



Accredited testing-laboratory

DAR registration number: DAT-P-176/94-D1

**Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97**

Recognized by the Federal Communications Commission

Anechoic chamber registration no.: 90462 (FCC)

Anechoic chamber registration no.: 3463A-1 (IC)

Certification ID: DE 0001

Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

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Test report no. : 1-0384-01-09/08-D
**Type identification : Short Range Radio Module intended for IntelliVue
MP5/MP5T**
Applicant : Philips Medizin Systeme Böblingen GmbH
FCC ID : PQC-SRRBV1
IC Certification No : 3549C-SRRBV1
**Test standards : 47 CFR Part 15
RSS - 210 Issue 7**

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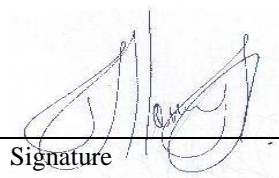
1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:

2008-12-08 Daniel Muyunga
Date Name

Signature 

2008-12-08 Meheza Kpelou Walla
Date Name

Signature 

Technical responsibility for area of testing:

2008-12-08 Michael Berg
Date Name

Signature 

1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10

66117 Saarbrücken

Germany

Phone: + 49 681 5 98 - 0

Fax: + 49 681 5 98 - 9075

e-mail: info@ICT.cetecom.de

Internet: http://www.cetecom-ict.de

State of accreditation: The test laboratory (area of testing) is accredited according to
DIN EN ISO/IEC 17025
DAR registration number: DAT-P-176/94-D1

Accredited by: Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97

Testing location, if different from CETECOM ICT Services GmbH:

Name :
Street :
Town :
Country :
Phone :
Fax :

1.3 Details of applicant

Name:	Philips Medizin Systeme Böblingen GmbH
	Patient Monitoring
Street:	Hewlett-Packard-Strasse 2
Town:	71034 Böblingen
Country:	Germany
Telephone:	
Fax:	+49-7031-463 2944
Contact:	Herrn Stefan Breuer
E-mail:	stefan.breuer@philips.com
Telephone:	+49-7031-463 2321

1.4 Application details

Date of receipt of order:	2008-05-07
Date of receipt of test item:	2008-09-02
Date of start test:	2008-10-02
Date of end test	2008-10-28
Persons(s) who have been present during the test:	-/-

2 Test standard/s:

47 CFR Part 15	2007-09	Title 47 of the Code of Federal Regulations; Chapter I- Federal Communications Commission subchapter A - general, Part 15-Radio frequency devices
RSS - 210 Issue 7	2007-06	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

3 Technical tests

3.1 Details of manufacturer

Name:	Philips Medizin Systeme Böblingen GmbH Patient Monitoring
Street:	Hewlett-Packard-Strasse 2
Town:	71034 Böblingen
Country:	Germany

3.1.1 Test item

Kind of test item	:	SRR Module
Type identification	:	Short Range Radio Module intended for IntelliVue MP5/MP5T
S/N serial number	:	SRR Module: Radiated sample: FH 815000128 (EUT) Conducted sample: FH 821000242 Monitor: DE74807551
HW hardware status	:	M8100-66491 Rev. 0818
SW software status	:	-/-
Frequency Band [MHz]	:	ISM 2,400 – 2,483.5
Type of Modulation	:	DSSS
Number of channels	:	16
Channel separation	:	5 MHz
Antenna	:	Integrated antenna on board
Emission designator	:	5M00G1D
Power Supply	:	10.80 V DC by Li-Ion Battery (M4605A)
Temperature Range	:	-20 °C to +55 °C

FCC ID: PQC-SRRBV1
IC: 3549C-SRRBV1

3.1.2 Additional EUT information For IC Canada (appendix 2)

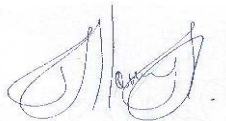
IC Registration Number:	3549C-SRRBV1
Model Name:	Short Range Radio Module intended for IntelliVue MP5/MP5T
Manufacturer (complete Address):	Philips Medizin Systeme Böblingen GmbH Hewlett-Packard-Strasse 2 71034 Böblingen Germany
Tested to Radio Standards Specification (RSS) No.:	RSS-210 Issue 7
Open Area Test Site Industry Canada Number:	IC 3463A-1
Frequency Range (or fixed frequency) [MHz]:	2400 – 2483.5 MHz
RF: Power [W] (max) ² :	Transceiver 1: Rad. EIRP: 0.77 mW Conducted : 1.14 mW Transceiver 2: Rad. EIRP: 0.67 mW
Antenna Type:	Integrated antenna on board
Field Strength [dBμV/m in 3m]:	91.60 ²
Occupied Bandwidth (99% BW) [kHz] *:	2685 ²
Type of Modulation:	DSSS ²
Emission Designator (TRC-43*):	2M69G1D (DSSS) ²
Transmitter Spurious (worst case) [dBμV/m in 10m]:	36.8
Receiver Spurious (worst case) [dBμV/m in 10m]:	34.8

²(Information also available in test report 1-0384-01-03/08-E)

ATTESTATION:

I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:



Test engineer: Daniel K. Muyunga

Date: 2008-10-28

3.1.3 RF Technical Brief Cover Sheet acc. To RSS-102

All Fields must be completed with the requested information or the following codes: N/A for Not Applicable, N/P for Not Performed or N/V for Not Available. Where applicable, check appropriate box.

Information also available in test report 1-0384-01-03/08-D

1. COMPANY NUMBER: **3549C**
2. MODEL NUMBER: **Short Range Radio Module intended for IntelliVue MP5/MP5T**
3. MANUFACTURER: **Philips Medizin Systeme Böblingen GmbH**
4. TYPE OF EVALUATION: **(c) RF Evaluation**

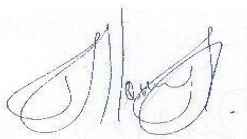
(c) RF Evaluation

- Evaluated against exposure limits: General Public Use Controlled Use
- Duty cycle used in evaluation: ~ 10 %
- Standard used for evaluation: RSS-102 Issue 2 (2005-11)
- Measurement distance: 0.20 m
- RF value: 0.00153 V/m A/m W/m²
Measured Computed Calculated

Declaration of RF Exposure Compliance

ATTESTATION:

I attest that the information provided in this testreport is correct; that a Technical Brief was prepared and the information it contains is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed and that the device meets the SAR and/or RF exposure limits of RSS-102.



Name: Muyunga, Daniel K.

Title: Dipl.-Ing. (FH)

Company: Cetecom ICT Services GmbH

3.1.4 EUT operating modes

EUT operating mode no. *)	Description of operating modes	Additional information
Op. 0	Normal mode	Normal temperature and power source conditions
Op. 1		low temperature, low power source conditions
Op. 2		low temperature, high power source conditions
Op. 3		high temperature, low power source conditions
Op. 4		high temperature, high power source conditions

*) EUT operating mode no. is used to simplify the test plan

3.1.5 Extreme conditions testing values

Description	Shortcut	Unit	Value
Nominal Temperature	T _{nom}	°C	+23
Nominal Humidity	H _{nom}	%	53
Nominal Power Source	V _{nom}	V	10.80

Type of power source: **DC by Li-Ion Battery (M4605A)**

Deviations from these values are reported in chapter 2

4 Summary of Measurement Results and list of all performed test cases

- No deviations from the technical specifications were ascertained
- There were deviations from the technical specifications ascertained

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC Part 15 §15.209 FCC Part 15 §15.207 FCC Part 15 §15.109 FCC Part 15 §15.107 CANADA RSS-210	PASS	2008-10-28	-/-

Test Specification Clause	Test Case	Pass	Fail	Not applicable	Not performed
§ 15.209	Spurious Emission -radiated (Transmitter)	Yes			
§ 15.109	Spurious Emissions-radiated (Receiver)	Yes			
§ 15.209	Spurious Emissions-radiated <30 MHz	Yes			
§ 15.107/207	AC Line Conducted Emissions <30 MHz	Yes			

5 RF measurement testing

5.1 Description of test set-up

5.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber.

The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.

The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2003 clause 4.2.

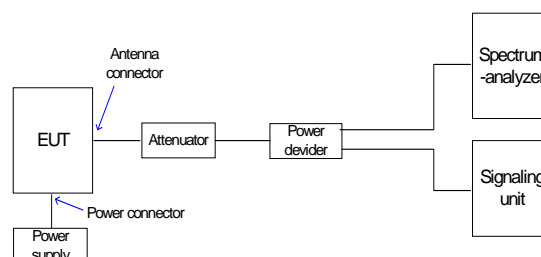
Antennas are confirmed with ANSI C63.2-1996 item 15.

- 9 kHz - 150 MHz: Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.
- 150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, passive loop antenna.
- 30 MHz - 200 MHz: Quasi Peak measurement, 120 kHz Bandwidth, biconical antenna
- 200MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, log periodic antenna
- >1GHz: Average, RBW 1MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.209 and 15.207

5.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is connected to the spectrum analyzer. The specific losses for signal path are first checked within a calibration. The measurement readings on the spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



5.2 Referenced Documents

None

5.3 Additional comments

Class A spurious emissions tests were carried out at the lowest, middle and highest operating frequency and in idle mode. Additionally, the hosting monitor was tested alone without the short range radio module in order to distinguish the spurious emissions of the transmitter module from those originated by the class A hosting monitor.

For the transmitter spurious emissions tests on the short range radio module mounted in the class A monitor, please refer to chapter 5.4 page 13.

For spurious emissions tests on both the IntelliVue MP5/MP5T (host monitor) and the Short Range Radio Module, please see chapter 5.5 page 23.

IntelliVue MP5T Reference

The IntelliVue MP5T monitor is the marketing variant of the IntelliVue MP5, which provides reduced functionality. Both monitor models the MP5 and the MP5T have the same hardware and software.

