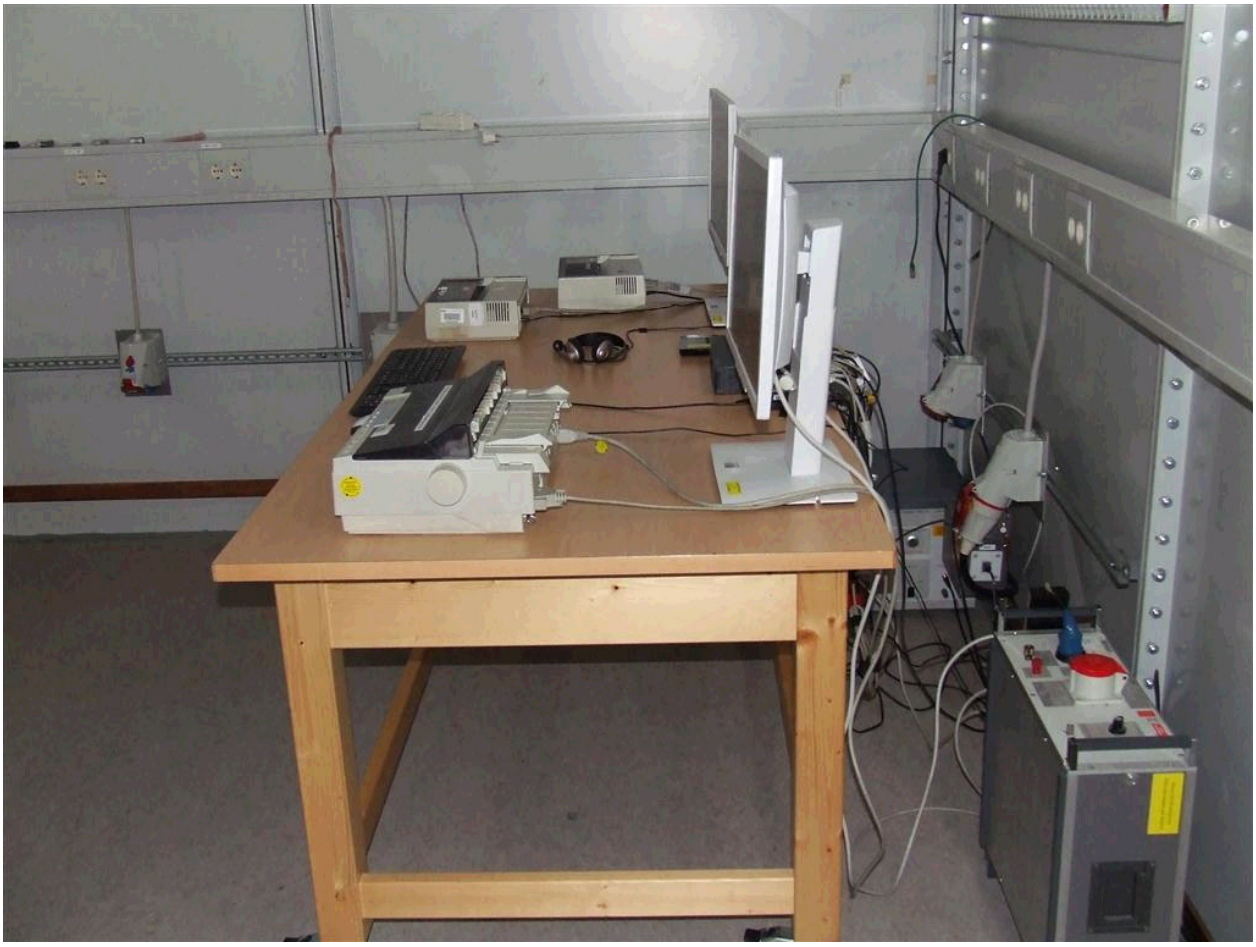


Figure 2 : Test setup for Conducted Disturbances Emission - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Conducted Emission SK3 Mains (C-2054)				
EMI Receiver ESCS 30	ROH - Rohde & Schwarz Vertriebs GmbH	100010	Jul 2013	Jul 2014
LISN ESH2-Z5	ROH - Rohde & Schwarz Vertriebs GmbH	871884/004	Jul 2013	Jul 2014
Filter Highpass	ROH - Rohde & Schwarz Vertriebs GmbH	100055	Jul 2013	Jul 2014
Shielded Chamber 3; (T-177) (C -2054)	Albatross Projects GmbH, Albatross Projects			
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.00		

Tools used in 'P1M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P1M1'

IMPLEMENTED MODIFICATION

Modifications for Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: AC/DC mains delivery state:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION
No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P4M1, Conducted Disturbances Emission

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P4M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	09.01.2014 - 13:33

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full; LAN 1
	Comment:	Test location: Shielded Chamber 2
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

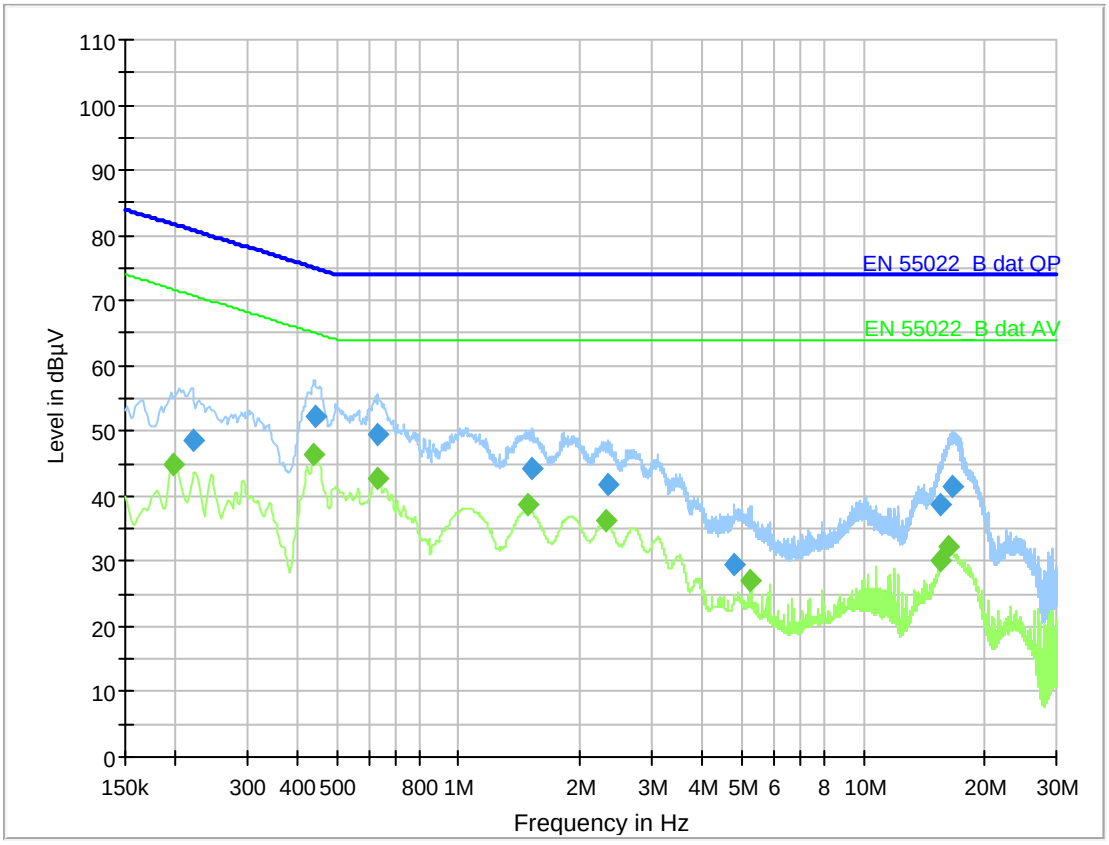
EUT Information

Category:	Personal Computer
Product:	D3313-S
Model:	D3313-S
Detail:	
Manufacturer:	FTS

Common Information

ProjectNr.:	1SB13_0023+E01;P4M1
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.197250	---	45.01	71.70	26.72	10000.0	9.000	N	GN	9.5
0.219750	48.50	---	80.80	32.33	10000.0	9.000	N	GN	9.5
0.440250	---	46.33	65.10	18.73	10000.0	9.000	N	GN	9.5
0.442500	52.19	---	75.00	22.82	10000.0	9.000	N	GN	9.5
0.631500	49.47	---	74.00	24.53	10000.0	9.000	N	GN	9.5
0.633750	---	42.82	64.00	21.18	10000.0	9.000	N	GN	9.5
1.486500	---	38.57	64.00	25.43	10000.0	9.000	N	GN	9.5
1.522500	44.11	---	74.00	29.89	10000.0	9.000	N	GN	9.5
2.298750	---	36.12	64.00	27.88	10000.0	9.000	N	GN	9.5
2.328000	41.91	---	74.00	32.09	10000.0	9.000	N	GN	9.5
4.809750	29.49	---	74.00	44.51	10000.0	9.000	N	GN	9.5
5.235000	---	27.16	64.00	36.84	10000.0	9.000	N	GN	9.5
15.434250	---	30.07	64.00	33.93	10000.0	9.000	N	GN	9.5
15.436500	38.61	---	74.00	35.39	10000.0	9.000	N	GN	9.5
16.228500	---	32.21	64.00	31.79	10000.0	9.000	N	GN	9.5
16.586250	41.42	---	74.00	32.58	10000.0	9.000	N	GN	9.5

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test setup for Conducted Disturbances Emission - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test setup for Conducted Disturbances Emission - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Conducted Emission SK1 Mains (C-2052)				
EMI Receiver ESCS 30	ROH - Rohde & Schwarz Vertriebs GmbH	845552/013	Jul 2013	Jul 2014
LISN ESH3-Z5	ROH - Rohde & Schwarz Vertriebs GmbH	846695/027	Jul 2013	Jul 2014
Filter Highpass	ROH - Rohde & Schwarz Vertriebs GmbH	100054	Aug 2013	Aug 2014
Shielded Chamber 1; (T173) (C-2052)	Albatross Projects GmbH, Albatross Projects			
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.00		

Tools used in 'P4M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P4M1'

IMPLEMENTED MODIFICATION

Modifications for Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P4M2, Conducted Disturbances Emission

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P4M2
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	09.01.2014 - 13:46

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full; LAN 2
	Comment:	Test location: Shielded Chamber 2
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

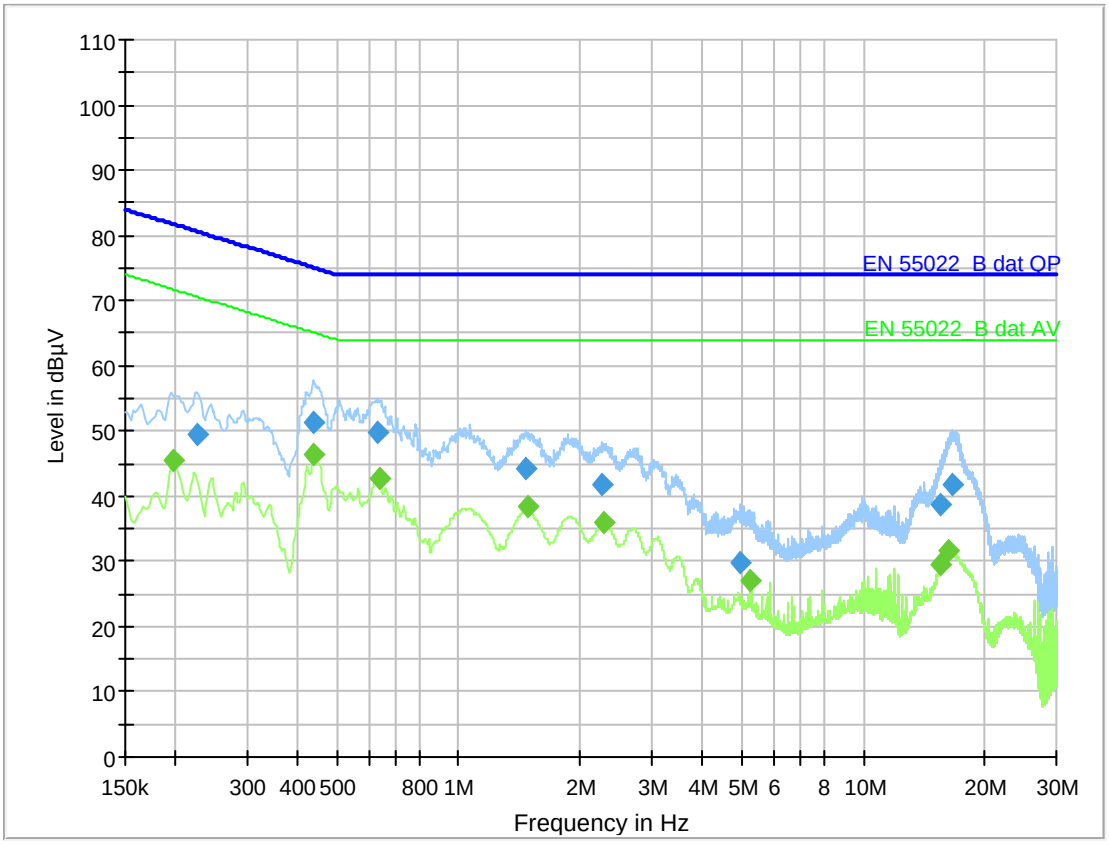
EUT Information

Category:	Personal Computer
Product:	D3313-S
Model:	D3313-S
Detail:	
Manufacturer:	FTS

