



Accredited testing-laboratory

DAR registration number: DGA-PL-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.: 3462C-1 (IC)

Certification ID: DE 0001

Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

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Test report no. : 1-2197-01-03/10
Type identification : IntelliVue CL NBP Pod
Applicant : Philips Medizin Systeme Böblingen GmbH
FCC ID : PQC-CLNBPBV1
IC Certification No : 3549C-CLNBPBV1
Test standards : 47 CFR Part 15
RSS - 210 Issue 7



Table of contents

1 General information.....3

1.1 Notes3

1.2 Testing laboratory4

1.3 Details of applicant4

1.4 Application details4

2 Test standard/s5

3 Technical tests6

3.1 Details of manufacturer.....6

3.2 Test Item6

3.3 Test Item (Additional EUT information For IC Canada (appendix 2)7

3.4 Extreme conditions testing values8

3.5 Reference documents8

3.6 Additional comments8

4 Statement of Compliance.....9

4.1 Summary of Measurement Results.....9

4.2 CFR 47 Part 15.225.....9

5 Measurements and results 10

6 FCC Part 15.225 11

6.1 Field strength of the fundamental.....11

6.2 Field strength of the harmonics and the spurious12

6.3 Frequency tolerance18

6.4 Conducted Limits19

7 Test equipment and ancillaries used for tests21

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:

2010-05-03	Marco Bertolino	
Date	Name	Signature

Technical responsibility for area of testing:

2010-05-03	Stefan Bös	
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: DGA-PL-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
Street:	Hewlett-Packard-Strasse 2
Town:	71034 Böblingen
Country:	GERMANY
Telephone:	
Fax:	+49-7031-463 2944
Contact:	Stefan Breuer
E-mail:	stefan.breuer@philips.com
Telephone:	+49-7031-463 2321

1.4 Application details

Date of receipt of order:	2010-04-30
Date of receipt of test item:	2010-04-29
Date of start test:	2010-04-29
Date of end test:	2010-05-03
Persons(s) who have been present during the test:	-/-

2 Test standard/s

47 CFR Part 15

RSS - 210 Issue 7

**Title 47 of the Code of Federal Regulations; Chapter I-
Federal Communications Commission
subchapter A - general, Part 15-Radio frequency devices
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
Street:	Hewlett-Packard-Strasse 2
Town:	71034Böblingen
Country:	Germany

3.2 Test Item

Kind of test item	:	RFID Transmitter RF-ID 13,56 MHz
Type identification	:	IntelliVue CL NBP Pod
S/N serial number	:	865216 DE007W0272
HW hardware status	:	No information available!
SW software status	:	No information available!
Frequency Band [MHz]	:	13.553 ≤ f ≤ 13.567
Frequency Range (or fixed frequency)	:	13.56 MHz
Type of Modulation	:	N0N
Number of channels	:	1
Antenna	:	Loop antenna – for more information please take a look at the sub clause 9 – Photos of the EUT
Power Supply	:	3.30 V DC by Lithium-Ion battery / power supply
Temperature Range	:	-20°C to +55°C

FCC ID: PQC-CLNBPBV1
IC: 3549C-CLNBPBV1

3.3 Test Item (Additional EUT information For IC Canada (appendix 2))

IC Registration Number:	3549C-CLNBPBV1
Model Name:	IntelliVue CL NBP Pod
Details of Manufacturer	
Company :	Philips Medizin Systeme Böblingen GmbH
Address :	Hewlett-Packard-Strasse 2
City :	71034Böblingen
Country :	Germany
Details of EUT	
S/N serial number :	865216 DE007W0272
HW hardware status :	No information available!
SW software status :	No information available!
Tested to Radio Standards Specification (RSS) No. :	RSS-210 Issue 7
Open Area Test Site Industry Canada Number :	IC 3462C-1
Frequency Range (or fixed frequency) :	13.553 MHz ≤ f ≤ 13.567 MHz
Field Strength :	31.5 dBμV/m @ 30 m
Occupied Bandwidth (99% BW) :	1.2 kHz
Type of Modulation :	N0N
Number of channels :	1
Antenna information :	Loop antenna – for more information please take a look at the sub clause 9 – Photos of the EUT
Transmitter Spurious (worst case) :	50.3 dBμV/m @ 3m (11.9 GHz)
Power Supply :	3.30 V DC by Lithium-Ion battery / power supply
Temperature Range :	-20°C to +55°C

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: Marco Bertolino **Date:** 2010-05-03

3.4 Extreme conditions testing values

Description	Shortcut	Unit	Value
Nominal Temperature	T _{nom}	°C	20
Nominal Humidity	H _{nom}	%	38
Nominal Power Source	V _{nom}	V	3.3

Type of power source: 3.30 V DC by Lithium-Ion battery / power supply

3.5 Reference documents

For the receiver spurious emissions – please take a look at the test report 1-2197-01-07/10.