Compared to the MP5 the following measurements were removed from the MP5T: ECG, invasive pressure, CO₂, and temperature. The following interface capabilities were removed: LAN, WLAN, IntelliVue Instrument Telemetry, and MSL.

For this reason all radio tests performed on the MP5 are also representative for the MP5T.

5.4 Spurious Emissions - radiated (Transmitter) §15.209

Plot 1: 0.03 - 1 GHz (lowest channel)

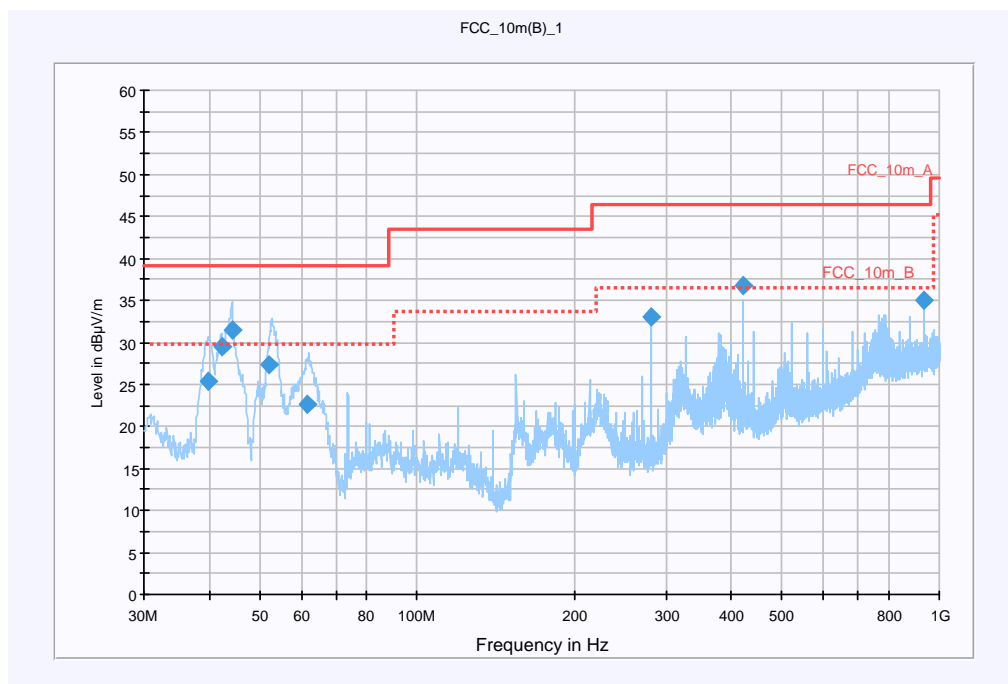
Information

EUT:	Intellivue MP5/MP5T and Short Range Radio Module
Serial Number:	-/-
Test Description:	FCC class A @ 10 m
Operating Conditions:	TX-Mode (Low Channel)
Operator Name:	WAL
Comment:	Module powered with DC: 8.8 V

Scan Setup: FCC_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



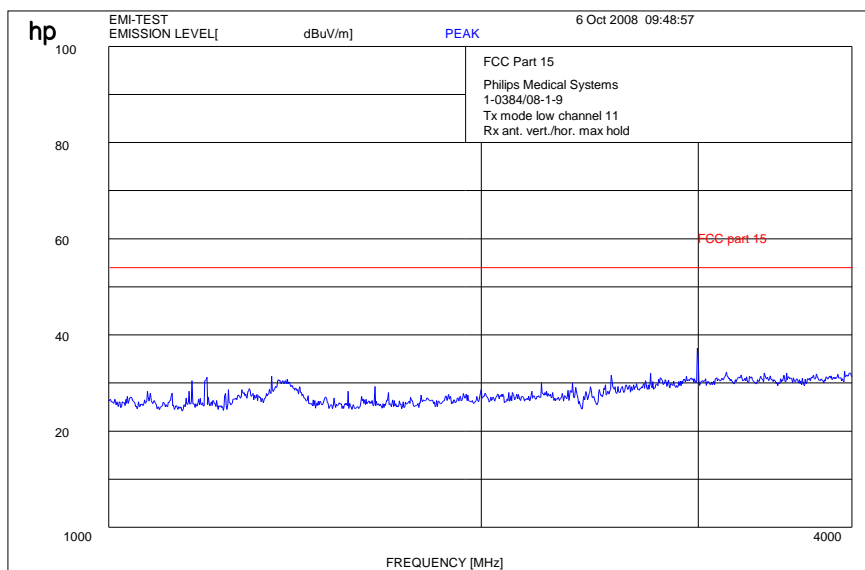
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
39.898450	25.3	15000.000	120.000	107.0	V	50.0	13.6	13.8	39.1
42.299200	29.5	15000.000	120.000	100.0	V	323.0	13.5	9.6	39.1
44.224950	31.5	15000.000	120.000	100.0	V	132.0	13.4	7.6	39.1
52.229450	27.4	15000.000	120.000	200.0	V	226.0	13.3	11.7	39.1
61.848900	22.7	15000.000	120.000	111.0	V	99.0	11.4	16.4	39.1
280.003250	32.4	15000.000	120.000	211.0	H	178.0	14.2	14.0	46.4
420.030800	36.8	15000.000	120.000	211.0	H	178.0	17.2	9.6	46.4
935.728700	35.0	15000.000	120.000	100.0	H	323.0	25.9	11.4	46.4

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

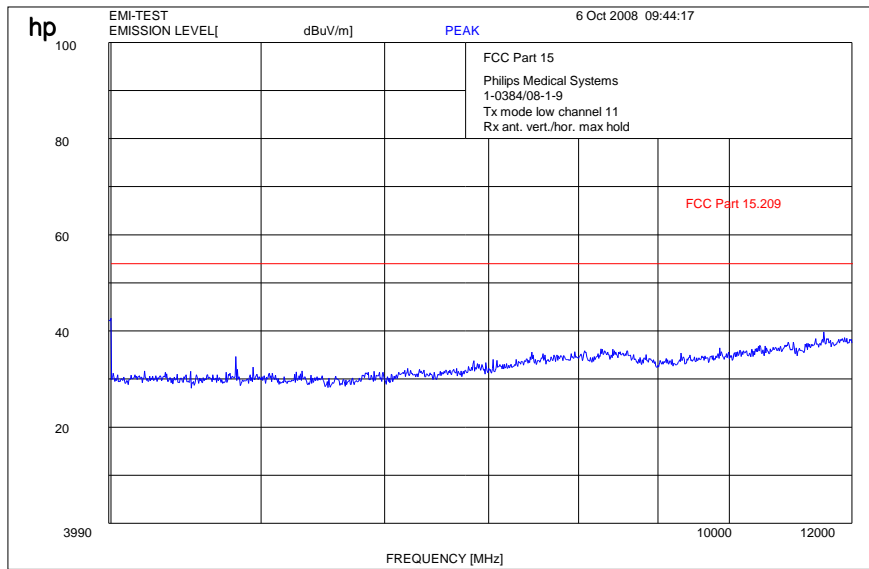
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0908)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

Plot 2: 1 - 4 GHz (lowest channel)

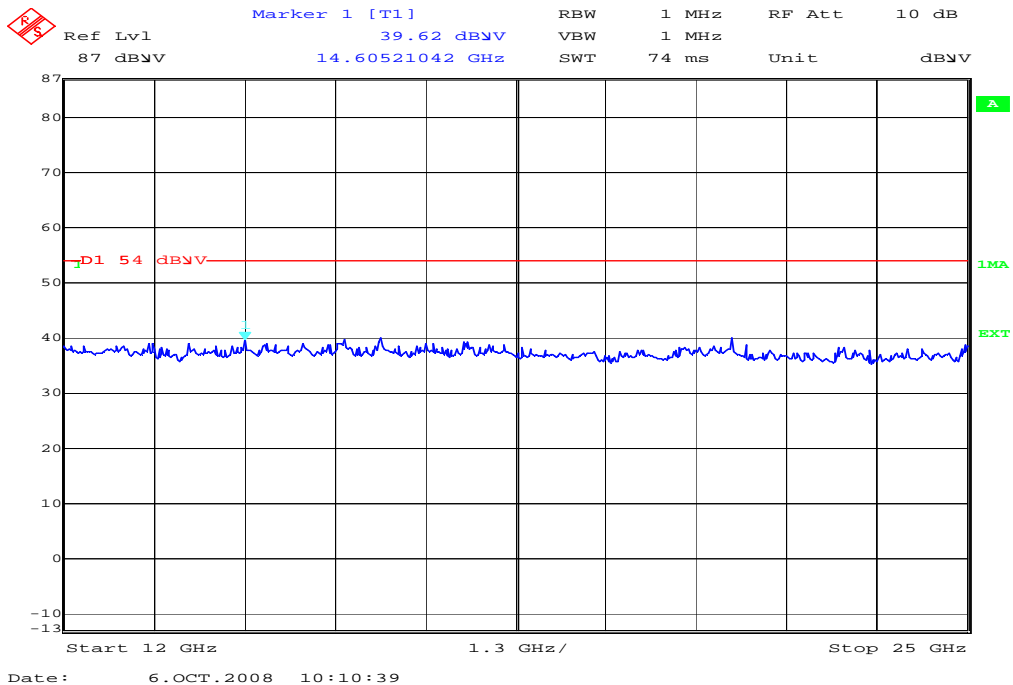


Carrier suppressed with 2.4 GHz rejection filter.

