



Inter**Lab**[®]

FCC Measurement/Technical Report on

Collocated GSM and WLAN transceiver
GI0643

Report Reference: MDE_OPTI_1101_FCCh

Test Laboratory:

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Germany
7Layers AG
40880 Ratingen



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.

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0 Summary

0.1 Technical Report Summary

Type of Authorization

Certification for a GSM cellular radiotelephone device collocated to an Intentional Radiator (Frequency Hopping Spread Spectrum and Digital Device / Spread Spectrum).

Applicable FCC Rules

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 (10-1-10 Edition).

The following parts and subparts are applicable to the results in this test report.

Part 2

Subpart J - Equipment Authorization Procedures, Certification

§ 2.1053 Measurement required: Field strength of spurious radiation

Part 22

Subpart H – Cellular Radiotelephone Service

§ 22.913 Effective radiated power limits

§ 22.917 Emission limitations for cellular equipment

Part 24

Subpart E - Broadband PCS

§ 24.236 Field strength limits

§ 24.238 Emission limitations for Broadband PCS equipment

Note:

-

Summary Test Results:

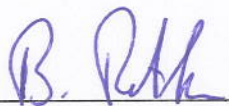
The EUT complied with all performed tests as listed in chapter 0.2 Measurement Summary.

0.2 Measurement Summary

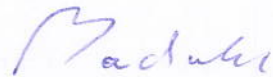
Spurious radiated emissions			FCC §2.1053, 10-1-10
OP-Mode	Setup	Port	Final Result
op-mode 1	Setup_01	Enclosure	passed
op-mode 2	Setup_01	Enclosure	passed

The purpose of the test case and operating mode selection is evaluating of co-location effects.

Responsible for
Accreditation Scope:



Responsible
for Test Report:



1 Administrative Data

1.1 Testing Laboratory

Company Name: 7 Layers AG

Address Borsigstr. 11
40880 Ratingen
Germany

This facility has been fully described in a report submitted to the FCC and accepted under the registration number 96716 .

The test facility is also accredited by the following accreditation organisation:
Laboratory accreditation no.: DAKkS D-PL-12140-01-01

Responsible for Accreditation Scope: Dipl.-Ing. Bernhard Retka
Dipl.-Ing. Robert Machulec
Dipl.-Ing. Andreas Petz
Dipl.-Ing. Thomas Hoell

Report Template Version: 2011-11-15

1.2 Project Data

Responsible for testing and report: Dipl.-Ing. Robert Machulec

Date of Test(s): 2011-08-08 to 2011-11-14
Date of Report: 2011-11-15

1.3 Applicant Data

Company Name: Option nv

Address: Gaston Geenslaan 14
B-3001 Leuven
Belgium

Contact Person: Mr. Jan Willems

1.4 Manufacturer Data

Company Name: please see applicant data

Address:

Contact Person:

2 Test object Data

2.1 General EUT Description

Equipment under Test	USB Dongle
Type Designation:	GI0643
Kind of Device: (optional)	GSM, WLAN transceiver
Voltage Type:	DC
Voltage level:	5.0 V

General product description:

The WLAN (Wireless Local Area Network) Transceiver is operating in the 2.4 GHz ISM band in the range 2412.0 – 2462.0 MHz and uses the Direct Sequence Spread Spectrum (DSSS) Modulation. The EUT supports the modes IEEE802.11b, IEEE802.11g and IEEE802.11n

Specific product description for the EUT:

The Option model GI0643 is a Wireless Broadband USB modem with integrated WLAN features. The USB modem supports quad band GSM/(E)GPRS in the 850, 900, 1800 and 1900 MHz frequency bands and triple band UMTS/HSDPA/HSUPA in the 900, 1900 and 2100 frequency bands. In addition, the device supports HSDPA category 10, HSUPA category 6, antenna receiver diversity (band I and II) and equalizer. The GI0643 is an (E)GPRS class 12 terminal supporting circuit switched (CS) and packet switched (PS) data. The modem contains a USB swivel connector. The GI0643 has 2 main operating modes: the first mode is to act as a client, the second mode is to act as a WLAN hotspot.

The EUT provides the following ports:

Ports

Enclosure
DC power and data Port (USB)
Permanent antenna connector

The main components of the EUT are listed and described in Chapter 3.2

2.2 EUT Main components

Type, S/N, Short Descriptions etc. used in this Test Report

Short Description	Equipment under Test	Type Designation	Serial No.	HW Status	SW Status	Date of Receipt
EUT A (Code: 37490b01) Remark: -	USB dongle	GI0643	YM29B2B548	2.0.2.0	2.1.1.0x	2011-06-20

NOTE: The short description is used to simplify the identification of the EUT in this test report.