3.6 Additional comments

-/-

4 Statement of Compliance

4.1 Summary of Measurement Results

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

4.2 CFR 47 Part 15.225

Section in this Report	Test Name / Section FCC Part 15	Test Name / Section RSS 210	applicable	Verdict
6.1	§ 15.225 (a) FIELDSTRENGTH OF FUNDAMENTAL	Annex 2.6	YES	passed
6.2	§ 15.225 (b,c,d) FIELDSTRENGTH OF HARMONICS and SPURIOUS	Annex 2.6	YES	passed
6.3	§ 15.225 (e) Frequency tolerance	Annex 2.6	YES	passed
6.4	§ 15.107 / 15.207 Conducted Limits	Section 6.6 , 7.4	YES	passed

5 Measurements and results

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 1 GHz in semi-anechoic chambers or free field. 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 conform 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 conform with ANSI C63.2-1996 item 15.

150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, active loop antenna.

30 MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, tri-log antenna

> 1 GHz: Average, RBW 1 MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.209 and 15.207

6 FCC Part 15.225

6.1 Field strength of the fundamental

Reference

FCC:	CFR Part SUBCLAUSE § 15.225 (a)
IC:	RSS 210, Annex 2.6

Results:

TEST CONDITIONS		MAXIMUM POWER (dB μ V/m)
Frequency		13.56 MHz
T _{nom}	V _{nom}	31.5 dBμV/m @ 30 m
Measurement uncertainty		± 3 dB

RBW/VBW: 200 Hz up to 150 kHz, 9 kHz up to 30 MHz, 120 kHz up to 1 GHz

Note:

Measured value = 51.5 dB μ V/m @ 10 m

Recalculation factor = 40 / decade

Recalculated value = 51.5 dB μ V/m @ 10 m - 20 dB = 31.5 dB μ V/m @ 30 m

Limits: § 15.225 (a)

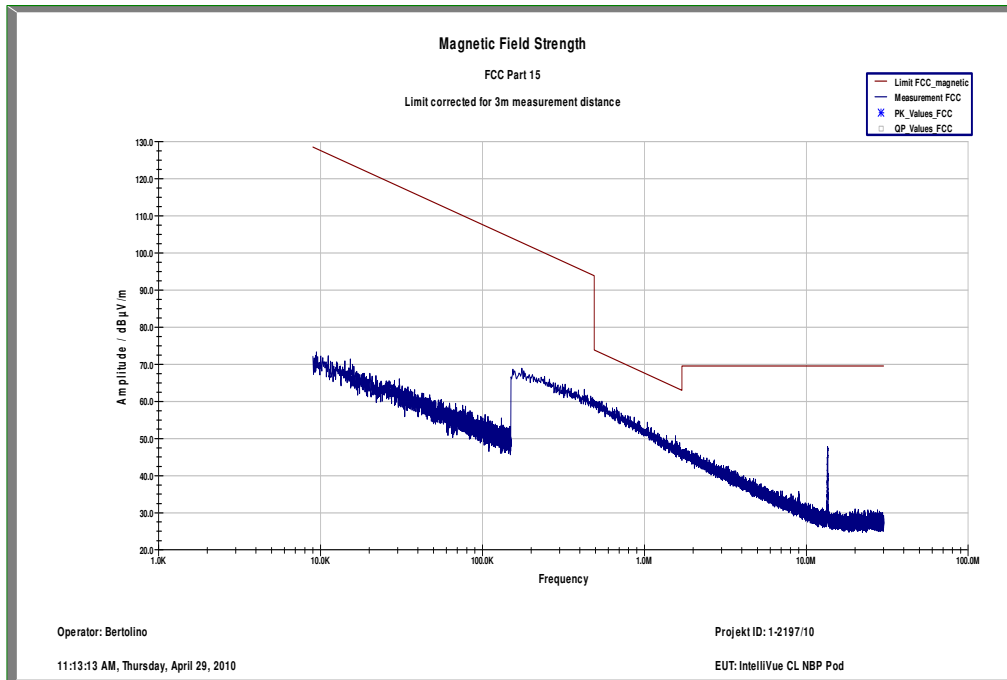
§ 15.225 (a) The field strength of any emission within the band 13.553 – 13.567 MHz shall not exceed 15,848 microvolts / meter at 30 meters (84 dB μ V/m @ 30 m)
--

