InterLab®

FCC Measurement/Technical Report on

GSM/UMTS PCMCIA Card

GlobeTrotter Express HSUPA E
GE0301

Report Reference: MDE_Opti_0702_FCCza

Test Laboratory:

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Deutscher Akkreditierungs Rat
DAT-P-192/99-01

CTIA Authorized Test Lab
LAB CODE 20011121-00

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 testing laboratory.

Table of Contents

0 Summary

0.1 Technical Report Summary

Type of Authorization
Certification for a GSM cellular radiotelephone device

Applicable FCC Rules

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 0 to 19 and Parts 20 to 69 (10-1-06 Edition). The following subparts are applicable to the results in this test report.

Part 2
Subpart J - Equipment Authorization Procedures, Certification

§ 2.1046 Measurement required: RF power output

Part 22
Subpart H – Cellular Radiotelephone Service

Part 24
Subpart E - Broadband PCS

Summary Test Results:

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

0.2 Measurement Summary

RF Power Output			
The measurement was performed according to FCC §2.1046			10-1-06
OP-Mode	**Setup**	**Port**	**Final Result**
op-mode 1-3	Setup_b01	antenna connector	passed
op-mode 4-6	Setup_a01	antenna connector	passed
Frequency stability			
The measurement was performed according to FCC §2.1055			10-1-06
OP-Mode	**Setup**	**Port**	**Final Result**
			N/P
Spurious emissions at antenna terminals			
The measurement was performed according to FCC §2.1051			10-1-06
OP-Mode	**Setup**	**Port**	**Final Result**
			N/P
Field strength of spurious radiation			
The measurement was performed according to FCC §2.1053			10-1-06
OP-Mode	**Setup**	**Port**	**Final Result**
			N/P
Emission and Occupied Bandwidth			
The measurement was performed according to FCC §2.1049			10-1-06
OP-Mode	**Setup**	**Port**	**Final Result**
			N/P
Band edge compliance			
The measurement was performed according to FCC §24.238			10-1-06
OP-Mode	**Setup**	**Port**	**Final Result**
			N/P

N/P: not performed

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Responsible for Accreditation Scope: T. Koch

Responsible for Test Report: A. Pet

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:

- Deutscher Akkreditierungs Rat	DAR-Registration no. DAT-P-192/99-01
Responsible for Accreditation Scope:	Dipl.-Ing. Bernhard Retka Dipl.-Ing. Robert Machulec Dipl.-Ing. Thomas Hoell
Report Template Version:	2007-07-20

1.2 Project Data

Responsible for testing and report:	Dipl.-Ing. Andreas Petz
Receipt of EUT:	See chapter 2.2
Date of Test(s):	2007-04-21 to 2007-05-02
Date of Report:	2007-07-20

1.3 Applicant Data

Company Name:	Option NV
Address:	Gaston Geenslaan 14 3001 Leuven Belgium
Contact Person:	Mr. Lodeweyckx

1.4 Manufacturer Data

Company Name:	please see applicant data
Address:	
Contact Person:	

2 Testobject Data

2.1 General EUT Description

Equipment under Test:	GSM/UMTS PCMCIA Card
Type Designation:	GlobeTrotter Express HSUPA E, GE0301
Kind of Device:	GSM 850/900/1800/1900 + UTRA FDD I/II/V
(optional)	including HSDPA + HSUPA
Voltage Type:	DC
Nominal Voltage:	3.5 V
Maximum Voltage:	3.5 V
Minimum Voltage:	3.15 V

General product description:

The Equipment under Test (EUT) is a data card that supports GSM/EDGE 850/900/1800/1900 and FDD I, II and V with HSDPA and HSUPA.
The manufacturer declared that nominal voltage is equal to high voltage.

The EUT provides the following ports:

Ports
antenna connector
enclosure

The main components of the EUT are listed and described in Chapter 2.2

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: 37230L09)	GlobeTrotter Express HSUPA E	GE0301	EE4473100L	4.0	2.2.2	2007-04-11
Remark: EUT is equipped with an integral antenna (gain= 2.10 dBi) and a permanent antenna connector						
EUT B (Code: 37230R12)	GlobeTrotter Express HSUPA E	GE0301	EE4473V09H	4.0	2.4.0	2007-05-02
Remark: EUT is equipped with an integral antenna (gain= 2.10 dBi) and a permanent antenna connector						

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
AE1	Laptop, Maxdata	Eco 4200x	-	-	G0662120008	-

2.4 EUT Setups

This chapter describes the combination of EUT's and ancillary equipment used for testing.