2.3 Ancillary Equipment

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

Short Description	Equipment under Test	Type Designation	HW Status	SW Status	Serial no.	FCC ID
AE 1	Laptop	Toshiba PA3378E- 3AC3	-	Microsoft Windows 2000 Prof.	10441164G PCN0357	-

2.4 Auxiliary Equipment

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Auxiliary Equipment can influence the test results.

Short Description	Equipment under Test	Type Designation	Serial no.	HW Status	SW Status	FCC ID
AUX1	Wi-Fi router	GlobeSurfre X-1	WF1Z97J0B W	-	-	-
AUX2	Laptop IBM	lenovo R60 9461-54G	L3-AA471 06/10	-	WinXP Prof. Ger.	-
AUX3	AC/DC Adapter (for laptop)	lenovo 90W 20V 92P1103	11S92P1103 Z1ZBEF716 1JH	-	-	-



2.5 EUT Setups

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

Setup No.	Combination of EUTs	Description and Rationale
Setup_01	EUT A + AE 1 + AUX1 + AUX2 + AUX3	setup for radiated measurements (AUX1, AUX2 and AUX3 are used to enable the test mode)

2.6 Operating Modes

This chapter describes the operating modes of the EUT's used for testing.

Op. Mode	Description of Operating Modes	Remarks
op-mode 1	GSM: Call established on Traffic Channel (TCH) 190, Carrier Frequency 836.6 MHz WLAN: TX-mode, the EUT transmits on the lowest channel (2437 MHz)	-
op-mode 2	GSM: Call established on Traffic Channel (TCH) 661, Carrier Frequency 1880 MHz WLAN: TX-mode, the EUT transmits on the lowest channel (2412 MHz)	-

The EUT is over the air connected to a Wi-Fi router. The router can be configured in the needed operating mode by the IBM laptop. It is possible to connect the EUT to the router, with help of software in the Toshiba laptop.

2.7 Product labelling

2.7.1 FCC ID label

Please refer to the documentation of the applicant.

2.7.2 Location of the label on the EUT

Please refer to the documentation of the applicant.

3 Test Results

3.1 Spurious radiated emissions

The test was performed according to: FCC §2.1053, 10-1-10

3.1.1 Test Description

- 1) The EUT was placed inside an anechoic chamber. Refer to chapter "Setup Drawings". The EUT was coupled to the R&S CMD55 / CMU200 Digital Communication Tester which was located outside the chamber via coaxial cable.
- 2) A call was established between the EUT and the base station simulator (R&S CMU200 Digital Communication Tester). The EUT was set to maximum output power. Other important settings are mentioned in the chapter "operating modes".
- 3) A pre-calibration procedure is used so that the readings from the spectrum analyser are corrected and represent directly the equivalent radiated power (related to a isotropic radiator).
- 4) All spurious radiation measurements were made with spectrum analyser and the appropriate calibrated antennas for the frequency range of 30 MHz to 20 GHz (up to the 10th harmonic of the transmit frequency).
- 5) Important Analyser Settings
 - [Resolution Bandwidth / Video Bandwidth]:
 - a) [3 kHz / 10 kHz] in the Span of 1 MHz directly below and above the GSM-Band,
 - b) [10 kHz / 30 kHz] in case the curve of the analyser IF-Filter leads to an exceeding of the limit, in this case a worst case correction factor of 20 dB (1 MHz -> 10 kHz) was used
 - c) [1 MHz / 3 MHz] otherwise
 - Sweep Time: Calculated depending on the transmitting signal (technology), the span and the resolution bandwidth
- 6) The spurious emissions (peak) were measured in both vertical and horizontal antenna polarisation during the call is established on the lowest channel, mid channel and on the highest channel.

3.1.2 Test Requirements / Limits

§ 2.1053 Measurements required: Field strength of spurious radiation.

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of Sec. 2.1049, as appropriate. For equipment operating on frequencies below 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any



possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from halfwave dipole antennas.

(b) The measurements specified in paragraph (a) of this section shall be made for the following equipment:

(2) All equipment operating on frequencies higher than 25 MHz.

§ 2.1057 Frequency spectrum to be investigated.

