

InterLab Final Report on VISIO WEB

FCC ID: ZQWGIT000002

Report Reference: MDE_TGYM_1101_FCCb

Date: Februar 19, 2013

Test Laboratory:

7Layers AG Borsigstr. 11 40880 Ratingen Germany



Note:

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

7Layers AG Borsigstrasse 11 40880 Ratingen, Germany Phone: +49 (0) 2102 749 0 Fax: +49 (0) 2102 749 350 www.7Layers.com Aufsichtsratsvorsitzender • Chairman of the Supervisory Board: Ralf Mertens
Vorstand • Board: Dr. H.-J. Meckelburg

Registergericht • registered in: Düsseldorf, HRB 44096 USt-IdNr • VATNo.: DE 203159652 TAX No. 147/5869/0385



Administrative Data 1

1.1 **Project Data**

Project Responsible:

Patrick Lomax

Date Of Test Report:

2013/02/19

Date of first test:

2011/09/16

Date of last test:

2011/11/08

Applicant Data

Company Name: TECHNOGYM SPA

Street:

Via G. Perticari, 20 Gambettola (FC)

Country:

Italy

Contact Person:

Mr. Lotti Pietro

1.3 **Test Laboratory Data**

The following list shows all places and laboratories involved for test result generation:

7 layers DE

Company Name :

7 layers AG

Street:

Borsigstrasse 11

City:

40880 Ratingen

Country:

Germany

Contact Person:

Mr. Michael Albert

Phone:

+49 2102 749 201 +49 2102 749 444

Fax: E Mail:

michael.albert@7Layers.de

Laboratory Details

Lab ID

Identification

Responsible

Accreditation Info

Lab 1

Radiated Emissions

Mr. Robert Machulec Mr. Andreas Petz

DAkkS-Registration no. D-PL-12140-01-01

1.4 Signature of the Testing Responsible

Patrick Lomax

responsible for tests performed in: Lab 1



1.5 Signature of the Accreditation Responsible



7 layers AG, Borsigstr. 11 40880 Ratingen, Germany Phone +49 (0)2102 749 0

Accreditation scope responsible person responsible for Lab 1

2 Test Object Data

2.1 General OUT Description

The following section lists all OUTs (Object's Under Test) involved during testing.

OUT: VISIO WEB

Type / Model / Family:

VISIO WEB

Product Category:

Module

Manufacturer:

Company Name:

VIA Networking Technologies, Inc. 8F,5333 Chung-Cheng Road Hsin-Tien

Street:

231 Taipei

[M. Kullik

City: Country:

Taiwan, ROC

,

raiwan, ROC

Contact Person:

Liu Chuanwei

Parameter List:

Parameter name	Value
AC Power Supply	120 (V)
Antenna Gain	2
highest channel (BT)	2462 (MHz)
lowest channel (BT)	2412 (MHz)

Ancillary Equipment: AC/DC Switching adptor

Type / Model / Family:

AC/DC Switching adptor, GS18A12

120v/60Hz AC input

Ancillary Equipment: MIFARE TGS READER

Type / Model / Family:

MIFARE TGS READER

Product Category:

Module

Manufacturer:

Company Name:

Please see applicant data

Contact Person:

Parameter List:

Parameter name	Value
AC Power Supply	120 (V)
mid channel	13.56 MHz



2.2 Detailed Description of OUT Samples

Sample: A01

OUT IdentifierVISIO WEBSample DescriptionWMP-G10Serial No.P089355598

HW Status1.0SW Status1.0

Nominal Voltage 3.3 V Normal Temp. 25 °C

Parameter List:

Parameter Description Value

Parameter for Scope FCC_v2

Frequency_high 2483 (MHz) Frequency_low 2402 (MHz)

Sample: AA01

OUT Identifier MIFARE TGS READER
Sample Description RFID Tag Reader

 Serial No.
 001

 HW Status
 0WQ00340

 SW Status
 1.29.00

Nominal Voltage 12 V Normal Temp. 25 °C

Parameter List:

Parameter Description Value

Parameter for Scope FCC_v2

Frequency_mid 13.56 (MHz)