Plot 3: 4- 12 GHz (lowest channel)



Plot 4: 12- 25 GHz (valid for all channels)



Plot 5: 0.03 - 1 GHz (middle channel)

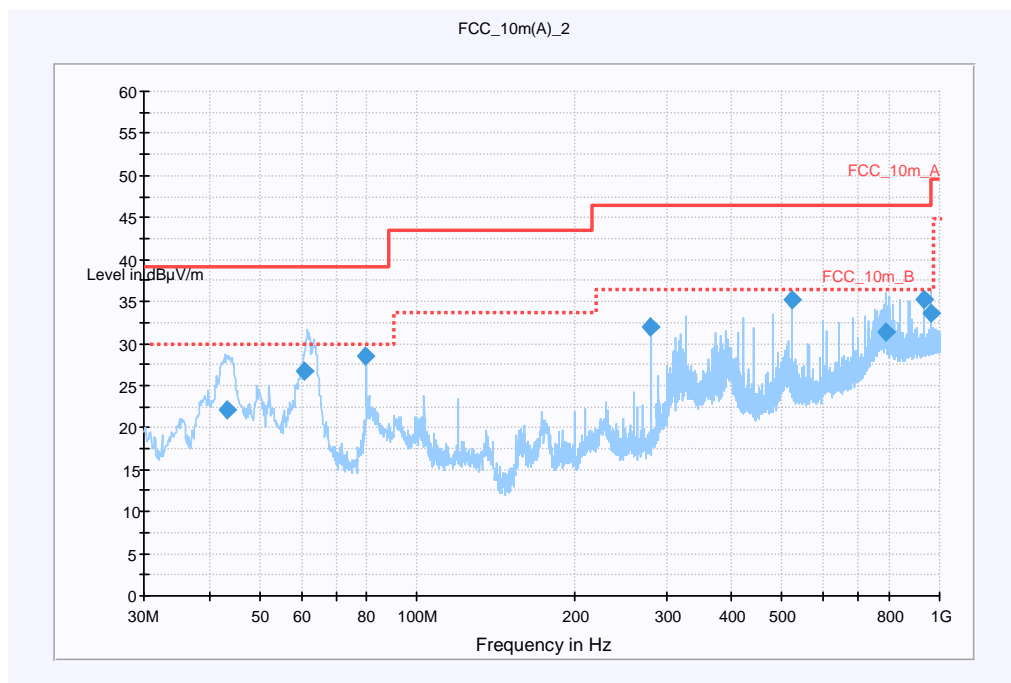
Information

EUT:	Intellivue MP5/MP5T and Short Range Radio Module
Serial Number:	-/-
Test Description:	FCC class A @ 10 m
Operating Conditions:	TX-Mode (Middle Channel)
Operator Name:	ZAK
Comment:	Module powered with DC: 8.8 V

Scan Setup: FCC_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dB μ V/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



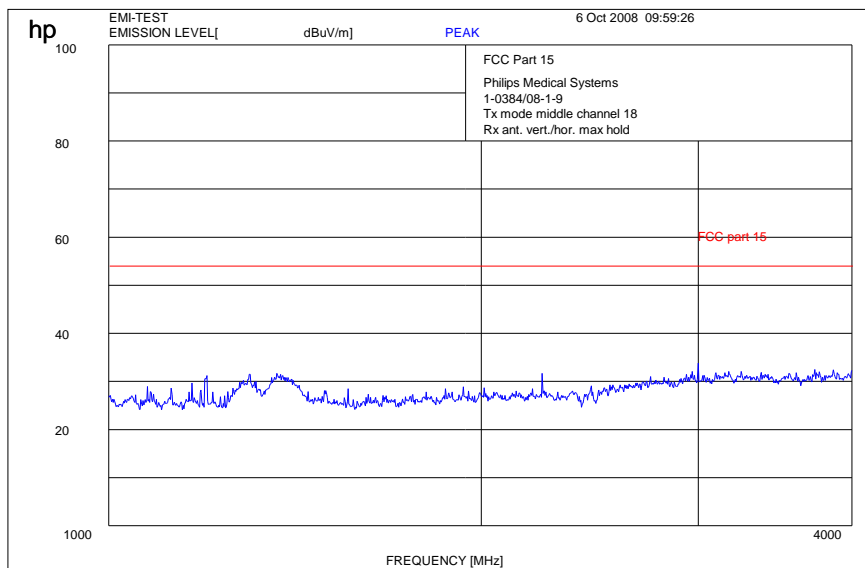
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
43.411240	21.9	15000.000	120.000	100.0	V	10.0	13.5	17.2	39.1
61.290800	26.3	15000.000	120.000	309.0	V	78.0	11.5	12.8	39.1
79.993690	28.2	15000.000	120.000	327.0	V	243.0	9.4	10.9	39.1
280.003260	32.1	15000.000	120.000	100.0	V	149.0	14.2	14.3	46.4
520.031150	35.1	15000.000	120.000	158.0	H	182.0	19.0	11.3	46.4
787.886700	31.3	15000.000	120.000	107.0	H	163.0	24.2	15.1	46.4
935.738550	34.1	15000.000	120.000	100.0	H	320.0	25.9	12.3	46.4
960.056850	33.7	15000.000	120.000	200.0	V	0.0	26.0	15.8	49.5

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

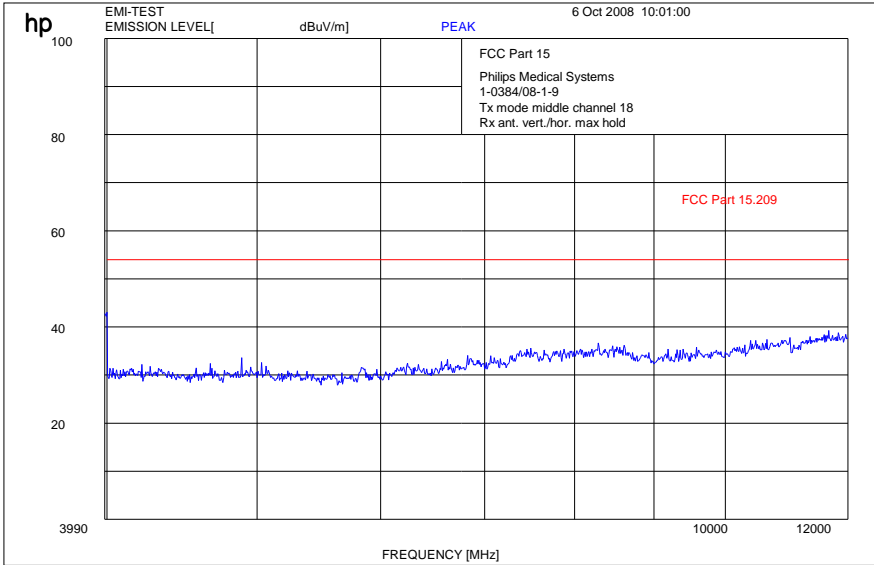
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0908)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

Plot 6: 1 - 4 GHz (middle channel)



Carrier suppressed with 2.4 GHz rejection filter.

Plot 7: 4- 12 GHz (middle channel)



Plot 8: 0.03 - 1 GHz (highest channel)

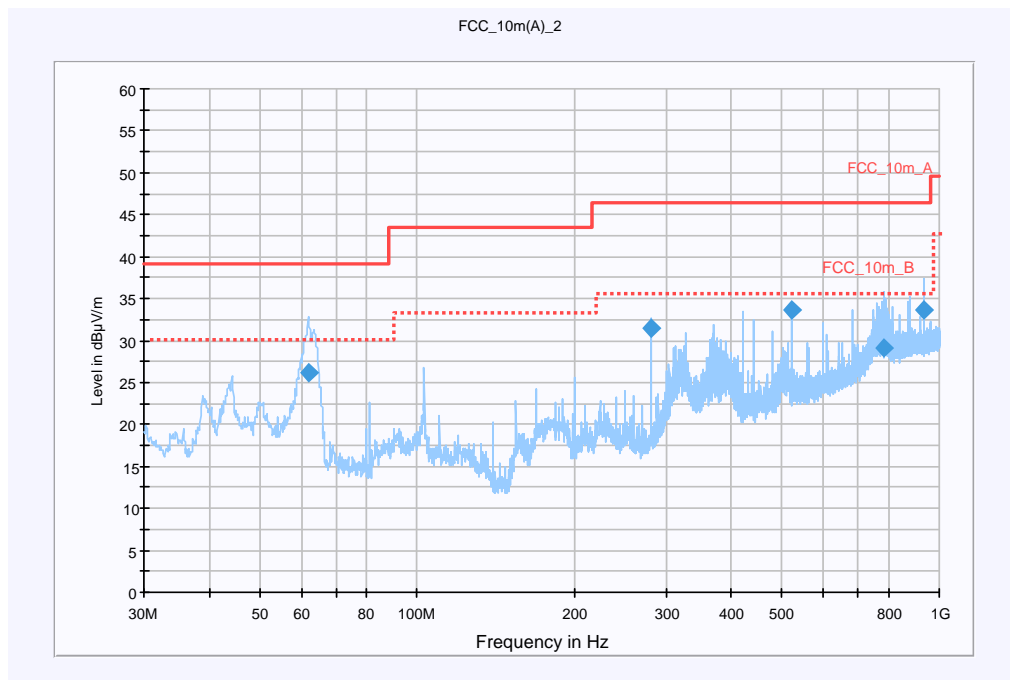
Information

EUT:	Intellivue MP5/MP5T and Short Range Radio Module
Serial Number:	-/-
Test Description:	FCC class A @ 10 m
Operating Conditions:	TX-Mode (High Channel)
Operator Name:	WAL
Comment:	Module powered with DC: 8.8 V

Scan Setup: FCC_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dB μ V/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