Common Information

ProjectNr.:	1SB13_0023+E01;P4M2
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.197250	---	45.46	71.70	26.27	10000.0	9.000	N	GN	9.5
0.226500	49.39	---	80.60	31.19	10000.0	9.000	N	GN	9.5
0.435750	51.32	---	75.10	23.82	10000.0	9.000	N	GN	9.5
0.440250	---	46.30	65.10	18.76	10000.0	9.000	N	GN	9.5
0.631500	49.74	---	74.00	24.26	10000.0	9.000	N	GN	9.5
0.636000	---	42.64	64.00	21.36	10000.0	9.000	N	GN	9.5
1.464000	44.30	---	74.00	29.70	10000.0	9.000	N	GN	9.5
1.486500	---	38.40	64.00	25.60	10000.0	9.000	N	GN	9.5
2.265000	41.88	---	74.00	32.12	10000.0	9.000	N	GN	9.5
2.276250	---	36.09	64.00	27.91	10000.0	9.000	N	GN	9.5
4.942500	29.71	---	74.00	44.29	10000.0	9.000	N	GN	9.5
5.235000	---	27.14	64.00	36.86	10000.0	9.000	N	GN	9.5
15.434250	---	29.64	64.00	34.36	10000.0	9.000	N	GN	9.5
15.465750	38.68	---	74.00	35.32	10000.0	9.000	N	GN	9.5
16.228500	---	31.70	64.00	32.30	10000.0	9.000	N	GN	9.5
16.629000	41.65	---	74.00	32.35	10000.0	9.000	N	GN	9.5

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test setup for Conducted Disturbances Emission - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test setup for Conducted Disturbances Emission - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Conducted Emission SK1 Mains (C-2052)				
EMI Receiver ESCS 30	ROH - Rohde & Schwarz Vertriebs GmbH	845552/013	Jul 2013	Jul 2014
LISN ESH3-Z5	ROH - Rohde & Schwarz Vertriebs GmbH	846695/027	Jul 2013	Jul 2014
Filter Highpass	ROH - Rohde & Schwarz Vertriebs GmbH	100054	Aug 2013	Aug 2014
Shielded Chamber 1; (T173) (C-2052)	Albatross Projects GmbH, Albatross Projects			
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.00		

Tools used in 'P4M2'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P4M2'

IMPLEMENTED MODIFICATION

Modifications for Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: shielded line, Datarate: maxMBit:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P5M1, Conducted Disturbances Emission

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P5M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	09.01.2014 - 14:09

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full; LAN 1
	Comment:	Test location: Shielded Chamber 2
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

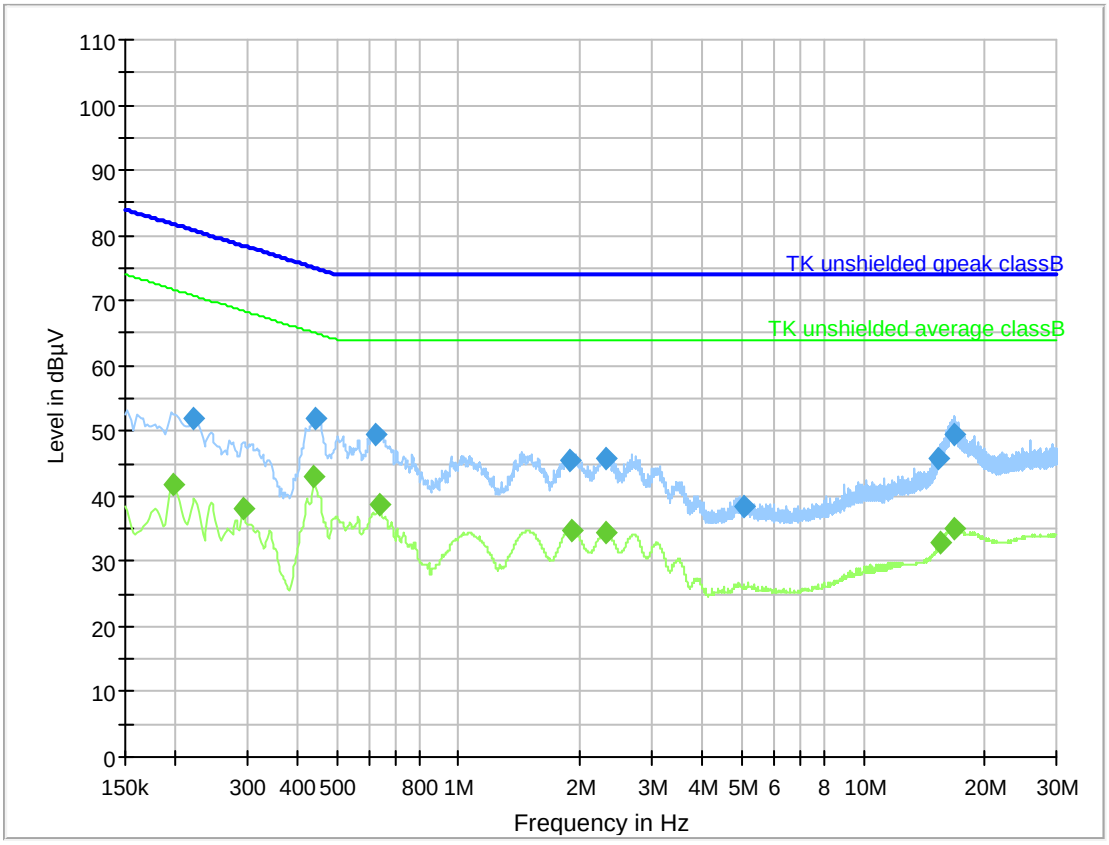
EUT Information

Category:	Personal Computer
Product:	D3313-S
Model:	D3313-S
Detail:	
Manufacturer:	FTS

Common Information

ProjectNr.:	1SB13_0023+E01;P5M1
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.197250	---	41.74	71.70	29.99	3000.0	9.000	N	GN	10.0
0.222000	51.85	---	80.70	28.89	3000.0	9.000	N	GN	9.9
0.294000	---	38.10	68.40	30.31	3000.0	9.000	N	GN	9.8
0.440250	---	42.97	65.10	22.09	3000.0	9.000	N	GN	9.7
0.442500	51.86	---	75.00	23.15	3000.0	9.000	N	GN	9.7
0.624750	49.34	---	74.00	24.66	3000.0	9.000	N	GN	9.7
0.636000	---	38.69	64.00	25.31	3000.0	9.000	N	GN	9.7
1.875750	45.54	---	74.00	28.46	3000.0	9.000	N	GN	9.5
1.905000	---	34.79	64.00	29.21	3000.0	9.000	N	GN	9.5
2.301000	---	34.55	64.00	29.45	3000.0	9.000	N	GN	9.5
2.323500	45.90	---	74.00	28.10	3000.0	9.000	N	GN	9.5
5.079750	38.50	---	74.00	35.50	3000.0	9.000	N	GN	9.5
15.364500	45.76	---	74.00	28.24	3000.0	9.000	N	GN	9.5
15.465750	---	32.80	64.00	31.20	3000.0	9.000	N	GN	9.5
16.714500	49.45	---	74.00	24.55	3000.0	9.000	N	GN	9.5
16.719000	---	35.15	64.00	28.85	3000.0	9.000	N	GN	9.5

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test setup for Conducted Disturbances Emission - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test setup for Conducted Disturbances Emission - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Conducted Emission SK1 Mains (C-2052)				
EMI Receiver ESCS 30	ROH - Rohde & Schwarz Vertriebs GmbH	845552/013	Jul 2013	Jul 2014
LISN ESH3-Z5	ROH - Rohde & Schwarz Vertriebs GmbH	846695/027	Jul 2013	Jul 2014
Filter Highpass	ROH - Rohde & Schwarz Vertriebs GmbH	100054	Aug 2013	Aug 2014
Shielded Chamber 1; (T173) (C-2052)	Albatross Projects GmbH, Albatross Projects			
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.00		

Tools used in 'P5M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable UTP 04		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P5M1'

IMPLEMENTED MODIFICATION

Modifications for Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION
No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P5M2, Conducted Disturbances Emission

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P5M2
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	09.01.2014 - 14:17

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full; LAN 2
	Comment:	Test location: Shielded Chamber 2
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

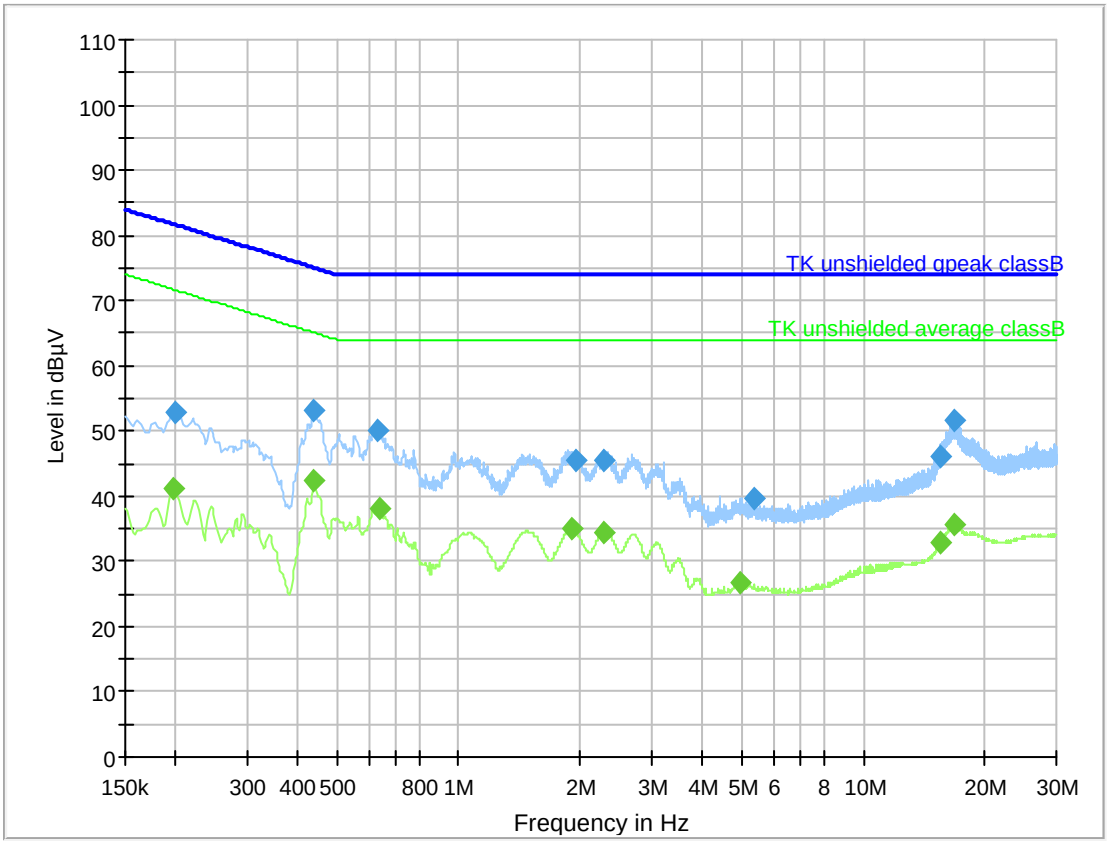
EUT Information

Category:	Personal Computer
Product:	D3313-S
Model:	D3313-S
Detail:	
Manufacturer:	FTS

Common Information

ProjectNr.:	1SB13_0023+E01;P5M2
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.197250	---	41.17	71.70	30.56	3000.0	9.000	N	GN	10.0
0.199500	52.97	---	81.60	28.66	3000.0	9.000	N	GN	10.0
0.440250	---	42.44	65.10	22.62	3000.0	9.000	N	GN	9.7
0.440250	53.04	---	75.10	22.02	3000.0	9.000	N	GN	9.7
0.631500	49.99	---	74.00	24.01	3000.0	9.000	N	GN	9.7
0.636000	---	38.11	64.00	25.89	3000.0	9.000	N	GN	9.7
1.893750	---	34.88	64.00	29.12	3000.0	9.000	N	GN	9.5
1.954500	45.56	---	74.00	28.44	3000.0	9.000	N	GN	9.5
2.287500	45.47	---	74.00	28.53	3000.0	9.000	N	GN	9.5
2.296500	---	34.51	64.00	29.49	3000.0	9.000	N	GN	9.5
4.933500	---	26.84	64.00	37.16	3000.0	9.000	N	GN	9.5
5.365500	39.65	---	74.00	34.35	3000.0	9.000	N	GN	9.5
15.425250	46.06	---	74.00	27.94	3000.0	9.000	N	GN	9.5
15.463500	---	32.80	64.00	31.20	3000.0	9.000	N	GN	9.5
16.766250	51.66	---	74.00	22.34	3000.0	9.000	N	GN	9.5
16.851750	---	35.52	64.00	28.48	3000.0	9.000	N	GN	9.5

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test setup for Conducted Disturbances Emission - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test setup for Conducted Disturbances Emission - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Conducted Emission SK1 Mains (C-2052)				
EMI Receiver ESCS 30	ROH - Rohde & Schwarz Vertriebs GmbH	845552/013	Jul 2013	Jul 2014
LISN ESH3-Z5	ROH - Rohde & Schwarz Vertriebs GmbH	846695/027	Jul 2013	Jul 2014
Filter Highpass	ROH - Rohde & Schwarz Vertriebs GmbH	100054	Aug 2013	Aug 2014
Shielded Chamber 1; (T173) (C-2052)	Albatross Projects GmbH, Albatross Projects			
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.00		

Tools used in 'P5M2'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable UTP 04		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P5M2'

IMPLEMENTED MODIFICATION

Modifications for Conducted Disturbances Emission, CISPR 22:Edition 6.0 2008-09, class B, Mains Voltage: 230V, 50Hz, TP: unshielded line, Datarate: maxMBit:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION
No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P9M1, Harmonic Current Emission

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P9M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 08:16

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04 Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, delivery state

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

Operator:
Test side: EMC Test Center
Company: FTS
Job no.: 1SB13-0023+E01;P9M1
Manufacturer:
EUT:
Operating mode:

Comment 1:
Comment 2:
Comment 3:
Comment 4

Test date: 13.01.2014

Maximum RMS current and corresponding values in timewindow 1:

Voltage:	230.90 Vrms		THD=0.01 %	THV=0.025 V	POHV=0.017 V	PWHD=0.04 %
Current:	0.177 Arms	-1.056 Apk	THD=286.02 %	THC=0.165 A	POHC=0.087 A	PWHD=942.99 %
Power:	11.9 W	P1=11.9 W	40.8 VA			
Power factor:	0.291	CosPhi1: 0.890				