Sample: PS4

OUT Identifier AC/DC Switching adptor

Sample Description Power adaptor



2.3 OUT Features

Features for OUT: MIFARE TGS READER

Designation Description Allowed Values Supported Value(s)

Features for scope: FCC_v2

AC The OUT is powered by or connected to AC

Mains

SRD EUT is a short range device

Features for OUT: VISIO WEB

Designation Description Allowed Values Supported Value(s)

Features for scope: FCC_v2

AC The OUT is powered by or connected to AC

Mains

PantC permanent fixed antenna connector, which may

be built-in, designed as an indispensable part of

the equipment

Wb EUT supports WLAN in mode b in the band 2400

MHz - 2483.5 MHz

Wg EUT supports WLAN in mode g in the band 2400

MHz - 2483.5 MHz

WLAN EUT supports WLAN channels 2412 MHz - 2462

ИHz.

2.4 Operating Mode(s)

Ref.-No. Description

02 2.4 GHz WiFi ping is active over wireless network and RFID is active.

2.5 Setups used for Testing

For each setup a relation is given to determine if and which samples and auxiliary equipment is used. The left side list all OUT samples and the right side lists all auxiliary equipment for the given setup.

Setup No. List of OUT samples List of auxiliary equipment

Sample No. Sample Description AE No. AE Description

CLS_A01 (Co-location setup)

Sample: AA01 RFID Tag Reader

Sample: PS4 Power adaptor

Sample: A01 WMP-G10



Reference: MDE TGYM 1101 FCCb

3 Results

3.1 General

Documentation of tested

devices:

Available at the test laboratory.

Interpretation of the

test results:

The results of the inspection are described on the following pages, where 'Conformity' or 'Passed' means that the

certification criteria were verified and that the tested device is

conform to the applied standard.

In cases where 'Declaration' is printed, the required documents are available in the manufacturers product documentation.

In cases where 'not applicable' is printed, the test case requirements are not relevant to the specific equipment

implementation.

Note: 1. All tests are performed under environmental conditions within

the requirements of the specifications. Environmental conditions

are available at the test facility.

3.2 List of the Applicable Body

(Body for Scope: FCC_v2)

DesignationDescriptionFCC47CFRChIPART15c247RADIO
FREQUENCY DEVICESSubpart C - Intentional Radiators; 15.247 Operation within the
bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

3.3 List of Test Specification

Test Specification: FCC part 2 and 15
Version 10-1-11 Edition

Title: PART 2 - GENERAL RULES AND REGULATIONS

PART 15 - RADIO FREQUENCY DEVICES

Applicable Errata Activate Date Comment

ANSI C63.4-2003 04/1/30 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and electronic Equipment in the Range of 9 kHz to 40 GHz

DA 00-705 00/3/1 Public Notice: Filing and Measurement Guidelines for Frequency considerd Hopping Spread Spectrum Systems



3.4 Summary

Test Case Identifier / Name			Lab	
Test (condition)	Result	Date of Test	Ref.	Setup
15c.2 Spurious radiated emissions §15.24	7 (d), §15.35 (b)	, §15.209		
15c.2; Frequency = 2437, Mode = WLANb transmit	Passed	2011/09/16	Lab 1	CLS_A01
	ode: 02			
15c.2; Frequency = 2437, Mode = WLANg transmit	Passed	2011/11/08	Lab 1	CLS_A01
	operating mo	ode: 02		



3.5 Detailed Results

3.5.1 15c.2 Spurious radiated emissions §15.247 (d), §15.35 (b),

§15.209

Test: 15c.2; Frequency = 2437, Mode = WLANb transmit

Result: Passed

Setup No.: CLS_A01

Date of Test: 2011/09/16 16:10

Body: FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES

Test Specification: FCC part 2 and 15

Detailed Results:

Script	Traffic Mode I	FCC 15.24	7 (15.35b	,15.209)								1Mbps
	Frequency ra	nge 30 MH	lz - 1 GHz									
	Diagram No.	TX on	Ant. Polar.	EUT Pos.	Limit QPK [dBµV]		Frequency [MHz]	QPK [dBµV]		Margin QPK [dB]		Result
FCC_15.247c_003-1GHz		2437 MHz	Ver + Hor	Hor								Passed
	F	4 611-	2011-		1							
	Frequency ra	TX on		EUT	Limit PK	Limit AV	F	DIC	AV			D
	Diagram No.	IX on	Ant. Polar.	Pos.	[dBµV]	[dBµV]	Frequency [MHz]	PK [dBµV]	AV [dBµV]	Margin PK [dB]	Margin AV [dB]	Result
CC 15.247c 1-3GHz	TGYM 1101 01	2437 MHz	Ver + Hor	Hor	74,00			44,73	35.70			Passed
**			Ver + Hor	Hor	74,00			44,55	35,32			Passed
		1	Ver + Hor	Hor	74,00			44,54	35,15			Passed
		1	Ver + Hor	Hor	74,00			45,61	38,28	28,39	15,72	Passed
		1	Ver + Hor	Hor	74,00			44,71	34,05			Passed
			Ver + Hor	Hor	74,00	54,00	1330	46,91	37,77	27,09	16,23	Passed
			Ver + Hor	Hor	74,00	54,00	1363	44,93	34,39	29,07	19,61	Passed
			Ver + Hor	Hor	74,00	54,00	1378	46,14	38,04	27,86	15,96	Passed
			Ver + Hor	Hor	74,00	54,00	1397	46,59	38,92	27,41	15,08	Passed
			Ver + Hor	Hor	74,00	54,00	1447	47,42	35,94	26,58	18,06	Passed
			Ver + Hor	Hor	74,00	54,00	1463	47,48	39,70	26,52	14,30	Passed
			Ver + Hor	Hor	74,00	54,00	1496	46,82	37,79	27,18	16,21	Passed
			Ver + Hor	Hor	74,00	54,00	1516	45,67	34,52	28,33	19,48	Passed
			Ver + Hor	Hor	74,00	54,00	1530	46,95	39,04	27,05	14,96	Passed
			Ver + Hor	Hor	74,00	54,00	1596	46,64	35,28	27,36	18,72	Passed
			Ver + Hor	Hor	74,00	54,00	1663	46,29	34,90	27,71	19,10	Passed
			Ver + Hor	Hor	74,00	54,00	1722	45,60	35,10	28,40	18,90	Passed
			Ver + Hor	Hor	74,00	54,00	2205	48,79	38,34	25,21	15,66	Passed
	Frequency ra	nge 3 GHz	- 18 GHz									
	Diagram No.	TX on	Ant.	EUT	Limit PK	Limit AV		PK		Margin	Margin	Result
			Polar.	Pos.	[dBµV]	[dBµV]	[MHz]	[dBµV]	[dBµV]	PK [dB]	AV [dB]	
CC_15.247c_3-18GHz	TGYM_1101_01	2437 MHz	Ver + Hor	Hor	74,00			40,33	37,08			Passed
			Ver + Hor	Hor	74,00	54,00	4874	43,39	39,59	30,61	14,41	Passed
	Frequency ra											
	Diagram No.	TX on	Ant. Polar.	EUT Pos.	Limit PK [dBµV]	Limit AV [dBµV]	Frequency [MHz]	PK [dBµV]	AV [dBµV]	Margin PK [dB]	Margin AV [dB]	Result
FCC 15.247c 18-25GHz		2437 MHz	Ver + Hor	Hor	μομν	ιασμν	[IVITIZ]	Labhal	<u>[</u> α ρ μν]	r k [ub]		Passed
		012			1	-	 	l		1	l	. 20000
		-	1		†						l	

Test: 15c.2; Frequency = 2437, Mode = WLANg transmit

Result: Passed
Setup No.: CLS_A01

Date of Test: 2011/11/08 16:15

Body: FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES

Test Specification: FCC part 2 and 15



Detailed Results:

Frequency rar Diagram No. GYM_1101_10 Frequency rar Diagram No. GYM_1101_02	TX on 2437 MHz	Ant. Polar. Ver + Hor	EUT Pos. Ver EUT Pos. Hor Hor	Limit QPK [dBµV] Limit PK [dBµV] 74,00 74,00	Limit AV [dBµV] 54,00	Frequency [MHz] Frequency [MHz]	QPK [dBμV] PK [dBμV] 51.13	ΑV [dΒμV]	Margin QPK [dB] Margin PK [dB]	Margin AV [dB]	Result Passed Result
Oiagram No. GYM_1101_10 Frequency rar Diagram No.	2437 MHz 2437 MHz nge 1 GHz TX on	Ant. Polar. Ver + Hor - 3 GHz Ant. Polar. Ver + Hor Ver + Hor Ver + Hor Ver + Hor	EUT Pos. Ver EUT Pos. Hor Hor	Limit PK [dBµV] 74,00 74,00 74,00	[dBµV] 54,00	[MHz] Frequency [MHz]	[dBµV] PK [dBµV]	ΑV [dΒμV]	QPK [dB] Margin PK [dB]	AV [dB]	Passed
Frequency rar Diagram No.	nge 1 GHz	Ant. Polar. Ver + Hor	EUT Pos. Hor Hor Hor	74,00 74,00 74,00	[dBµV] 54,00	[MHz]	[dBµV]	[dBµV]	PK [dB]	AV [dB]	
Diagram No.	TX on	Ant. Polar. Ver + Hor	Pos. Hor Hor Hor	74,00 74,00 74,00	[dBµV] 54,00	[MHz]	[dBµV]	[dBµV]	PK [dB]	AV [dB]	Result
Diagram No.	TX on	Ant. Polar. Ver + Hor	Pos. Hor Hor Hor	74,00 74,00 74,00	[dBµV] 54,00	[MHz]	[dBµV]	[dBµV]	PK [dB]	AV [dB]	Result
GYM_1101_02	2437 MHz	Ver + Hor Ver + Hor Ver + Hor Ver + Hor Ver + Hor	Hor Hor Hor	74,00 74,00 74,00	54,00						
		Ver + Hor Ver + Hor Ver + Hor	Hor Hor	74,00	54.00		51,13	40,89	22,87	13,11	Passed
		Ver + Hor Ver + Hor	Hor			1065	45,59	35,59	28,41		Passed
		Ver + Hor			54,00	1103	49,04	39,67	24,96	14,33	Passed
				74,00	54,00	1131	47,69	41,33	26,31	12,67	Passed
		Ver + Hor	Hor	74,00	54,00	1164	44,59	34,87	29,41	19,13	Passed
-			Hor	74,00	54,00	1172	46,31	34,22	27,69	-, -	Passed
		Ver + Hor	Hor	74,00	54,00	1230	45,51	34,55			Passed
		Ver + Hor	Hor	74,00	54,00	1309	47,60	36,48		17,52	Passed
		Ver + Hor	Hor	74,00	54,00	1330	45,74	35,43			Passed
		Ver + Hor	Hor	74,00	54,00	1378	50,64	43,71	23,36		Passed
		Ver + Hor	Hor								Passed
		Ver + Hor	Hor								Passed
											Passed
											Passed
		Ver + Hor	Hor								Passed
		Ver + Hor	Hor								Passed
											Passed
											Passed
											Passed
											Passed
											Passed
											Passed
											Passed
		Ver + Hor	Hor	74,00	54,00	2274	48,83	38,38	25,17	15,62	Passed
reguency ran	nge 3 GHz	18 GHz									
Diagram No.	TX on	Ant.	EUT	Limit PK			PK [dBuV]	AV [dBuV]	Margin	Margin	Result
GYM_1101_02	2437 MHz	Ver + Hor	Ver		54,00	3774	39,42	35,42			Passed
roguenev re-	10 CH	7 25 CH	<u> </u>								
				Limeta DIC	Limeit Ald	Гио жизо ж с : :	DIV	A1/	Manain	NA a marina	Descrit
_		Polar.	Pos.	[dBµV]	[dBµV]	[MHz]	[dBµV]	[dBµV]	PK [dB]	AV [dB]	Result
GYM_1101_03	2437 MHz	Ver + Hor	Ver		54,00						Passed
				74,00			53,78	46,78			Passed
				74,00	54,00	21119	56,30	46,80	17,70	7,20	Passed