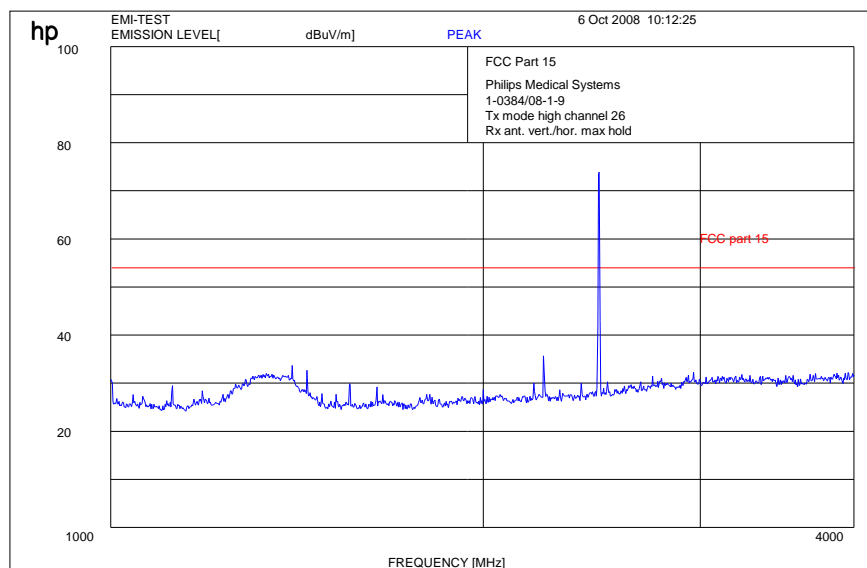
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
62.256250	26.2	15000.000	120.000	300.0	V	105.0	11.3	12.9	39.1
280.027550	31.5	15000.000	120.000	100.0	V	170.0	14.2	14.9	46.4
520.041350	33.6	15000.000	120.000	169.0	H	178.0	19.0	12.8	46.4
781.981600	29.1	15000.000	120.000	100.0	H	154.0	24.2	17.3	46.4
935.821700	33.7	15000.000	120.000	100.0	H	29.0	25.9	12.7	46.4

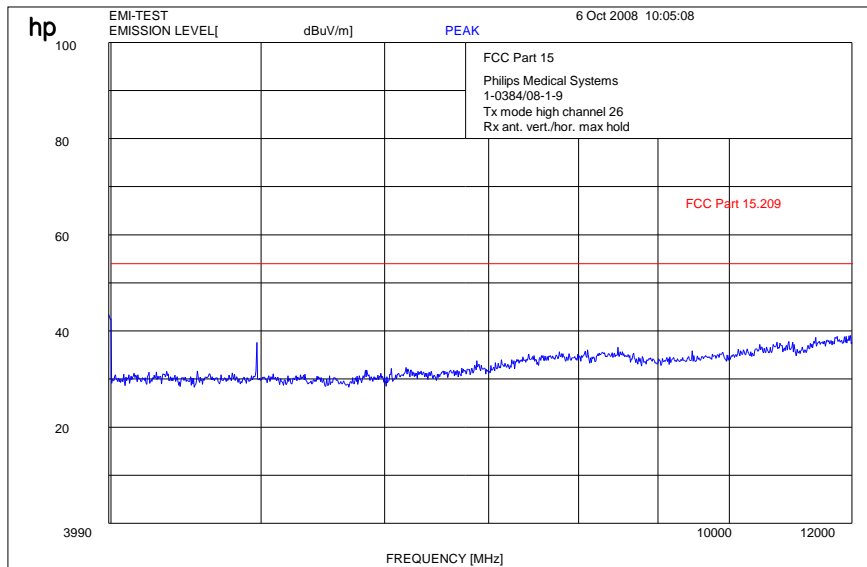
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0908)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

Plot 9: 1 - 4 GHz (highest channel)



Plot 10: 4- 12 GHz (highest channel)



Results:

SPURIOUS EMISSIONS LEVEL §15.209								
2412 MHz			2437 MHz			2462 MHz		
Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]
No critical peak detected!			No critical peak detected!			No critical peak detected!		
And/or see tables below plots								
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW/VBW: 1 MHz

Limits:

§ 15.247 (c)

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limits:

§ 15.109

Frequency (MHz)	Field strength (dB μ V/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

5.5 Spurious Emissions - radiated (Receiver) §15.109 / 209

IntelliVue MP5/MP5T and Short Range Radio Module

Plot 1: 0.03 - 1 GHz vertical / horizontal (receiver)

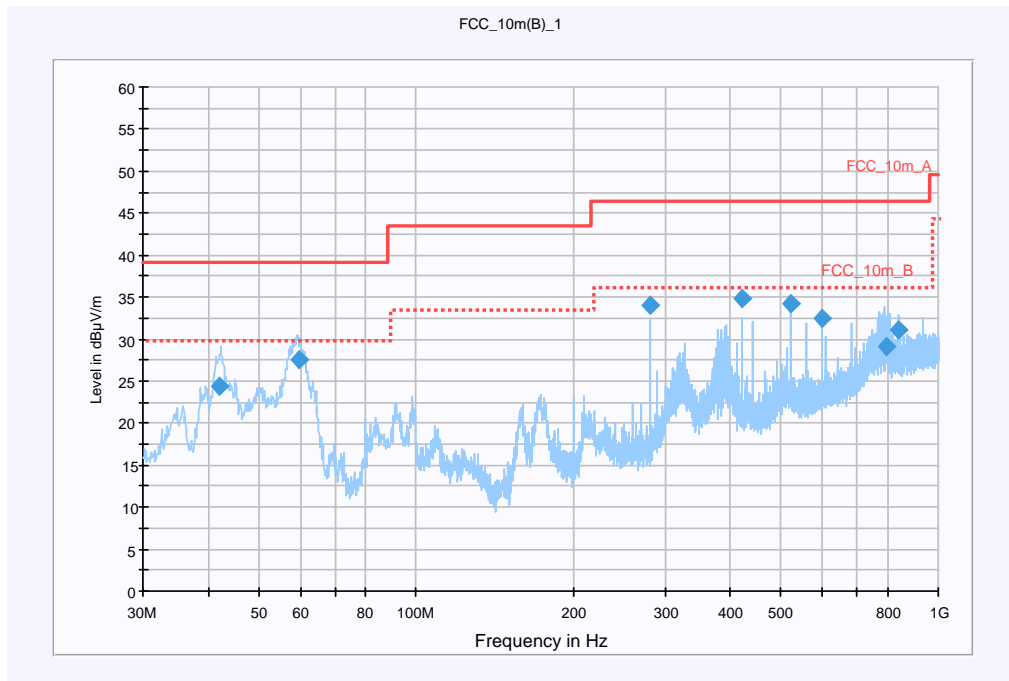
Information

EUT:	IntelliVue MP5/MP5T and Short Range Radio Module
Serial Number:	-/-
Test Description:	FCC class A @ 10 m
Operating Conditions:	Idle mode
Operator Name:	WAL
Comment:	Module powered with DC: 8.8 V

Scan Setup: FCC_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
42.099750	24.3	15000.000	120.000	100.0	V	90.0	13.5	14.8	39.1
59.559450	27.5	15000.000	120.000	278.0	V	292.0	11.9	11.6	39.1
280.025900	34.0	15000.000	120.000	106.0	V	159.0	14.2	12.4	46.4
420.029000	34.8	15000.000	120.000	200.0	H	190.0	17.2	11.6	46.4
520.020650	34.3	15000.000	120.000	176.0	H	193.0	19.0	12.1	46.4
600.036350	32.4	15000.000	120.000	125.0	H	193.0	20.9	14.0	46.4
791.770200	29.1	15000.000	120.000	350.0	H	169.0	24.2	17.3	46.4
840.065750	31.1	15000.000	120.000	106.0	H	171.0	24.9	15.3	46.4

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0908)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

IntelliVue MP5/MP5T (Host)

Plot 2: 0.03 - 1 GHz vertical / horizontal (receiver)

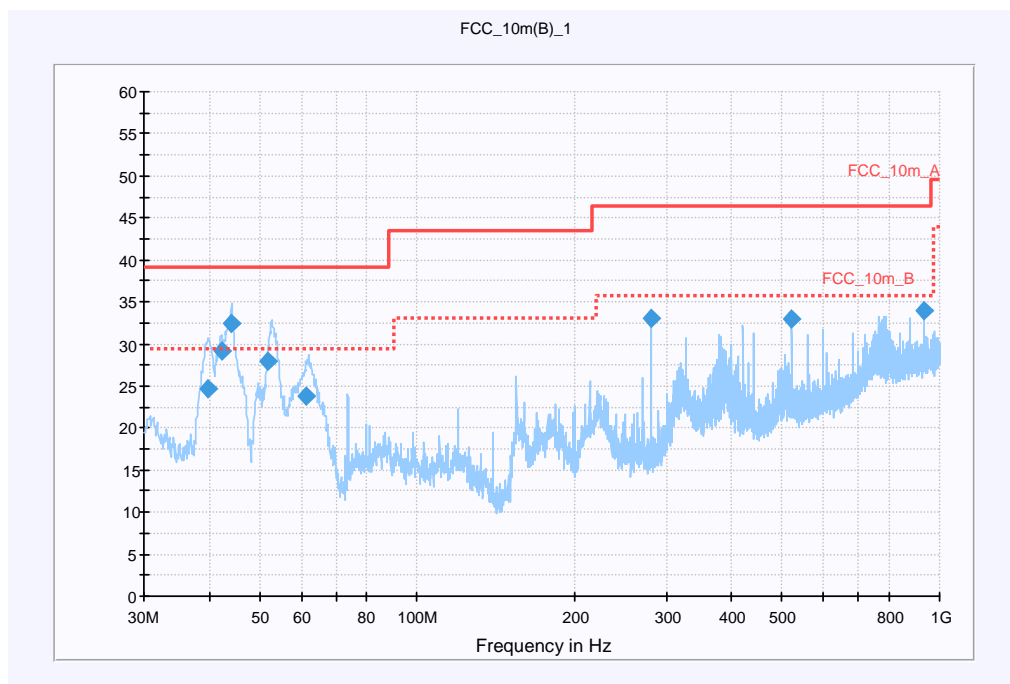
Information

EUT:	Intellivue MP5/MP5T
Serial Number:	-/-
Test Description:	FCC class A @ 10 m
Operating Conditions:	Idle mode
Operator Name:	ZAK
Comment:	