(a) In all of the measurements set forth in Secs. 2.1051 and 2.1053, the spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to at least the frequency shown below:

(1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(b) Particular attention should be paid to harmonics and subharmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

(c) The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

(d) Unless otherwise specified, measurements above 40 GHz shall be performed using a minimum resolution bandwidth of 1 MHz.

§ 22.917 Emission limitations for cellular equipment

(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

This is calculated to be -13 dBm (effective radiated power) which corresponds to 84.6 dB μ V/m (field strength) in a distance of 3 m.

§ 24.238 Emission limitations for Broadband PCS equipment

(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

This is calculated to be -13 dBm (effective radiated power) which corresponds to 84.6 dB μ V/m (field strength) in a distance of 3 m.

3.1.3 Test Protocol

Temperature: 24 °C
Air Pressure: 1018 hPa
Humidity: 39 %

Op. Mode	Setup	Port
op-mode 1	Setup_01	Enclosure

Frequency MHz	Antenna Polarisation	Bandwidth kHz	Measured Level dBm	Limit dBm
-	-	-	-	-13.0

Remark: No (further) spurious emissions in the range 20 dB below the limit found. The found emission is a intentional emission of the WLAN transmitter

Op. Mode	Setup	Port
op-mode 2	Setup_01	Enclosure

Frequency MHz	Antenna Polarisation	Bandwidth kHz	Measured Level dBm	Limit dBm
-	-	-	-	-13.0

Remark: No (further) spurious emissions in the range 20 dB below the limit found. The found emission is a intentional emission of the WLAN transmitter

3.1.4 Test result: Spurious radiated emissions

FCC Part 15, Subpart C	Op. Mode	Result
	op-mode 1	passed
	op-mode 2	passed

4 Test Equipment

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

Test Equipment Anechoic Chamber

Lab ID:	Lab 2
Manufacturer:	Frankonia
Description:	Anechoic Chamber for radiated testing
Type:	10.58x6.38x6 m ³

Single Devices for Anechoic Chamber

Single Device Name	Type	Serial Number	Manufacturer	
Air compressor	none	-	Atlas Copco	
Anechoic Chamber	10.58 x 6.38 x 6.00 m ³	none	Frankonia	
	Calibration Details		Last Execution	Next Exec.
	FCC listing 96716 3m Part15/18		2011/01/11	2014/01/10
	IC listing 3699A-1 3m		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 Conducted emissions

Lab ID:	Lab 1
Manufacturer:	Rohde & Schwarz GmbH & Co.KG
Description:	EMI Conducted Auxiliary Equipment

Single Devices for Auxiliary Equipment for Conducted emissions

Single Device Name	Type	Serial Number	Manufacturer	
Cable "LISN to ESI"	RG214	W18.03+W48.03	Huber&Suhner	
	Calibration Details		Last Execution	Next Exec.
	Path Calibration		2010/11/06	2011/11/05
Two-Line V-Network	ESH 3-Z5	828304/029	Rohde & Schwarz GmbH & Co. KG	
Two-Line V-Network	ESH 3-Z5	829996/002	Rohde & Schwarz GmbH & Co. KG	
	Calibration Details		Last Execution	Next Exec.
	DKD calibration		2008/10/13	2011/10/12
	DKD calibration		2011/01/20	2013/01/19

Test Equipment Auxiliary Equipment for Radiated emissions

Lab ID: Lab 2
Description: Equipment for emission measurements
Serial Number: see single devices

Single Devices for Auxiliary Equipment for Radiated emissions

Single Device Name	Type	Serial Number	Manufacturer		
Antenna mast	AS 620 P	620/37	HD GmbH		
Biconical dipole	VUBA 9117	9117-108	Schwarzbeck	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Standard Calibration			2008/10/27	2013/10/26
Broadband Amplifier 18MHz-26GHz	JS4-18002600-32-5P	849785	Miteq	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
Broadband Amplifier 1GHz-4GHz	AFS4-01000400-1Q-10P-4	-	Miteq	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
Broadband Amplifier 30MHz-18GHz	JS4-00101800-35-5P	896037	Miteq	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
Cable "ESI to EMI Antenna"	EcoFlex10	W18.01-2+W38.01-2	Kabel Kusch	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
Cable "ESI to Horn Antenna"	UFB311A+UFB293C	W18.02-2+W38.02-2	Rosenberger Micro-Coax	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
Double-ridged horn	HF 906	357357/001	Rohde & Schwarz GmbH & Co. KG	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Standard Calibration			2009/04/16	2012/04/15
Double-ridged horn	HF 906	357357/002	Rohde & Schwarz GmbH & Co. KG	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Standard Calibration			2009/04/28	2012/04/27
High Pass Filter	4HC1600/12750-1.5-KK	9942011	Trilithic	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
High Pass Filter	5HC2700/12750-1.5-KK	9942012	Trilithic	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
High Pass Filter	5HC3500/12750-1.2-KK	200035008	Trilithic	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
High Pass Filter	WHKX 7.0/18G-8SS	09	Wainwright	<i>Last Execution</i>	<i>Next Exec.</i>
	<i>Calibration Details</i>				
	Path Calibration			2011/05/11	2011/11/10
Log.-per. Antenna	HL 562 Ultralog	830547/003	Rohde & Schwarz GmbH & Co. KG		