Oi Oi	iagram No. GYM_1101_02	iagram No. TX on GYM_1101_02 2437 MHz requency range 18 GH iagram No. TX on	Ver + Hor Ver	Ver + Hor Hor Ver + Hor Ver Hor Ver + Hor Ver Hor Ver + Hor Ver Hor Ver Ver	Ver + Hor	Ver + Hor Hor 74,00 54,00 Ver + Hor Ver 74,00 74,00 54,0	Ver + Hor Hor 74,00 54,00 1387 Ver + Hor Hor 774,00 54,00 1443 Ver + Hor Hor 74,00 54,00 1443 Ver + Hor Hor 74,00 54,00 1453 Ver + Hor Hor 74,00 54,00 1516 Ver + Hor Hor 74,00 54,00 1536 Ver + Hor Hor 74,00 54,00 1536 Ver + Hor Hor 74,00 54,00 1585 Ver + Hor Hor 74,00 54,00 1586 Ver + Hor Hor 74,00 54,00 1586 Ver + Hor Hor 74,00 54,00 1586 Ver + Hor Hor 74,00 54,00 1620 Ver + Hor Hor 74,00 54,00 2205 Ver + Hor Hor 74,00 54,00 2205 Ver + Hor Hor 74,00 54,00 2274 Ver Hor Hor 74,00 54,00 2274 Ver Hor Hor 74,00 54,00 3774 requency range 3 GHz - 18 GHz iagram No. TX on Ant. Pos. GBµV] GBµV] Frequency GMHz] requency range 18 GHz - 25 GHz iagram No. TX on Ant. Pos. CIBµV] CIBµV] Frequency GMHz] GMM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 GMM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 T4,00 54,00 20286	Ver + Hor Hor 74,00 54,00 1397 47,11 Ver + Hor Hor 74,00 54,00 1447 49,69 Ver + Hor Hor 74,00 54,00 1446 46,28 Ver + Hor Hor 74,00 54,00 1496 46,28 Ver + Hor Hor 74,00 54,00 1516 48,55 Ver + Hor Hor 74,00 54,00 1530 46,68 Ver + Hor Hor 74,00 54,00 1531 47,89 Ver + Hor Hor 74,00 54,00 1551 47,89 Ver + Hor Hor 74,00 54,00 1586 55,29 Ver + Hor Hor 74,00 54,00 1596 46,07 Ver + Hor Hor 74,00 54,00 1596 46,07 Ver + Hor Hor 74,00 54,00 1620 46,58 Ver + Hor Hor 74,00 54,00 1722 47,89 Ver + Hor Hor 74,00 54,00 1722 47,89 Ver + Hor Hor 74,00 54,00 2205 50,76 Ver + Hor Hor 74,00 54,00 2224 48,83 Ver + Hor Hor 74,00 54,00 2224 48,83 Ver + Hor Hor 74,00 54,00 2274 48,83 Ver + Hor Hor 74,00 54,00 3774 39,42 Ver + Hor Hor 74,00 54,00 3774 77,00 77	Ver + Hor Hor 74,00 54,00 1397 47,11 39,33 Ver + Hor Hor 74,00 54,00 1447 49,69 40,07 Ver + Hor Hor 74,00 54,00 1463 46,14 38,60 Ver + Hor Hor 74,00 54,00 1496 46,28 36,46 Ver + Hor Hor 74,00 54,00 1516 48,55 37,64 Ver + Hor Hor 74,00 54,00 1530 46,68 38,11 Ver + Hor Hor 74,00 54,00 1530 46,68 38,11 Ver + Hor Hor 74,00 54,00 1551 47,89 35,02 Ver + Hor Hor 74,00 54,00 1585 55,29 45,10 Ver + Hor Hor 74,00 54,00 1596 46,07 34,91 Ver + Hor Hor 74,00 54,00 1596 46,07 34,91 Ver + Hor Hor 74,00 54,00 1520 46,58 34,77 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 Ver + Hor Hor 74,00 54,00 1722 47,87 36,51 Ver + Hor Hor 74,00 54,00 1722 47,87 36,51 Ver + Hor Hor 74,00 54,00 2025 50,76 39,86 Ver + Hor Hor 74,00 54,00 2025 50,76 39,86 Ver + Hor Hor 74,00 54,00 2224 48,83 38,38 requency range 