Test conditions: EN 61000-3-2:2006 + A1:2009 + A2:2009, f=50 Hz, Phase=L1, Range=0.80 A
Time window=10/12 (200ms), Grouping (>2nd harm.)=on, Rated power=16 W
No Ztest selected
harmonic currents < 0.6 % of I or < 5 mA are disregard for calc. of THD, THC, POHC, PWHD

HARMONIC ANALYSIS: Test PASS
Tobs = entire measurement; POHC: avg=0.09 A, limits=0.00 A
Iavg=0.177 Arms; Rated power exceeded, changed to 11.87 W

Ha	Entire measurement (0.200 s = 1 time window(s))						Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class D 75W	Margin in MaxWin	100 to 150%	Ex-ceeded	100 to 150%	Ex-ceeded	Value	Ex-ceeded		
DC	0.0003 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0003 A	0	X	
1	0.0577 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0577 A	0	X	
2	0.0015 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0015 A	0	X	
3	0.0511 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0511 A	0	X	
4	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
5	0.0505 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0505 A	0	X	
6	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
7	0.0497 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0497 A	0	X	
8	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
9	0.0486 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0486 A	0	X	
10	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
11	0.0473 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0473 A	0	X	
12	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
13	0.0458 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0458 A	0	X	
14	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
15	0.0440 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0440 A	0	X	
16	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
17	0.0421 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0421 A	0	X	
18	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
19	0.0400 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0400 A	0	X	
20	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
21	0.0378 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0378 A	0	X	
22	0.0022 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0022 A	0	X	
23	0.0354 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0354 A	0	X	
24	0.0021 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0021 A	0	X	
25	0.0330 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0330 A	0	X	
26	0.0020 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0020 A	0	X	
27	0.0305 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0305 A	0	X	
28	0.0020 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0020 A	0	X	
29	0.0279 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0279 A	0	X	
30	0.0019 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0019 A	0	X	
31	0.0254 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0254 A	0	X	
32	0.0018 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0018 A	0	X	
33	0.0228 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0228 A	0	X	
34	0.0017 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0017 A	0	X	
35	0.0204 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0204 A	0	X	
36	0.0016 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0016 A	0	X	
37	0.0179 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0179 A	0	X	
38	0.0015 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0015 A	0	X	
39	0.0156 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0156 A	0	X	
40	0.0013 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0013 A	0	X	

average value < 0.6 % of Iavg or < 5 mA

Tested with SPS EMC 3.0.0 / PAS10000 by Spitzenberger & Spies GmbH & Co. KG, Schmidstr. 32-34, 94234 Viechtach, Germany, 13.01.2014

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Harmonics				
Analyzer Reference System ARS16/3	Spitzenberger+Spies, Spitzenberger	A2638 07/2 1100	Sep 2013	Sep 2014
Function Generator	Spitzenberger+Spies, Spitzenberger	A273612/ 00401	Sep 2012	Sep 2014
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Software SPS PHE	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P9M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P9M1'

IMPLEMENTED MODIFICATION

Modifications for Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04, Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, delivery state:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P10M1, Harmonic Current Emission

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P10M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 08:19

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04 Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, full configuration

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

Operator:
Test side: EMC Test Center
Company: FTS
Job no.: 1SB13-0023+E01;P10M1
Manufacturer:
EUT:
Operating mode:

Comment 1:
Comment 2:
Comment 3:
Comment 4

Test date: 13.01.2014

Maximum RMS current and corresponding values in timewindow 1:

Voltage:	230.90 Vrms		THD=0.01 %	THV=0.033 V	POHV=0.021 V	PWHD=0.06 %
Current:	0.319 Arms	1.900 Apk	THD=280.81 %	THC=0.299 A	POHC=0.133 A	PWHD=818.63 %
Power:	23.4 W	P1=23.4 W	73.6 VA			
Power factor:	0.319	CosPhi1: 0.953				

Test conditions: EN 61000-3-2:2006 + A1:2009 + A2:2009, f=50 Hz, Phase=L1, Range=0.80 A
Time window=10/12 (200ms), Grouping (>2nd harm.)=on, Rated power=21 W
No Ztest selected
harmonic currents < 0.6 % of I or < 5 mA are disregard for calc. of THD, THC, POHC, PWHD

HARMONIC ANALYSIS: Test PASS
Tobs = entire measurement; POHC: avg=0.13 A, limits=0.00 A
Iavg=0.319 Arms; Rated power exceeded, changed to 23.44 W

Ha	Entire measurement (0.200 s = 1 time window(s))						Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class D 75W	Margin in MaxWin	100 to 150%	Ex-ceeded	100 to 150%	Ex-ceeded	Value	Ex-ceeded		
DC	0.0042 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0042 A	0	X	
1	0.1066 A	1	-.----	---.-	0	0	n.e.	n.e.	0.1066 A	0	X	
2	0.0057 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0057 A	0	X	
3	0.1010 A	1	-.----	---.-	0	0	n.e.	n.e.	0.1010 A	0	X	
4	0.0059 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0059 A	0	X	
5	0.0994 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0994 A	0	X	
6	0.0060 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0060 A	0	X	
7	0.0970 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0970 A	0	X	
8	0.0061 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0061 A	0	X	
9	0.0940 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0940 A	0	X	
10	0.0061 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0061 A	0	X	
11	0.0903 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0903 A	0	X	
12	0.0062 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0062 A	0	X	
13	0.0860 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0860 A	0	X	
14	0.0063 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0063 A	0	X	
15	0.0812 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0812 A	0	X	
16	0.0063 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0063 A	0	X	
17	0.0760 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0760 A	0	X	
18	0.0063 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0063 A	0	X	
19	0.0705 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0705 A	0	X	
20	0.0062 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0062 A	0	X	
21	0.0647 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0647 A	0	X	
22	0.0061 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0061 A	0	X	
23	0.0588 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0588 A	0	X	
24	0.0059 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0059 A	0	X	
25	0.0528 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0528 A	0	X	
26	0.0056 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0056 A	0	X	
27	0.0469 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0469 A	0	X	
28	0.0054 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0054 A	0	X	
29	0.0411 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0411 A	0	X	
30	0.0051 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0051 A	0	X	
31	0.0354 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0354 A	0	X	
32	0.0048 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0048 A	0	X	
33	0.0301 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0301 A	0	X	
34	0.0044 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0044 A	0	X	
35	0.0252 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0252 A	0	X	
36	0.0040 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0040 A	0	X	
37	0.0207 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0207 A	0	X	
38	0.0036 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0036 A	0	X	
39	0.0166 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0166 A	0	X	
40	0.0032 A	1	-.----	---.-	0	0	n.e.	n.e.	0.0032 A	0	X	

average value < 0.6 % of Iavg or < 5 mA

Tested with SPS EMC 3.0.0 / PAS10000 by Spitzenberger & Spies GmbH & Co. KG, Schmidstr. 32-34, 94234 Viechtach, Germany, 13.01.2014

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Harmonics				
Analyzer Reference System ARS16/3	Spitzenberger+Spies, Spitzenberger	A2638 07/2 1100	Sep 2013	Sep 2014
Function Generator	Spitzenberger+Spies, Spitzenberger	A273612/ 00401	Sep 2012	Sep 2014
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Software SPS PHE	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P10M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P10M1'

IMPLEMENTED MODIFICATION

Modifications for Harmonic Current Emission, IEC 61000-3-2 Edition 3.2:2009-04, Mains Voltage: 230V, 50Hz, Phases mains: 1, TP: AC mains, Classification: D, full configuration:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P11M1, Voltage Fluctuations and Flicker Emission

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P11M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 08:42

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Voltage Fluctuations and Flicker Emission, IEC 61000-3-3 Edition 3.0:2013-05 Mains Voltage: 230V, 50Hz, TP: AC mains

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULTS

Operator:		Comment 1:	
Test side:	EMC Test Center	Comment 2:	
Company:	FTS	Comment 3:	
Job no.:	1SB13-0023+E01;P11M1	Comment 4	
Manufacturer:			
EUT:			
Operating mode:		Test date:	13.01.2014

Test conditions: EN 61000-3-3:2008 / 230 V / 50 Hz / Phase L1 /
Obs 1 x 10 min / Ztest (0.400+j0.250) Ohm

FLICKER: Test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax [%]	dc [%]	PASS	FAIL
08:26:06	0.000	0.0120	- . - - - -	0.000	0.000	- . - - -	X	
Limits:		1.000	0.650	0.500	4.000	3.300		
Plt: 0.005241 (calculated over 12 periods)								
Evaluated: PST, dc, dmax, d(t)								

FLICKER: Source test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax [%]	dc [%]	PASS	FAIL
08:26:06	0.000	0.0110	- . - - - -	0.000	0.000	- . - - -	X	
Plt: 0.004805 (calculated over 12 periods)								
Evaluated: PST <= 0.4 dmax < 20 % dmax1								

Tested with SPS EMC 3.0.0 / PAS10000 by Spitzenberger & Spies GmbH & Co. KG, Schmidstr. 32-34, 94234 Viechtach, Germany, 13.01.2014

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Flicker				
Analyzer Reference System ARS16/3	Spitzenberger+Spies, Spitzenberger	A2638 07/2 1100	Sep 2013	Sep 2014
Function Generator	Spitzenberger+Spies, Spitzenberger	A273612/ 00401	Sep 2012	Sep 2014
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Software SPS PHE	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P11M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P11M1'

IMPLEMENTED MODIFICATION

Modifications for Voltage Fluctuations and Flicker Emission, IEC 61000-3-3 Edition 3.0:2013-05, Mains Voltage: 230V, 50Hz, TP: AC mains:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P12M1, Voltage Dips, Interruptions and Voltage Variation Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P12M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 08:50

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005 Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains Criteria C: temporary loss of function, operator intervention required, detailed description: EUT reboot at step 4

MEASUREMENT RESULTS

Operator:		Comment 1:	
Test side:	EMC Test Center	Comment 2:	
Company:	FTS	Comment 3:	
Job no.:	1SB13-0023+E01;P12M1	Comment 4	
Manufacturer:			
EUT:			
Operating mode:		Test date:	13.01.2014

Test conditions: EN 61000-4-11 voltage dips, short interruptions and variations test

Voltage / frequency:	230.0 V / 50.0 Hz
Test phase:	Single phase / L1-N
Executed test:	EN 61000-6-2: 2005
Test description:	Industrial environment
Disturbances per step:	3 (per phase angle) / 10.5 sec delay between

Step	Disturbance	TestLevel	Duration	Phase angle(s) (Ref.Ph.1)
1	Voltage dip / short interruption	0 %	1 period	0°
2	Voltage dip / short interruption	40 %	10 periods	0°
3	Voltage dip / short interruption	70 %	25 periods	0°
4	Voltage dip / short interruption	0 %	250 periods	0°

Test results:

- ○ Normal performance within limits specified by manufacturer, requestor or purchaser
- ○ Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention
- ● Temporary loss of function or degradation of performance, the correcton of which requires operator intervention
- ○ Loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data

Comments:

EUT reboot at step 4

Tested with SPS EMC 3.0.0 / PAS10000 by Spitzenberger & Spies GmbH & Co. KG, Schmidstr. 32-34, 94234 Viechtach, Germany, 13.01.2014

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Dips & Interuptions				
Analyzer Reference System ARS16/3	Spitzenberger+Spies, Spitzenberger	A2638 07/2 1100	Sep 2013	Sep 2014
Function Generator	Spitzenberger+Spies, Spitzenberger	A273612/ 00401	Sep 2012	Sep 2014
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Software SPS PHE	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P12M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P12M1'

IMPLEMENTED MODIFICATION

Modifications for Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P13M1, Voltage Dips, Interruptions and Voltage Variation Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P13M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 09:05

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005 Mains Voltage: 230V, 60Hz, PhaseConfig: L-N, TP: AC mains

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 60Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS
Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 60Hz, PhaseConfig: L-N, TP: AC mains Criteria C: temporary loss of function, operator intervention required, detailed description: EUT reboot at step 4

MEASUREMENT RESULTS

Operator:		Comment 1:	
Test side:	EMC Test Center	Comment 2:	
Company:	FTS	Comment 3:	
Job no.:	1SB13-0023+E01;P13M1	Comment 4	
Manufacturer:			
EUT:			
Operating mode:		Test date:	13.01.2014

Test conditions: EN 61000-4-11 voltage dips, short interruptions and variations test

Voltage / frequency:	230.0 V / 60.0 Hz
Test phase:	Single phase / L1-N
Executed test:	EN 61000-6-2: 2005
Test description:	Industrial environment
Disturbances per step:	3 (per phase angle) / 10.5 sec delay between

Step	Disturbance	TestLevel	Duration	Phase angle(s) (Ref.Ph.1)
1	Voltage dip / short interruption	0 %	1 period	0°
2	Voltage dip / short interruption	40 %	12 periods	0°
3	Voltage dip / short interruption	70 %	30 periods	0°
4	Voltage dip / short interruption	0 %	300 periods	0°

Test results:

- ○ Normal performance within limits specified by manufacturer, requestor or purchaser
- ○ Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention
- ● Temporary loss of function or degradation of performance, the correcton of which requires operator intervention
- ○ Loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data

Comments:

EUT reboot at step 4

Tested with SPS EMC 3.0.0 / PAS10000 by Spitzenberger & Spies GmbH & Co. KG, Schmidstr. 32-34, 94234 Viechtach, Germany, 13.01.2014

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Dips & Interuptions				
Analyzer Reference System ARS16/3	Spitzenberger+Spies, Spitzenberger	A2638 07/2 1100	Sep 2013	Sep 2014
Function Generator	Spitzenberger+Spies, Spitzenberger	A273612/ 00401	Sep 2012	Sep 2014
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Software SPS PHE	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P13M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P13M1'

IMPLEMENTED MODIFICATION

Modifications for Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN 61000-6-2:2005, Mains Voltage: 230V, 60Hz, PhaseConfig: L-N, TP: AC mains:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P14M1, Voltage Dips, Interruptions and Voltage Variation Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P14M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 09:00