6.2 Field strength of the harmonics and the spurious

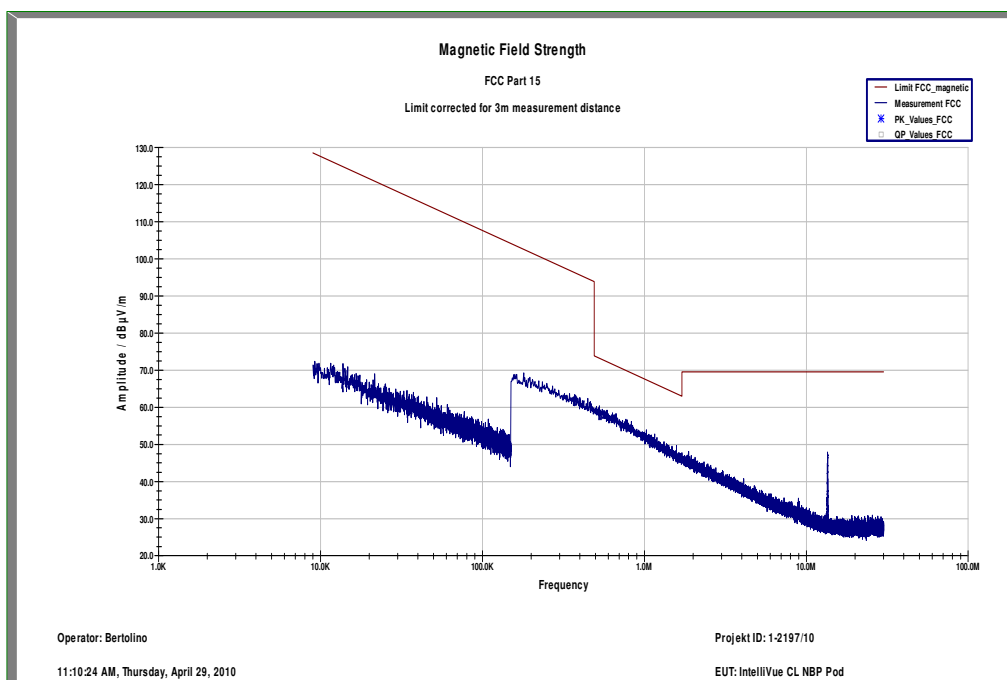
Reference

FCC:	CFR Part SUBCLAUSE § 15.209 (a) , §15.225 (d)
IC:	RSS 210, Annex 2.6

Plot 1: TX mode, 9 kHz – 30 MHz, front side of the EUT



Plot 2: TX mode, 9 kHz – 30 MHz, back side of the EUT



Results:

EMISSION LIMITATIONS					
f (MHz)		amplitude of emission (dB μ V/m)	limit max. allowed field strength	Distance (Meter)	results
No critical peaks detected. All emissions are below the limit.				300	
				30	
Measurement uncertainty			± 3 dB		

Limits

SUBCLAUSE § 15.209 (a)

Fundamental Frequency (MHz)	Field strength of Fundamental (μ V/m)	Measurement Distance (meters)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30 (29.5 dB μ V/m)	30
30.0 – 88.0	100 (40 dB μ V/m)	3
88 – 216	150 (43.5 dB μ V/m)	3
216 – 960	200 (46 dB μ V/m)	3