3 GHz - 18 GHz EUT Limit PK CIBµV] CIPµV] CIPµV] CIPµV] CIPµV CIPµV	Ver + Hor Hor 74,00 54,00 1397 47,11 39,33 26,89 Ver + Hor Hor 74,00 54,00 1447 49,69 40,07 24,31 Ver + Hor Hor 74,00 54,00 1463 46,41 36,60 27,59 Ver + Hor Hor 74,00 54,00 1496 46,28 36,46 27,72 Ver + Hor Hor 74,00 54,00 1516 48,55 37,64 25,45 Ver + Hor Hor 74,00 54,00 1530 46,68 36,11 27,32 Ver + Hor Hor 74,00 54,00 1531 47,89 35,02 26,11 Ver + Hor Hor 74,00 54,00 1585 55,29 46,10 18,71 Ver + Hor Hor 74,00 54,00 1585 55,29 46,10 18,71 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,42 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,42 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,85 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,85 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,85 Ver + Hor Hor 74,00 54,00 1620 46,58 33,77 27,85 Ver + Hor Hor 74,00 54,00 1620 46,58 33,77 27,85 Ver + Hor Hor 74,00 54,00 2205 50,76 39,86 23,24 Ver + Hor Hor 74,00 54,00 2205 50,76 39,86 23,24 Ver + Hor Hor 74,00 54,00 2274 48,83 38,38 25,17 requency range 3 GHz - 18 GHz Limit PK ClBµV Frequency PK ClBµV GlBµV PK (GB] 3YM_1101_02 2437 MHz Ver + Hor Ver 74,00 54,00 20286 50,06 A0,88 23,94 3YM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 50,06 A0,88 23,94 3YM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 50,06 A0,88 23,94 3YM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 50,06 A0,88 23,94 3YM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 50,06 A0,88 23,94 3YM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 50,06 A0,88 23,94 3YM_1101_03 2437 MHz Ver + Hor Ver 74,00 54,00 20286 50,06 A0,88 23,94 3YM_1101_03 2437 MHz	Ver + Hor Hor 74,00 54,00 1387 47,11 39,33 26,89 14,67 Ver + Hor Hor 74,00 54,00 1447 49,69 40,07 24,31 13,93 Ver + Hor Hor 74,00 54,00 1446 46,28 36,46 27,72 17,54 Ver + Hor Hor 74,00 54,00 1496 46,28 36,46 27,72 17,54 Ver + Hor Hor 74,00 54,00 1516 48,55 37,64 25,45 16,36 Ver + Hor Hor 74,00 54,00 1536 46,68 38,11 27,32 15,89 Ver + Hor Hor 74,00 54,00 1551 47,89 35,02 26,11 18,98 Ver + Hor Hor 74,00 54,00 1585 55,29 45,10 18,71 8,90 Ver + Hor Hor 74,00 54,00 1585 55,29 45,10 18,71 8,90 Ver + Hor Hor 74,00 54,00 1585 55,29 43,10 18,71 74,90 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,42 19,23 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,42 19,23 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,42 19,23 Ver + Hor Hor 74,00 54,00 1620 46,58 34,77 27,42 19,23 Ver + Hor Hor 74,00 54,00 1722 47,87 36,51 26,13 17,49 Ver + Hor Hor 74,00 54,00 2205 50,76 39,86 23,24 14,14 Ver + Hor Hor 74,00 54,00 2274 48,83 38,38 25,17 15,62 requency range 3 GHz - 18 GHz