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN55024:2010 Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS

Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN55024:2010, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains

Criteria C: temporary loss of function, operator intervention required, detailed description: EUT reboot at step 4

MEASUREMENT RESULTS

Operator:		Comment 1:	
Test side:	EMC Test Center	Comment 2:	
Company:	FTS	Comment 3:	
Job no.:	1SB13-0023+E01;P14M1	Comment 4	
Manufacturer:			
EUT:			
Operating mode:		Test date:	13.01.2014

Test conditions: EN 61000-4-11 voltage dips, short interruptions and variations test

Voltage / frequency:	230.0 V / 50.0 Hz
Test phase:	Single phase / L1-N
Executed test:	EN 55024: 2010
Test description:	IT products
Disturbances per step:	3 (per phase angle) / 10.5 sec delay between

Step	Disturbance	TestLevel	Duration	Phase angle(s) (Ref.Ph.1)
1	Voltage dip / short interruption	0 %	0.5 periods	0°
2	Voltage dip / short interruption	0 %	0.5 periods	180°
3	Voltage dip / short interruption	70 %	25 periods	0°
4	Voltage dip / short interruption	0 %	250 periods	0°

Test results:

- ○ Normal performance within limits specified by manufacturer, requestor or purchaser
- ○ Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention
- ● Temporary loss of function or degradation of performance, the correcton of which requires operator intervention
- ○ Loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data

Comments:

EUT reboot at step 4

Tested with SPS EMC 3.0.0 / PAS10000 by Spitzenberger & Spies GmbH & Co. KG, Schmidstr. 32-34, 94234 Viechtach, Germany, 13.01.2014

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Dips & Interuptions				
Analyzer Reference System ARS16/3	Spitzenberger+Spies, Spitzenberger	A2638 07/2 1100	Sep 2013	Sep 2014
Function Generator	Spitzenberger+Spies, Spitzenberger	A273612/ 00401	Sep 2012	Sep 2014
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Software SPS PHE	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P14M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P14M1'

IMPLEMENTED MODIFICATION

Modifications for Voltage Dips, Interruptions and Voltage Variation Immunity, IEC 61000-4-11 Second Edition:2004-03, EN55024:2010, Mains Voltage: 230V, 50Hz, PhaseConfig: L-N, TP: AC mains:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P6M1, Radiated Electromagnetic Field Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P6M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	20.01.2014 - 11:29

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FUJITSU TECHNOLOGY SOLUTIONS GmbH
	Product Category:	Personal Computer

TEST	Description:	Radiated Electromagnetic Field Immunity, IEC 61000-4-3 Ed 3.2:2010-04, EN 61000-6-2:2005 Mains Voltage: 230V, 50Hz, TP: EUT, Positions: 2

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: CDC1
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS

Radiated Electromagnetic Field Immunity, IEC 61000-4-3 Ed 3.2:2010-04, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, TP: EUT, Positions: 2
Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P6M1**

Frequency Range	Test Level	Modulation
80 - 1000 MHz	10 V/m	1 kHz, 80% AM

Frequency Range	Test Level	Modulation
1400 - 2000 MHz	3 V/m	1 kHz, 80% AM

Frequency Range	Test Level	Modulation
2000 - 2700 MHz	1 V/m	1 kHz, 80% AM

EUT position	Antenna polarity	Performance-criteria	Comments
Front	Horizontal	A	
Front	Vertical	A	
Rear	Horizontal	A	
Rear	Vertical	A	

EMC32 Report

Common Information

Project No.: 1SB13-0023+E01;P6M1
Comments: front side

EMS Auto Test Template: EMS Auto Test EN 61000-6-2 2005 [EMS Radiated]

EMS Auto Test Method: EUT Test

Test Method:

No.	Subrange	EMS Scan Template	Sensor Positions
1	80MHz - 2,7GHz	EMS Scan EN 61000-6-2	-

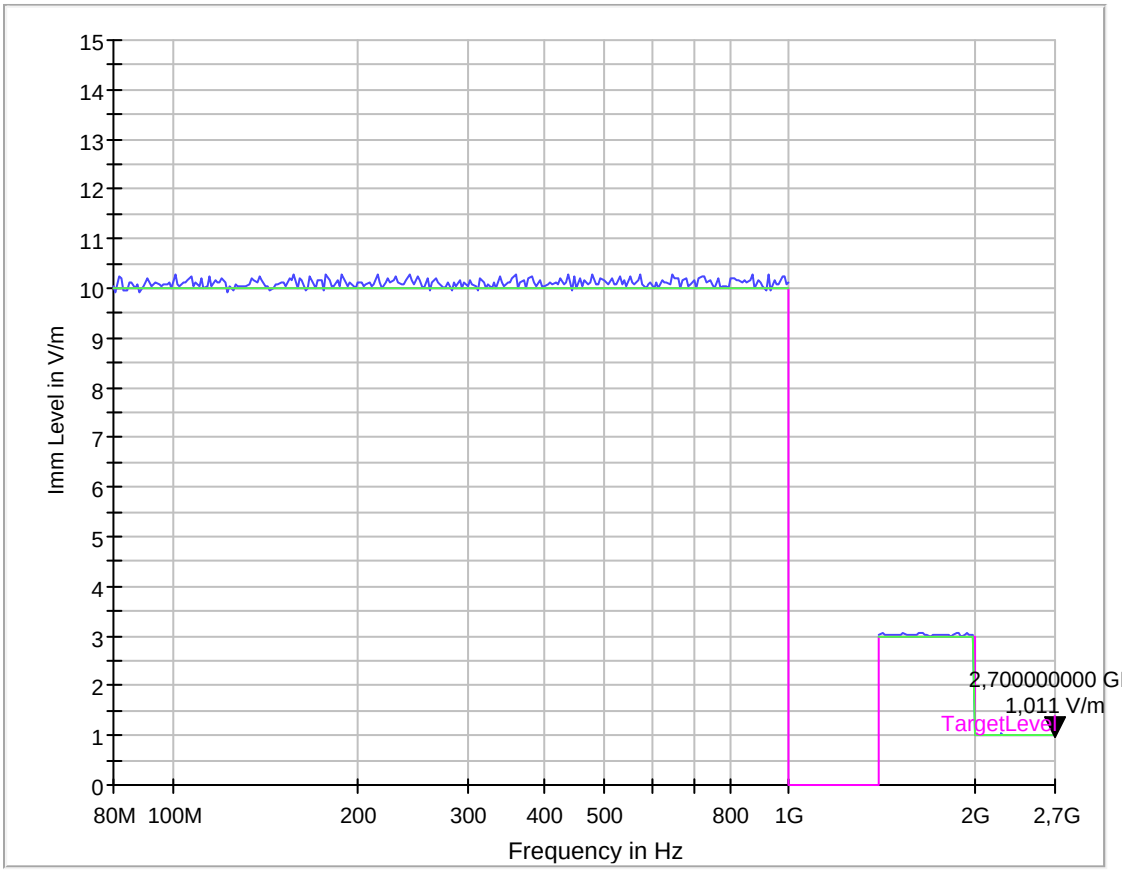
Loop Settings:

Priority	Loop Parameter	Range	Steps
1	Test Frequency	-	-
2	Polarization	H,V	-

EMS Scan Template: EMS Scan EN 61000-6-2 [EMS Radiated]

Hardware Setup: EMS radiated\EMS rad 80M-6G
Level On: Substitution Method: Fujitsu 2012-10-25\FU_EN61ED3

Subrange	Step Width	Level	Modulation	Dwell Time
80MHz - 2,2GHz	1% LOG	EMS radiated\Limit Line EN 61000-6-2	AM: 80,0%; 1,0kHz	3s
2,2GHz - 2,7GHz	1% LOG	EMS radiated\Limit Line EN 61000-6-2	AM: 80,0%; 1,0kHz	3s



EMC32 Report

Common Information

Project No.: 1SB13-0023+E01;P6M1
Comments: rear side

EMS Auto Test Template: EMS Auto Test EN 61000-6-2 2005 [EMS Radiated]

EMS Auto Test Method: EUT Test

Test Method:

No.	Subrange	EMS Scan Template	Sensor Positions
1	80MHz - 2,7GHz	EMS Scan EN 61000-6-2	-

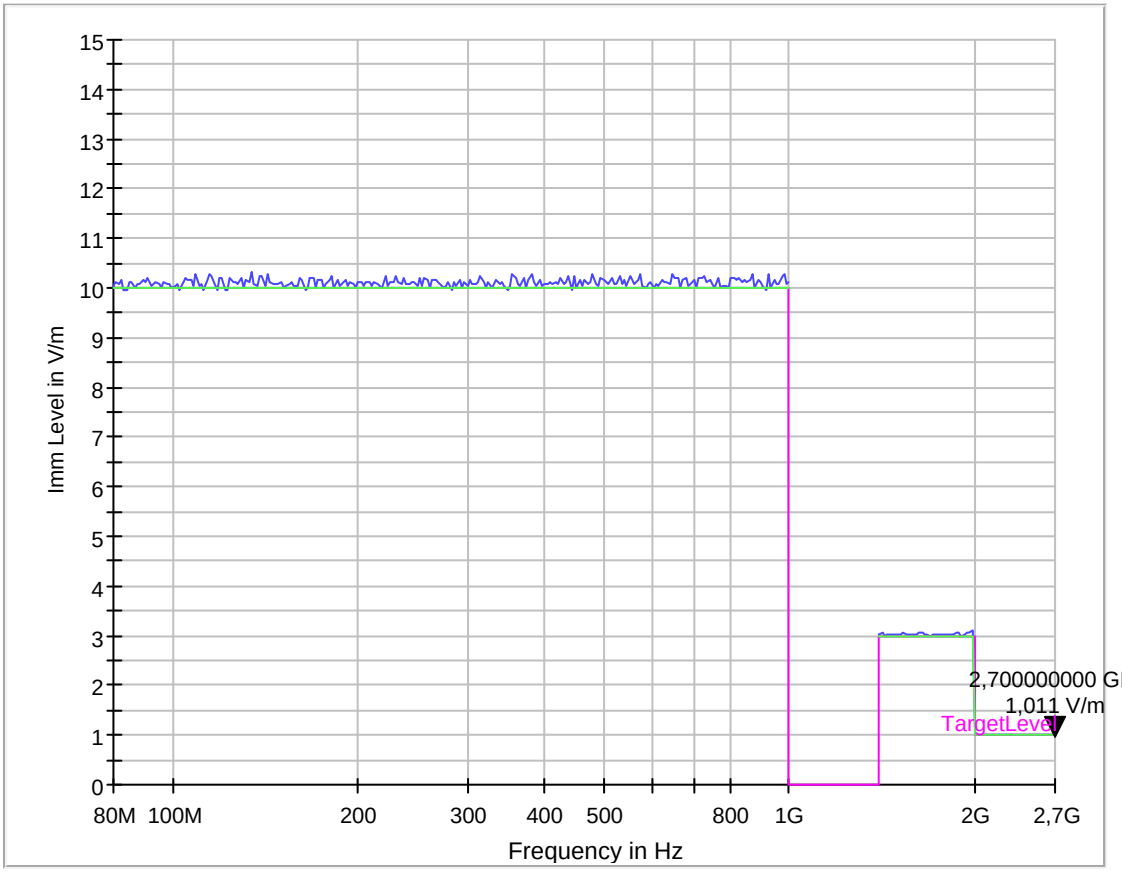
Loop Settings:

Priority	Loop Parameter	Range	Steps
1	Test Frequency	-	-
2	Polarization	H,V	-

EMS Scan Template: EMS Scan EN 61000-6-2 [EMS Radiated]

Hardware Setup: EMS radiated\EMS rad 80M-6G
Level On: Substitution Method: Fujitsu 2012-10-25\FU_EN61ED3

Subrange	Step Width	Level	Modulation	Dwell Time
80MHz - 2,2GHz	1% LOG	EMS radiated\Limit Line EN 61000-6-2	AM: 80,0%; 1,0kHz	3s
2,2GHz - 2,7GHz	1% LOG	EMS radiated\Limit Line EN 61000-6-2	AM: 80,0%; 1,0kHz	3s


15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Imm Level in V/m
80M
100M
200
300
400
500
800
1G
2G
2,7G
Frequency in Hz
2,700000000 GHz
1,011 V/m
TargetLevel

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up Radiated Electromagnetic Field Immunity - front view