Scan Setup: FCC_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
39.990260	24.6	15000.000	120.000	107.0	V	50.0	13.6	14.5	39.1
43.000010	27.2	15000.000	120.000	100.0	V	323.0	13.5	11.9	39.1
44.184880	32.2	15000.000	120.000	100.0	V	132.0	13.4	6.9	39.1
52.231680	28.1	15000.000	120.000	200.0	V	226.0	13.3	11.0	39.1
61.850710	23.9	15000.000	120.000	111.0	V	99.0	11.4	15.2	39.1
280.022600	32.8	15000.000	120.000	100.0	V	155.0	14.2	13.6	46.4
520.035050	34.7	15000.000	120.000	177.0	H	188.0	19.0	11.7	46.4
935.747000	34.6	15000.000	120.000	100.0	H	35.0	25.9	11.8	46.4

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0908)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

Short Range Radio Module

Plot 3: 0.03 - 1 GHz vertical / horizontal (receiver)

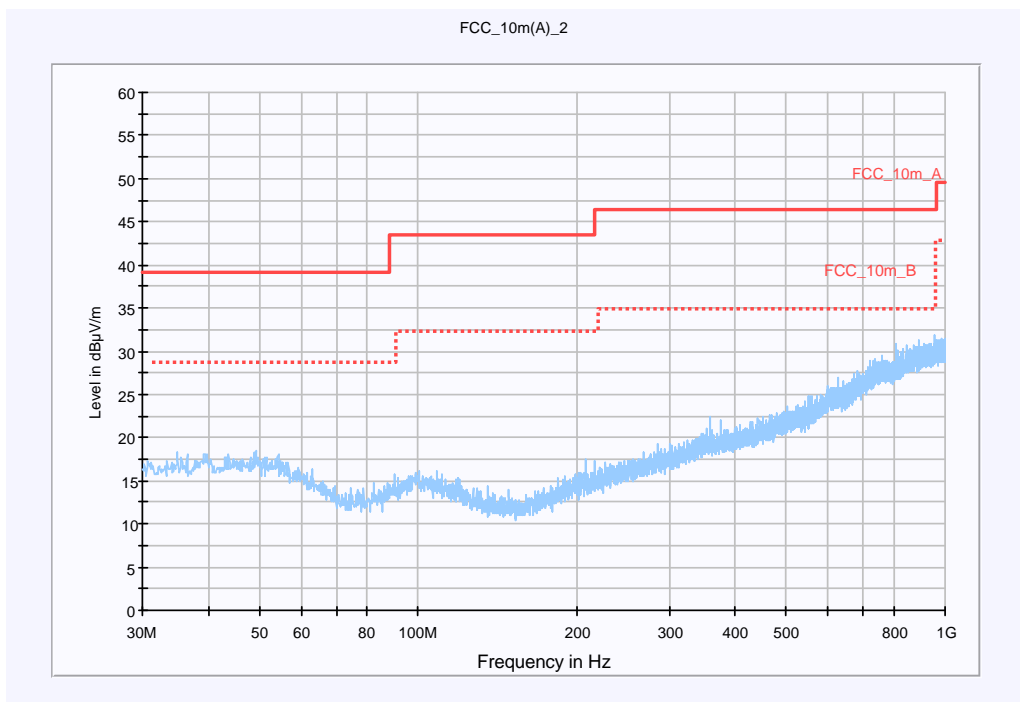
Information

EUT:	Short Range Radio Module
Serial Number:	-/-
Test Description:	FCC class A @ 10 m
Operating Conditions:	Idle mode
Operator Name:	WAL
Comment:	Powered with Dc: 8.8 V

Scan Setup: FCC_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dB μ V/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



This Measurement demonstrates that the short Range Radio module complies with FCC class B limits and the IntelliVue MP5/MPT5 host monitor complies with FCC class A limits. Refer to the test report 1-0384-01-03/08-D.

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0908)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

EMC 32 Version 6.30.10 + Service Pack 2

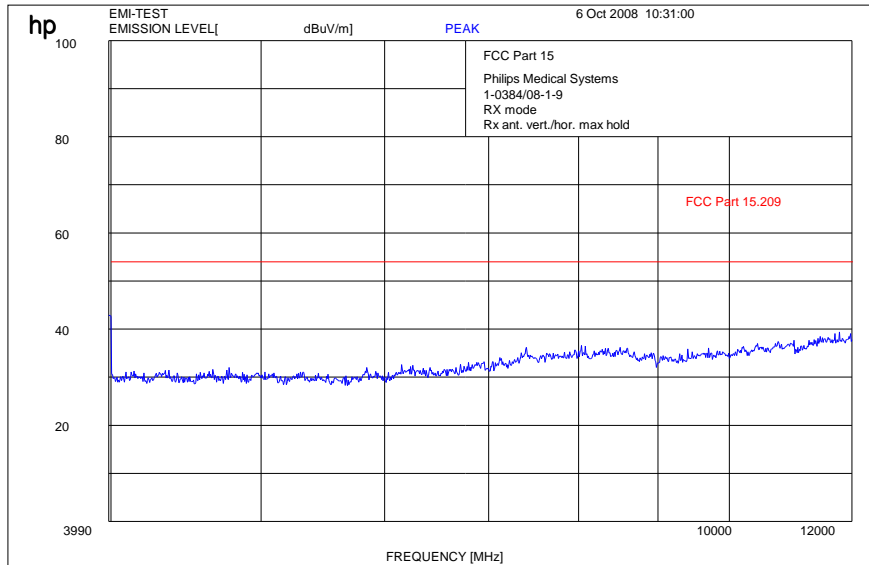
Plot 4: 1 - 4 GHz vertical / horizontal (receiver)

Valid for both the IntelliVue MP5/MP5T host monitor and the Short Range Radio Module



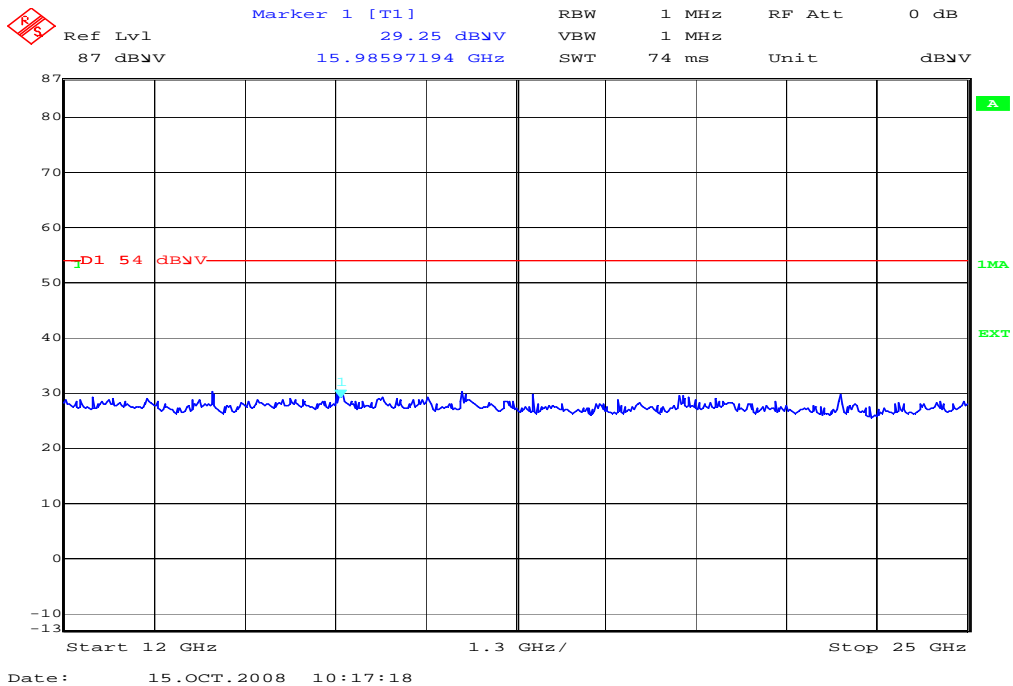
Plot 5: 4- 12 GHz (receiver)

Valid for both intelliVue MP5/MP5T host monitor and the Short Range Radio Module



Plot 6: 12- 25 GHz (receiver)

Valid for both intelliVue MP5/MP5T host monitor and the Short Range Radio Module



Results:

Spurious Emissions level [dBμV/m]		
Frequency [MHz]	Detector	Level [dBμV/m]
No critical peak detected!		
And/or see tables below plots		
Measurement uncertainty		±3 dB

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW/VBW: 1 MHz

See above plots

Measurement distance see table

Limits:

§ 15.109

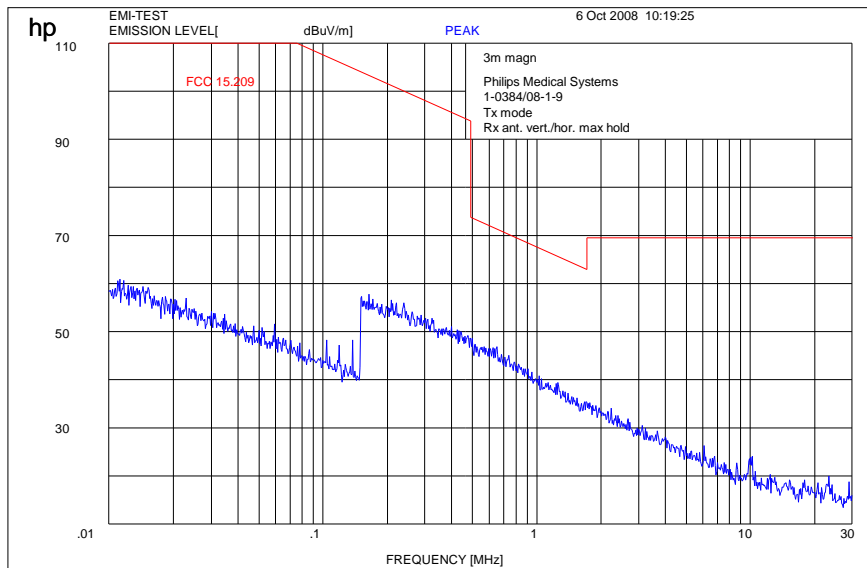
Frequency (MHz)	Field strength (dBμV/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

5.6 Spurious Emissions - radiated <30 MHz §15.209

Measured at 3 m distance.