4 Test Equipment Details

4.1 List of Used Test Equipment

The calibration, hardware and software states are shown for the testing period.

Test Equipment Anechoic Chamber

Lab 1D: Lab 1
Manufacturer: Frankonia

Description: Anechoic Chamber for radiated testing

Type: 10.58x6.38x6.00 m³

Single Devices for Anechoic Chamber

Single Device Name	Туре	Serial Number	Manufacturer
Air compressor	none	-	Atlas Copco
Anechoic Chamber	10.58 x 6.38 x 6.00 m ³ Calibration Details	none	Frankonia Last Execution Next Exec.
	FCC listing 96716 3m Part15/18 IC listing 3699A-1 3m		2011/01/11 2014/01/10 2011/02/07 2014/02/06
Controller Maturo	MCU	961208	Maturo GmbH
EMC camera	CE-CAM/1	-	CE-SYS
EMC camera Nr.2	CCD-400E	0005033	Mitsubishi
Filter ISDN	B84312-C110-E1		Siemens&Matsushita
Filter Universal 1A	BB4312-C30-H3	-	Siemens&Matsushita

Test Equipment Auxiliary Equipment for Radiated emissions

Lab ID: Lab 1

Description: Equipment for emission measurements

Serial Number: see single devices

Single Devices for Auxiliary Equipment for Radiated emissions

Single Device Name	Туре	Serial Number	Manufacturer
Antenna mast	AS 620 P	620/37	HD GmbH
Biconical dipole	VUBA 9117 Calibration Details	9117-108	Schwarzbeck Last Execution Next Exec.
	Standard Calibration		2008/10/27 2013/10/26
Broadband Amplifier 18MHz-26GHz	JS4-18002600-32-5P	849785	Miteq
	Calibration Details		Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
Broadband Amplifier 1GHz-4GHz	AFS4-01000400-1Q-10P-4	-	Miteq
	Calibration Details		Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
Broadband Amplifier 30MHz-18GHz	JS4-00101800-35-5P	896037	Miteq
	Calibration Details		Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
Cable "ESI to EMI Antenna"	EcoFlex10	W18.01- 2+W38.01-2	Kabel Kusch
	Calibration Details		Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10



Single Devices for Auxiliary Equipment for Radiated emissions (continued)

•	, , ,	•	•
Single Device Name	Туре	Serial Number	Manufacturer
Cable "ESI to Horn Antenna"	UFB311A+UFB293C	W18.02- 2+W38.02-2	Rosenberger Micro-Coax
rinomia	Calibration Details	21000.02 2	Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
Double-ridged horn	HF 906	357357/001	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard Calibration		2009/04/16 2012/04/15
Double-ridged horn	HF 906	357357/002	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard Calibration		2009/04/28 2012/04/27
High Pass Filter	4HC1600/12750-1.5-KK Calibration Details	9942011	Trilithic Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
High Pass Filter	5HC2700/12750-1.5-KK Calibration Details	9942012	Trilithic Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
High Pass Filter	5HC3500/12750-1.2-KK Calibration Details	200035008	Trilithic Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
High Pass Filter	WHKX 7.0/18G-8SS Calibration Details	09	Wainwright Last Execution Next Exec.
	Path Calibration		2011/05/11 2011/11/10
Horn Antenna Schwarzbeck 15-26 GHz BBHA 9170	ВВНА 9170		
Logper. Antenna	HL 562 Ultralog	830547/003	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard Calibration		2009/05/27 2012/05/26
Loop Antenna	HFH2-Z2	829324/006	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	DKD calibration		2008/11/17 2011/11/16
	Standard calibration		2011/10/27 2014/10/26
Pyramidal Horn Antenna 26,5 GHz	3160-09	00083069	EMCO Elektronik GmbH
Pyramidal Horn Antenna 40 GHz	3160-10	00086675	EMCO Elektronik GmbH
Tilt device Maturo (Rohacell)	Antrieb TD1.5-10kg	TD1.5- 10kg/024/379070	Maturo GmbH



Test Equipment Auxiliary Test Equipment

Lab ID: Lab 1

Manufacturer: see single devices

Description: Single Devices for various Test Equipment

Type: various Serial Number: none

Single Devices for Auxiliary Test Equipment

Single Device Name	Туре	Serial Number	Manufacturer
AC Power Source	Chroma 6404	64040001304	Chroma ATE INC.
Broadband Power Divider N (Aux)	1506A / 93459	LM390	Weinschel Associates
Broadband Power Divider SMA	WA1515	A855	Weinschel Associates
Digital Multimeter 03 (Multimeter)	Fluke 177	86670383	Fluke Europe B.V.
(,	Calibration Details		Last Execution Next Exec.
	Standard calibration		2009/11/17 2011/11/16
	Customized calibration		2011/10/19 2013/10/18
Fibre optic link Satellite (Aux)	FO RS232 Link	181-018	Pontis
Fibre optic link Transceiver (Aux)	FO RS232 Link	182-018	Pontis
Isolating Transformer	LTS 604	1888	Thalheimer Transformatorenwerke GmbH
Notch Filter Ultra Stable (Aux)	WRCA800/960-6EEK	24	Wainwright
Vector Signal Generator	SMIQ 03B	832492/061	Rohde & Schwarz GmbH & Co.KG



Test Equipment Digital Signalling Devices

Lab ID: Lab 1

Description: Signalling equipment for various wireless technologies.