MEASUREMENT PHOTOS OF TEST SETUP

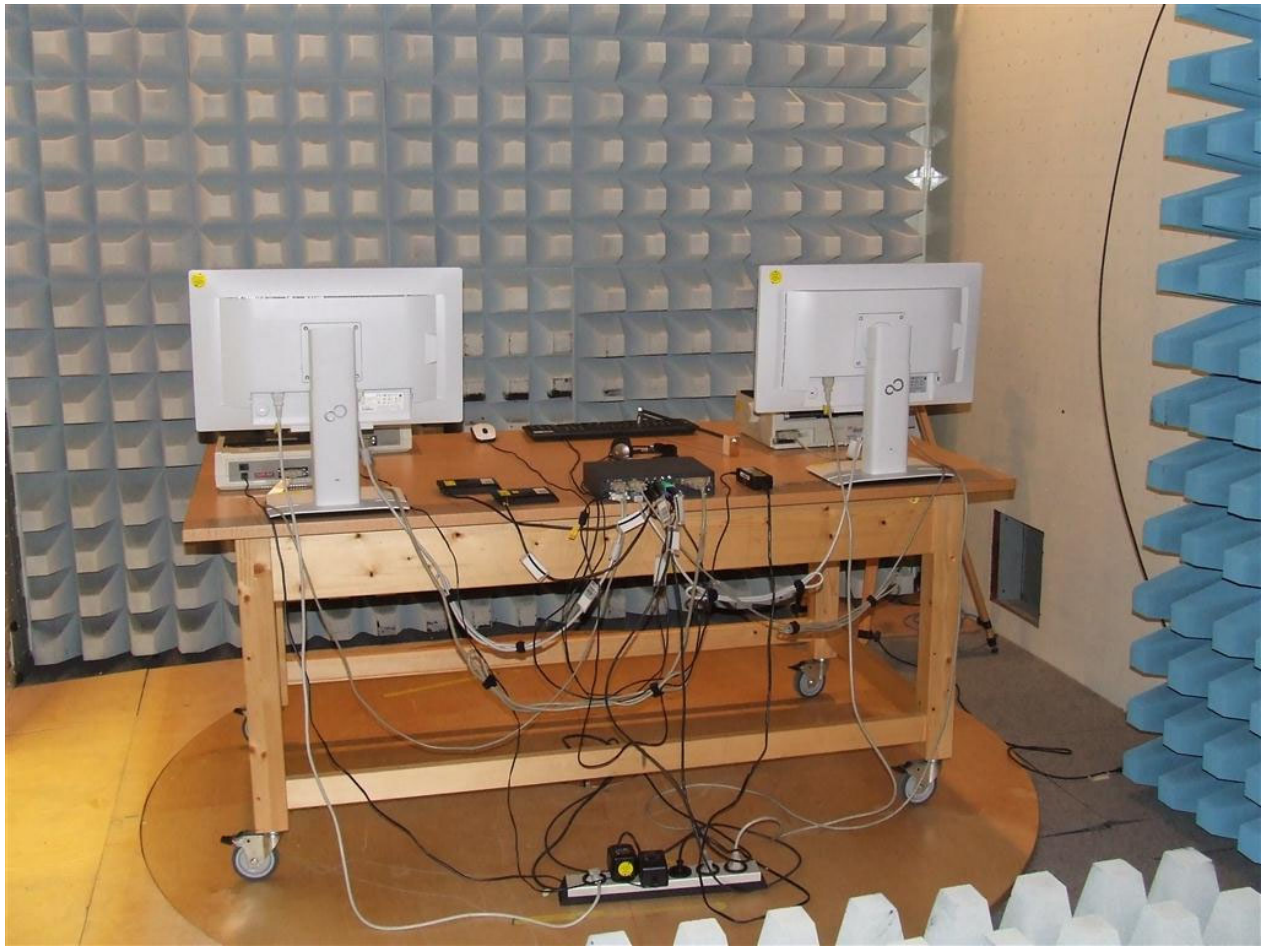


Figure 2 : Test set up Radiated Electromagnetic Field Immunity - rear view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Radiated Immunity CDC < 2GHz				
Compact Diagnostic Chamber	Albatross Projects GmbH, Albatross Projects		Jan 2011	Jan 2014
Amplifier BLWA 0810-750/350D	Bonn Elektronik GmbH, Bonn Elektronik	128904A		
Amplifier BLWA 0840-750	Bonn Elektronik GmbH, Bonn Elektronik	128904A		
Amplifier BLWA 4010-350	Bonn Elektronik GmbH, Bonn Elektronik	128904A		
Amplifier BLMA 1060-450/125/70D	Bonn Elektronik GmbH, Bonn Elektronik	128904B		
Antenna HL046	ROH - Rohde & Schwarz Vertriebs GmbH	100128		
Power Meter NRP2	ROH - Rohde & Schwarz Vertriebs GmbH	102428	Sep 2012	Jun 2014
Power Sensor NRP-Z11	ROH - Rohde & Schwarz Vertriebs GmbH	111539	Oct 2012	Jun 2014
Power Sensor NRP-Z11	ROH - Rohde & Schwarz Vertriebs GmbH	111540	Oct 2012	Jun 2014
Signal Generator SMB100A	ROH - Rohde & Schwarz Vertriebs GmbH	106590	Sep 2012	Sep 2014
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.01		
Radiated Immunity CDC > 2GHz				
Antenna HF907	ROH - Rohde & Schwarz Vertriebs GmbH	100464		
Tools used in 'P6M1'				

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P6M1'

IMPLEMENTED MODIFICATION

Modifications for Radiated Electromagnetic Field Immunity, IEC 61000-4-3 Ed 3.2:2010-04, EN 61000-6-2:2005, Mains Voltage: 230V, 50Hz, TP: EUT, Positions: 2:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P17M1, Power Frequency Magnetic Field Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P17M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	14.01.2014 - 11:52

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09 Mains Voltage: 230V, 50Hz, TP: EUT, 30A/m

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS
Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 50Hz, TP: EUT, 30A/m Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P17M1**

Field strength [A/m]	**Test frequency** [Hz]
30	50

Axis	**Performance-criteria**	**Comments**
X	A	
Y	A	
Z	A	

Remark: EUT supply voltage frequency and magnetic field frequency are identical.

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Immunity to power frequency magnetic field - x axis

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test set up for Immunity to power frequency magnetic field - y axis

MEASUREMENT PHOTOS OF TEST SETUP

Figure 3 : Test set up for Immunity to power frequency magnetic field - z axis

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Magnetic Field				
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Magnetic Field Test Coil	Schaffner, Schaffner	-/-		
MPR/TCO Meter MFM 10	Combinova Marketing AB, Combinova Marketing AB	357	Sep 2012	Sep 2014
Software Signal Manager	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P17M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P17M1'

IMPLEMENTED MODIFICATION

Modifications for Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 50Hz, TP: EUT, 30A/m:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P18M1, Power Frequency Magnetic Field Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P18M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	14.01.2014 - 12:05

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09 Mains Voltage: 230V, 60Hz, TP: EUT, 30A/m

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 60Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS

Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 60Hz, TP: EUT, 30A/m
Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P18M1**

Field strength [A/m]	**Test frequency** [Hz]
30	60

Axis	**Performance-criteria**	**Comments**
X	A	
Y	A	
Z	A	

Remark: EUT supply voltage frequency and magnetic field frequency are identical.

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Immunity to power frequency magnetic field - x axis

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test set up for Immunity to power frequency magnetic field - y axis

MEASUREMENT PHOTOS OF TEST SETUP

Figure 3 : Test set up for Immunity to power frequency magnetic field - z axis

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Magnetic Field				
Testsystem EMV D23500/ PAS10000	Spitzenberger+Spies, Spitzenberger	A2736 001/ 0401	Sep 2012	Sep 2014
Magnetic Field Test Coil	Schaffner, Schaffner	-/-		
MPR/TCO Meter MFM 10	Combinova Marketing AB, Combinova Marketing AB	357	Sep 2012	Sep 2014
Software Signal Manager	Spitzenberger+Spies, Spitzenberger	V3.0		

Tools used in 'P18M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P18M1'

IMPLEMENTED MODIFICATION

Modifications for Power Frequency Magnetic Field Immunity, IEC 61000-4-8 Ed2.0:2009-09, Mains Voltage: 230V, 60Hz, TP: EUT, 30A/m:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P19M1, Electrostatic Discharge Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P19M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	14.01.2014 - 16:10

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Electrostatic Discharge Immunity, IEC 61000-4-2:2008 full configuration, Mains Voltage: 230V, 50Hz, TP: EUT, Level air: ±2, 4, 6, 8kV, Level contact: ±2, 4kV

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: Shielded Chamber 2
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS
Electrostatic Discharge Immunity, IEC 61000-4-2:2008, full configuration, Mains Voltage: 230V, 50Hz, TP: EUT, Level air: ±2, 4, 6, 8kV, Level contact: ±2, 4kV Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P19M1**

Test set-up: all auxiliary equipment connected to EUT

Test level [±kV]	Air discharge	Contact discharge			Comments
		Direct	Indirect vertical	Indirect horizontal	
2	A	A	A	A	
4	A	A	A	A	
5	-	-	-	-	
6	A	-	-	-	
8	A	-	-	-	

MEASUREMENT PHOTOS OF TEST SETUP

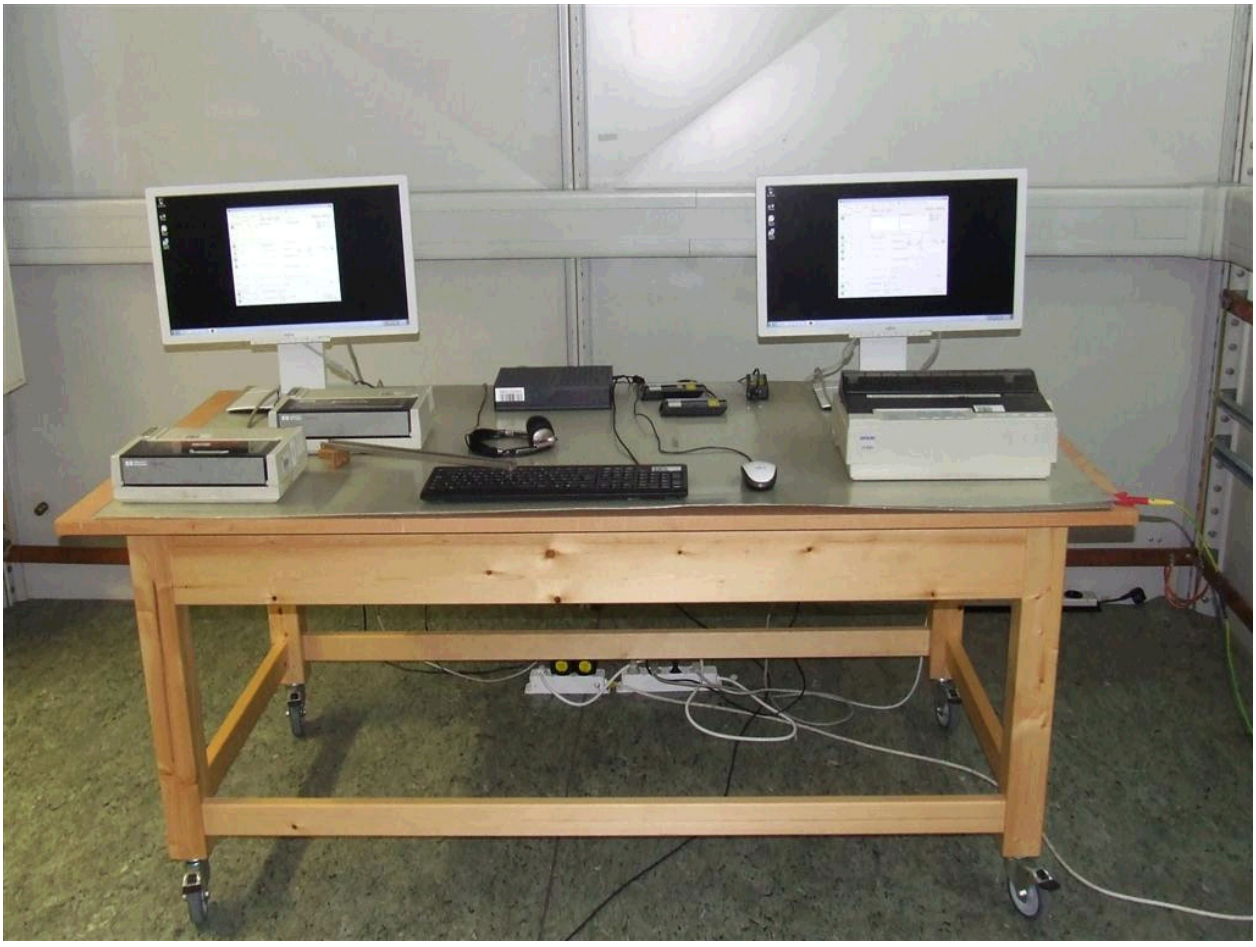


Figure 1 : Test set up for Electrostatic Discharge Immunity - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test set up for Electrostatic Discharge Immunity - rear view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 3 : Test set up for Electrostatic Discharge Immunity - test points front. Air discharge.

MEASUREMENT PHOTOS OF TEST SETUP

Figure 4 : Test set up for Electrostatic Discharge Immunity - test points rear. Air discharge

MEASUREMENT PHOTOS OF TEST SETUP

Figure 5 : Test set up for Electrostatic Discharge Immunity. Contact discharge.

MEASUREMENT PHOTOS OF TEST SETUP

Figure 6 : Test set up for Electrostatic Discharge Immunity

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
ESD 2 (1820)				
ESD-Generator NSG435	Teseq GmbH	1820	Sep 2013	Sep 2014

Tools used in 'P19M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P19M1'

IMPLEMENTED MODIFICATION

Modifications for Electrostatic Discharge Immunity, IEC 61000-4-2:2008, full configuration, Mains Voltage: 230V, 50Hz, TP: EUT, Level air: ±2, 4, 6, 8kV, Level contact: ±2, 4kV:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P20M1, Electrical Fast Transient Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P20M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	15.01.2014 - 07:42

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Electrical Fast Transient Immunity, IEC 61000-4-4 Ed2.1:2011-03 Mains Voltage: 230V, 50Hz, TP: AC mains, Level: ±2,0kV

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: Shielded Chamber 3
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS

Electrical Fast Transient Immunity, IEC 61000-4-4 Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: AC mains, Level: ±2,0kV
Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P20M1**

Tested ports: AC-power line: (via direct injection)					**Test level** [+/- kV]				**Performance-criteria**	**Comments**
L1	L2	L3	N	PE	0,5	1,0	2,0	4,0		
X					X	X	X		A	
			X		X	X	X		A	
				X	X	X	X		A	
X			X		X	X	X		A	
X			X	X	X	X	X		A	

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Electrical Fast Transient Immunity, Burst - front view