Single Devices for Auxiliary Equipment for Radiated emissions (continued)

Single Device Name	Type	Serial Number	Manufacturer	
Loop Antenna	Calibration Details		Last Execution	Next Exec.
	Standard Calibration		2009/05/27	2012/05/26
	HFH2-Z2	829324/006	Rohde & Schwarz GmbH & Co. KG	
	Calibration Details		Last Execution	Next Exec.
Network Analyzer	DKD calibration		2008/10/07	2011/10/06
	E5071B	MY42200813	Agilent	
	Calibration Details		Last Execution	Next Exec.
	Standard Calibration		2010/11/09	2011/11/09
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/024/3790709	Maturo GmbH	

Test Equipment Auxiliary Test Equipment

Lab ID:	Lab 2
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	Type	Serial Number	Manufacturer	
AC Power Source	Chroma 6404	64040001304	Chroma ATE INC.	
Broadband Power Divider 1506A / 93459 N (Aux)		LM390	Weinschel Associates	
Broadband Power Divider WA1515 SMA		A855	Weinschel Associates	
Digital Multimeter 03 (Multimeter)	Fluke 177	86670383	Fluke Europe B.V.	
	Calibration Details		Last Execution	Next Exec.
	Standard calibration		2009/10/07	2011/10/06
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, Lab 2

Description: Signalling equipment for various wireless technologies.

Single Devices for Digital Signalling Devices

Single Device Name	Type	Serial Number	Manufacturer	
Bluetooth Signalling Unit CBT CBT		100589	Rohde & Schwarz GmbH & Co. KG	
	Calibration Details		Last Execution	Next Exec.
	Standard Calibration		2008/08/14	2011/08/13
Universal Radio Communication Tester	CMU 200	102366	Rohde & Schwarz GmbH & Co. KG	
	HW/SW Status		Date of Start	Date of End
	Hardware: B11, B21V14, B21-2, B41, B52V14, B52-2, B53-2, B56V14, B68 3v04, PCMCIA, U65V04 Software: K21 4v21, K22 4v21, K23 4v21, K24 4v21, K42 4v21, K43 4v21, K53 4v21, K56 4v22, K57 4v22, K58 4v22, K59 4v22, K61 4v22, K62 4v22, K63 4v22, K64 4v22, K65 4v22, K66 4v22, K67 4v22, K68 4v22, K69 4v22 Firmware: µP1 8v50 02.05.06 ---		2007/07/16	
Universal Radio Communication Tester	CMU 200	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, B52-2, B53-2, B54V14, B56V14, B68 3v04, B95, PCMCIA, U65V02 SW options: K21 4v11, K22 4v11, K23 4v11, K24 4v11, K27 4v10, K28 4v10, K42 4v11, K43 4v11, K53 4v10, K65 4v10, K66 4v10, K68 4v10, Firmware: µP1 8v40 01.12.05 ---		2007/01/02	
	SW: K62, K69		2008/11/03	

Test Equipment Emission measurement devices

Lab ID: Lab 1, Lab 2
Description: Equipment for emission measurements
Serial Number: see single devices

Single Devices for Emission measurement devices

Single Device Name	Type	Serial Number	Manufacturer
Personal Computer	Dell	30304832059	Dell
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			2009/10/15 2011/10/14
Signal Generator	SMR 20	846834/008	Rohde & Schwarz GmbH & Co. KG
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

Test Equipment Multimeter 12

Lab ID: Lab 3
Description: Ex-Tech 520
Serial Number: 05157876

Single Devices for Multimeter 12

Single Device Name	Type	Serial Number	Manufacturer
Digital Multimeter 12 (Multimeter)	EX520	05157876	Extech Instruments Corp.
Calibration Details			Last Execution Next Exec.
Standard calibration			2009/10/07 2011/10/06

