

TEST REPORT FROM RFI GLOBAL SERVICES LTD



Test of: Tablet PC T-C12-R1.0A-V1 C12

FCC ID: W5MTOBIIC12B

IC Certification Number: 8099A-TOBIIC12B

To: FCC Parts 22.913(a) & Part 24.232; Industry Canada RSS-132(4.4) &
RSS-133(6.4)

Test Report Serial No:
RFI-RPT-RP80826JD06C

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:		
Checked By:	Ian Watch	
Signature:		
Date of Issue:	29 July 2011	

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Table of Contents

1. Customer Information	4
2. Summary of Testing	5
2.1. General Information	5
Summary of Test Results	6
2.2. Methods and Procedures	6
2.3. Deviations from the Test Specification	6
3. Equipment Under Test (EUT)	7
3.1. Identification of Equipment Under Test (EUT)	7
3.2. Description of EUT	7
3.3. Modifications Incorporated in the EUT	7
3.4. Additional Information Related to Testing	8
4. Operation and Monitoring of the EUT during Testing	9
4.1. Operating Modes	9
4.2. Configuration and Peripherals	9
5. Measurements, Examinations and Derived Results	10
5.1. General Comments	10
5.2. Test Results - Part 22 & RSS-132	11
5.2.1. Transmitter Output Power (ERP)	11
5.3. Test Results - Part 24 & RSS-133	12
5.3.1. Transmitter Output Power (EIRP)	12
6. Measurement Uncertainty	13
Appendix 1. Test Equipment Used	14

1. Customer Information





Company Name:	Tobii Technology AB
Address:	Karlsrovägen 2D 7th floor Danderyd 182 53 Sweden

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 24 Subpart E (Personal Communication Services)
Specification Reference:	RSS-132 Issue 2 Sep 2005
Specification Title:	Cellular Telephones Employing New Technologies Operating in the Bands 824-849 MHz and 869-894 MHz
Specification Reference:	SRSP-503 Issue 7 Sep 2008
Specification Title:	Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824 – 849 MHz and 869 – 894 MHz
Specification Reference:	RSS-133 Issue 5 Feb 2009
Specification Title:	2 GHz Personal Communications Services
Specification Reference:	SRSP-510 Issue 5 Feb 2009
Specification Title:	Technical Requirements for Personal Communications Services (PCS) in the Bands 1850-1915 MHz and 1930-1995 MHz
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH
Test Date:	11 July 2011

Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
Part 22 & RSS-132			
Part 22.913(a)	RSS-132 4.4 SRSP-503 5.1.3	Transmitter Output Power (ERP)	
Part 24 & RSS-133			
Part 24.232	RSS-133 6.4 SRSP-510 5.1.2	Transmitter Output Power (EIRP)	
Key to Results  = Complied  = Did not comply			

2.2. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
Reference:	ANSI C63.4 (2009)
Title:	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.

2.3. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Tobii
Model Name or Number:	T-C12-R1.0A-V1 C12
IMEI:	357749034833617
Hardware Version Number:	Not Stated
Software Version Number:	Windows 7 Home Premium
FCC ID:	W5MTOBIIC12B
IC Certification Number:	8099A-TOBIIC12B

3.2. Description of EUT

The equipment under test was a tablet PC. It contained a quad band GSM module, a WiFi 802.11b/g/n module and a V2.0 Bluetooth module.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Type of Radio Device:	Transceiver		
Mode:	GSM		
Modulation Type:	GMSK		
Channel Spacing:	200 kHz		
Power Supply Requirement(s):	Nominal	120 VAC 60 Hz	
Technology Tested:	GSM850		
Maximum Output Power (ERP):	13.8 dBm		
Transmit Frequency Range:	824 to 849 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	824.2
	Middle	190	836.6
	Top	251	848.8
Receive Frequency Range:	869 to 894 MHz		
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	869.2
	Middle	190	881.6
	Top	251	893.8
Technology Tested:	PCS1900		
Maximum Output Power (EIRP):	20.3 dBm		
Transmit Frequency Range:	1850 to 1910 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8
Receive Frequency Range:	1930 to 1990 MHz		
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Constantly transmitting at full power on bottom, middle and top channels as required.
- ERP/EIRP tests were performed with the EUT in circuit switched single timeslot mode.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Connected to a GSM system simulator, operating in transceiver mode.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6 measurement uncertainty* for details.

5.2. Test Results - Part 22 & RSS-132

5.2.1. Transmitter Output Power (ERP)

Test Summary:

Test Engineer:	Nick Steele	Test Date:	11 July 2011
Test Sample IMEI:	357749034833617		

FCC Part:	22.913(a)
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	29
Relative Humidity (%):	19

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Horizontal	13.1	38.45	25.35	Complied
Middle	836.6	Horizontal	13.8	38.45	24.65	Complied
Top	848.8	Horizontal	13.0	38.45	25.45	Complied

Note(s):

1. SRSP-503 states the limit as an EIRP value of 11.5 Watts (40.6 dBm) which equates to an ERP limit of 7 Watts (38.45 dBm).
2. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

5.3. Test Results - Part 24 & RSS-133

5.3.1. Transmitter Output Power (EIRP)

Test Summary:

Test Engineer:	Nick Steele	Test Date:	11 July 2011
Test Sample IMEI:	357749034833617		

FCC Part:	24.232
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	29
Relative Humidity (%):	19

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	20.3	33.0	12.7	Complied
Middle	1879.8	Vertical	18.7	33.0	14.3	Complied
Top	1909.8	Vertical	16.0	33.0	17.0	Complied

Note(s):

1. Measurements above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Effective Radiated Power (ERP)	824 to 849 MHz	95%	±2.94 dB
Effective Isotropic Radiated Power (EIRP)	1850 to 1910 MHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (months)
A288	Antenna	Chase	CBL6111A	1589	05 Sep 2011	12
A553	Antenna	Chase	CBL6111A	1593	26 Mar 2012	12
A1393	Attenuator	Huber & Suhner	757456	6820.17.B	08 Jul 2012	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	20 Jun 2012	12
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
A1817	Antenna	EMCO	3115	00075692	03 Feb 2012	12
A1834	Attenuator	Hewlett Packard	8491B	10444	26 Jul 2012	12
A1970	Pre Amplifier	Hewlett Packard	N/A	N/A	30 Sep 2011	12
K0002	5m RSE Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	29 Jun 2012	12
M1273	Test Receiver	Rohde & Schwarz	ESIB26	100275	04 Feb 2012	12

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.