Values recalculated with 40 dB/decade according to FCC rules.

Plot 1:

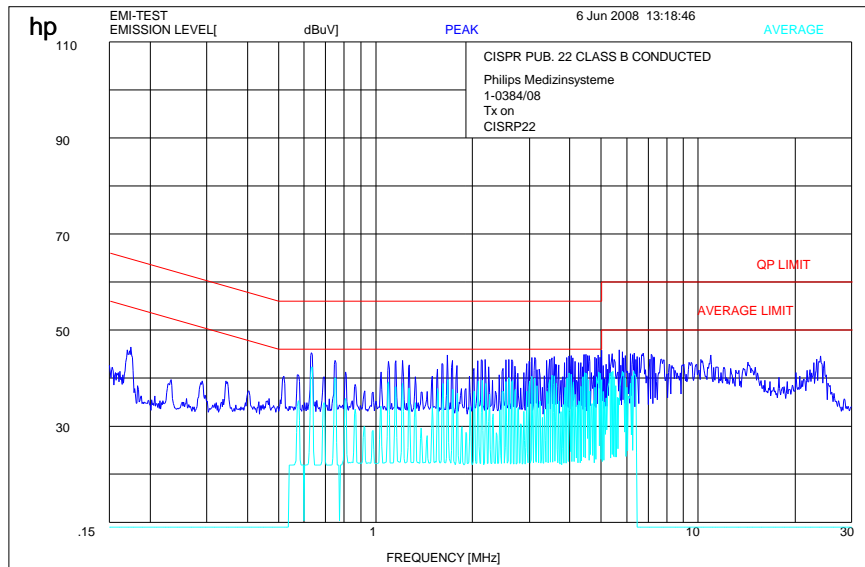


Limits:

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30 / 29.5 dB $\mu\text{V/m}$	30
30 - 88	100 / 40 dB $\mu\text{V/m}$	3
88 - 216	150 / 43.5 dB $\mu\text{V/m}$	3
216 - 960	200 / 46 dB $\mu\text{V/m}$	3
above 960	54 dB $\mu\text{V/m}$	3

5.7 AC Line Conducted Emissions <30 MHz §15.107/207

Plot 1: CISPR 22



We measured in TX and RX mode, L1 and N floating and grounded, max value was hold.

Limits:

Under normal test conditions only	See plots
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6 Test equipment and ancillaries used for tests

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

All reported calibration intervals are calibrations according to the EN/ISO/IEC 17025 standard. These calibrations were performed from an accredited external calibration laboratory.

Additional to these calibrations the laboratory performed comparison measurements with other calibrated systems and performed a weekly chamber inspection.

All used devices are connected with a 10 MHz external reference.

According to the manufacturers' instruction is it possible to establish a calibration interval for the FSP unit of 24 month, if the device has an external 10 MHz reference.

Anechoic chamber C:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	Anechoic chamber	MWB	87400/02	300000996	Monthly verification		
2	System-Rack 85900	HP I.V.	*	300000222	n.a.		
3	Measurement System 1						
4	Spektrum Analyzer 8566B	HP	3138A07614	300001207	13.12.2007	24	13.12.2009
5	Spektrum Analyzer Display 85662A	HP	3144A28627	300001208	13.12.2007	24	13.12.2009
6	Quasi-Peak-Adapter 85650A	HP	2811A01204	300002308	13.12.2007	24	13.12.2009
7	RF-Preselector 85685A	HP	2837A00778	300002448	13.12.2007	24	13.12.2009
8	PC Vectra VL	HP		300001688	n.a.		
9	Software EMI	HP		300000983	n.a.		
10	Measurement System 2						
11	FSP 30	R&S	100886	300003575	25.08.2008	24	25.08.2010
12	PC	F+W			n.a.		
13	TILE	TILE			n.a.		
14	Biconical antenna	EMCO	S/N: 860 942/003		Monthly verification (System cal.)		
15	Log. Period. Antenna 3146	EMCO	2130	300001603	Monthly verification (System cal.)		
16	Double Ridged Antenna HP 3115P	EMCO	3088	300001032	Monthly verification (System cal.)		
17	Active Loop Antenna 6502	EMCO	2210	300001015	Monthly verification (System cal.)		
18	Power Supply 6032A	HP	2818A03450	300001040	12.05.2007	36	12.05.2010
19	Busisolator	Kontron		300001056	n.a.		
20	Leitungsteiler 11850C	HP		300000997	Monthly verification (System cal.)		
21	Power attenuator 8325	Byrd	1530	300001595	Monthly verification (System cal.)		
22	Band reject filter WRCG1855/1910	Wainwright	7	300003350	Monthly verification (System cal.)		
23	Band reject filter WRCG2400/2483	Wainwright	11	300003351	Monthly verification (System cal.)		

SRD Laboratory Room 002:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	System Controller PSM 12	R&S	835259/007	3000002681-00xx	n.a.		
2	Memory Extension PSM-K10	R&S	To 1	3000002681	n.a.		
3	Operating Software PSM-B2	R&S	To 1	3000002681	n.a.		
4	19" Monitor		22759020-ED	3000002681	n.a.		
5	Mouse		LZE 0095/6639	3000002681	n.a.		
6	Keyboard		G00013834L461	3000002681	n.a.		
7	Spectrum Analyser FSIQ 26	R&S	835540/018	3000002681-0005	10.01.2008	24	10.01.2010
8	Tracking Generator FSIQ-B10	R&S	835107/015	3000002681	s.No.7		
10	RF-Generator SMIQ03 (B1 Signal)	R&S	835541/056	3000002681-0002	26.08.2008	36	26.08.2011
11	Modulation Coder SMIQ-B20	R&S	To 10	3000002681	s.No.10		
12	Data Generator SMIQ-B11	R&S	To 10	3000002681	s.No.10		
13	RF Rear Connection SMIQ-B19	R&S	To 10	3000002681	s.No.10		
14	Fast CPU SM-B50	R&S	To 10	3000002681	s.No.10		
15	FM Modulator SM-B5	R&S	835676/033	3000002681	s.No.10		
16	RF-Generator SMIQ03 (B2 Signal)	R&S	835541/055	3000002681-0001	25.08.2008	36	25.08.2011
17	Modulation Coder SMIQ-B20	R&S	To 16	3000002681	s.No.16		
18	Data Generator SMIQ-B11	R&S	To 16	3000002681	s.No.16		
19	RF Rear Connection SMIQ-B19	R&S	To 16	3000002681	s.No.16		
20	Fast CPU SM-B50	R&S	To 16	3000002681	s.No.16		
21	FM Modulator SM-B5	R&S	836061/022	3000002681	s.No.16		
22	RF-Generator SMP03 (B3 Signal)	R&S	835133/011	3000002681-0003	26.08.2008	36	26.08.2011
23	Attenuator SMP-B15	R&S	835136/014	3000002681	S.No.22		
24	RF Rear Connection SMP-B19	R&S	834745/007	3000002681	S.No.22		
25	Power Meter NRVD	R&S	835430/044	3000002681-0004	26.08.2008	24	26.08.2010
26	Power Sensor NRVD-Z1	R&S	833894/012	3000002681-0013	26.08.2008	24	26.08.2010
27	Power Sensor NRVD-Z1	R&S	833894/011	3000002681-0010	26.08.2008	24	26.08.2010
28	Rubidium Standard RUB	R&S		3000002681-0009	27.08.2008	24	27.08.2010
29	Laser Printer HP Deskjet 2100	HP	N/A	3000002681-0011	n.a.		
30	19" Rack	R&S	11138363000004	3000002681	n.a.		
31	RF-cable set	R&S	N/A	3000002681	n.a.		
32	IEEE-cables	R&S	N/A	3000002681	n.a.		
33	Sampling System FSIQ-B70	R&S	835355/009	3000002681	s.No.7		
34	RSP programmable attenuator	R&S	834500/010	3000002681-0007	26.08.2008	24	26.08.2010
35	Signalling Unit	R&S	838312/011	3000002681	n.a.		
36	NGPE programmable Power Supply for EUT	R&S	192.033.41	3000002681			
37	Power Splitter 6005-3	Inmet Corp.	none	300002841	23.12.2006	24	23.12.2008
39	SMA Cables SPS-1151-985-SPS	Insulated Wire	different	different	n.a.		
40	CBT32 with EDR Signaling Unit	R&S					
41	Coupling unit	Narda	N/A	--	n.a.		
42	2xSwitch Matrix PSU	R&S	872584/021	300001329	n.a.		
43	RF-cable set	R&S	N/A	different	n.a.		
44	IEEE-cables	R&S	N/A	--	n.a.		