Test Equipment Shielded Room 02

Lab ID: Lab 1
Manufacturer: Frankonia
Description: Shielded Room for conducted testing
Type: 12 qm
Serial Number: none

Test Equipment Shielded Room 07

Lab ID: Lab 3
Description: Shielded Room 4m x 6m

Test Equipment T/H Logger 04

Lab ID: Lab 3
Description: Lufft Opus10
Serial Number: 7481

Single Devices for T/H Logger 04

Single Device Name	Type	Serial Number	Manufacturer
ThermoHygro DataloggerOpus10 THI (8152.00) 04 (Environ)		7481	Lufft Mess- und Regeltechnik GmbH

Test Equipment Temperature Chamber 01

Lab ID: Lab 3
Manufacturer: see single devices
Description: Temperature Chamber KWP 120/70
Type: Weiss
Serial Number: see single devices

Single Devices for Temperature Chamber 01

Single Device Name	Type	Serial Number	Manufacturer
Temperature Chamber Weiss 01	KWP 120/70	59226012190010	Weiss Umwelttechnik GmbH
Calibration Details		Last Execution	Next Exec.
Specific calibration		2010/03/16	2012/03/15

Test Equipment WLAN RF Test Solution

Lab ID: Lab 3
Manufacturer: 7 layers AG
Description: Regulatory WLAN RF Tests
Type: WLAN RF
Serial Number: 001

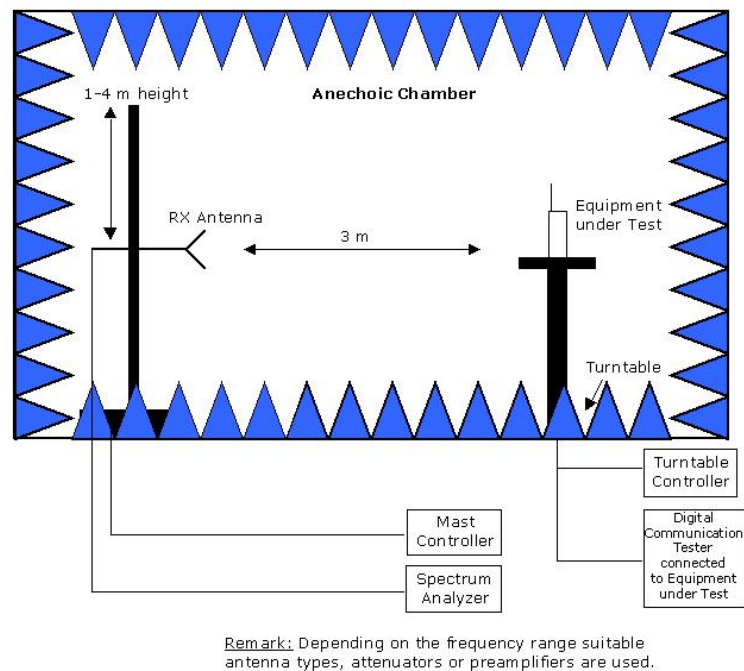
Single Devices for WLAN RF Test Solution

Single Device Name	Type	Serial Number	Manufacturer	
Arbitrary Waveform Generator	TGA12101	284482		
Power Meter NRVD	NRVD	832025/059	Last Execution	Next Exec.
	Calibration Details			
	Standard Calibration		2011/06/14	2012/06/13
Power Sensor NRV Z1 A	PROBE	832279/013		
	Calibration Details		Last Execution	Next Exec.
	Standard Calibration		2011/06/14	2012/06/13
Power Supply	NGSM 32/10	2725		
	Calibration Details		Last Execution	Next Exec.
	Standard Calibration		2011/06/15	2012/06/14
Rubidium Frequency Normal MFS	Datum MFS	002	Datum GmbH	
	Calibration Details		Last Execution	Next Exec.
	Standard Calibration		2011/08/17	2012/08/16
Signal Analyser FSIQ26	1119.6001.26	832695/007	Rohde & Schwarz GmbH & Co.KG	
Spectrum Analyser	FSU26	100136	Rohde & Schwarz GmbH & Co.KG	
	Calibration Details		Last Execution	Next Exec.
	Standard calibration		2011/05/11	2012/05/10
	HW/SW Status		Date of Start	Date of End
	FSU FW Update to v4.31 SP1, K5 v4.31 and K73 v4.31		2010/02/17	
TOCT Switching Unit	Switching Unit	030106	7 layers, Inc.	
Vector Signal Generator SMIQ03B	SMIQ03B	832870/017		
	Calibration Details		Last Execution	Next Exec.
	Standard Calibration		2010/06/23	2013/06/20

5 Photo Report

Photos are included in an external report.