RBW/VBW: 200 Hz up to 150 kHz, 9 kHz up to 30 MHz, 120 kHz up to 1 GHz

Plot 3: TX mode, 30 MHz – 1 GHz, vertical & horizontal polarization

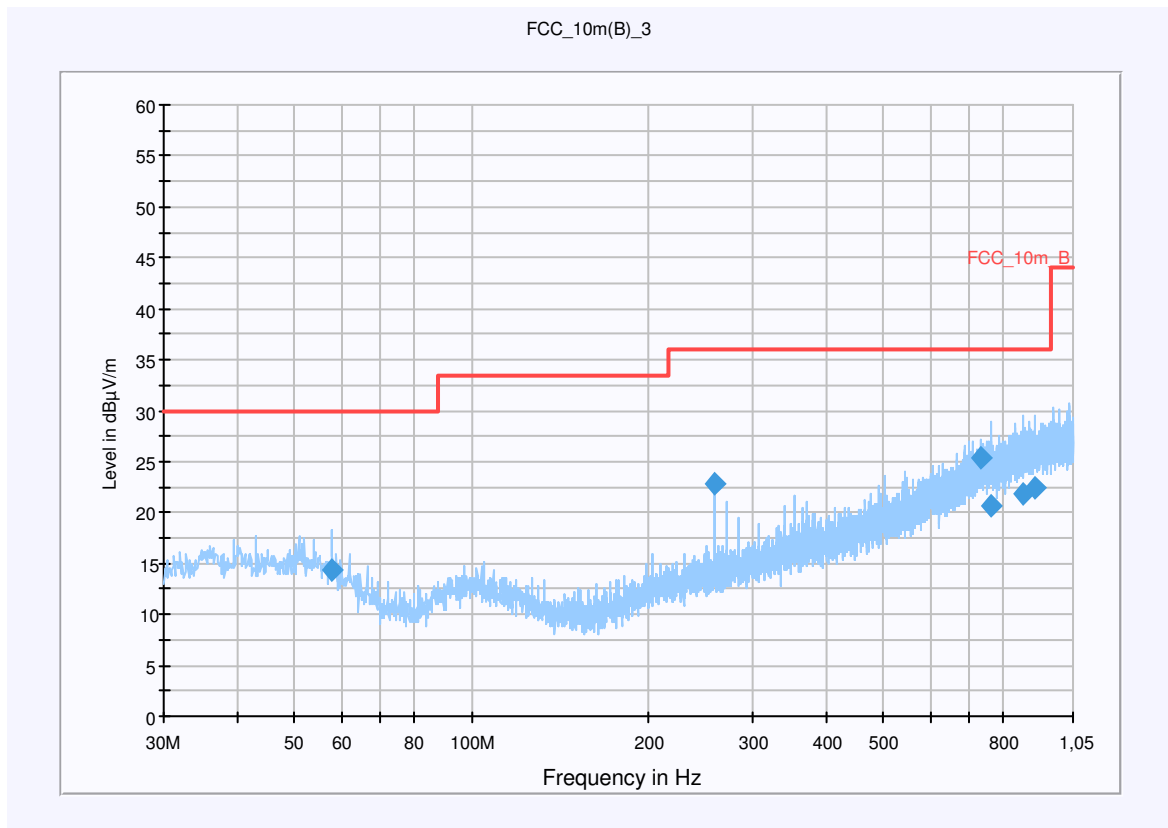
Common Information

EUT: Saturn-Titan (RF-ID)
 Serial Number: DE007W0272
 Test Description: FCC part 15 C Class B @ 10m
 Operating Conditions: cont. TX; RFID 13,5 MHz
 Operator Name: Lang
 Comment: Battery Powered

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

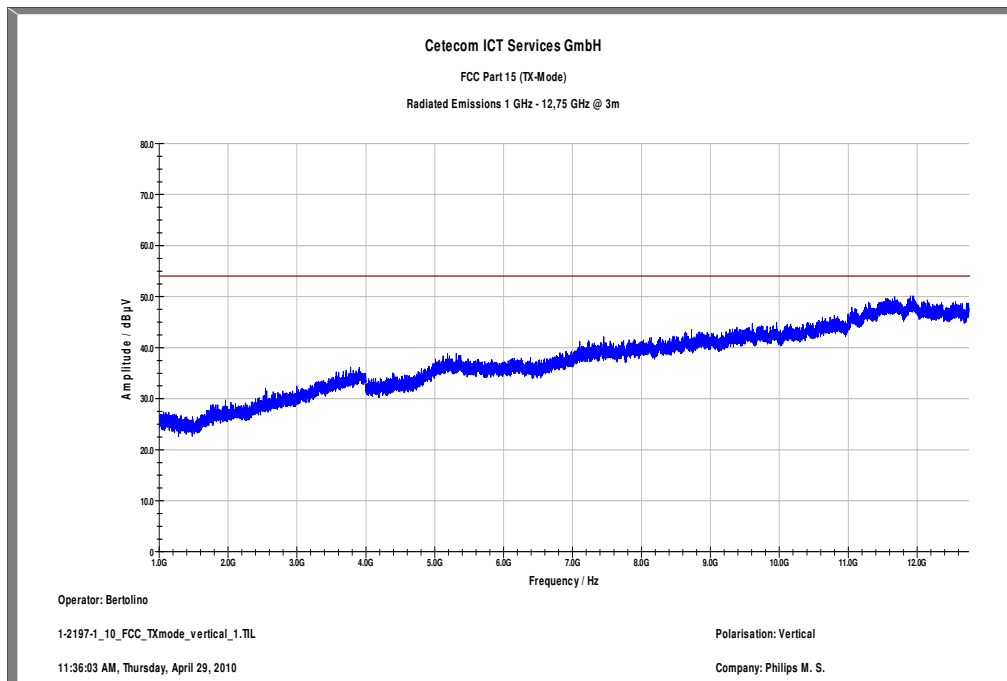
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
57.994050	14.4	15000.000	120.000	164.0	V	19.0	12.1	15.6	30.0	
257.640150	22.8	15000.000	120.000	98.0	V	265.0	13.4	13.2	36.0	
732.251400	25.3	15000.000	120.000	105.0	H	236.0	23.2	10.7	36.0	
763.666950	20.7	15000.000	120.000	165.0	H	11.0	23.7	15.3	36.0	
860.912700	21.8	15000.000	120.000	220.0	H	248.0	24.7	14.2	36.0	
907.751100	22.4	15000.000	120.000	98.0	V	23.0	25.2	13.6	36.0	