Setup No.	Combination of EUTs	Description
setup_a01	EUT A + AE1	PC card inserted into the laptop
setup_b01	EUT B + AE1	PC card inserted into the laptop

2.5 Operating Modes

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

Op. Mode	Description of Operating Modes	Remarks
	UTRA FDD II HSDPA	
op-mode 1	Call established on Traffic Channel (TCH) 9262, Carrier Frequency 1852.4 MHz	9262 is the lowest channel FDD II data call
op-mode 2	Call established on Traffic Channel (TCH) 9400, Carrier Frequency 1880 MHz	9400 is a mid channel FDD II data call
op-mode 3	Call established on Traffic Channel (TCH) 9538, Carrier Frequency 1907.6 MHz	9538 is the highest channel FDD II data call
	UTRA FDD V HSDPA	
op-mode 4	Call established on Traffic Channel (TCH) 4132, Carrier Frequency 826.4 MHz	4132 is the lowest channel FDD V data call HSUPA
op-mode 5	Call established on Traffic Channel (TCH) 4183, Carrier Frequency 836.6 MHz	4183 is a mid channel FDD V data call HSUPA
op-mode 6	Call established on Traffic Channel (TCH) 4233, Carrier Frequency 846.6 MHz	4233 is the highest channel FDD V data call HSUPA

Subtests: (see Annex C of 3GPP TS 34.121, Table C.10.1.4)

Sub-test	**βc**	**βd**	**βd (SF)**	**βc / βd**	**βHS** (Note1, Note 2)	**CM (dB)** (Note 3)	**MPR (dB)** (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c , and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c .

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

3 Test Results

3.1 RF Power Output

Standard FCC Part 22, 10-1-06 Subpart H | FCC Part 24, 10-1-06 Subpart E

The test was performed according to: FCC §2.1046, 10-1-06

3.1.1 Test Description

For performing the output power measurement the validated test platform TS8950 GW by Rohde & Schwarz was used.
The measured output power is an RMS value according to 3GPP requirements for 3G devices and was measured at the antenna connector of the EUT.

3.1.2 Test Requirements / Limits

§2.1046 Measurements Required: RF Power Output

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c)(8). The electrical characteristics of the output terminals when this test is made shall be stated.

§22.913 Effective radiated power limits

(a) Maximum ERP. … The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

§24.232 Power and antenna height limits

(c) Mobile/portable stations are limited to 2 watts EIRP peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

(d) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

3.1.3 Test Protocol

Temperature: 24 °C
Air Pressure: 1004 hPa
Humidity: 24 %

Op. Mode	Setup	Port
see table below	a01	antenna connector

subtest	op-mode	max. output power/dBm (RMS)
1	4	21.0
1	5	20.8
1	6	20.8
2	4	21.1
2	5	20.8
2	6	20.7
3	4	21.0
3	5	20.8
3	6	20.7
4	4	21.1
4	5	20.8
4	6	20.8

Remark: none

Temperature: 23 °C
Air Pressure: 1009 hPa
Humidity: 25 %

Op. Mode	Setup	Port
see table below	b01	antenna connector

subtest	op-mode	max. output power/dBm (RMS)
1	1	21.8
1	2	22.0
1	3	21.4
2	1	22.0
2	2	22.0
2	3	21.4
3	1	21.8
3	2	22.0
3	3	21.5
4	1	21.8
4	2	21.9
4	3	21.5