MEASUREMENT PHOTOS OF TEST SETUP

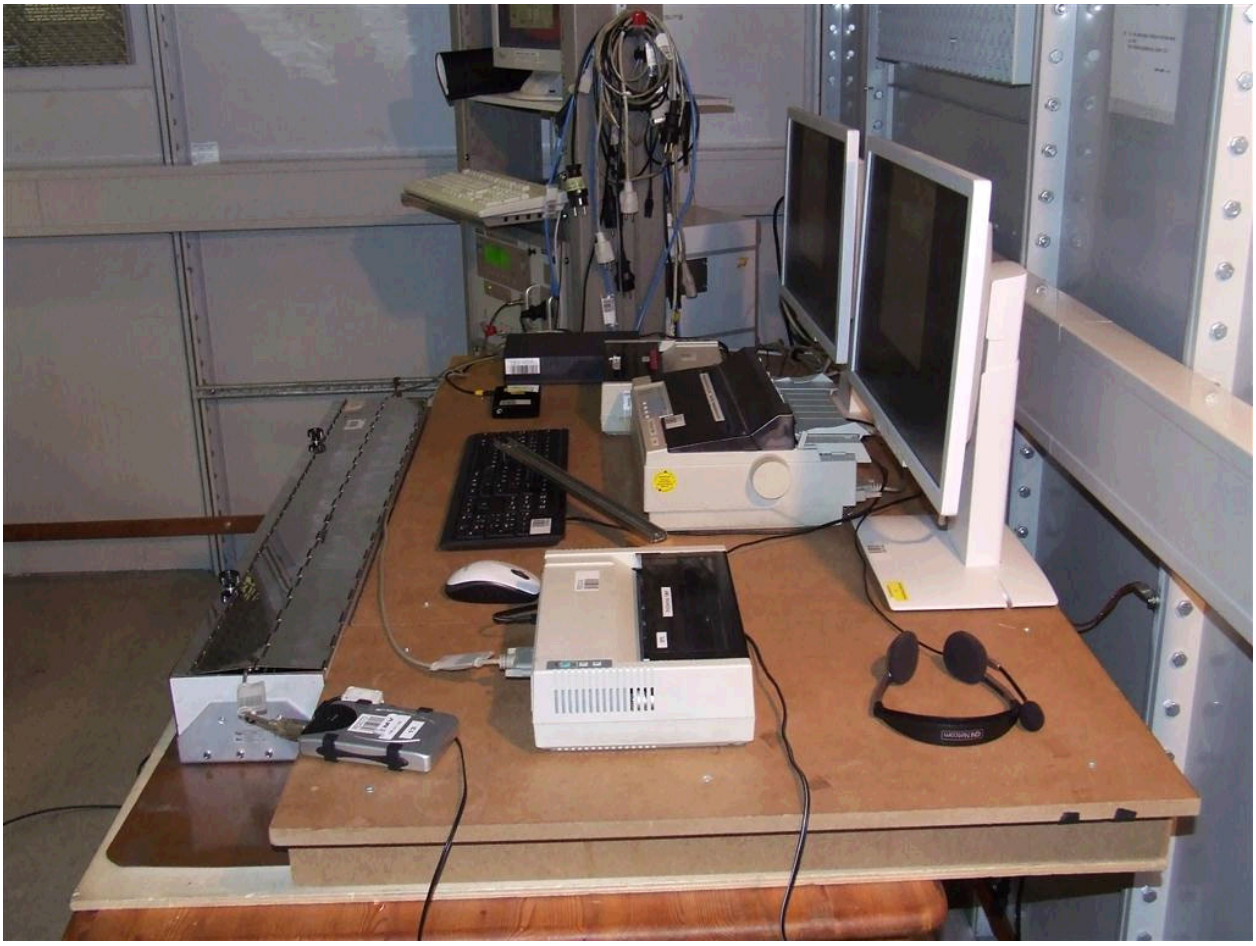


Figure 2 : Test set up for Electrical Fast Transient Immunity, Burst - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Burst 1 (1.Floor)				
Burst Generator NSG 2025 - 4	Teseq GmbH	1226	Jul 2013	Jul 2014
Software WIN2025	Teseq GmbH, Teseq	V5.0		

Tools used in 'P20M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P20M1'

IMPLEMENTED MODIFICATION

Modifications for Electrical Fast Transient Immunity, IEC 61000-4-4 Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: AC mains, Level: ±2,0kV:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P21M1, Electrical Fast Transient Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P21M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	15.01.2014 - 09:49

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Electrical Fast Transient Immunity, IEC 61000-4-4Ed2.1:2011-03 Mains Voltage: 230V, 50Hz, TP: signal line, Level: ±1,0kV

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: Shielded Chamber 3
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS

Electrical Fast Transient Immunity, IEC 61000-4-4Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: signal line, Level: ±1,0kV
Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P21M1**

Tested ports Data and signal lines: (via capacitive clamp)	**Test level** [+/- kV]				**Performance-criteria**	**Comments**
	0,5	1,0	2,0	4,0		
USB rear 1	X	X			A	
USB rear 2	X	X			A	
LPT	X	X			A	
LAN 1	X	X			A	
LAN 2	X	X			A	
COM 1	X	X			A	
COM 2	X	X			A	

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Electrical Fast Transient Immunity, Burst - front view

MEASUREMENT PHOTOS OF TEST SETUP

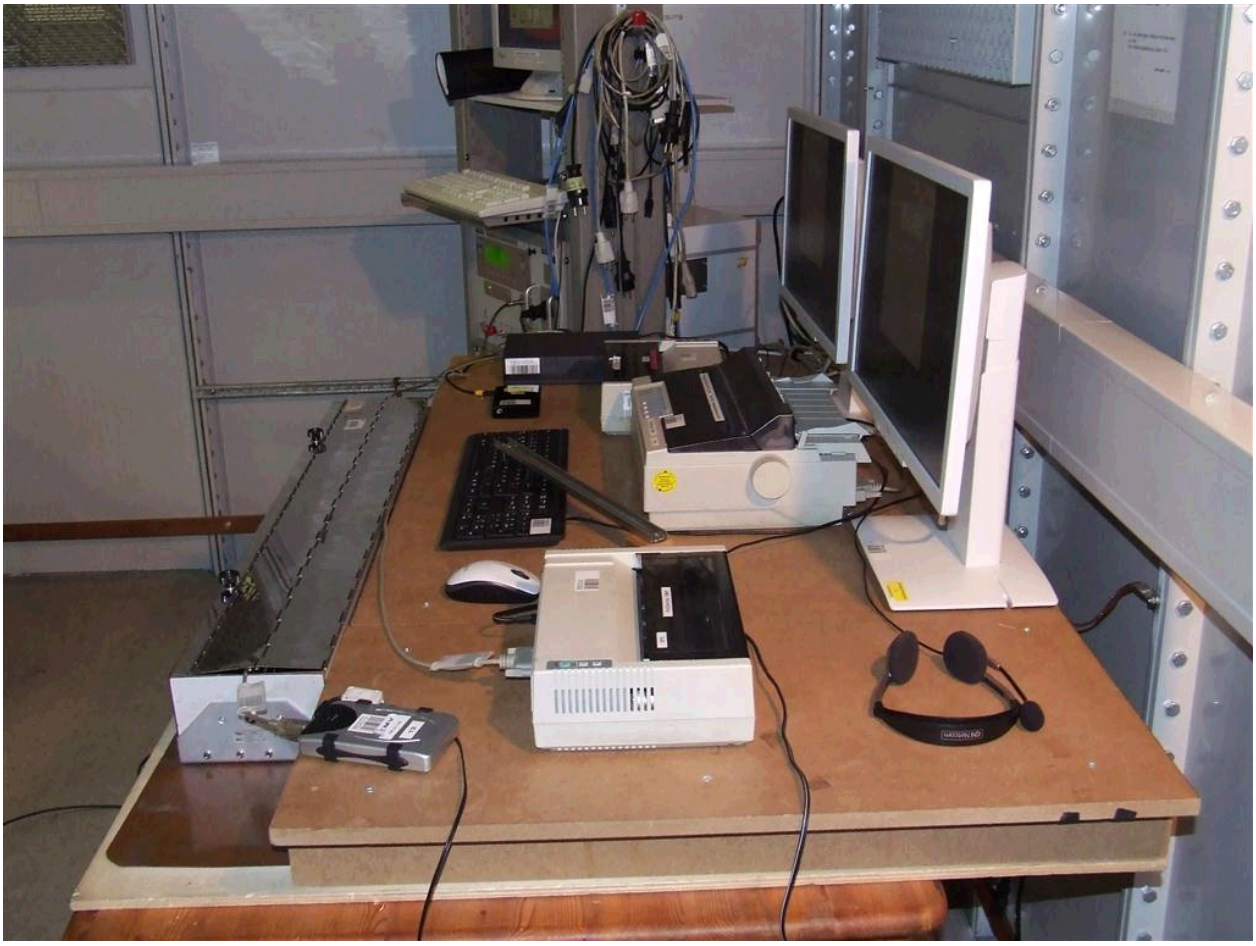


Figure 2 : Test set up for Electrical Fast Transient Immunity, Burst - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Burst 1 (1.Floor)				
Burst Generator NSG 2025 - 4	Teseq GmbH	1226	Jul 2013	Jul 2014
Software WIN2025	Teseq GmbH, Teseq	V5.0		

Tools used in 'P21M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P21M1'

IMPLEMENTED MODIFICATION

Modifications for Electrical Fast Transient Immunity, IEC 61000-4-4Ed2.1:2011-03, Mains Voltage: 230V, 50Hz, TP: signal line, Level: ±1,0kV:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P15M1, Conducted Disturbances Immunity

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P15M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 10:52

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10 Mains Voltage: 230V, 50Hz, TP: AC/DC mains, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V

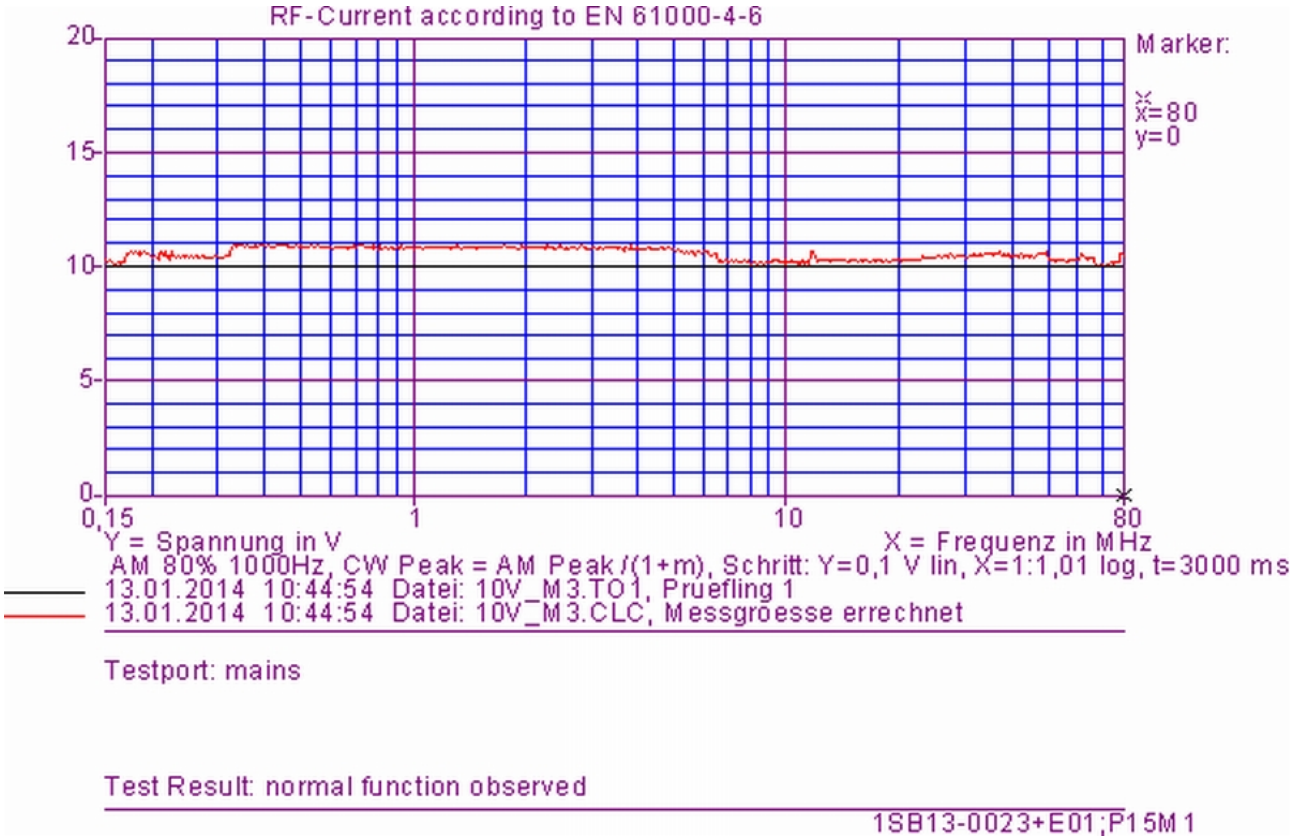
CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: Shielded Chamber 1
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS

Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V
Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P15M1**

Tested ports: AC Power Lines	**Frequency** [MHz]	**Test level** [V]	**Modulation Depth** [%]	**Modulation frequency** [Hz]	**Performance criteria**	**Comments**
Mains	0,15 - 80	10,0	80	1000	A	



MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Conducted Disturbances Immunity - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test set up for Conducted Disturbances Immunity - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Conducted Immunity 1 (2.Floor)				
Signal Generator	ROH - Rohde & Schwarz Vertriebs GmbH	100277	Jul 2013	Jul 2015
Amplifier 250L	EMV - emv GmbH, Elektronische Meßgeräte Vertriebs GmbH	12925		
Directional Coupler	EMV - emv GmbH, Elektronische Meßgeräte Vertriebs GmbH	12659	Jul 2013	Jul 2015
Power Meter NRVD	ROH - Rohde & Schwarz Vertriebs GmbH	100447	Jul 2013	Jul 2014
Attenuator 6dB ATT 6	EM-Test, EM-Test	9812109A		
CDN Mains	FCC Inc, FCC Inc	2026	Jul 2013	Jul 2014
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.01		

Tools used in 'P15M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P15M1'

IMPLEMENTED MODIFICATION

Modifications for Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P16M1, Conducted Disturbances Immunity

ORDER	Order No.:	1SB13-0023+E01
	Protocol No.:	P16M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	13.01.2014 - 14:58

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10 Mains Voltage: 230V, 50Hz, TP: signal line, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V