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

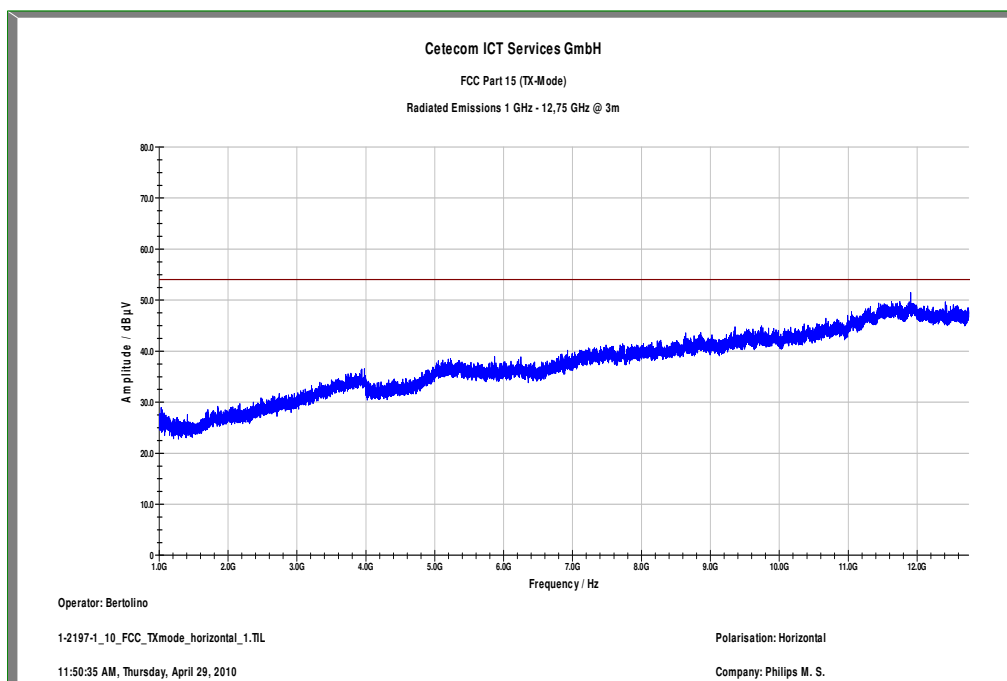
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
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 8.10.00