6 Setup Drawings



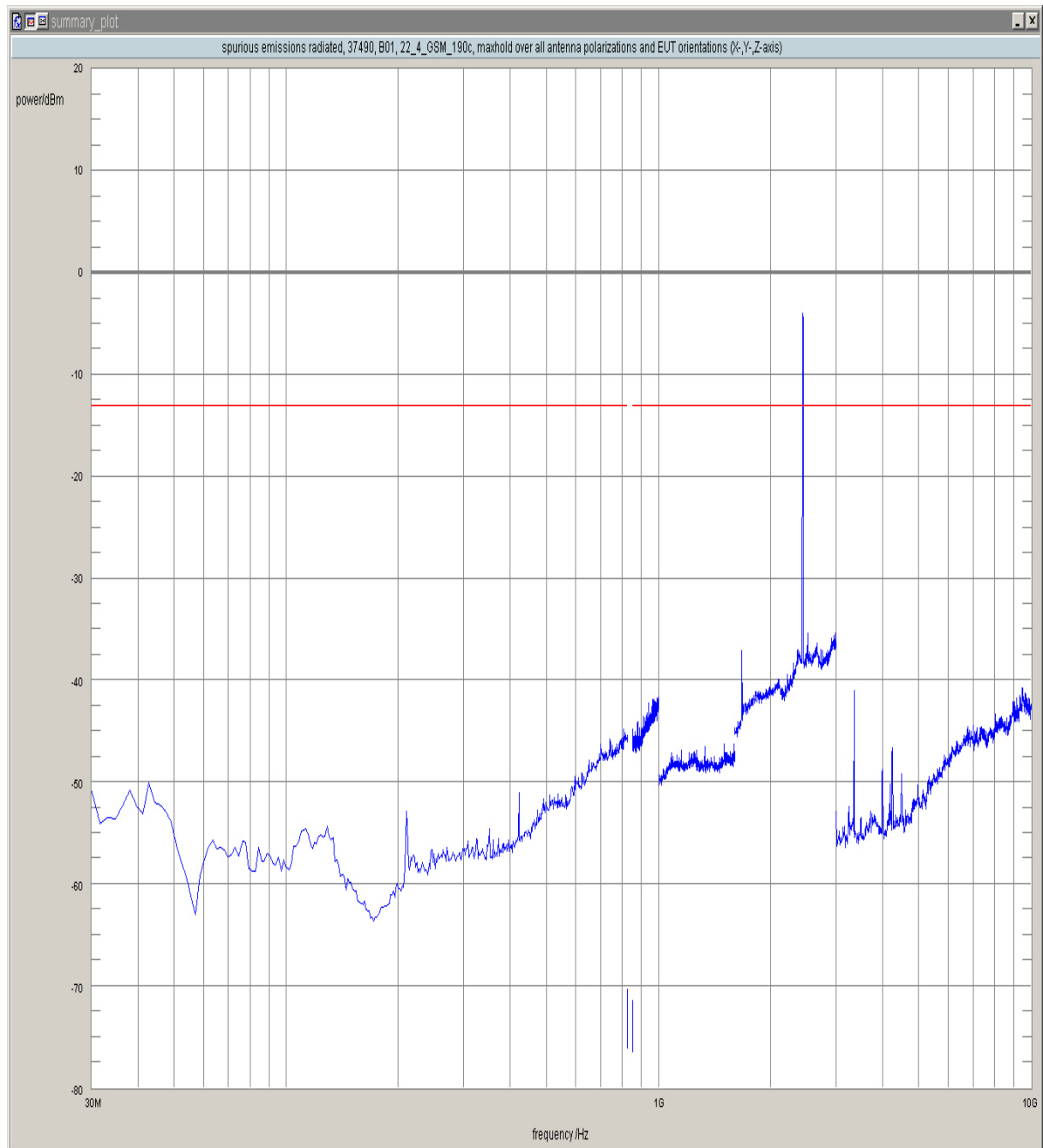
Drawing 1: Setup in the Anechoic chamber.

7 Annex measurement plots

7.1 Spurious radiated emissions

Op. Mode

op-mode 1



Op. Mode

op-mode 2