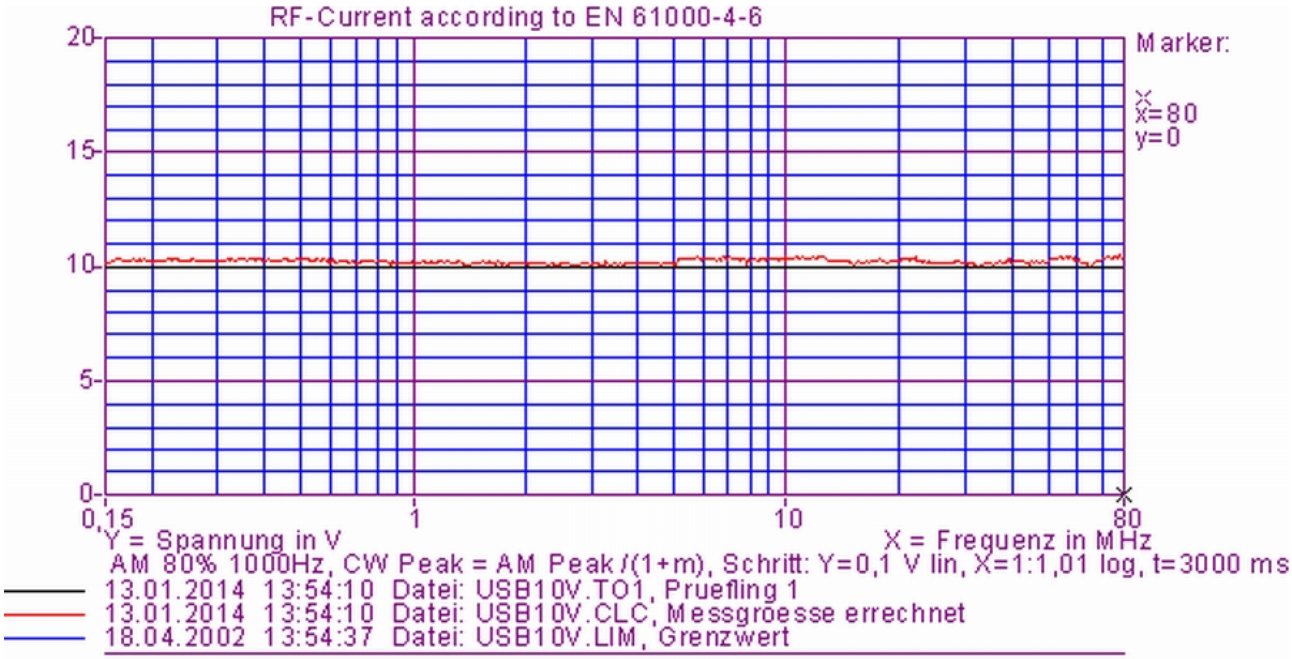
CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: Shielded Chamber 1
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS

Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: signal line, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V
Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P16M1**

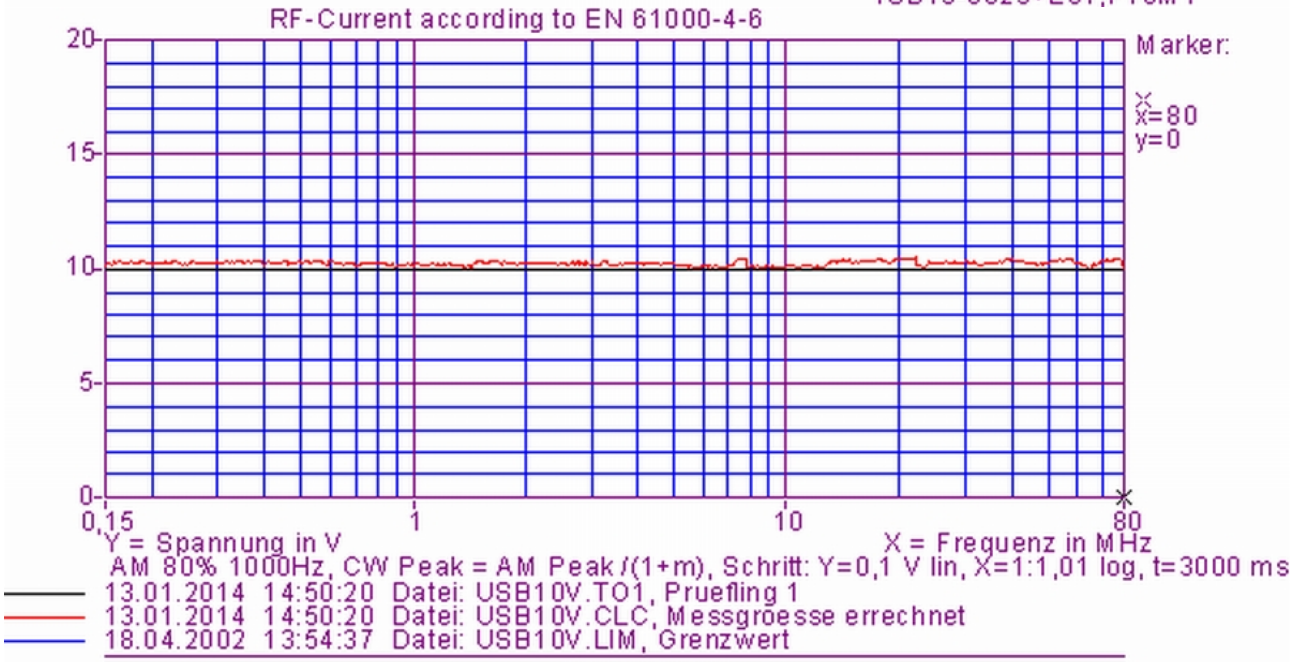
Tested ports: Signal lines	Frequency [MHz]	Test level [V]	Modulation depth [%]	Modulation frequency [Hz]	Performance criteria	Comments
USB rear 1	0,15 - 80	3,0	80	1000	A	
USB rear 2	0,15 - 80	3,0	80	1000	A	
Parallel	0,15 - 80	3,0	80	1000	A	
COM 1	0,15 - 80	3,0	80	1000	A	
COM 2	0,15 - 80	3,0	80	1000	A	
LAN 1	0,15 - 80	3,0	80	1000	A	
LAN 2	0,15 - 80	3,0	80	1000	A	