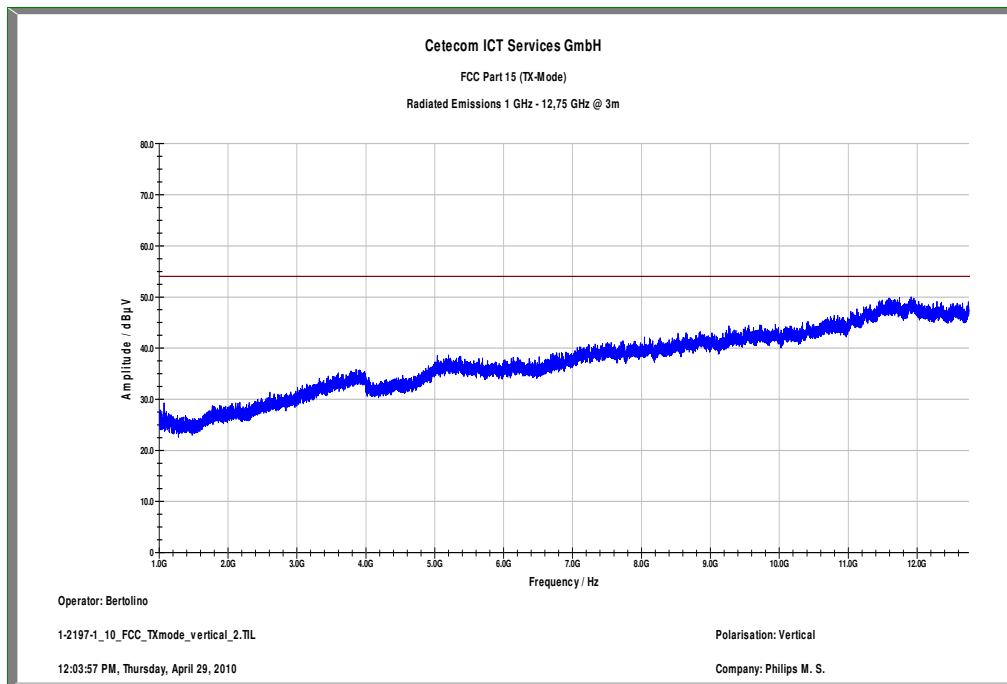
Plot 4: TX mode, 1 GHz – 12.75 GHz, vertical polarization, front side of the EUT



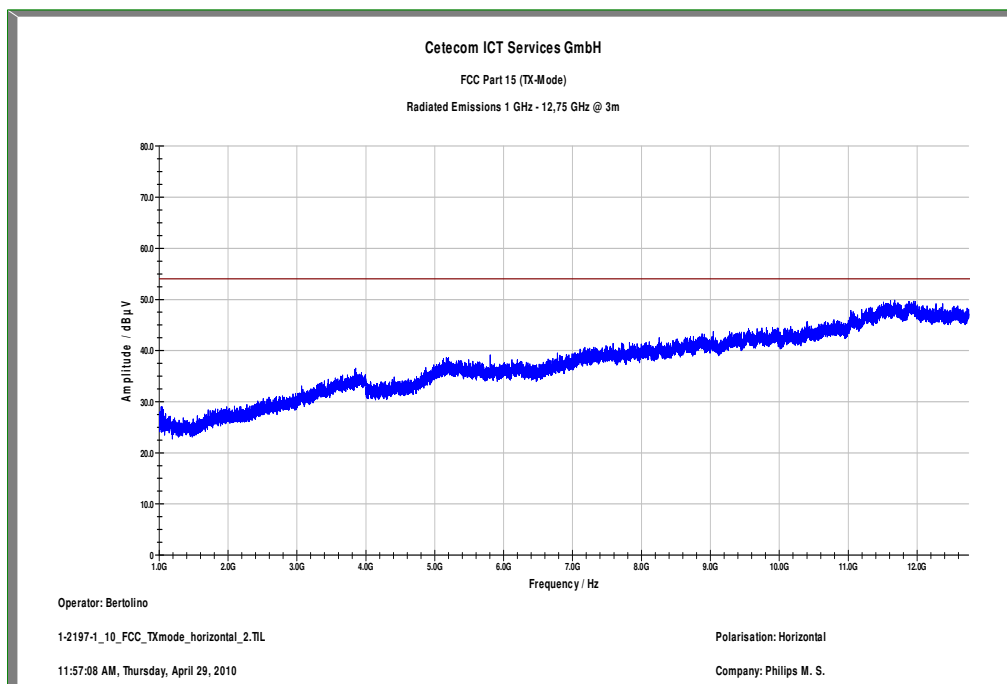
Plot 5: TX mode, 1 GHz – 12.75 GHz, horizontal polarization, front side of the EUT



Plot 6: TX mode, 1 GHz – 12.75 GHz, vertical polarization, back side of the EUT



Plot 7: TX mode, 1 GHz – 12.75 GHz, horizontal polarization, back side of the EUT



6.3 Frequency tolerance

Reference

FCC:	CFR Part SUBCLAUSE § 15.225 (e)
IC:	RSS 210, Annex 2.6

Results:

Frequency tolerance								
Over temperature variation			Over voltage variation					
T (°C)]	Frequency [kHz]	result	Power voltage	Frequency [kHz]	result			
-20°	13560.175	0.175 kHz 12.91 ppm						
-10°	13560.132	0.132 kHz 9.73 ppm						
0°	13560.077	0.077 kHz 5.68 ppm						
10°	13560.104	0.104 kHz 7.67 ppm						
20° V _{nom}	13560.089	0.089 kHz 6.56 ppm	--	--	--			
20° V _{low}	--	--	--	13560.079	0.079 kHz 5.83 ppm			
20° V _{high}	--	--	--	13560.093	0.093 kHz 6.86 ppm			
30°	13560.046	0.046 kHz 3.39 ppm						
40°	13559.996	-0.004 kHz -0.30 ppm						
50°	13559.984	-0.016 kHz -1.18 ppm						
Measurement uncertainty			±100 Hz					

Limits

SUBCLAUSE § 15.225 (e)

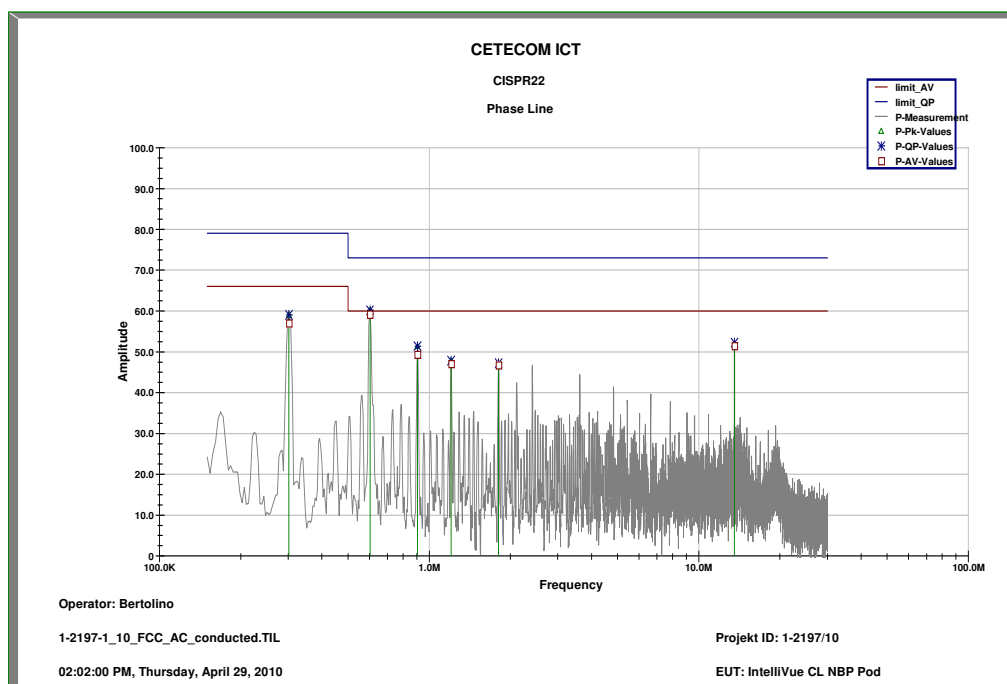
The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