Note: 3000002681-00xx inventoried as a system

Anechoic chamber F:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	Control Computer	F+W	FW0502032	300003303	-/-	-/-	-/-
2	Trilog Antenna	9163-295	-/-	-/-	30.04.2008	24	30.04.2010
3	Amplifier - 0518C-138	Veritech Micro- wave Inc.	-/-	-/-	-/-	-/-	-/-
4	Switch - 3488A	HP		300000368	-/-	-/-	-/-
5	EMI Test receiver - ESCI	R&S	100083	300003312	31.01.2007	24	31.01.2009
6	Turntable Controller - 1061 3M	EMCO	1218	300000661	-/-	-/-	-/-
7	Tower Controller 1051 Controller	EMCO	1262	300000625	-/-	-/-	-/-
8	Tower - 1051	EMCO	1262	300000625	-/-	-/-	-/-
10	Ultra Notch-Filter Rejected band Ch. 62	WRCD	9	-/-	-/-	-/-	-/-

7 Photographs of the Test Set-up

Photo documentation

Photo 1:

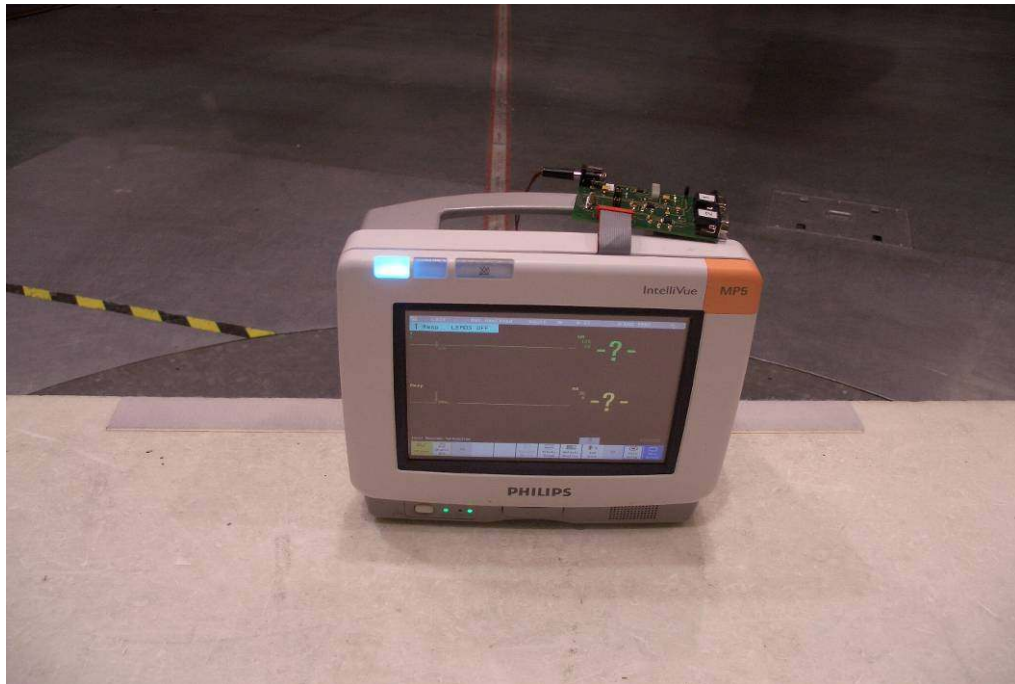


Photo 2:

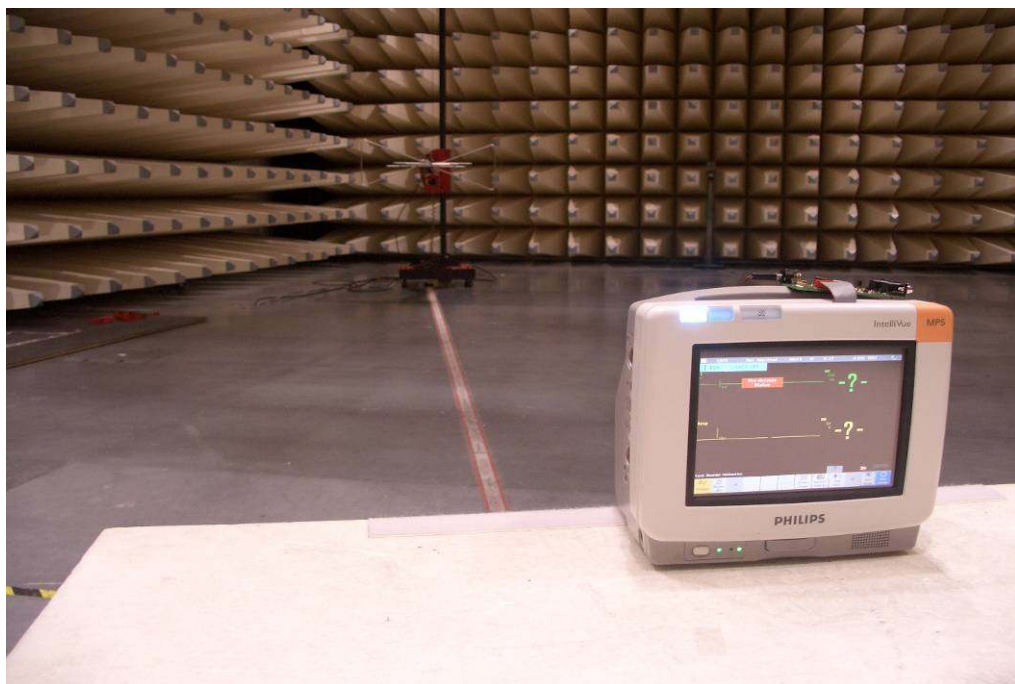


Photo 3:

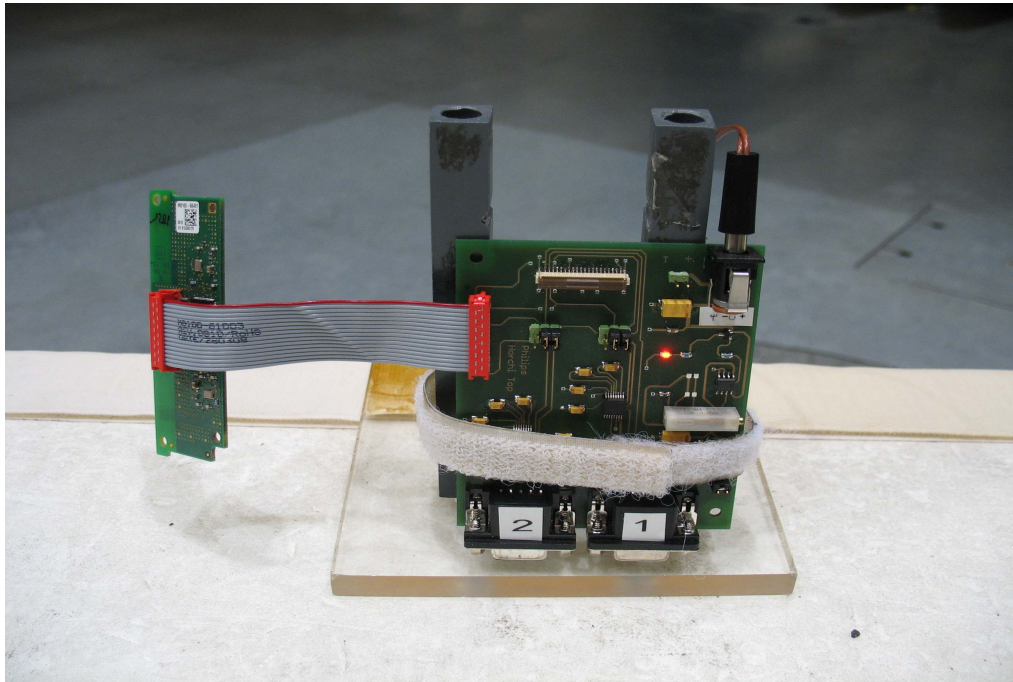


Photo 4:

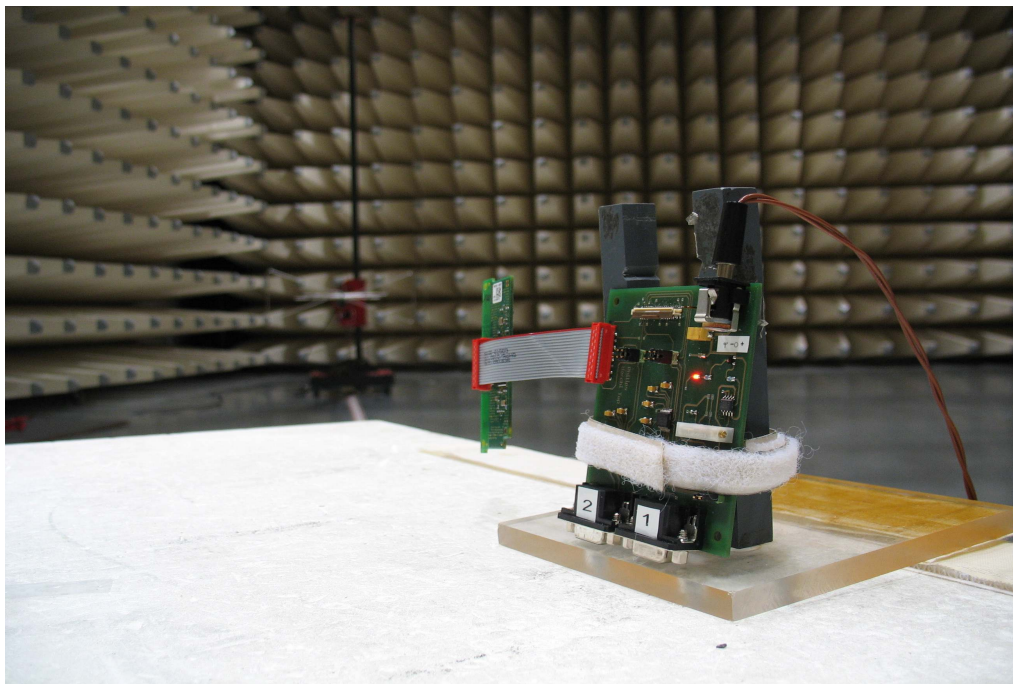
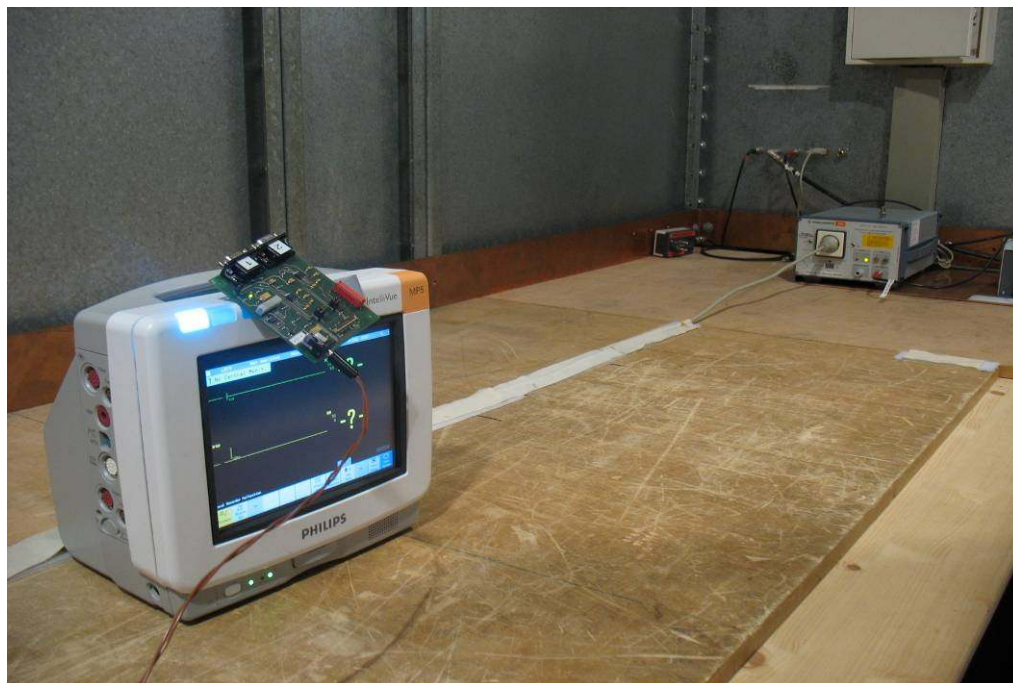


Photo 5:



8 Photographs of the EUT

Photo 6: Short Range Radio Module

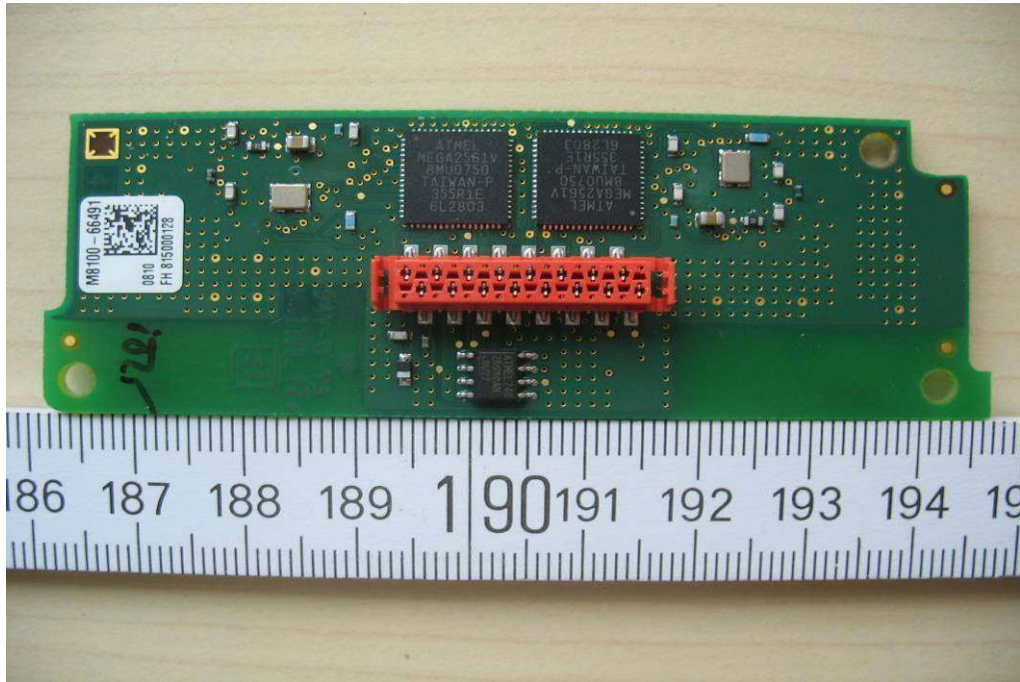


Photo 7: Short Range Radio Module

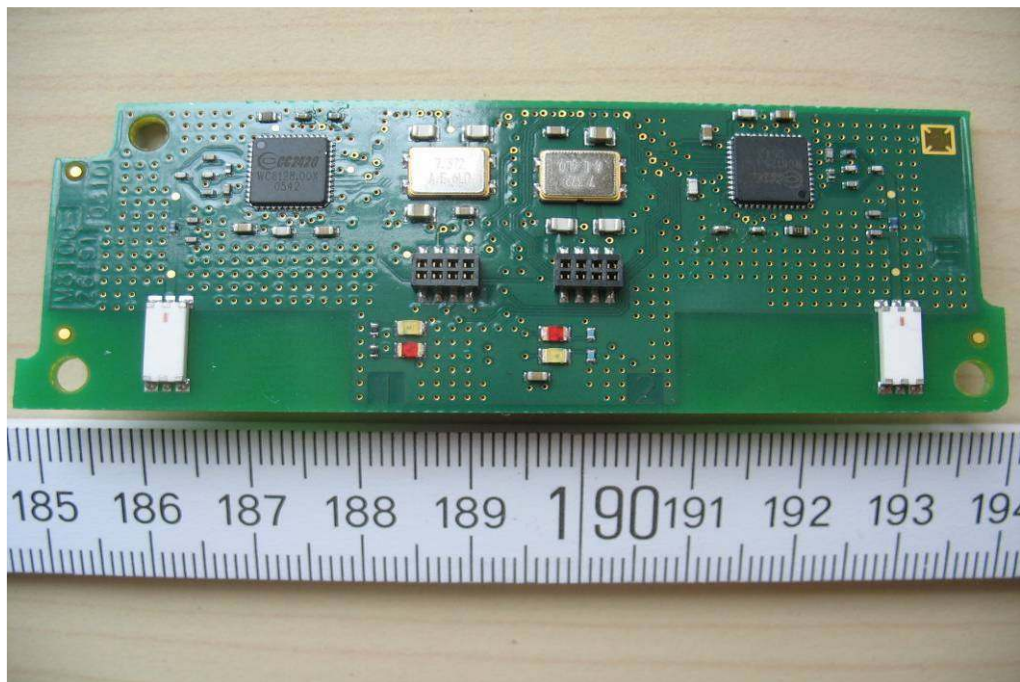


Photo 8: Programming Board

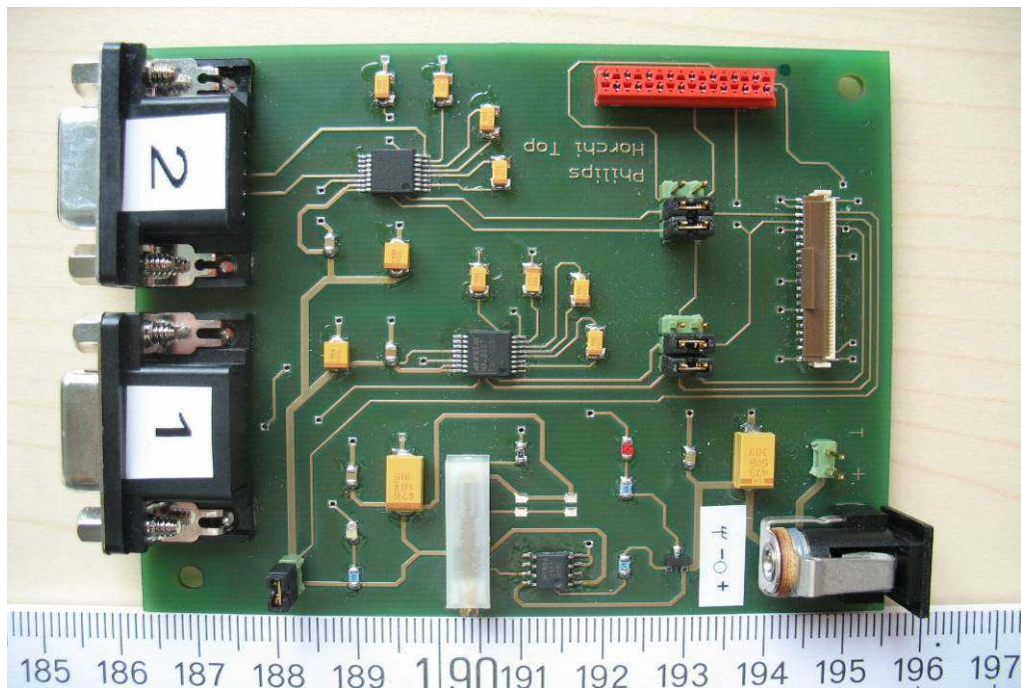


Photo 9: Hosting monitor



Photo 10: Hosting monitor



Photo 11: Hosting monitor



Photo 12: Hosting monitor



Photo 13: Hosting monitor