Testport: USB 1

Test Result: normal function observed

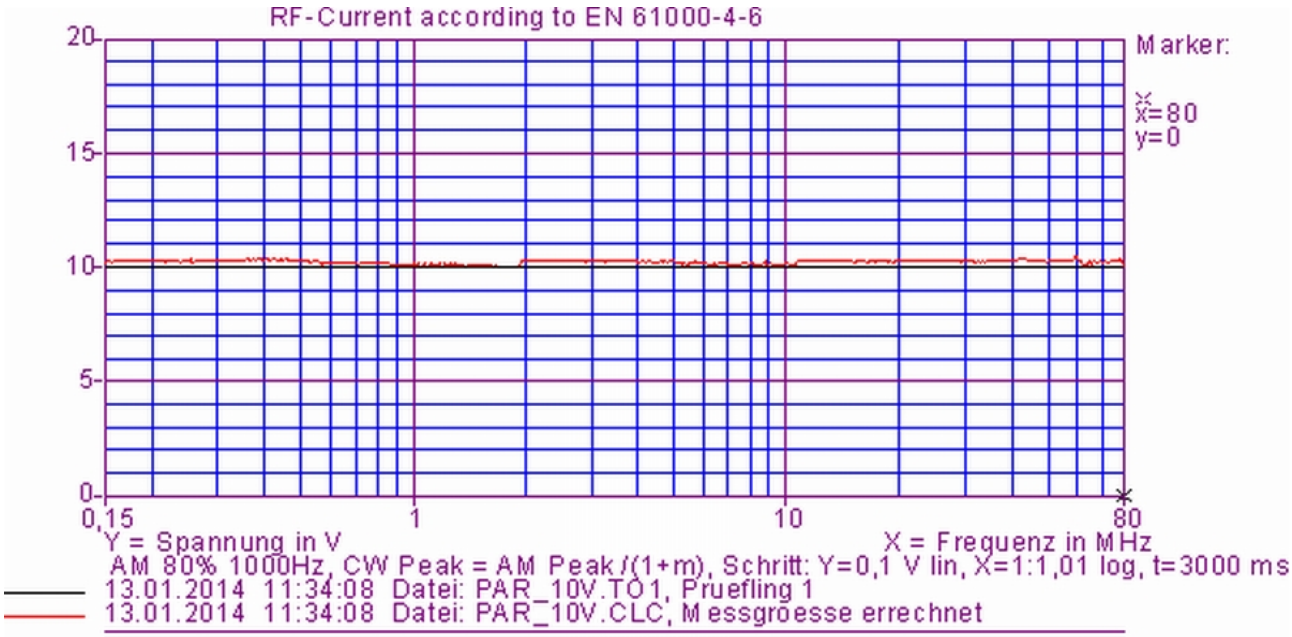
1SB13-0023+E01;P16M1



Testport: USB 2

Test Result: normal function observed

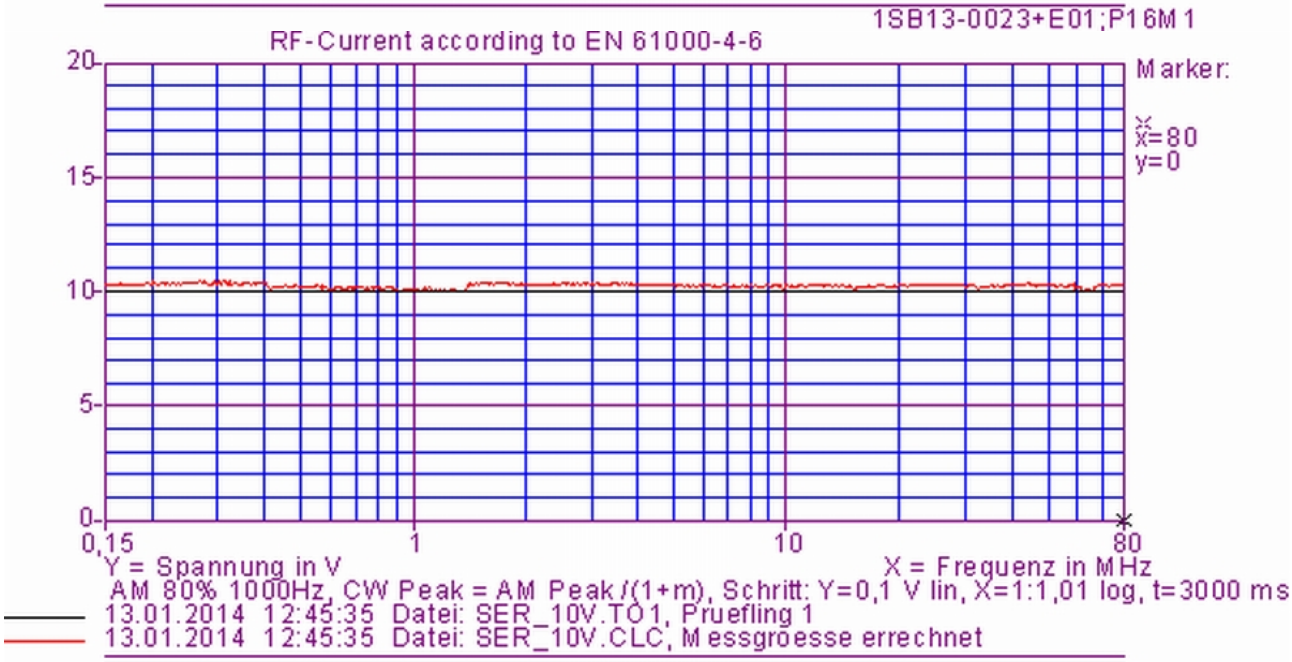
1SB13-0023+E01;P16M1



Testport: LPT

Test Result: normal function observed

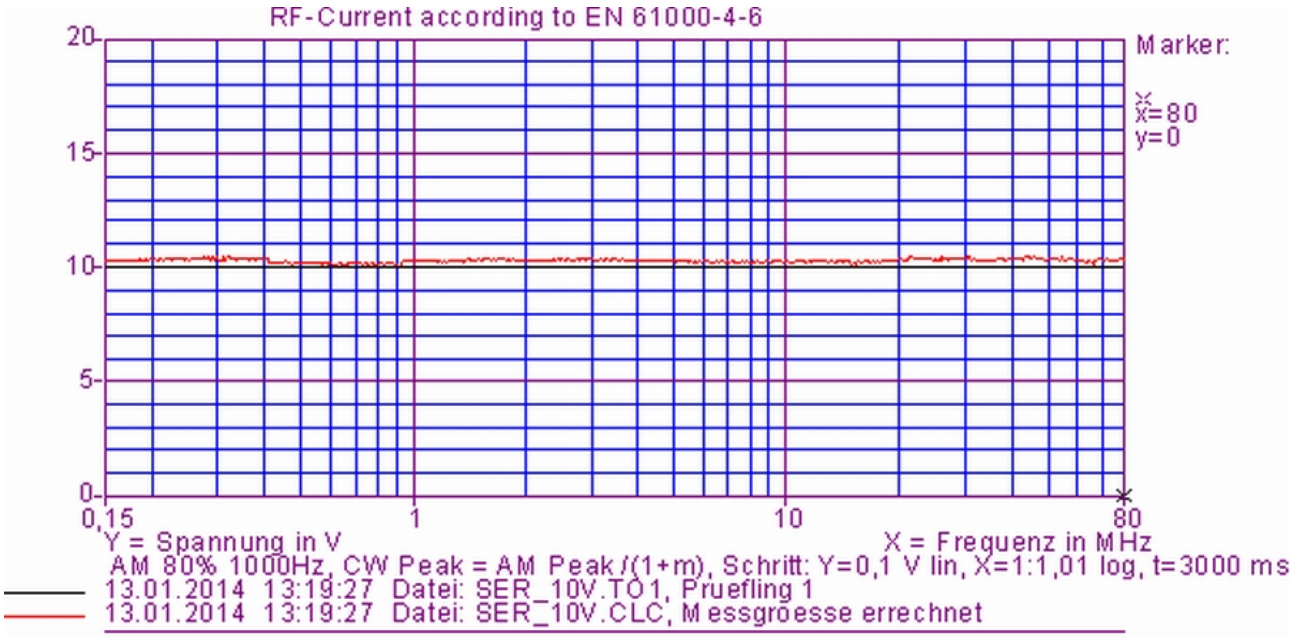
1SB13-0023+E01;P16M1



Testport: com 1

Test Result: normal function observed

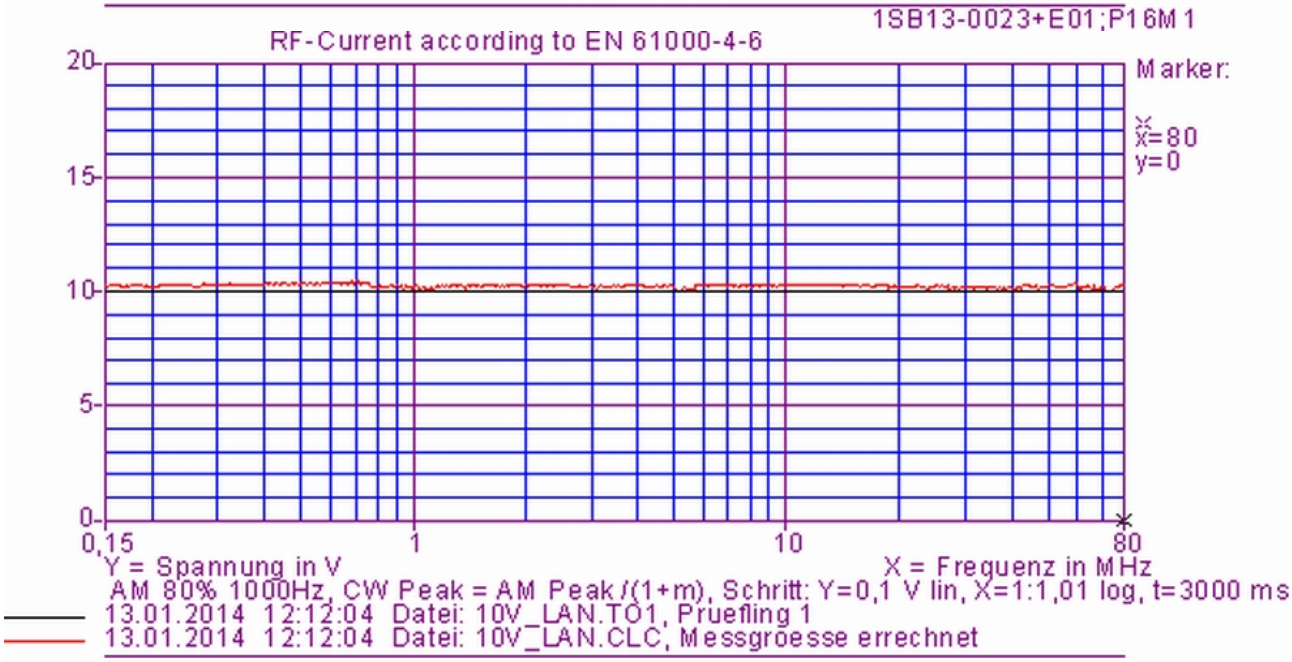
1SB13-0023+E01;P16M1



Testport: com 2

Test Result: normal function observed

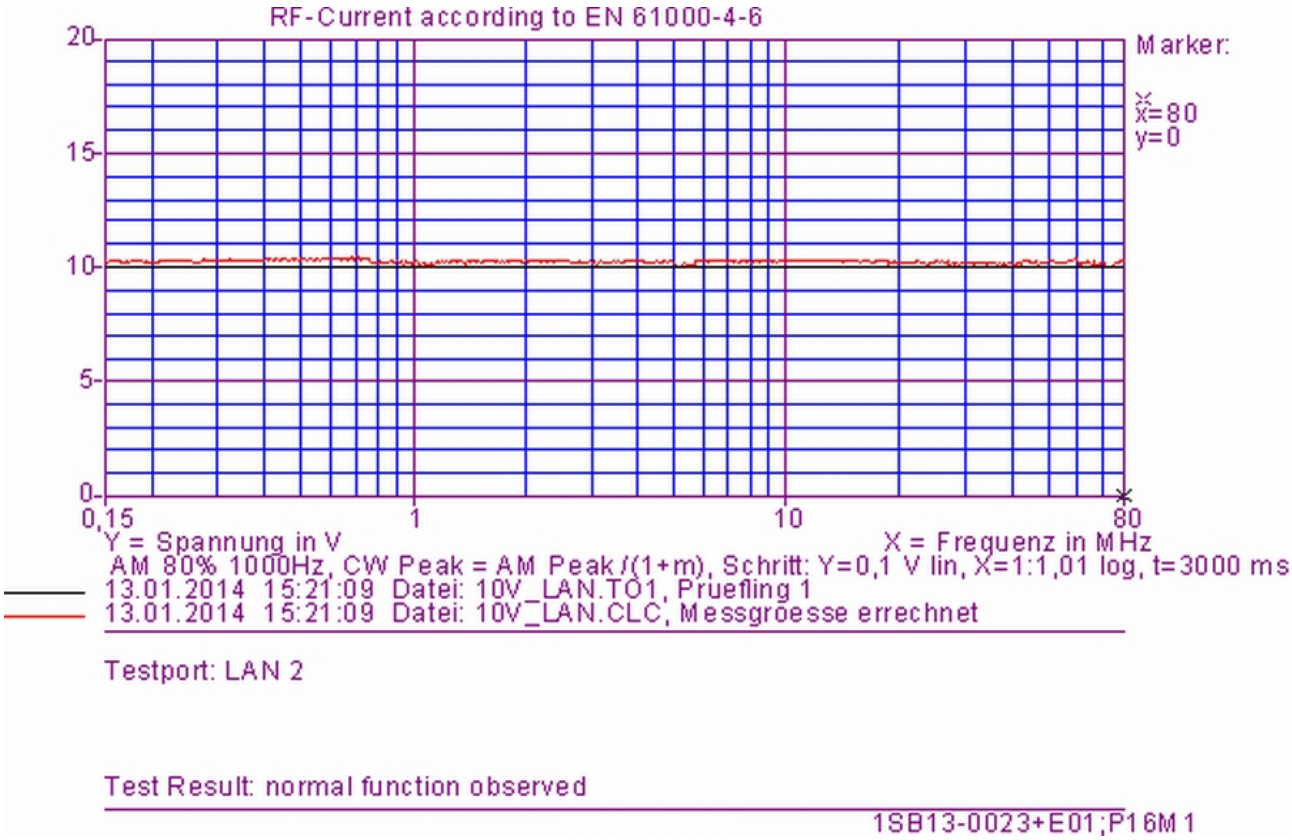
1SB13-0023+E01;P16M1



Testport: LAN

Test Result: normal function observed

1SB13-0023+E01;P16M1


RF-Current according to EN 61000-4-6
20
15
10
5
0
0,15
1
10
80
Marker:
x=80
y=0
Y = Spannung in V
X = Frequenz in MHz
AM 80% 1000Hz, CW Peak = AM Peak/(1+m), Schritt: Y=0,1 V lin, X=1:1,01 log, t=3000 ms
13.01.2014 15:21:09 Datei: 10V_LAN.TO1, Pruefling 1
13.01.2014 15:21:09 Datei: 10V_LAN.CLC, Messgroesse errechnet
Testport: LAN 2
Test Result: normal function observed
1SB13-0023+E01;P16M1

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Conducted Disturbances Immunity - front view

MEASUREMENT PHOTOS OF TEST SETUP

Figure 2 : Test set up for Conducted Disturbances Immunity - side view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Conducted Immunity 1 (2.Floor)				
Signal Generator	ROH - Rohde & Schwarz Vertriebs GmbH	100277	Jul 2013	Jul 2015
Amplifier 250L	EMV - emv GmbH, Elektronische Meßgeräte Vertriebs GmbH	12925		
Directional Coupler	EMV - emv GmbH, Elektronische Meßgeräte Vertriebs GmbH	12659	Jul 2013	Jul 2015
Power Meter NRVD	ROH - Rohde & Schwarz Vertriebs GmbH	100447	Jul 2013	Jul 2014
Attenuator 6dB ATT 6	EM-Test, EM-Test	9812109A		
CDN Mains	FCC Inc, FCC Inc	2026	Jul 2013	Jul 2014
Software EMC32	ROH - Rohde & Schwarz Vertriebs GmbH	V 9.01		

Tools used in 'P16M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P16M1'

IMPLEMENTED MODIFICATION

Modifications for Conducted Disturbance Immunity, IEC 61000-4-6:Edition 3.0:2008-10, Mains Voltage: 230V, 50Hz, TP: signal line, Start-Freq.: 0,15MHz, Stop-Freq.: 80,00MHz, 80% AM, 10,0V:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P22M1, Surge Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P22M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	16.01.2014 - 08:56

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Surge Immunity, IEC 61000-4-5 Second Edition:2005-11 Mains Voltage: 230V, 50Hz, TP: AC/DC mains, com.mode: ±2.0kV, diff.mode: ±1.0kV

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: Shielded Chamber 1
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS
Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, com.mode: ±2.0kV, diff.mode: ±1.0kV Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P22M1**

Tested ports: AC-power lines					**Test level** [+/- kV]						**Com. mode**	**Diff. mode**	**Perf. criteria**	**Comments**
L1	**L2**	**L3**	**N**	**PE**	**0,5**	**1,0**	**2,0**	**4,0**						
X			X		X							X	A	
X			X			X						X	A	
X				X	X						X		A	
			X	X	X						X		A	
X				X		X					X		A	
			X	X		X					X		A	
X				X			X				X		A	
			X	X			X				X		A	

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Surge Immunity - front view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Surge 1				
Surge Generator NSG 2050/2051	Schaffner	103-01	Nov 2013	Nov 2014
CDN-Surge CDN 131/133	Schaffner	106	Nov 2013	Nov 2015
Software WIN2050	Teseq GmbH, Teseq	V7.00		

Tools used in 'P22M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P22M1'

IMPLEMENTED MODIFICATION

Modifications for Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: AC/DC mains, com.mode: ±2.0kV, diff.mode: ±1.0kV:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.

TEST RESULT OF SINGLE PROTOCOL:	Passed

1. P23M1, Surge Immunity

ORDER	Order No.:	1SB13-0023+E01
	Measurement ID:	P23M1
	Tested by:	Vasilij Konovalov
	Measurement Date - Time:	16.01.2014 - 09:53

TEST SITE	Address:	Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86199 Augsburg, Germany

EUT	Product Name:	D3313-S
	Model:	D3313-S
	Manufacturer:	FTS
	Product Category:	Personal Computer

TEST	Description:	Surge Immunity, IEC 61000-4-5 Second Edition:2005-11 Mains Voltage: 230V, 50Hz, TP: shielded signal line, com.mode: Surge ±1.0kV, diff.mode: ±n.a.kV

CONDITIONS	Operating conditions:	scr. H; clone; HD/LAN/CPU-Test
	Supply voltage:	230V / 50Hz
	Graphic resolution:	1920x1080, 60Hz
	Test program:	Kerberos
	Test configuration:	full;
	Comment:	Test location: EMC Lab
	Humidity:	44 %
	Temperature:	25 °C
	Air Pressure:	1009 hPa

MEASUREMENT RESULT STATEMENTS
Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: shielded signal line, com.mode: Surge ±1.0kV, diff.mode: ±n.a.kV Criteria A: normal function observed

MEASUREMENT RESULTS	
Identification (Job Number)	**1SB13-0023+E01; P23M1**

Tested ports: Signal lines	**Test level** [+/- kV]						**Com. Mode**	**Diff. Mode**	**Perf. criteria**	**Comments**
Data and signal ports	0,5	1,0								
LAN 1	X	X					X	---	A	
LAN 2	X	X					X	---	A	

MEASUREMENT PHOTOS OF TEST SETUP

Figure 1 : Test set up for Surge Immunity - front view

TABLE OF USED INSTRUMENTS AND TOOLS

Type	Manufacturer	Serial No.	Last Cal.	Next Cal.
Surge 2				
Software ISMUCS	EM-Test, EM-Test	V2.543s26		
Surge Generator UCS500	EM-Test, EM-Test	0296-30	Sep 2013	Sep 2014
CDN-Surge/Burst CNI 508 N2	EM-Test, EM-Test	P1318118185	Aug 2013	Aug 2014

Tools used in 'P23M1'

TABLE OF USED PERIPHERALS

Description:	Manufacturer:	Model:	Serial No.:	Certification:
DP cable 39				
DVI cable 117				
LAN cable 101		CAT. 5e		
Parallel cable 18				
Serial cable 07				
Serial cable 37				
USB cable 2xA/miniB 76				
USB cable 2xA/miniB 97				
Mouse 117	Logitech	M-U0011-O	LZ2263300P1	BSMI No. T41126
Keyboard 55	Fujitsu	KB410 G	YKKB120830663375	BSMI No: R33073
Printer 05	HP	2225D	3124S91350	
Printer 08	HP	2225C	3011S70627	
Printer 14	Epson	P170A	CLCY296660	
Monitor 68	Fujitsu	B23T-6	YV4E030825	BSMI No. R33073
Monitor 74	Fujitsu	B23T-6	YV4E012019	BSMI No. R33073
HDD 63	Seagate	Expansion Portable 2,5" 250GB	2GH4043L	BSMI No: D33027
HDD 71	Seagate	Expansion Portable 2,5" 250GB	2GH3ZB63	BSMI No: D33027

Peripherals used in 'P23M1'

IMPLEMENTED MODIFICATION

Modifications for Surge Immunity, IEC 61000-4-5 Second Edition:2005-11, Mains Voltage: 230V, 50Hz, TP: shielded signal line, com.mode: Surge ±1.0kV, diff.mode: ±n.a.kV:

Cause:

Countermeasure:

Comments:

PHOTOS OF IMPLEMENTED MODIFICATION

No modification photos available.