6.4 Conducted Limits

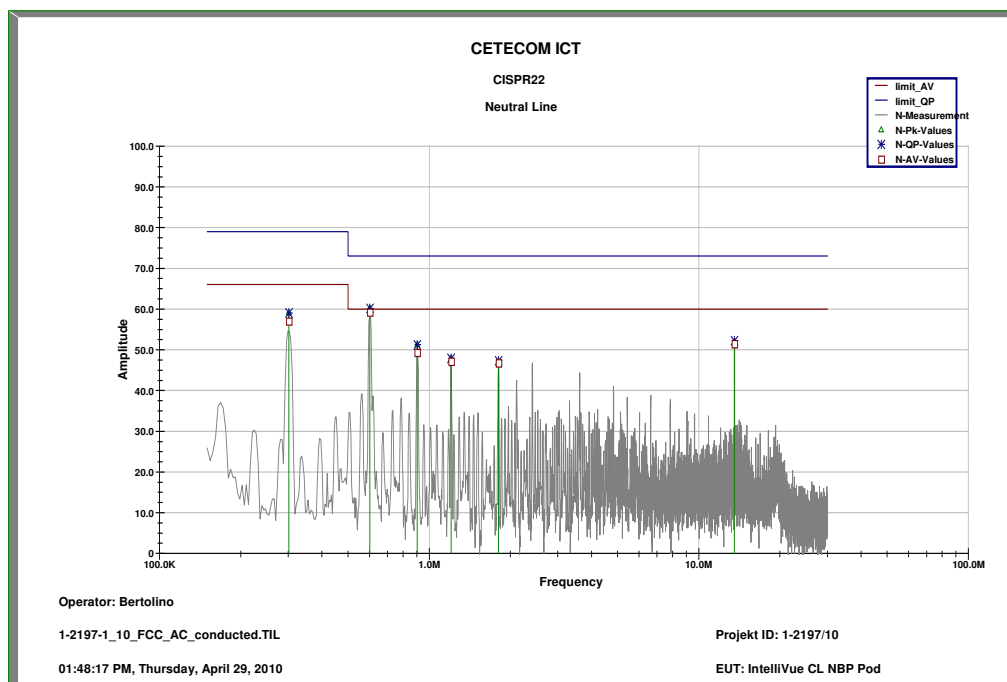
Reference

FCC:	CFR Part 15.207, 15.107
IC:	RSS 210, Issue 7, Section 6.6 , 7.4

Plot 1: Charging mode, phase line (class A)



Plot 2: Charging mode, neutral line (class A)



Limits: § 15.107 / 15.207

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency

7 Test equipment and ancillaries used for tests

In order to simplify the identification of the equipment used at each specific test, each item of test equipment and ancillaries are provided with an identifier or number in the equipment list below.

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

No.	Labor / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kal. Art	Last Calibration	Next Calibration
1	n. a.	Test Receiver	ESH2	R&S	871921/ 095	300002 505	Ve	12.02. 2010	12.02. 2012
2	n. a.	Loop Antenna 9 KHz - 30 MHz	HFH2-Z2	R&S	872096/ 61	300001 824	vIK I!	18.11. 2008	18.11. 2011
3	45	Switch-Unit	3488A	HP Meßtechnik	2719A1 4505	300000 368	g		
4	50	Netzgerät	6032A	HP Meßtechnik	2920A0 4466	300000 580	k	06.01. 2009	06.01. 2011
6	n. a.	EMI- Messem Empfänger	ESCI 1166.5950.03	R&S	100083	300003 312	k	08.01. 2010	08.01. 2012
7	n. a.	Amplifier	JS42- 00502650- 28-5A	MITEQ	108453 2	300003 379	ev		
8	n. a.	Antennenmast	Model 2175	ETS- LINDGREN	64762	300003 745	izw		
9	n. a.	Steuergerät	Model 2090	ETS- LINDGREN	64672	300003 746	izw		
10	n. a.	Interface-Box für Drehtisch	Model 105637	ETS- LINDGREN	44583	300003 747	izw		
11	n. a.	Spectrum- Analyzer	FSU26	R&S	200809	300003 874	k	08.01. 2010	08.01. 2012
12	n. a.	Double-Ridged Waveguide Horn Antenna 1- 26.5GHz	3115	EMCO	8812- 3088	300001 032	vIK I!	05.03. 2009	05.03. 2011
13	n. a.	Active Loop Antenna	6502	EMCO	2210	300001 015	ne		
14	n. a.	Anechoic chamber		MWB	87400/0 2	300000 996			
15	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	300000 222	ne		
16	9	Artificial Mains 9 kHz to 30 MHz, 4 x 25 Ampere	ESH3-Z5	R&S	828576/ 020	300001 210	Ve	06.01. 2010	06.01. 2012
17	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A1 5013	300001 156	ne		
18	n. a.	Relais Matrix	PSU	R&S	890167/ 024	300001 168	ne		
19	n. a.	Isolating	RT5A	Grundig	9242	300001	ne		

		Transformer				263			
20	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
21	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
22	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
23	n. a.	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		
24	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
25	n. a.	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
26	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Vertr. Bad Hom	MY48250080	300003812	k	05.08.2008	05.08.2010
27	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Vertr. Bad Hom	MY47420220	300003813	k	06.08.2008	06.08.2010
28	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Vertr. Bad Hom	MY48260003	300003825	vIK I!	19.08.2008	19.08.2010
29	n. a.	TRILOG Super Breitband Antenne	VULB9163	Schwarzbeck	371	300003854	vIK I!	17.12.2008	17.12.2010
30	n. a.	Power Supply	LA30/5GA	Zentro Elektronik	2046	300000711	NK !		
31	n. a.	Temperature Test Chamber	VT 4002	Heraeus Voetsch	521/83761	300002326	Ve	28.05.2009	28.05.2011
32	n. a.	Signal Analyzer 20Hz-26,5GHz-150 to + 30 DBM	FSIQ26	R&S	835540/018	300002681-0005	k	07.01.2010	07.01.2012