Single Devices for Digital Signalling Devices

Single Device Name	Туре	Serial Number	Manufacturer
Bluetooth Signalling Unit CBT	СВТ	100589	Rohde & Schwarz GmbH & Co. KG
Universal Radio Communication Tester	CMU 200	102366	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard calibration		2011/05/26 2013/05/25
	HW/SW Status		Date of Start Date of End
	Hardware: B11, B21V14, B21-2, B41, B52V14, B53-2, B56V14, B68 3v04, PCMCIA, Software: K21 4v21, K22 4v21, K23 4v21, K24 K43 4v21, K53 4v21, K56 4v22, K57 K59 4v22, K61 4v22, K62 4v22, K68 Firmware: μP1 8v50 02.05.06	U65V04 4v21, K42 4v21, 4v22, K58 4v22, 4v22, K64 4v22,	2007/07/16
Universal Radio Communication Tester		837983/052	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard calibration		2008/12/01 2011/11/30
	HW/SW Status		Date of Start Date of End
	HW options: B11, B21V14, B21-2, B41, B52V14, B54V14, B56V14, B68 3v04, B95, PC SW options: K21 4v11, K22 4v11, K23 4v11, K24 K28 4v10, K42 4v11, K43 4v11, K53 K66 4v10, K68 4v10, Firmware: μP1 8v40 01.12.05	MCIA, U65V02 4v11, K27 4v10,	2007/01/02
	SW: K62, K69		2008/11/03



Test Equipment Emission measurement devices

Lab ID: Lab 1

Description: Equipment for emission measurements

Serial Number: see single devices

Single Devices for Emission measurement devices

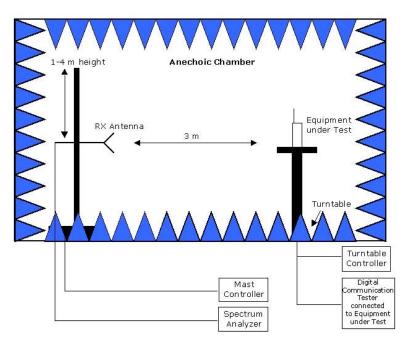
Single Device Name	Туре	Serial Number	Manufacturer
Personal Computer	Dell	30304832059	Dell
Power Meter	NRVD	828110/016	Rohde & Schwarz GmbH & Co.KG
	Calibration Details		Last Execution Next Exec.
	Standard calibration		2011/05/03 2012/05/02
Power Sensor	NRV-Z1	836219/005	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard Calibration		2009/10/20 2011/10/19
Powermeter	NRVS	836333/064	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard calibration		2009/11/15 2011/11/14
Sensor Head A	NRV-Z1	827753/005	Rohde & Schwarz GmbH & Co.KG
	Calibration Details		Last Execution Next Exec.
	Standard calibration		2011/05/02 2012/05/01
Signal Generator	SMR 20	846834/008	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	standard calibration		2011/05/12 2014/05/11
Spectrum Analyzer	ESIB 26	830482/004	Rohde & Schwarz GmbH & Co. KG
	Calibration Details		Last Execution Next Exec.
	Standard Calibration		2009/12/03 2011/12/02
	HW/SW Status		Date of Start Date of End
	Firmware-Update 4.34.4 from	3.45 during calibration	2009/12/03



5 Annex

5.1 Additional Information for Report

Setup Drawings



Remark: Depending on the frequency range suitable antenna types, attenuators or preamplifiers are used.

Setup in the Anechoic chamber:

Measurements below 1 GHz: Semi-anechoic, conducting ground plane. Measurements above 1 GHz: Fully-anechoic, absorbers on all surfaces



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