Remark: none

3.1.4 Test result: RF Power Output

FCC Part 24, Subpart E	Test Setup	Result
	a01	passed
	b01	passed

4 Test Equipment

TS8950GW

Name of Device	Type	Serial Number	Manufacturer
Spectrum Analyser	FSU26	100136	Rohde & Schwarz GmbH & Co.KG: ...
Dual Channel Power meter	NRVD	100668	Rohde & Schwarz GmbH & Co.KG: ...
Diode Power Sensor	NRV-Z1	100149	Rohde & Schwarz GmbH & Co.KG: ...
Diode Power Sensor	NRV-Z1	100052	Rohde & Schwarz GmbH & Co.KG: ...
Signal Generator	SMP02	100129	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMIQ B3	101698	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMIQ B3	101699	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMIQ B3	100580	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMIQ B3	100582	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMIQ B3	100583	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMIQ B3	832492/061	Rohde & Schwarz GmbH & Co.KG: ...
GSM Signaling Unit	CRTU-G	100025	Rohde & Schwarz GmbH & Co.KG: ...
W-CDMA Signaling Unit	CRTU-W	100033	Rohde & Schwarz GmbH & Co.KG: ...
Power Supply	NGSM 32/10 DC	100043	Rohde & Schwarz GmbH & Co.KG: ...
System Controler	TS-PC 36	100016	Rohde & Schwarz GmbH & Co.KG: ...
Advanced Signal Conditioning Unit	ASCU850	100009	Rohde & Schwarz GmbH & Co.KG: ...
Advanced Signal Conditioning Unit	ASCU900	100015	Rohde & Schwarz GmbH & Co.KG: ...
Advanced Signal Conditioning Unit	ASCU1800	100023	Rohde & Schwarz GmbH & Co.KG: ...
Advanced Signal Conditioning Unit	ASCU1900	100018	Rohde & Schwarz GmbH & Co.KG: ...
Fading Simulator	ABFS	100041	Rohde & Schwarz GmbH & Co.KG: ...
Fading Simulator	ABFS	100047	Rohde & Schwarz GmbH & Co.KG: ...
Protocol Unit W-CDMA	CRTU-PU	100046	Rohde & Schwarz GmbH & Co.KG: ...
Industrial System Controler (spare)	PSL3		Rohde & Schwarz GmbH & Co.KG: ...
Industrial System Controler	PSL3	100035	Rohde & Schwarz GmbH & Co.KG: ...
Advanced Signal Conditioning Unit	ASCU FDD I+II	100002	Rohde & Schwarz GmbH & Co.KG: ...
Radio Unit W-CDMA	CRTU-RU	100035	Rohde & Schwarz GmbH & Co.KG: ...
Signal Switching and Conditioning Unit	SSCU-GW	100020	Rohde & Schwarz GmbH & Co.KG: ...
Fading Simulator	ABFS	100040	Rohde & Schwarz GmbH & Co.KG: ...
Distribution Unit		100025	Rohde & Schwarz GmbH & Co.KG: ...
Spectrum Analyser	FSU26	100090	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMU200A	101498	Rohde & Schwarz GmbH & Co.KG: ...
Vector Signal Generator	SMU200A	101499	Rohde & Schwarz GmbH & Co.KG: ...
Advanced Signal Conditioning Unit	ASCU FDD V	100014	Rohde & Schwarz GmbH & Co.KG: ...
SSCU Signal switching and conditioning...	SSCU-EXT	100010	Rohde & Schwarz GmbH & Co.KG: ...
TS-COMB Combiner Box	TS-COMB	100004	Rohde & Schwarz GmbH & Co.KG: ...
CS-HUB Ethernet Hub / Optical Output	CS-HUB	100028	Rohde & Schwarz GmbH & Co.KG: ...
CS- TRIGA Trigger amplifier	CS- TRIGA	100041	Rohde & Schwarz GmbH & Co.KG: ...
ADU 200 Relay Box 5	Relay Box	A04388	Ontrak Control Systems Inc.: Mr. Fortin
Radio Unit W-CDMA	CRTU-RU	100212	Rohde & Schwarz GmbH & Co.KG: ...
Advanced Signal Conditioning Unit	ASCU IV-IX	100009	Rohde & Schwarz GmbH & Co.KG: ...

5 Photo Report

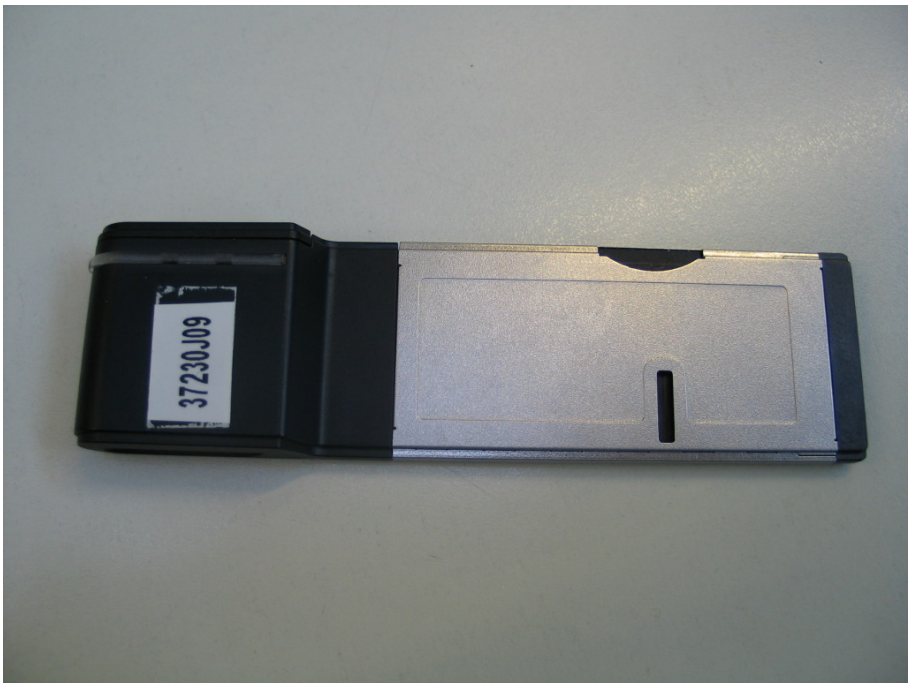

Photo 1: EUT (top side)

Photo 2: EUT (bottom side)

Photo 3: EUT (view to antenna connector)